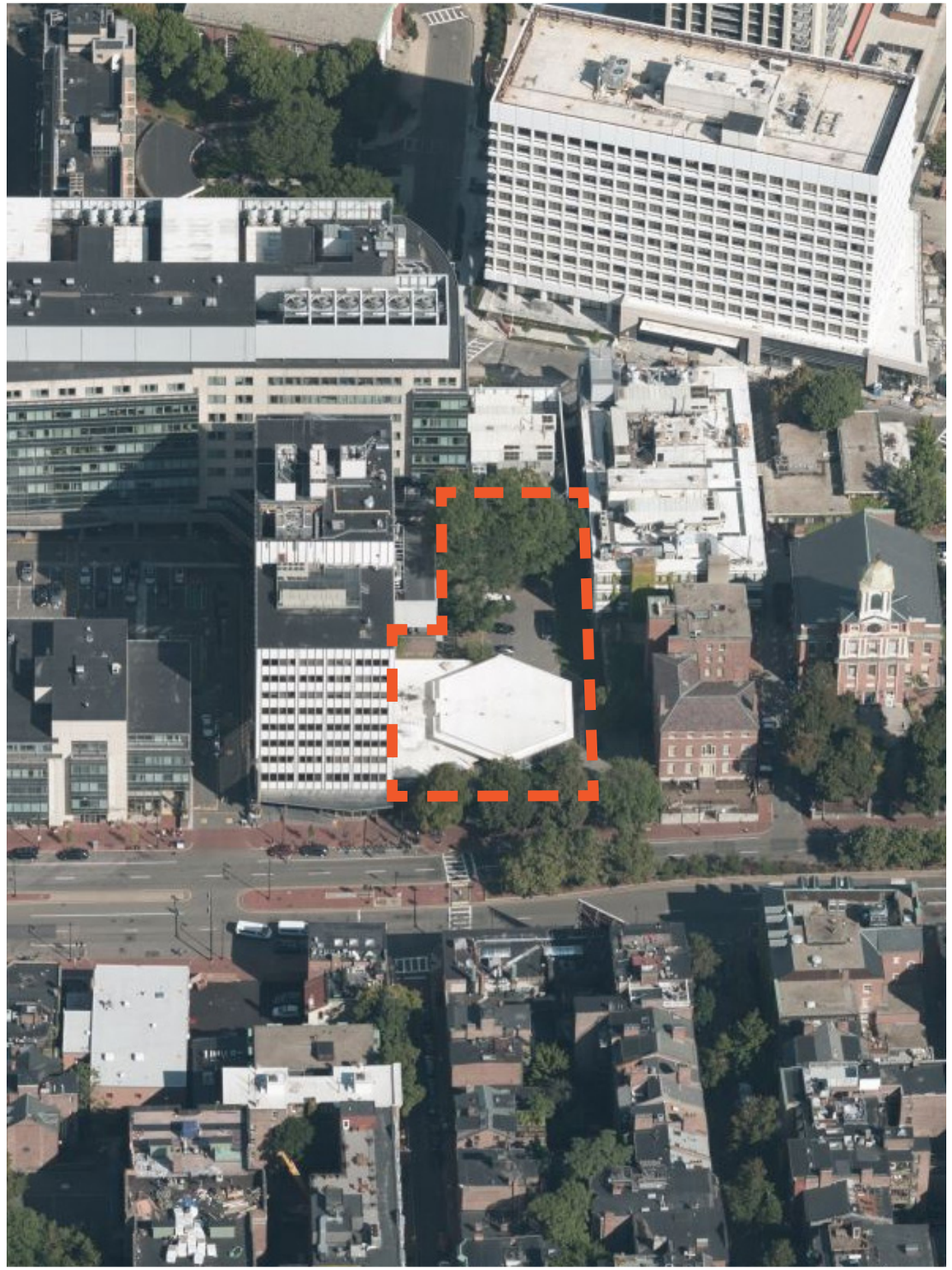
Programming Study

Boston Public Library
West End Branch

City of Boston
Kim Janey, Mayor
Dion Irish, Chief of Operations
Boston Public Library
David Leonard, President
Public Facilities Department
Kerrie Griffin, Director
Department of Neighborhood Development
Sheila Dillon, Director
Aisha Miller, Chief of Civic Engagement

AnnBehaArchitects

October 2021



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EXECUTIVE SUMMARY

INTRODUCTION

Ann Beha Architects (ABA) was hired by the City of Boston's Public Facilities Department (PFD), in collaboration with the Boston Public Library (BPL) and the Department of Neighborhood Development (DND), to perform a study of the potential of the existing West End branch of the Boston Public Library for replacement. The existing library did not meet the BPL's Compass goals. Additionally, City of Boston's 2030 Goals prioritize affordable housing, inclusive development, and walkable neighborhoods. The city's Housing with Public Assets (HWPA) initiative has provided a model for incorporating housing with municipal uses and aims to create more equitable and inclusive community assets where all residents can thrive. This study explores the potential for mixed-use development at the site, a strategy that has been successfully used nationwide to combine libraries with affordable housing in cities including Chicago, Brooklyn, and Milwaukee.

PROCESS AND SCHEDULE

The study included three phases, conducted from June 2020 to October 2021: Information Gathering, Development of Programmatic Options, and this Final Report. The design team collaborated with the working group, which included members of PFD, BPL, and DND, to develop and review a number of planning options. A series of three public meetings were held virtually, due to the Covid-19 Pandemic, in order to update the public on the draft study information and receive feedback on both the library and housing portions of the project. The virtual presentations were available at the library and were posted on the BPL's branch web page. The final public meeting, held May 2021, presented the test-fit options to the community for comment.

INFORMATION GATHERING

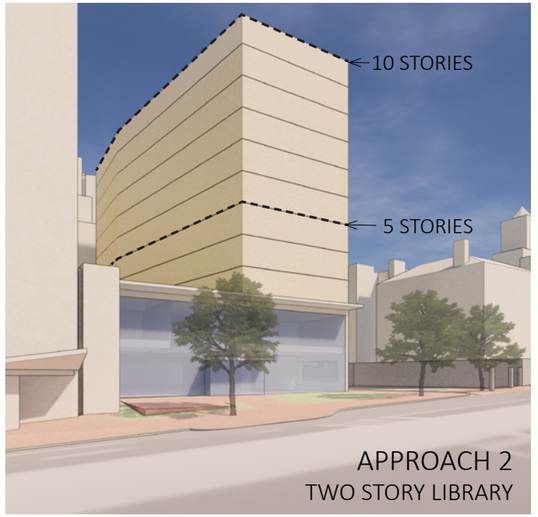
The first phase of the project examined the current conditions of the 10,030 gross square foot library branch building systems and site. The existing building assessment identifies the conditions of the current facility, noting that the existing library spaces are undersized for current library functions and the building envelope and systems do not meet current standards for energy efficiency. The team also reviewed demographic information to identify future trends and existing needs. Additionally, local zoning, existing site conditions, adjacent building heights and neighborhood densities were reviewed to provide a framework for urban development.

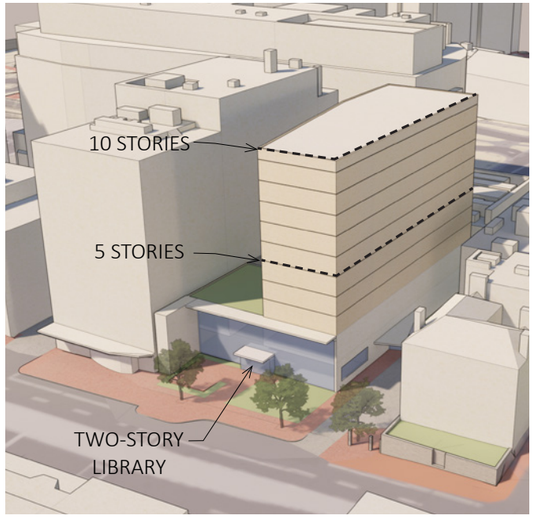
DEVELOPMENT OF PROGRAMMATIC OPTIONS

In the second phase, ABA worked with BPL to develop programmatic requirements for the branch to meet current and future needs. BPL set targets for shelving capacity for the branch's collections, desired amounts of seating, and flexible program and meeting spaces. Spatial requirements were based on BPL's standards for functional spaces. The developed program represents a library with a 17,130-17,610 gross square foot area, or a 70% increase to the existing library's 10,030 foot size. The program includes growth in all functional areas of the existing library, and is in line with comparable BPL branches and Compass Principles.

The community provided feedback on the proposed program during the community meetings as well as through an online survey. The community meetings also addressed affordable housing, including discussions of unit types, ownership models, levels of affordability and how housing would coordinate with the library.

ABA worked with Boehm Architecture to develop a housing program for the mixed-use project. The housing program used as a placeholder, studio, 1, 2 and 3 bedroom units, a separate housing entry, services, and cores. The team provided separate building systems recommendations for the library and for the housing, using the Passive House system as a guide for the approach that includes a high performance building envelope and all-electric mechanical systems. ABA then developed multiple scenarios for how the proposed mixed-use program could fit on the site to test constraints and opportunities.





ABA explored both a one- and two-story library with basement options for the site.

Approach 1 (as shown in the massing diagrams above) shows a one-story library that is able to provide nearly the full program. However, the ground floor footprint occupies nearly the entire site.

Approach 2 shows a two-story option that meets the program goals while allowing for a larger public open space at the front of the building and more generous layouts for the library program inside.

This study explored a range of heights for the residential tower ranging from 4 to 9 stories of housing, with a total building height of 5 to 10 stories. Different approaches to the housing unit mix were also tested with each of the options, looking at an emphasis on studio and 1-bedroom units in Approach 1 (better suited for senior residents) and a greater emphasis on two and three-bedroom units for families in Approach 2. These are meant to demonstrate two different approaches to the unit mix, and should not be considered exclusive to the library Approach 1 or Approach 2.

The community feedback at the remote public meeting on May 11, 2021 was very supportive of the mixed-use development of the library test fits. Please see meeting notes in the appendix for more information.

FINAL REPORT

The third phase of the study consolidated the findings and approaches into this final report document with all study information, community feedback and detailed cost estimates. The cost estimates include construction cost for both the library fit-out and the developer cost of the core building and housing program. The library fit out cost includes furniture and equipment, audio visual, technology, and operational equipment costs. A pro forma for the housing portion of the project is also provided.

NEXT STEPS

The study will be submitted for approval and funding in the City's Capital Plan. Once approved and funded, DND will continue neighborhood engagement on affordable housing issues, before a Request for Proposals (RFP) is advertised for development. PFD will advertise for a design team to assist the BPL, the community and developer on the mixed-use facility and library fit out.

1. PROJECT BACKGROUND

1.1 PROJECT TEAM

CITY OF BOSTON PUBLIC FACILITIES DEPARTMENT
Kerrie Griffin, Director
Paul Donnelly, Assistant Director
Maureen Anderson, Senior Project Manager

BOSTON PUBLIC LIBRARY
David Leonard, President
Michael Colford, Director of Library Services
Eamon Shelton, Director of Operations
Alison Ford, Major Projects Program Manager
Priscilla Foley, Director of Neighborhood Services
Laura Irmscher, Chief of Collections
Kelly Hall, Major Project Coordinator

DEPARTMENT OF NEIGHBORHOOD DEVELOPMENT
Sheila Dillon, Director
Taylor Cain, Director of Mayor's Housing Innovation Lab
Joseph Backer, Housing Development Officer

MAYOR'S OFFICE OF NEIGHBORHOOD SERVICES
Aisha Miller, Chief of Civic Engagement
John Romano, Neighborhood Liaison

PROJECT CONSULTANTS

ARCHITECT:
ANN BEHA ARCHITECTS
33 Kingston St., Boston, MA 02111

AFFORDABLE HOUSING:
BOEHM ARCHITECTURE
561 Windsor St. #A402, Somerville, MA 02143

CIVIL:
VHB ENGINEERING
101 Walnut St., Watertown, MA 02471

LANDSCAPE:
IBI PLACEMAKING
21 Custom House St. 3rd Floor, Boston, MA 02110

STRUCTURAL:
RSE ASSOCIATES
63 Pleasant St., Watertown, MA 02472

MEP/FP:
AHA ENGINEERING
24 Hartwell Ave. #3, Lexington, MA 02421

Code:
Code Red
154 Turnpike Rd. #200, Southborough, MA 01772

COST ESTIMATING:
A.M. FOGARTY & ASSOCIATES
175 Derby St., Higham, MA 02043

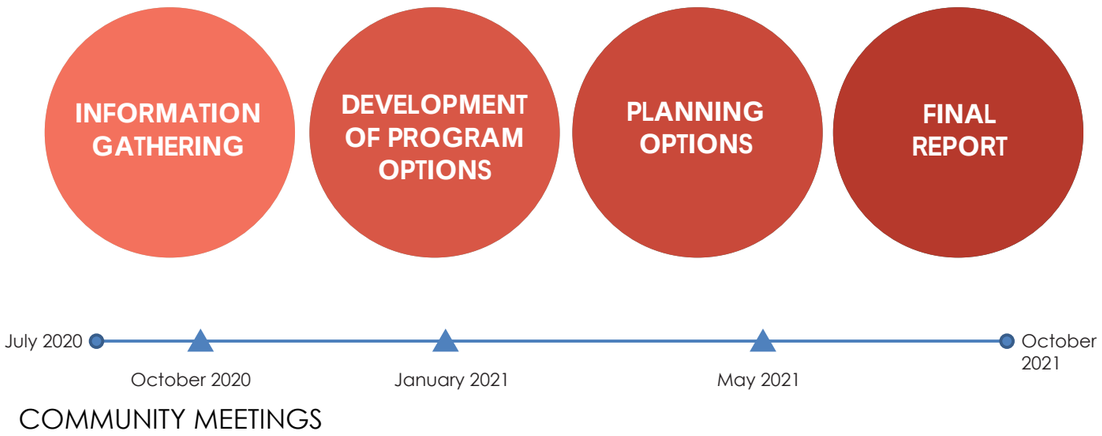
1.2 PROJECT SCHEDULE & PROCESS

A series of three Community Meetings were held to engage the community in the development of the program and test fit options. All community presentations were open to all members of the community and not restricted to a Community Advisory Committee (CAC). The meetings were scheduled in coordination with the Mayor's Office of Neighborhood Services' (MONS) neighborhood liaisons for the West End. Staff announced library study meetings at monthly neighborhood meetings. Meeting fliers in English and Spanish were posted on the BPL Branch Project website and distributed to the community. Meeting notices were done approximately three weeks before the meeting and a second outreach effort was made a week before the meeting. The Department of Neighborhood Development's (DND) housing outreach also announced community meetings times and dates.

Following State and City COVID-19 public meeting protocols, all meetings were held remotely utilizing the ZOOM web platform. Translation was provided for all community meetings. The meetings included time for discussion and allowed submission of questions via the chat function. Meetings notices were posted with the City Clerk 48 hours before the meeting presentations. Meetings notes and presentations were posted to the BPL Branch Project website following the meetings and have been included in the Appendix of this report. These documents were also made available as a hard copy at the branch library.

A public online survey was available in English and Spanish through a link on the BPL Branch Project website. The link for the survey was also shared at each community meeting. The survey responses that were received have been included in the Appendix of this report.

The project team coordinated with MONS to identify and reach out to neighborhood groups. The community meetings were scheduled to avoid dates that conflicted with regular neighborhood group meetings. MONS coordinated with community members to create a community advisory committee. Letters and feedback regarding the study were received from individuals and community groups and have been included in the Appendix of this report.



COMMUNITY MEETINGS

COMMUNITY FEEDBACK FORM- AVAILABLE ONLINE IN ENGLISH AND SPANISH

West End Community Feedback

The Boston Public Library and the City of Boston Public Facilities Department is undertaking a study to improve the West End Branch Library and increase the city's housing. This study will address the existing conditions of the library and opportunities and needs for future renovations or a new facility and housing. Your perspective is welcome and needed related to the mission, services, experiences, and daily life with the library. This survey coincides with the first community meeting and will lay the groundwork for workshop dialogue. You do not need to answer all of the questions, feel free to pick and choose related to your interests. Please only submit one survey per person. If you want to add to an existing response or retract a response from the survey, please let us know via email.

Thank you and we look forward to reviewing your thoughts!

BOSTON PUBLIC LIBRARY
AnnBehaArchitects

1. What is your zip code?

2. What is your age range?

17 or under
18-24
25-34
35-64
65 or over

3. How often do you visit the West End Branch?

Daily
Once a week
Couple times a month
Once a month or less

4. How do you usually get to the West End Branch?

- [ ] Walk
- [ ] Bike
- [ ] Car
- [ ] Public transit
- [ ] Other:

5. The best thing about the West End branch is (example: location, collections, staff, etc.)...

6. The spaces I use the most at the Library are...

- [ ] Teen area
- [ ] Children's area
- [ ] Community room
- [ ] General seating
- [ ] Adult computers
- [ ] Borrower's desk
- [ ] Holds pickup
- [ ] Other:

7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...

8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)...

9. What aspects of the existing library would be nice to see in a new facility?

10. What new, different, or expanded collections would you like to see in the branch?

11. This neighborhood is unique because (example: history, location, etc.)...

12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...

13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...

If you want to provide additional comments and feedback, please contact:

Priscilla Foley

Director of Neighborhood Services, Boston Public Library

pfoley@bpl.org

1.3 BRANCH LIBRARY HISTORY

Before the urban renewal project of 1957.

The West End Branch Library sits at the southeast corner of a unique neighborhood of Boston, notorious for a historic chapter in the story of mid-century urban renewal. Much of the land on which the West End neighborhood lies is the product of land reclamation. Beginning in 1807, parts of Beacon Hill were used to fill in a small bay and mill pond that separated Beacon Hill and the West End from the North End.

In the late 18th and early 19th centuries, Boston's waterfront and North End were becoming overcrowded, and many of the city's well off residents took the opportunity to develop the area now known as the West End. The architect Charles Bulfinch played a large role in the development of the West End. One of the most famous examples of his mansions was the first Harrison Gray Otis House; one of the few buildings that survived Urban Renewal in the West End.

From the second half of the 19th century to the mid-20th century, Boston's West End became home to many different immigrant groups and turned into a working poor residential area with scattered businesses. As part of a plan to create a "New Boston", the Boston Housing Authority (BHA) and its 1957 successor, the Boston Redevelopment Authority, replaced neighborhoods that had been classified as slums with neighborhoods that would bring in increased tax revenues. This neighborhood was not considered a slum by the residents, and instead had a strong sense of community. The plan involved completely leveling a 46-acre portion of the West End, displacing 2,700 families to make way for 5 residential high rise complexes. The new development was aimed towards upper middle class residents. Many building owners were not adequately compensated for their property and most of those displaced would not be able to afford to return.

Directly after the urban renewal project of 1957.

Today, the West End is a mixed-use residential and commercial area. A few non-residential areas were spared from the urban renewal, such as Massachusetts General Hospital, the Charles Street Jail, and the Bulfinch Triangle. The character of the area prior to the urban renewal can still be seen in existing commercial and mixed use building of the Bulfinch Triangle. The residential areas that have been rebuilt are primarily upscale high-rises, though the neighborhood is currently making strides to re-establish the close knit community that once was.

Source: https://westendplace.org/neighborhood/

LIBRARY HISTORY

"Library service in the West End neighborhood began on February 8, 1896, when the Old West Church on the corner of Cambridge and Lynde Streets was converted for library use. The branch remained there until its closure in 1960, due to the West End Redevelopment Project. The branch moved to a temporary location on the corner of Cambridge and Joy Streets and then to its current location in 1968, in a new building designed by architects Maginnis, Walsh, and Kennedy."

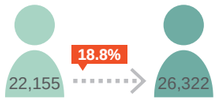
Source: https://www.bpl.org/about-west-end/

The 20,220 sf library site at 151 Cambridge Street was created through Urban Renewal.

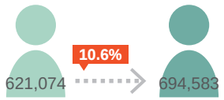
1.4 DEMOGRAPHICS

OVERVIEW

The West End Library Service Area is a 1.407 square-mile area in Boston that stretches from the West End, includes Beacon Hill, and Downtown Crossing and the Leather District. To inform the development of the program, the Design Team examined data from the U.S. Census Bureau, 2006-2010, 2014-2018 American Community Survey 5-Year, and Estimates BPDA Research Division. The Team examined the data for facts or trends that might identify specific needs of the population surrounding the library, and this information, in turn, influenced the development of the library program, the planning of services, and allocations of space. The area also accommodates a large number of workers that visit the West End branch library and are not reflected in these demographics of the residential population of the area.



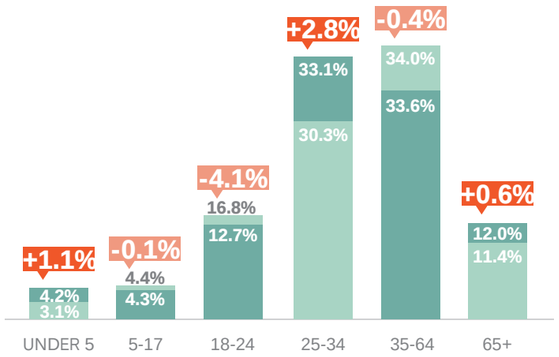
WEST END SERVICE AREA POPULATION



BOSTON POPULATION

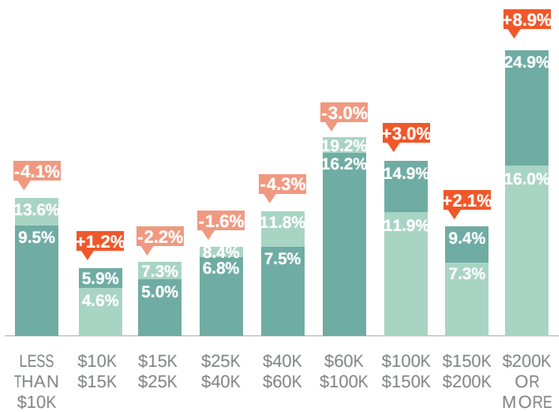
TOTAL POPULATION

West End is a fast-growing neighborhood in a growing city, with the total population of the service area growing 77% faster than the City of Boston over the same time range of 2006-2010 to 2014-2018.



AGE GROUPS

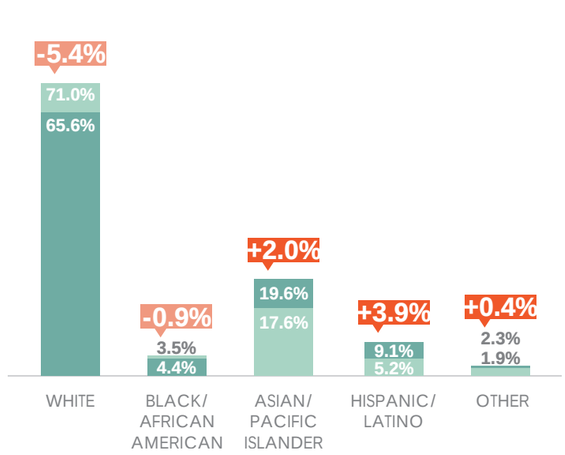
The largest age groups in the West End Branch Library Service Area is 35-64 year-olds with a nearly equal percentage of 25-34 year olds, and only 8.5% of the population aged 17 years-old or younger. This reflects The fastest growth from 2006-2010 to 2014-2018 is in the 25-34 year-old category, representing an increase in the younger working population. The large younger and older working aged population likely reflects the nearby student, professional, and medical communities.



INCOME

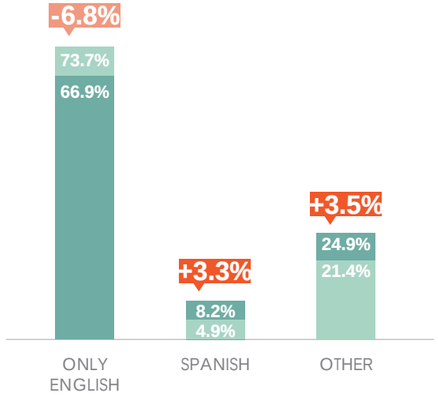
Household income is spread relatively equally between those making less than $100,000 and those making more than $100,000 a year, with those making more than $100,000 increasing by 14% since the 2006-2010 census.

Source: U.S. Census Bureau, 2006-2010, 2014-2018 American Community Survey 5-Year



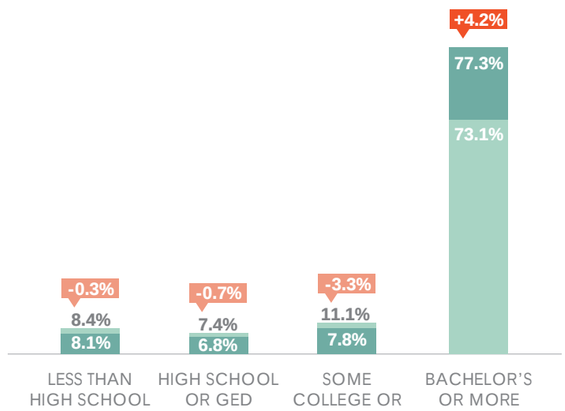
ETHNICITY

Nearly two-thirds (65.6%) of the service area population identifies as White. The next largest percentage is represented by Asian / Pacific Islanders at 19.4% of the population. The White population in the area decreased by 5.4% from 2006-2010, which was nearly matched by a combined 5.9% increase in Asian / Pacific Islanders and Hispanic / Latinos.



LANGUAGES SPOKEN

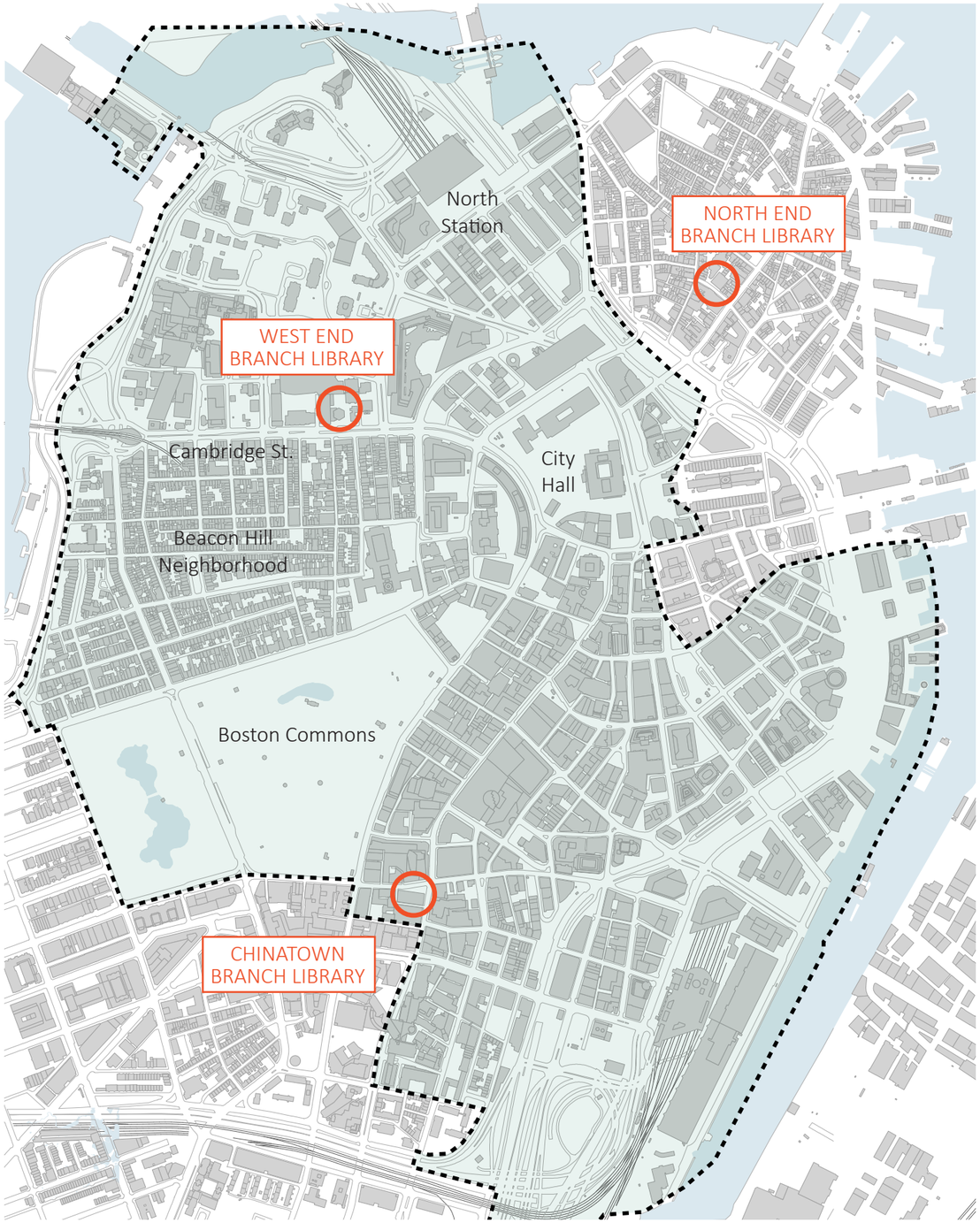
Two-thirds of the population in the service area speaks only English (66.9%), with the remaining population speaking Spanish (8.2%) and one-quarter of the population (24.9%) speaking other languages. Those speaking Spanish or other languages increased by 6.8% since 2006-2010.



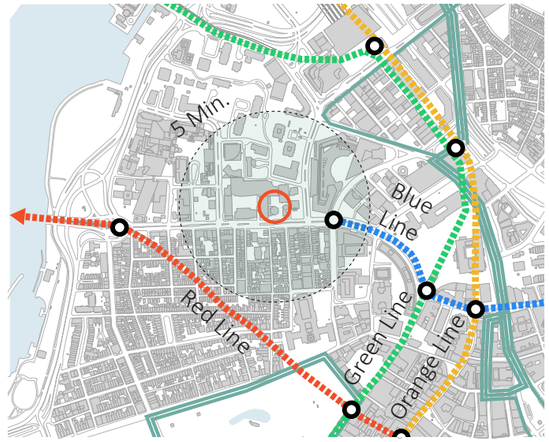
EDUCATIONAL ATTAINMENT

Of those 25 years or older in the service area, over 77% of the population has a bachelor's degree or higher. The largest increase in the population has also been in this category of educational attainment.

1.5 LOCATION OVERVIEW

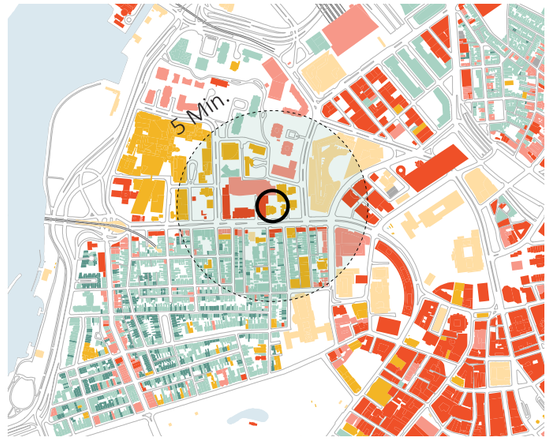


WALKABILITY



TRANSPORTATION

- Subway
- Bus Route



BUILDING USE

- Single Family
- Multi Family
- Commercial
- Mixed Use
- Institutional
- Government
- Industrial

1.6 LIBRARY NEEDS

LIBRARY MISSION STATEMENT

Boston Public Library provides educational and cultural enrichment free to all for the residents of Boston, Massachusetts and beyond, through its collections, services, programs, and spaces.

Principles from the Boston Public Library's Compass: Strategic Plan:
1) User-centered Institution
II) Community Gathering
III) Special Collections
IV) Center of Knowledge
V) Children and Teens
VI) Access and Innovation
VII) Sustainable Organization
VIII) Fun

Core areas:
1. Reading & Literacy
2. Spaces & Programs
3. Reference & Instruction
4. Special Collections & Cultural Heritage

CURRENT TRENDS

The branch currently provides many programs and services for the community. With one of the highest circulations of all BPL branches, the West End branch has outgrown its current facility. There is an especially acute need for Community spaces. With the Covid-19 Pandemic, the library has offered many virtual services to patrons and some of these may continue even as the pandemic subsides. Feedback from Community Meetings has stressed the important role as a gathering place and neighborhood hub that this branch plays in the community due to the absence of a Boston Public School, community center, or senior center in the West End. It is an important resource that meets the needs of young children and families, older adults, and individuals experiencing homelessness.

BRANCH PRIORITIES

A. Build on past growth
B. Celebrate uniqueness of branch and neighborhood
C. Provide Integrated Library Services
D. Support Library Programming & Partnerships
E. Increase Community Space
F. Accommodate Flexibility
G. Racial Equity informs design and priorities

COMMUNITY SPACE

The current library lacks a community space of a sufficient size for large gatherings. A Community Room and Classroom would be especially important for programs at this branch. The community room should be designed to accommodate larger community events and functions while the classroom should be able to be used for classes and events, including but not limited to computer instruction.

CIVIC PRESENCE

The existing library is dwarfed by its surrounding buildings. The large trees block views of the library from the street, making it all but invisible. A stronger street presence for the library would help it be seen as an important and vital institution in the neighborhood.

OUTDOOR SPACE

The current library is set back from the street, with landscape in front of and behind the library and much of the rear of the site taken by parking. Due to the needs of fitting expanded program areas on the site, this parking area may be removed. A new landscaped area that combines green space and an urban plaza in front of the library would create a space for the public and help connect the internal library programs to the active, urban street life of the area. Mechanical equipment that supports adjacent large buildings creates a great deal of noise that is prohibitive for the exterior use of the rear yard.

The site currently has a number of large, mature trees that obstruct views of the library from the street. Some presence of these trees should remain while improving the visibility to and from the library.

1.7 HOUSING NEEDS

AFFORDABLE HOUSING

The City of Boston's Housing 2030 goals prioritize the production and preservation of affordable housing as a key pathway towards inclusive development and the creation of walkable and resilient neighborhoods. The Department of Neighborhood Development (DND) uses City Housing Boston 2030 Funds, Neighborhood Housing Trust Funds, Inclusionary Development Policy Funds, and Community Preservation Act funds to provide essential financial resources to support affordable rental and homeownership opportunities. DND funds projects for housing as well as open space and community gardens, through the Grassroots program. DND funded residential projects provide homes for families with children, older adults, artists, individuals experiencing households, and persons with disabilities. DND funds both rental and home ownership models. At least 40% of units in DND-funded projects are affordable and income-restricted. In most projects, the majority of units are affordable. Affordable to DND primarily means housing affordable to households making 60% of Area Mean Income or below. 60% of AMI is about $71,000 a year for a family of four.

HOUSING WITH PUBLIC ASSETS

The City's Housing with Public Assets (HWPA) initiative offers a model for incorporating housing with public uses and aims to create more equitable and inclusive community assets where residents can thrive. This approach has been used to co-locate libraries and housing in cities across the nation with positive results.

Villa Aurora opened in 2009, combining the 12,000 sf Miami-Dade County Hispanic Public Library with 76 apartments, 39 of which were supportive housing for formerly-homeless families and 37 units for low income families. Three similar projects have been built as a partnership between the Chicago Housing Authority, the Chicago Public Library, and private developers. The largest of these, the Taylor Street Apartments and Little Italy Branch Library, includes 73 apartments, 7 of which are market-rate, 37 are Chicago Housing Authority units, and the remainder are affordable units.

The Inwood Library Branch, currently under construction in New York City, will include 175 residential units that are 100% permanently affordable to households with incomes at or below 60% AMI. This is being developed as a partnership between the New York Public Library and the New York City Department of Housing Preservation and Development.

The Housing Innovation Lab (iLab), conducted a study in February 2018 to ask local community and developers whether HWPA would work in Boston. This study created a framework and public support for this initiative. The possibility of co-locating housing and library uses is currently being explored for all branch library sites where renovation or replacement is being considered in order to create affordable housing for a variety of household and provide convenient library access for residents.

WEST END NEIGHBORHOOD

The feedback from the community received in the meetings was very supportive of affordable housing. However, given the height of the building and the potential for both high residential demand in the neighborhood and high construction costs, a mixed-income approach including market-rate units may be needed for a feasible development as identified in the pro forma report.

UNIT SIZES

The target square footage of unit types included in the study was determined by looking at square footage requirements for units set by the Massachusetts Department of Housing and Community Development (for state housing funds), Boston Department of Neighborhood Development (encompassing guidelines from HUD, Mass HOME, and CDBG), and the Boston Planning & Development Agency's "Metro Units" and Compact Living Unit standards for housing near transportation.

Taylor Street Apartments and Little Italy Library Branch, Chicago

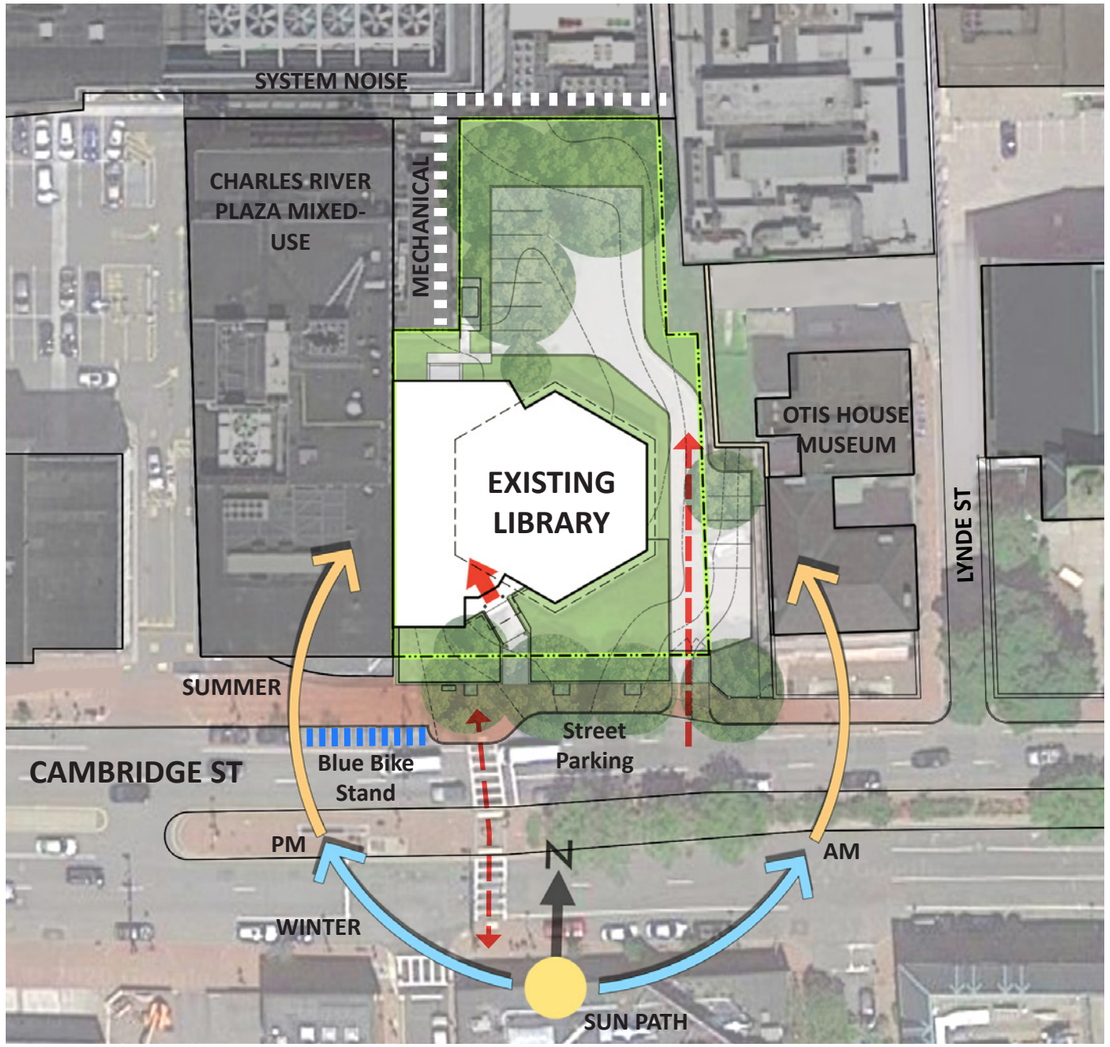
Northtown Branch Library and Apartments, Chicago

Inswood Library Branch, New York City

Independence Branch Library and Apartments, Chicago

2. EXISTING BUILDING ASSESSMENT

2.1 SITE



PROPERTY

The site is located at 151 Cambridge St., just north of the Beacon Hill neighborhood. The library property is listed as Parcel ID 0300656000, with a site area of 20,383 SF. The lot has a width of 118’ along Cambridge St. and a depth of approximately 202’. The existing library footprint has an area of 7,142 sf.

There is parking at the back of the site and a few spots along east side of the site that are shared with the Otis House. The site is constrained on three sides by adjacent properties; Otis House Museum, and Charles River Plaza and 165 Cambridge Street with various tenants including Massachusetts General Hospital. Across the street from the site is are multi-use buildings with commercial developments on the ground floor and residential above.

ACCESSIBILITY

Accessibility to the main entrance from Cambridge Street is in need of improvements. Currently a sloped concrete sidewalk leads visitors to a narrow ramp, with handrails, up to the main entry. At the top, a small landing restricts movement due to its size. The steel fence on either side makes this route feel enclosed and unwelcoming. There is no exterior pedestrian access at the rear of the site. The rear building entrance has a step so it is not ADA compliant.

PARKING LOT & ON-STREET PARKING

There is a staff only parking lot at the rear of the property which is gated and accessed from Cambridge Street. The Otis House owns the parking spaces to the east of the property line and uses the library’s drive for access. Cambridge Street has a combination of metered and resident permit on-street parking spaces. There are no designated accessible parking spaces in close proximity to the building entrance.

SITE AMENITIES

Site amenities are very limited on this site. Currently there is no exterior public space for gathering and activities. Bench seating is also not provided anywhere on the site. There are three bike racks located within the public sidewalk on Cambridge Street. There is a Blue Bike station directly adjacent to the library entry.

SITE LANDSCAPE / VEGETATION

The perimeter of the site and rear of the property have large mature trees. They should be pruned of dead and damaged limbs to maintain their health. The street trees in front of the library on Cambridge Street block views of the building. The two smaller ornamental trees closer to the building should be removed as they are planted too close to the building and their health is suffering. Shrubs located behind the fence along Cambridge Street

are a mixture of yews, rhododendrons and some perennials. Most of this area is covered in mulch with weeds visible. There is a small lawn area behind the building that is full of weeds. A limited maintenance program is in place for any of the softscape areas throughout the site.

SOILS

An online NRCS soil survey for the site was conducted. The site lies on poorly-draining soils. Regardless, if redeveloped, BWSC would require infiltration systems to be constructed as part of the project.

SEWER & WATER

The utility room in the basement was observed, and the 10-inch storm drain, 4-inch sanitary sewer, 2-inch domestic water feed and 4-inch fire sprinkler feed were located. These systems were located in order to prepare for potential BWSC permits which would include a cut & cap plan.

DRAINAGE

Evidence of catch basins and subsurface drainage within the asphalt drive and parking area were observed. This is also depicted on the original site plan from 1966. The site is generally flat. Overall the site pavement, curbing and drainage looked to be in average condition and in need of regular maintenance.

FRONT OF BUILDING

The building is hidden from the street by a dense set of trees. The trees also buffer the library from street, creating a sense of oasis from the busy urban environment. The front of the library is entirely in shade from the trees. There is a pedestrian crossing on Cambridge Street that leads to the library entrance. Gardens on either side of the entrance are fenced to the street and not occupiable. A Salvation Army monument was observed, along with a flag pole.

OTIS HOUSE

To the east of the site is the National Historic Landmark, the First Harrison Gray Otis House. Built in 1795–96, it was designed by Charles Bulfinch and built for Massachusetts politician Harrison Gray Otis. It is notable as one of the earliest three-story brick houses that came to represent the Federal style of architecture. Careful consideration to shading will need to be considered if building a taller structure next to the Otis House.

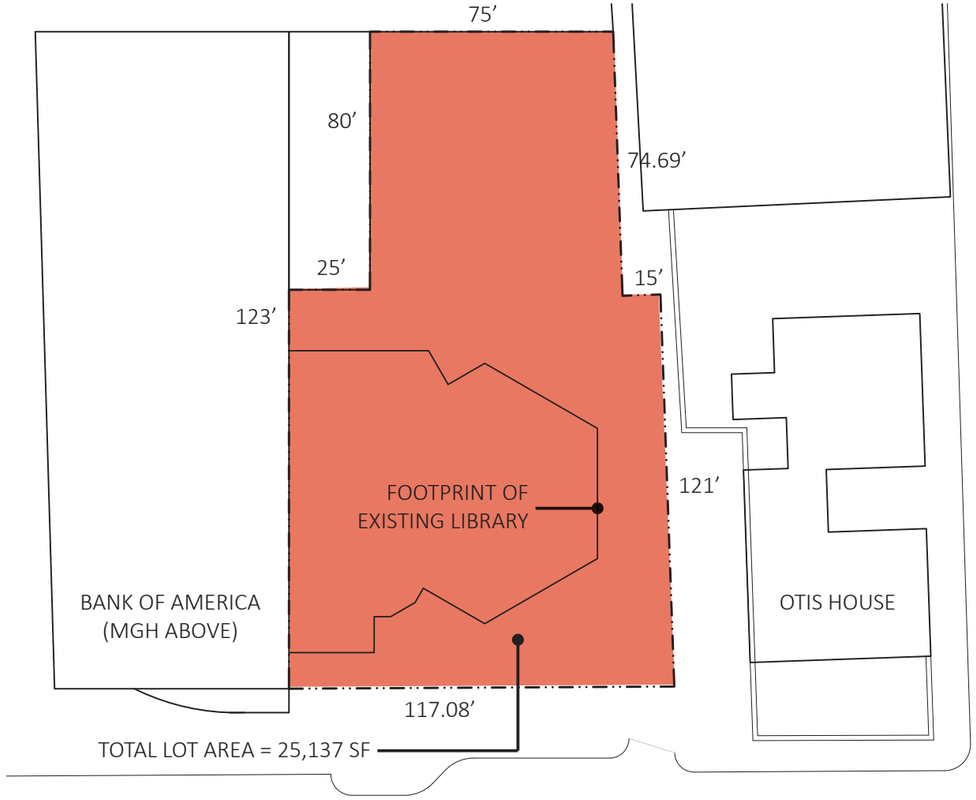
REAR OF BUILDING

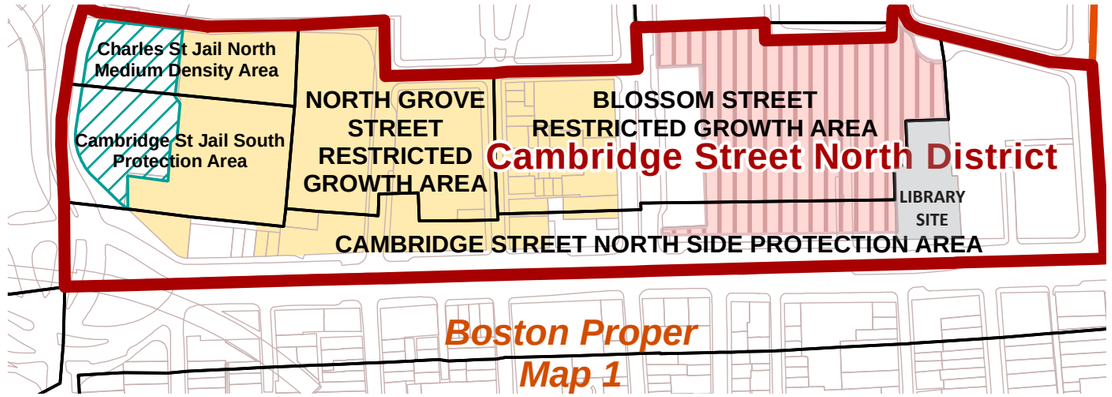
The landscaped area and parking behind the library are enclosed by surrounding buildings of varying heights. Many of the surrounding buildings have their mechanical equipment located adjacent to the site's open space. The sound of exterior mechanical equipment is notably loud. Noise level readings from the space range from 70-78 db.
To the west is a high-rise building that abuts the library, with east facing exterior windows. Parking behind the building is reportedly shared with abutters to the north.

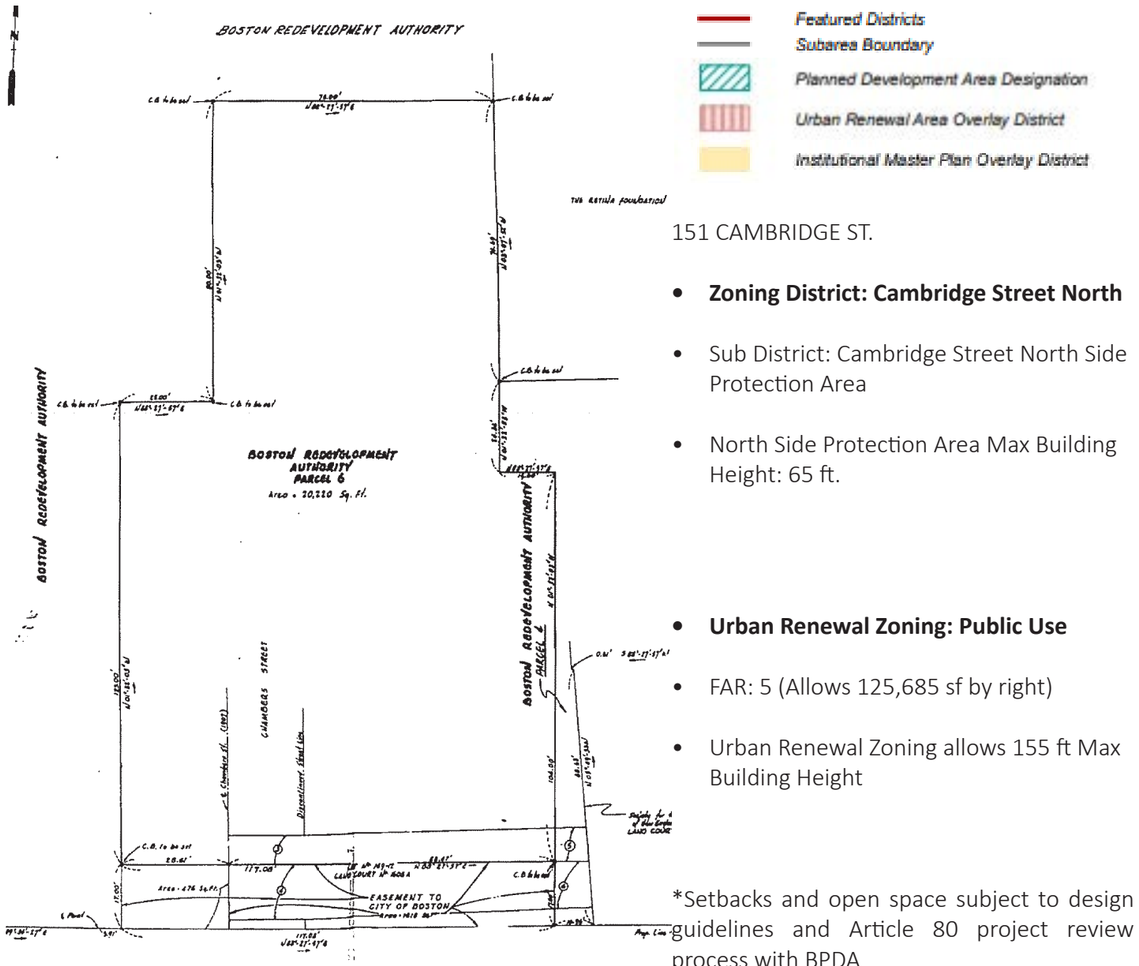
2.2 TITLE & ZONING

A title search of the 151 Cambridge property shows that the deed was granted by the Boston Redevelopment Authority (BRA) to the City of Boston in 1967. The title shows that the property is both recorded and registered land within Parcel 6 of the West End Urban Renewal. The Urban Renewal Plan zones this property for Public Use and would require a minor modification to the Urban Renewal Plan by the Boston Planning and Development Agency (BPDA) to allow mixed-use development on the site. The other Urban Renewal zoning restrictions for height and FAR will also require minor modifications. The Certificate of Title describes a small easement to the City of Boston along the south property line given for 'public improvement of the layout of Cambridge St. Other than this area, the Title does not appear to show any encumbrances that would be of concern. The abutting property (141 Cambridge Street) owned by the Society for the Preservation of New England Antiquities has an existing parking area with a driveway on the library property. The deed for 141 Cambridge does not show an access easement by the City for SPNEA to access their parking spaces.

The Library site is in the Cambridge Street North zoning district. This multi-use district has no specific set-backs from property lines, but has limitations on density and height. Ultimately the development potential of the site is subject to Article 80 project review with the Boston Planning & Development Agency (BPDA) if housing is included on the site, resulting in a taller building, then it will need to be coordinated through the Article 80 project review process with community input. The demolition of the existing library may need to go through the Article 85 demolition delay because the library is more than 50 years old.





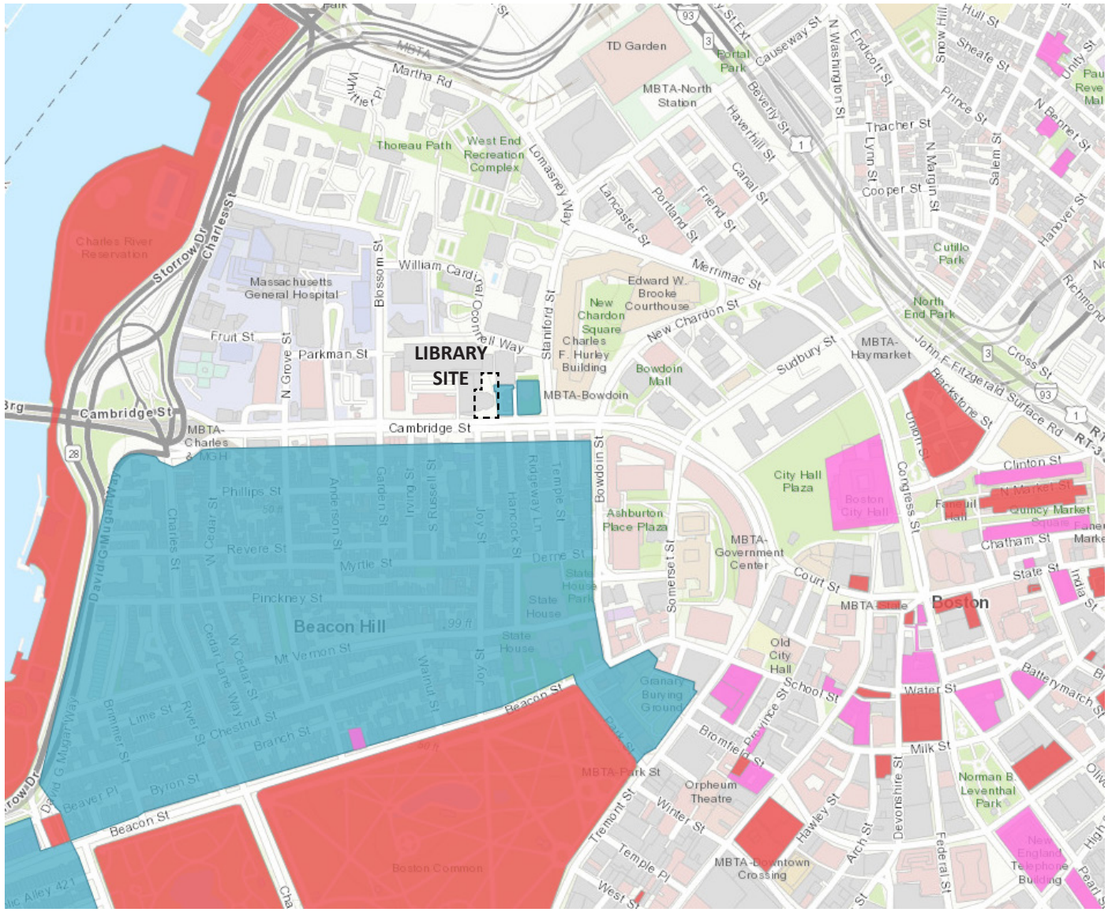


Boston Redevelopment Authority Parcel 6 Plot Plan

151 CAMBRIDGE ST.

- **Zoning District: Cambridge Street North**
- Sub District: Cambridge Street North Side Protection Area
- North Side Protection Area Max Building Height: 65 ft.
- **Urban Renewal Zoning: Public Use**
- FAR: 5 (Allows 125,685 sf by right)
- Urban Renewal Zoning allows 155 ft Max Building Height

*Setbacks and open space subject to design guidelines and Article 80 project review process with BPDA

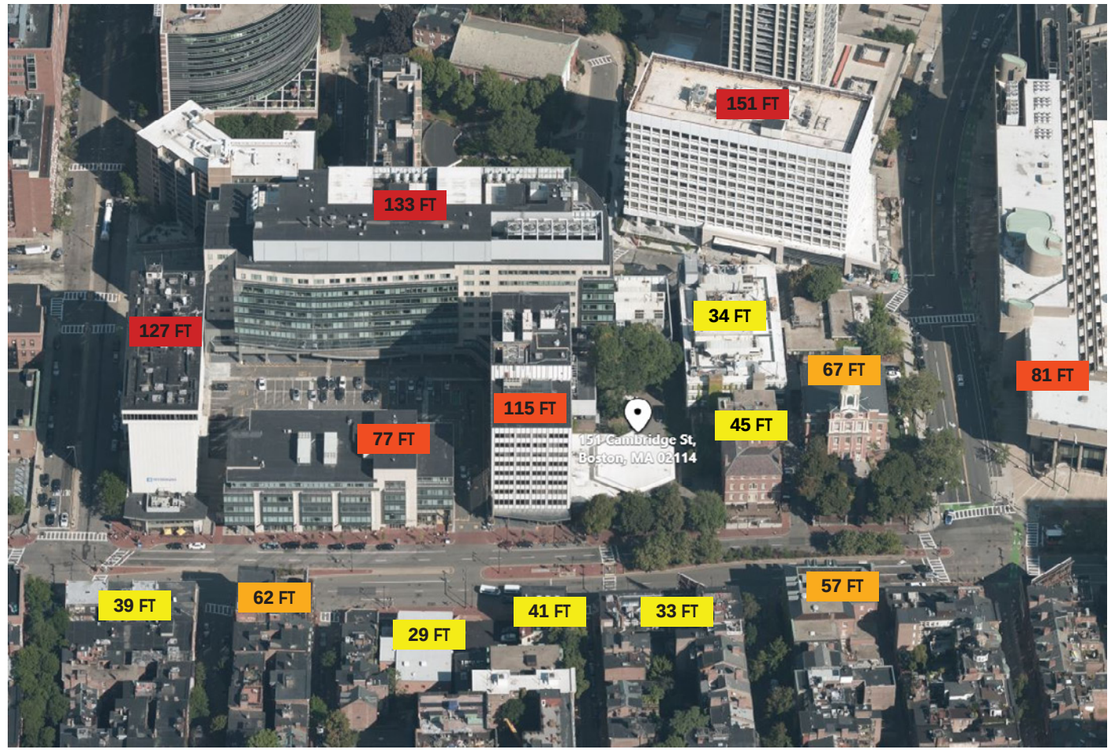


BOSTON LANDMARKS COMMISSION HISTORIC DISTRICT MAP

Note that the library site falls outside of the Beacon Hill Architectural District.

2.3 URBAN CONTEXT

121-160 FT | 71-120 FT | 46-70 FT | 29-45 FT

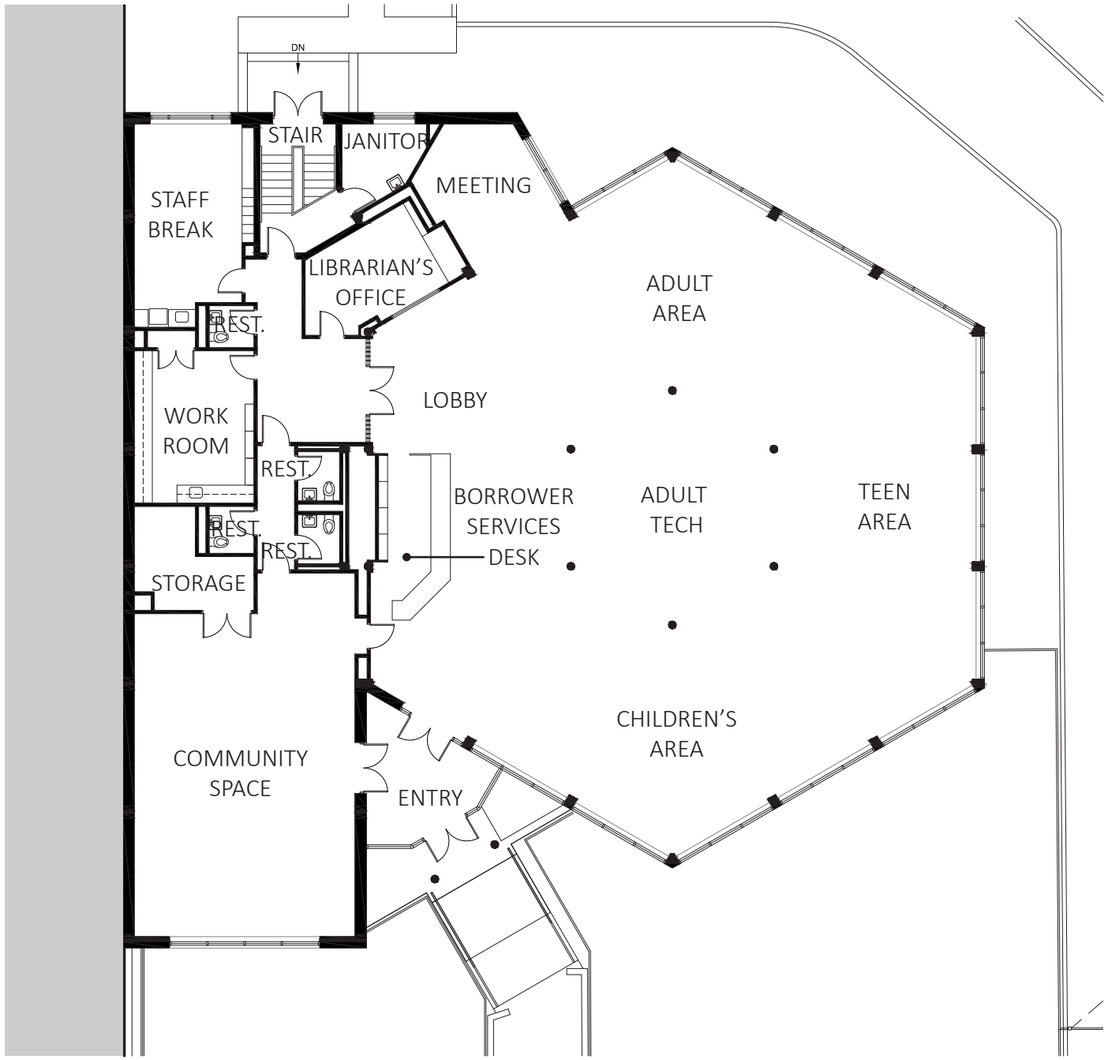


There are a wide range of building heights in the area, and the site is between an area ranging from 30-70 feet on the south side of Cambridge Street and the Otis House, and the taller buildings of the Charles River Plaza complex, which go up above 100'.

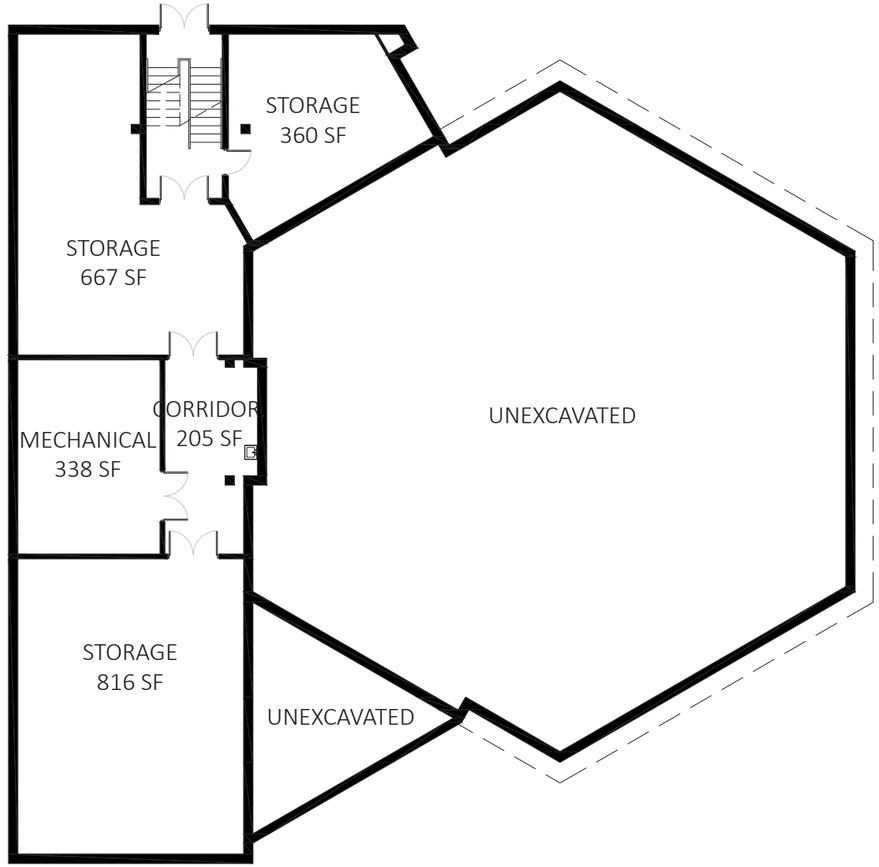
This area is experiencing significant grown in residential and institutional facilities. Among these are the Massachusetts General Hospital expansion, the State's Hurley Building, and the Otis House Master planning project.

Additional details about these projects can be found Online: ***http://www.bostonplans.org/projects/development-projects?neighborhoodid=31&sortby=name&sortdirection=ASC***.

2.4 EXISTING FIRST FLOOR GSF: 7,142 SF



EXISTING BASEMENT FLOOR GSF: 2,887 SF



2.5 EXTERIOR

CONSTRUCTION

The exterior envelope is divided into two parts: a brick masonry wing that attaches to the neighboring building and glass and a hexagonal metal reading room wing. The base of the building is cast concrete. The entire exterior envelope is generally in very good condition.

MASONRY

The masonry section of the building has red brick with limestone trim at windows and coping. The windows in part of the building are aluminum ‘storefront’ replacements.

CURTAIN WALL

The reading room wing is clad in contemporary curtain wall and metal panels.

FRONT ENTRY

The front entry is located at the junction of the hexagonal curtain wall and the masonry wing. There is no book drop at the exterior for patrons to return library materials after hours.

ROOF

The roof has an overhang that extends approximately 3’ beyond the wall. The roof eave is clad in break metal and the soffit is painted stucco. There is a vertical parapet that aligns with the exterior wall above the overhang. The parapet is clad in corrugated metal panels. The team was not able to see the roof which can only be accessed by ladder. In conversations with library facilities personnel, it was reported that the roof in around 6 years old and in good condition. No roof leaks or problems have been noticed.

ATTACHMENT TO NEIGHBORING BUILDING

The building directly abuts the neighboring 9 story MGH building. From the second floor and up are windows that look down to the roof of the library. The Structural Report in the Appendix discusses the joint at this connection.

2.6 INTERIOR

OVERALL

The design of the public spaces feature a hexagonal open plan that provides great sight lines and is filled with perimeter daylight. Low height shelving divides the space by collections and programs.

ENTRY/VESTIBULE

The direct adjacency of the community room to the entrance and the separate entry doors to the program room are helpful for community programs such as food pantry distribution.

BORROWER SERVICES DESK

The position of the main borrower services desk allows for monitoring the entire space from one location and controlling the entrance security. The circulation service point accommodates two staff and is a built-in-place desk. The holds shelf is directly behind the circulation desk.

COLLECTION AREAS

The reading room design generally functions well for the library. There are two floating service points within the shelving areas for the children's librarian and adult reference. The children's collection, teen and adult collections all share the same space. Library staff monitor the children's areas to limit the presence of adults. High windows allow natural light in while filtering views to the parking lot and mechanical equipment.

BOOKSHELVES

The shelving layout throughout the space features higher ranges at the perimeter (6 shelves high) and lower ranges within the space (3 shelves high). This arrangement helps with preserving open sight lines.

COMMUNITY ROOM

The program space is directly off the entry vestibule and circulation desk area. It is a space accommodating approximately 40 people. The space is heavily used, especially for children's programming. There are small storage rooms off the space, but it is evident by the amount of things stored in the space itself that they are far too small.

MEETING ROOM

Off of the main reading room is a small room that is used for meetings or groups looking more like a private setting. It is open directly to the main reading room without any partitions or doors.

STAFF BREAK

There is a generous staff lounge that is larger than those in most branch libraries.

LIBRARIAN'S OFFICE

Located off of the staff lobby, this office has a window that looks directly into the main reading room.

WORKROOM

The location of the library service room is problematic since it shares the same connecting corridor as the public restrooms. It is important for the back-of-house services to be completely separate from the public areas.

RESTROOMS

The restrooms are small and not ADA accessible. The Code Report in the Appendix details the ADA deficiencies in depth.

STORAGE

There is one stairway that leads to the basement and rear exit. The basement has a high ceiling and a series of open storage spaces that are not fully utilized. There used to be scanning stations in the basement. The mechanical rooms are located on the basement level in generous utility areas. There is no elevator access to the basement.

2.7 CODE

EXISTING HAZARDOUS CONDITIONS

There are no conditions within the existing building that have been cited as hazardous by the City of Boston, though there are observed deficient means of egress which could be considered hazardous by the building official and require correction.

Within the lobby, a table blocks the door from the community room. Within the all-purpose room, an exit sign directs occupants through this blocked exit. This room requires two remote exits, which would require this exit to be free and unobstructed.

The door leaf between the main reading room and the staff lobby was noted to be 31.5”. Under new construction, the clear width of each door opening is required to be at least 32-inches with at least one of the two door leaves providing 32-inches clear.

Combustible storage was observed within the rear stair at the First Floor, Basement Level and mid-level landing. Combustible materials are prohibited from being placed, stored, or kept in any portion of an exit, stairway, fire escape, or other means of egress. The combustible storage is required to be removed from within the exit enclosures.

The janitor’s room on the First Floor and the basement open directly into the stair enclosure. Non-occupied rooms are not permitted to be open to the stair.

FIRE PROTECTION SYSTEMS

The existing building is not fully protected by an automatic sprinkler system. While the first floor does not contain sprinklers, the basement is fully sprinklered. An existing building is required to be protected with sprinklers where all of the following four conditions are satisfied:

1. Building gsf is more than 7,500 sf
2. Sufficient water and water pressure exist to serve the system.
3. The nature of work to the building is considered as “major”

EMERGENCY SYSTEMS

The building is provided with an existing, previously approved fire alarm system which is permitted to remain. No strobes were observed in any of the employee-only areas. While a private office would not require the notification appliance, workrooms and lounges serving more than one employee should be equipped with notification appliances. The pull station by the front entrance is currently blocked by the self-checkout station. Pull stations are required to be unobstructed. The storage room within the community room appeared to be missing a smoke detector. The design intent of the smoke detection on the First Floor should be confirmed. The First Floor is fully protected either by smoke detectors or heat detectors.

ACCESSIBILITY

Permanent spaces do not have signage, or such signage is mounted higher than 60” to the centerline of the sign. Signs designating permanent rooms are required to be provided. Much of the building is provided with doorknobs that require twisting to operate. Door hardware is not permitted to require grasping, pinching, or twisting of the wrist to operate.

A list of deficiencies for each space can be found in the Code Report in the Appendix.

2.8 STRUCTURE

EXISTING STRUCTURAL FRAMING

Foundations: The foundations consist of cast in place concrete caissons that support foundations walls and a partial basement under the administration spaces. The basement floor is framed with a concrete slab spanning to concrete grade beams.
First floor framing: The first floor is framed with reinforced concrete beams, one-way reinforced concrete slabs and ribbed slabs. The columns between the first floor and roof are round steel pipes with a concrete encasement used for fireproofing with a total diameter of 10 inches.
Roof framing: The higher roof over the reading room consists of steel beams in a hexagonal layout with a reinforced concrete slab. The lower roof over the administration spaces consists of a hybrid of steel girders encased in concrete and reinforced concrete beams with a ribbed concrete slab.

CONDITION OF STRUCTURE

The only structure that was visible for observation was in the partial basement, and the condition was good to excellent. Although the roof framing was not visible, there were no signs of structural distress.

STRUCTURAL ISSUES

There was some slight discoloration in the ceiling of the voting machine storage room that may be caused by roof leaks. Further investigation is needed to determine the cause and if water infiltration is causing any rusting of rebar and concrete spalling. The building is in contact with the 9-story building on the adjacent site. There appears to be a vertical caulked joint in the brick which does not provide a seismic separation between the 2 buildings. Any structural work that triggers a seismic upgrade should address this condition by installing a flexible joint material that will allow building movement without impacting loads to the neighboring building.

2.9 MEP/FP

MECHANICAL

The building is served by the air handling unit located in the MER. The unit is constant flow, DX cooling, hot water heating, recirculating type unit. Zone temperature control is provided by the zone mixing dampers. The outdoor intake louver is located on the outside wall of the basement. The condensing unit is located outside the building in the fenced area next to the parking lot. Perimeter heat is provided by the hot water finned tube radiators. Building front lobby and back stairs are heated by the hot water cabinet unit heaters. Toilet rooms throughout the building are exhausted passively and are terminated with a gravity hood on the roof.

CONDITIONS OF THE MECHANICAL SYSTEM

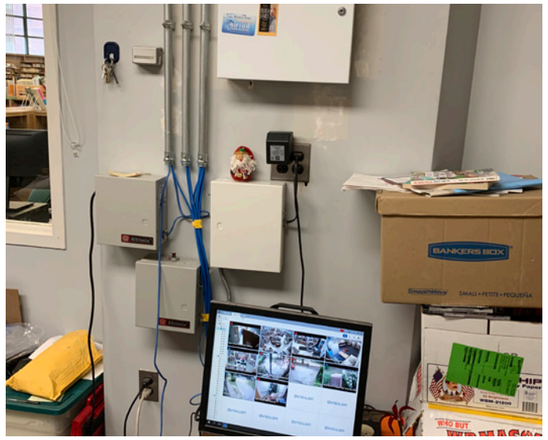
All mechanical systems appear to be in good condition. All ductwork, diffusers, finned tube radiators seem to be original to the building and in fair condition. Both cabinet unit heaters in the front Lobby and at the back stairs are in poor condition.

ELECTRICAL/TELCOM

The service to this building is a 200amp, 208/120v, 3-phase, 4-wire service. The service is metered with an Nstar/Eversource utility meter. There is a 200amp main distribution panel that feeds sub-panels of 70amps, 100amps and 150amps. Where the service comes into the MER, there is an open junction box that is being used as a splice box. The lighting includes fluorescent T8's in linear recessed downlights and pendant downlights that are compact fluorescent and possibly incandescent. Emergency lighting includes emergency battery units and battery powered exits. The existing telcom comes in near the electrical service and appears to be fed from an overhead line off a nearby telephone pole.

CONDITIONS OF THE ELECTRICAL SYSTEM

The electrical distribution appears to be original to the building and is in working condition but is at the end of its useful life. There is an open junction box near the service entrance disconnect being used as a splice box with exposed wiring. The lighting and



controls are in working order but are outdated and inefficient.

PLUMBING

Building is supplied with the following: 2" domestic cold water main with water meter, 2" natural gas line with gas meter in basement (which supplies a water heater and HVAC boilers) and 4-inch sanitary main. There are roof drains and internal storm conductors to a 10-inch storm main, area drainage is by area drains and running trap in basement, cold water feeds to yard hydrant and exterior wall hydrants.

CONDITIONS OF THE PLUMBING SYSTEM

Plumbing fixtures are older high-flow type, manual flush valves and manual faucets. Gas-fired water heater was installed in 07-30-2014. Delivery time of hot water to Lavatories is over 5 minutes.

FIRE PROTECTION:

There are no existing sprinklers located on the main floor of the Library. The building is equipped with a 4" fire protection service and a 4" wet alarm riser valve located in the basement. The building is currently not equipped with a backflow preventer.

CONDITIONS OF THE FIRE PROTECTION SYSTEM

The wet sprinkler valve, distribution, and sprinklers appear to be outdated. Piping is rusting and corroding.

FIRE ALARM

The building is equipped with an old fire alarm system with the head end Simplex panel located in the basement. There are a few outdated horn/strobe devices that are not ADA compliant. There are smoke detectors located throughout the main floor. The building is equipped with a few old pull stations, but they are not installed at every egress door.

CONDITIONS OF THE FIRE ALARM SYSTEM

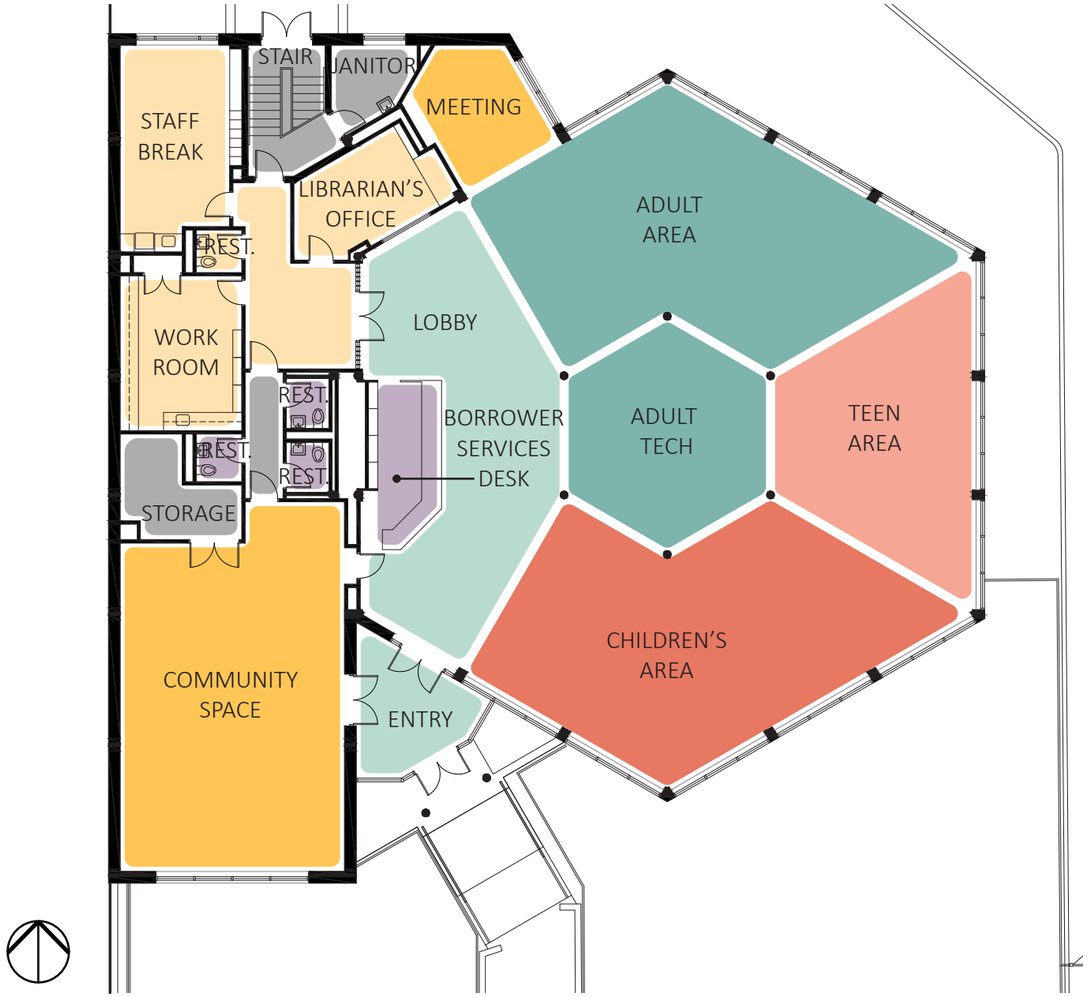
The fire alarm control panel, notification devices, and smoke detectors are all very old and outdated and mostly not compliant with today's codes.

3. PROPOSED PROGRAM

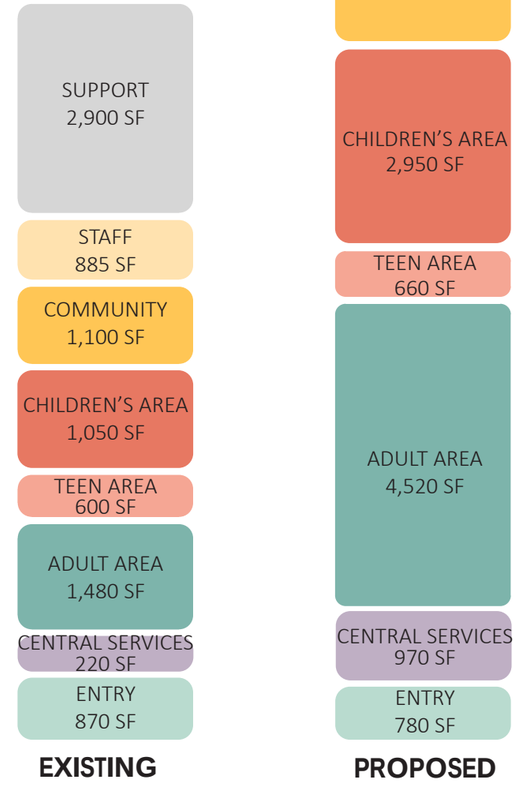
3.1 LIBRARY PROGRAM SUMMARY

The design team worked with BPL to determine the programmatic needs of the library. BPL set targets for collections and seating based on the circulation and activity of the branch. The design team coordinated to ensure that the programmatic spaces meet BPL's standards and needs. The team presented the program to the community and received positive feedback.

	SPACE	EXISTING (sf)	NEW (sf)	COLLECTIONS		SEATING
				Volumes	Shelving (Lin ft.)	
A	**ENTRY**					
	Vestibule	157	115			
	Lobby	715	600			
	Exterior Book Drop Room	--	60			
	Subtotal	**872**	**775**			
B	**CENTRALLY LOCATED ITEMS**					
	Central Service Point	142	475			4
	*Secondary Service Point	--	25			
	Lucky Day Shelves	--	15		9	
	Holds / Pickups & Self Checkout	--	90		60	
	Print Release	--	60			
	Friend's Book Sale Shelves	--	15		9	
	Men's Restroom	26	145			
	Women's Restroom	26	145			
	All Gender Restroom	26	55			
	Single Level Subtotal	**220**	**1,000**			
	Multi Level Subtotal		**1,025**			
C	**ADULT AREA**					
	Adult Collections	1,047	2,520	19,500	2,016	
	Adult Seating	--	1,335			46
	Adult Technology	439	675			12
	Subtotal	**1,486**	**4,530**			
D	**TEEN AREA**					
	Teen Collections	600	275	900	108	
	Teen Seating	--	400			14
	Subtotal	**600**	**675**			
E	**CHILDREN AREA**					
	Children Collections	1,047	1,010	9,600	486	
	Children's Seating	--	630			28
	Children's Technology	--	300			12
	Early Literacy Area	--	360			12
	Craft Area	--	255			12
	Tween	--	345			13
	Family Restroom	--	55			
	Subtotal	**1,047**	**2,955**			
F	**COMMUNITY**					
	Community Room	932	1,355			103
	Learning Lab/Classroom	--	730			20
	Small Conference/Study Room	169	120			4
	Small Conference/Study Room	--	120			4
	Subtotal	**1,101**	**2,325**			
G	**STAFF**					
	Staff Lobby	190	--			
	Workroom	236	290			4
	Librarian's Office	164	120			2
	Staff Break Room	272	255			5
	Staff Restroom	23	55			
	Subtotal	**885**	**720**			
H	**SUPPORT/SERVICES/CIRCULATION**					
	Friend's Storage	--	125			2
	Custodian's Closet	--	10			
	Storage	1,956	300			
	Facilities Storage	70	300			
	Mechanical Room	338	--			
	Server Room	--	180			
	Electrical Room	--	75			
	Elevator Machine Room	--	100			
	*Stair (L1)	123	165			
	*Stair (L0)	153	165			
	*Elevator	--	70			
	Corridor (L1)	58	--			
	Corridor (L0)	205	--			
	Single Level Subtotal	**2,903**	**1,090**			
	Multi Level Subtotal		**1,490**			
	TOTAL NET AREA (SINGLE LEVEL LIBRARY)	**9,114**	**14,070**	**30,000**	**2,688**	**297**
	***TOTAL NET AREA (MULTI LEVEL LIBRARY)**		**14,470**			
	Walls & Structure (Single Level Library) 20%	916	2,814			
	*Walls & Structure (Multi Level Library) 25%		3,618			
	TOTAL GROSS AREA (SINGLE LEVEL LIBRARY)	**10,030**	**16,884**			
	***TOTAL GROSS AREA (MULTI LEVEL LIBRARY)**		**18,088**			



NOTE: Majority of Support space is located in the basement.



3.2 LIBRARY ROOM DATA SHEETS

ENTRY

Vestibule
Lobby
Exterior Book Drop

CHILDREN'S AREA

Children's Collections
Children's Seating
Children's Technology
Early Literacy Area
Tween Area
Craft Area
Family Restroom

COMMUNITY

Community Room
Classroom
2 Study Rooms

CENTRAL SERVICES

Central Service Point
Lucky Day Shelves
Holds & Self Checkout
Print Release
Men's/Women's Restrooms
All Gender Restroom
Friends' Shelves and Storage

ADULT AREA

Adult Collections
Adult Seating
Adult Technology

TEEN AREA

Teen Collections
Teen Seating

STAFF

Workroom
Librarian's Office
Staff Break Room
Staff Restroom

SUPPORT

Custodian's Closet
Facilities Storage
Storage
Server Room
Electrical Room
Bike Parking
Elevator Machine Room

ENTRY

775 SF

Vestibule	115 sf
Lobby	600 sf
Exterior Book Drop	60 sf

The entry area is the welcoming zone and first impression of the library. Here materials and displays can introduce patrons to the services and collections of the branch while highlighting attributes of the neighborhood.

At the exterior book drop patrons can return material without having to enter the building and after hours and should be easily visible to everyone.

Jamaica Plain Branch

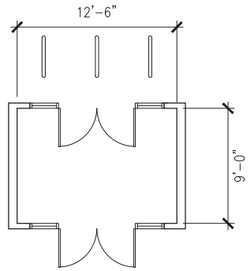
Mattapan Branch

Honan-Allston Branch

VESTIBULE

115 SF

Welcoming and transparent main entry.



Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	Lobby
Views	Central Service Point; Restrooms

Technical Requirements

Flooring	Recessed Removable Heavy-Duty Walk-off mat
Ceilings	TBD
Walls	Durable tile, metal panel, or stone.
Doors/Windows	Glass storefront doors
Mechanical	Cabinet unit heater
Technology/Electrical	Power
Plumbing/FP	Sprinkler system, Fire Panel, knox box
A/V	N/A
Lighting	20-30 FC
Security	Building alarm, surveillance camera, security gates; exterior card reader
Signage	Building identification; Exit signage; Library information, Dedication plaque
ADA	ADA power operated doors

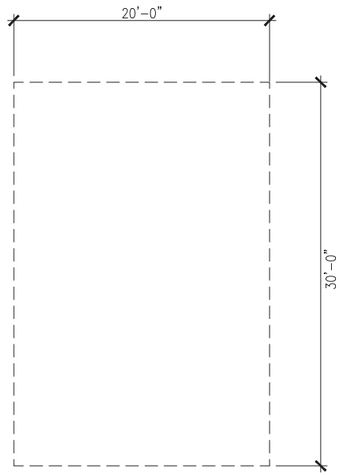
FFE and Casework

Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

LOBBY

600 SF *area is flexible based on building layout

Orientation point for library users and community information center.



Functional Requirements

Quantity	1
Occupant Load	N/A
Linear Feet of Shelving	36 lf of holds 12 lf of friend's

Adjacency Requirements

Adjacency	Entry Vestibule
Views	Central Service Point; Restrooms

Technical Requirements

Flooring	Terrazzo or Tile - durable, easy to clean
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Intercom
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	20-30 FC
Security	Surveillance cameras
Signage	Digital signage; Building identification; Wayfinding
ADA	TBD

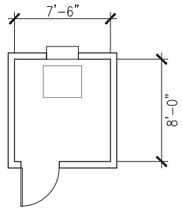
FFE and Casework

Casework/Specialties	Displays or program information
Shelving	N/A
Furnishings	N/A
Equipment	People's Counter

BOOK DROP

60 SF

Interior space with exterior book drop chute, allows patrons to return library materials when the library is closed.



Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	Entry Vestibule & Central Service Point; Easy route to Workroom
Views	Exterior slot visible from approach

Technical Requirements

Flooring	TBD
Ceilings	Fire Rated
Walls	Fire Rated
Doors/Windows	Fire Rated
Mechanical	N/A
Technology/Electrical	N/A
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	Exterior Lighting
Security	On alarm system
Signage	Room identification
ADA	TBD

FFE and Casework

Casework/Specialties	Lockable book slot
Shelving	N/A
Furnishings	Rolling book bins
Equipment	N/A

CENTRALLY LOCATED ITEMS

1,000 SF (*1,025 SF)

Central Service Point	475 sf
Lucky Day Shelves	15 sf
Holds/Pickup & Self Checkout	90 sf
Print Release	60 sf
Friends Book Sale Shelves	15 sf
Men's Restroom	145 sf
Women's Restroom	145 sf
All Gender Restroom	55 sf

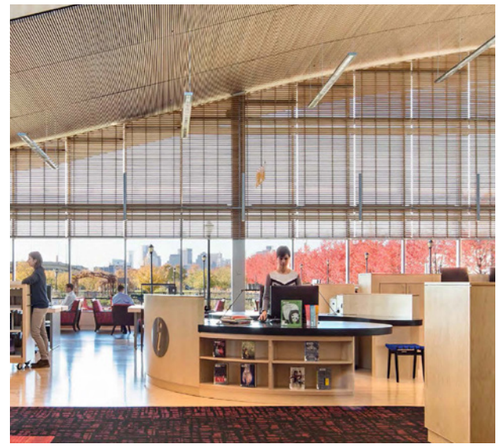
Centrally located items are to be easily accessible to all patrons of the branch, including those that are browsing the collections and those that are briefly stopping by to pick up material.

The central service point in this space should be easy to locate for any new or returning patrons while having visibility throughout the building. The staff are available to greet patrons, assisting with checkout borrowing and returns, and assist in reserving material from other branches.

Accessible public restrooms need to be centrally located to be visible from the Central Service Point.

These spaces should generally be near the Entry and/or the Lobby, while the Print Release should be adjacent to the Adult Technology and the Teen's and Children's areas.

A second service point would be required if one of the collections areas has a large degree of separation from the Central Service Point.



East Boston Branch

Cambridge Public Library

Gaithersburg Public Library

CENTRAL SERVICE POINT

475 SF

Where patrons are greeted, books are checked out, reserved, renewed, returned. This is the first point of contact so many questions are answered here.

Functional Requirements

Quantity	1
Occupant Load	4 Staff

Adjacency Requirements

Adjacency	Staff Workroom; Not far from reading areas & Main entry and Lobby
Views	To Entry Vestibule; Restrooms; Print & Catalogue computer; Self-checkout; As much of the branch as possible.

Technical Requirements

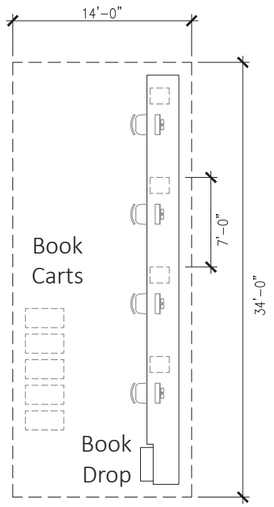
Flooring	TBD- cushioned surface for staff
Ceilings	TBD
Walls	N/A
Doors/Windows	N/A
Mechanical	N/A
Technology/Electrical	Power; Data; Intercom
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	20-50 FC
Security	Ability to lock/unlock front door, Panic button
Signage	Wayfinding
ADA	Accessible service counter

FFE and Casework

Casework/Specialties	Desk
Shelving	Displays
Furnishings	4 Office chairs; 4 Lockable mobile pedestals, Book carts; Laptop carts, Tote bag storage
Equipment	Each: Desktop Computer, Telephone (1 hardwired), Desensitizer, Barcode scanner, Receipt Printer, Cash drawer

Other Information

	Trash bin & recycle bin



*7 lf of desk per staff

LUCKY DAY SHELVES

15 SF

Shelving for bestsellers that are available without placing a hold.

Functional Requirements

Quantity	1
Occupant Load	N/A
Linear Feet of Shelving	9 lf

Adjacency Requirements

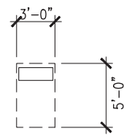
Adjacency	N/A
Views	TBD

Technical Requirements

Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	N/A
Mechanical	N/A
Technology/Electrical	N/A
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework

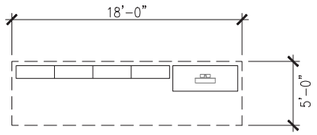
Casework/Specialties	N/A
Shelving	3 ft wide shelving unit with 3 shleves
Furnishings	N/A
Equipment	N/A



HOLDS / PICKUPS & SELF CHECKOUT

90 SF

Shelving to pick up reserved material and a computer where patrons can checkout materials themselves.



Functional Requirements	
Quantity	1
Occupant Load	N/A
Linear Feet of Shelving	60 lf

Adjacency Requirements	
Adjacency	Main entry & Central Service Point
Views	Central Service Point

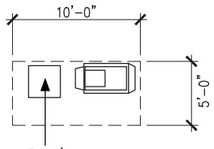
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	N/A
Mechanical	N/A
Technology/Electrical	Power; Data
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	3 ft wide shelving units with 5 shelves
Furnishings	Desk
Equipment	Self-checkout machine

PRINT RELEASE

60 SF

Location for printing material.



Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Adult technology; Teen's & Children's area
Views	TBD

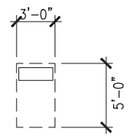
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	N/A
Mechanical	N/A
Technology/Electrical	Power and data
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	Red kiosk and MF printer

FRIEND'S BOOK SALE SHELVES

15 SF

Location for printing material.



Functional Requirements	
Quantity	1
Occupant Load	N/A
Linear Feet of Shelving	9 lf

Adjacency Requirements	
Adjacency	N/A
Views	TBD

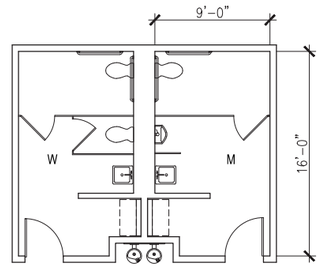
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	N/A
Mechanical	N/A
Technology/Electrical	Power
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	3 ft wide shelving unit with 3 shelves
Furnishings	N/A
Equipment	N/A

WOMEN'S & MEN'S RESTROOM

290 SF (145 SF Each)

determined by code.



Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	N/A
Views	Visible from Entry

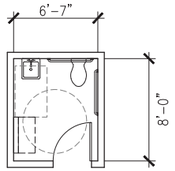
Technical Requirements	
Flooring	Porcelain tile
Ceilings	GWB
Walls	Full height ceramic tile
Doors/Windows	TBD
Mechanical	Exhaust fans
Technology/Electrical	Power
Plumbing/FP	Wall hung sensored toilet & sink; Floor drain; Water fountain & bottle filler
A/V	N/A
Lighting	10-30 FC
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	Heavy duty, floor & ceiling mount toilet partitions and counter/sink
Shelving	N/A
Furnishings	N/A
Equipment	Hardwired hand dryer; Sensored soap dispenser; Trash; Baby changing table; Sharps bin

ALL GENDER RESTROOM

55 SF

Single stall.



Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	N/A
Views	Visible from Entry

Technical Requirements

Flooring	Porcelain tile
Ceilings	GWB
Walls	Full height ceramic tile
Doors/Windows	TBD
Mechanical	Exhaust fans
Technology/Electrical	Power
Plumbing/FP	Wall hung sensored toilet & sink; Floor drain; Water fountain & bottle filler
A/V	N/A
Lighting	10-30 FC
Security	Lock with occupancy indicator
Signage	Room Identification
ADA	TBD

FFE and Casework

Casework/Specialties	Heavy duty, floor & ceiling mount toilet partitions and counter/sink
Shelving	N/A
Furnishings	N/A
Equipment	Hardwired hand dryer; Sensored soap dispenser; Trash; Baby changing table; Sharps bin

ADULT AREA

4,530 SF

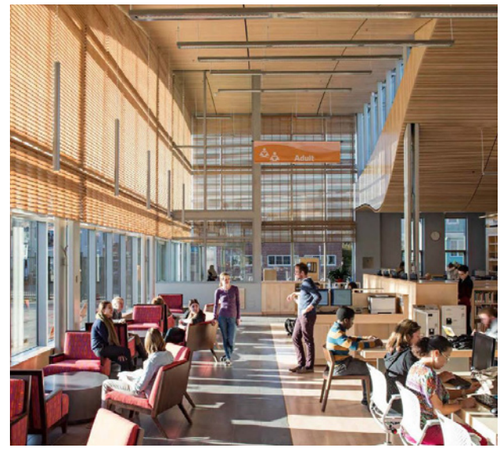
Adult Collections	2,520 sf
Adult Seating	1,335 sf
Adult Technology	675 sf

This area contains adult material which includes CD's, DVD's, fiction and non-fiction books, current magazines and periodicals, and more. The adult technology area includes computers with Internet access and a catalogue computer to search for material in the branch or across all of the BPL system.

The seating area contains a mix of soft seating, a laptop bar, and tables and chairs where people can gather in small groups. Power is available at each table for laptop use and along the laptop bar.

If sight lines to this area from the central service point are not direct, then a service point desk will be needed to assist patrons.

Perimeter shelving is 5-shelves high, which freestanding shelving is limited to 4-shelves high with a minimum 4-foot wide aisle width.



East Boston Branch

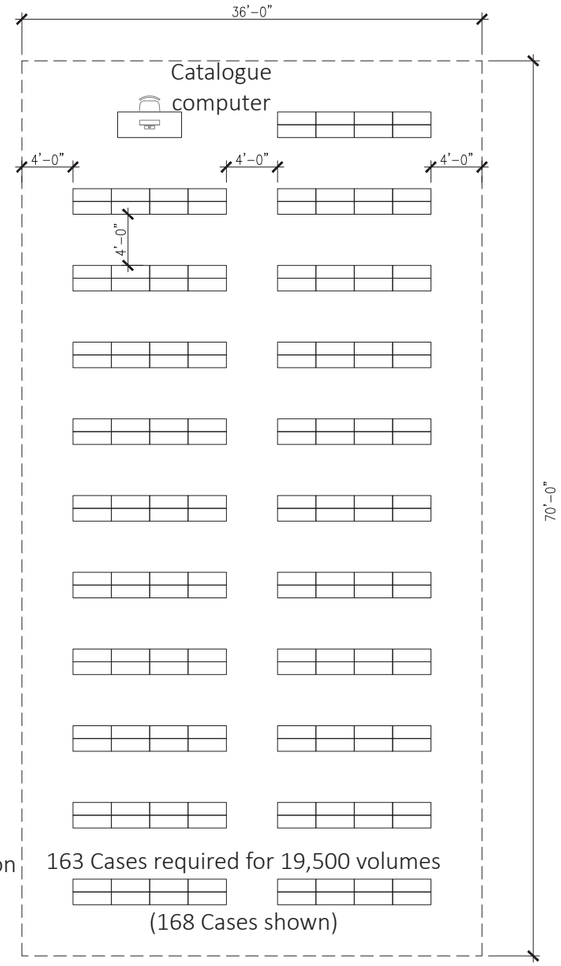
Boston Public Library - Central Library

Honan-Allston Branch

ADULT COLLECTIONS

2,520 SF

General area dedicated to a variety of adult collection types.



Functional Requirements

Quantity	1
Occupant Load	N/A
Collection Size	19,500 Volumes
Linear Feet of Shelving	1,956 lf required 2,016 lf shown

Adjacency Requirements

Adjacency	Adult Seating & Adult Tech
Views	Within sight of Central Service Point

Technical Requirements

Flooring	TBD- durable
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Intercom
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	20-50 FC
Security	TBD
Signage	Room identification; Collection signage
ADA	4 feet between shelving

FFE and Casework

Casework/Specialties	Bottom shelf slanted up; 5 shelves; high at perimeter, 4 shelves high where freestanding
Shelving	End display shelves
Furnishings	TBD
Equipment	TBD

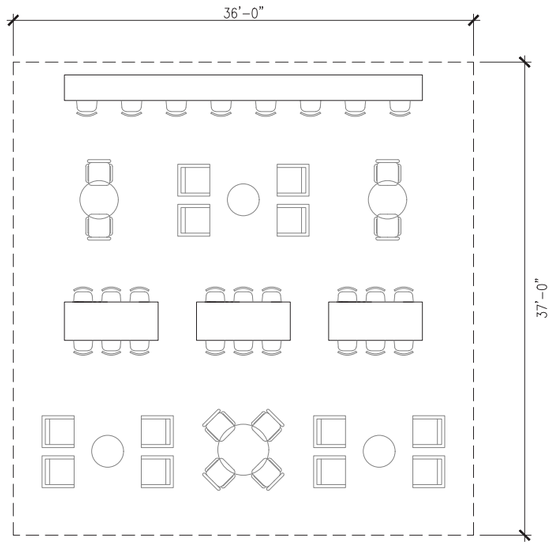
Fiction	11 vol/lf	
Nonfiction	10 vol/lf	
Graphic Novel	15 vol/lf	
Literacy	10 vol/lf	
Reference	8 vol/lf	
Paperback	12 vol/lf	
DVD	18 vol/lf	
Periodical	1 vol/lf	
Urban Fiction	15 vol/lf	
Book on CD	8 vol/lf	
World Language	15 vol/lf	

Single Case
4'-6" H x 3'-0" W
4 Shelves
12 Linear feet
Avg. 10 volumes/lf
120 Volumes

ADULT SEATING

1,335 SF

Reading room and/or smaller areas with a variety of seating options.



Functional Requirements

Quantity	1
Occupant Load	N/A
Seating	46

Adjacency Requirements

Adjacency	Adult Collections & Tech
Views	Within sight of Central Service Point; Views to exterior

Technical Requirements

Flooring	TBD- durable
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	Curtain Wall
Mechanical	N/A
Technology/Electrical	Floor power & Table power; Intercom, Wifi
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	30-50 FC
Security	TBD
Signage	Room identification
ADA	TBD

FFE and Casework

Casework/Specialties	Displays; Immigration material display
Shelving	TBD
Furnishings	Comfortable seating (12) Tables with chairs (seats 26) Laptop bar (8)
Equipment	TBD

ADULT TECHNOLOGY

675 SF

12 open computer stations for general use of internet and library databases.

Functional Requirements

Description	6 open computer stations for general use of internet and library databases.
Quantity	1
Occupant Load	N/A
Seating	8

Adjacency Requirements

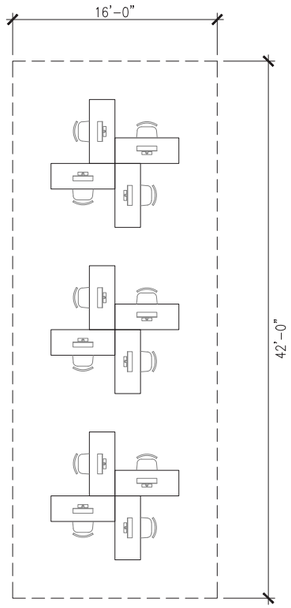
Adjacency	Adult Collections; Printing & Self-help kiosk Away from Children's services
Views	Within sight of Central Service Point

Technical Requirements

Flooring	TBD- durable
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Floor power and data; Intercom
Plumbing/FP	Sprinkler System
A/V	TBD
Lighting	30-50 FC
Security	TBD
Signage	Room identification
ADA	TBD

FFE and Casework

Casework/Specialties	N/A
Shelving	N/A
Furnishings	12 Workstations & chairs
Equipment	Reservation computers; Internet capable



TEEN AREA

675 SF

Teen Collections	275 sf
Teen Seating	400 sf

This area contains teen material which includes fiction, non-fiction, graphic novels, and more.

The seating area contains a mix of soft seating and banquettes with tables and chairs where teens can gather in small groups. Power is available at each table for laptop use and along the laptop bar.

Mattapan Branch

Boston Public Library - Central Library

Crandall Public Library

TEEN COLLECTIONS

275 SF

Area dedicated to teen collections with a variety of display shelving.

Functional Requirements

Quantity	1
Occupant Load	N/A
Collection Size	900 Volumes
Linear Feet of Shelving	72 lf required 108 f shown

Adjacency Requirements

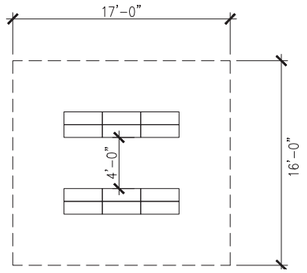
Adjacency	Teen Seating
Views	Within sight of Central Service Point

Technical Requirements

Flooring	TBD- durable, easy to clean
Ceilings	TBD
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Intercom
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	20-50 FC
Security	TBD
Signage	Room identification; Collection signage
ADA	4’ between shelving

FFE and Casework

Casework/Specialties	3-4 shelves per unit with bottom shelf slanted up
Shelving	End display shelves
Furnishings	N/A
Equipment	TBD



8 Cases required for
900 volumes
(12 Cases shown)

Single Case
3’-6” H x 3’-0” W
3 Shelves
9 Linear feet
Avg. 12 volumes/lf
108 Volumes

Fiction	12 vol/lf	
Nonfiction	15 vol/lf	
Graphic Novel	20 vol/lf	

TEEN SEATING

400 SF

Teen reading area with a variety of seating including a large banquette.

Functional Requirements

Quantity	1
Occupant Load	N/A
Seating	14

Adjacency Requirements

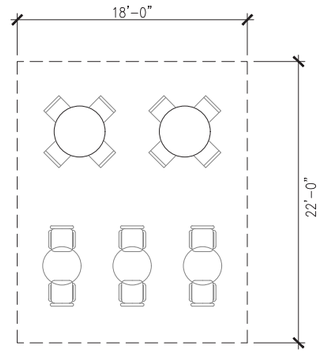
Adjacency	Teen Collections
Views	Within sight of Central Service Point; Views to exterior

Technical Requirements

Flooring	TBD- durable, easy to clean
Ceilings	TBD
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Floor power & Table power; Wifi
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	30-50 FC
Security	TBD
Signage	Room identification
ADA	TBD

FFE and Casework

Casework/Specialties	Displays
Shelving	TBD
Furnishings	2 Tables seating 4 (or banquette with tables) 3 Tables seating 2
Equipment	TBD



CHILDREN'S AREA

2,955 SF

Children's Collections	1,010 sf
Children's Seating	630 sf
Children's Technology	300 sf
Early Literacy Area	360 sf
Tween Area	342 sf
Craft Area	255 sf
Family Restroom	55 sf
* Secondary Service Point	*25 sf

This area contains children material which includes CD's, DVD's, picture books, board books, read along material, and more. The children technology area includes computers with Internet access where children can play games, browse material, and learn the catalogue system with adult supervision.

The seating area contains a mix of soft seating of lounge chairs and stools, tables and chairs, and banquettes where children and adults can read along together. An ealy literacy area will be used for children to play with toys and board books and a tween area that encourages learning with collections at their reading level.

If sight lines to this area from the central service point are not direct, then a service point desk will be needed to assist children. All of these programs spaces need to be contained within the same area.

Mattapan Branch

Cambridge Public Library

Gaithersburg Library

CHILDREN'S COLLECTIONS

1,010 SF

Area dedicated to a variety of children's collection types.

Functional Requirements

Quantity	1
Occupant Load	N/A
Collection Size	9,600 Volumes
Linear Feet of Shelving	486 lf required 576 lf shown

Adjacency Requirements

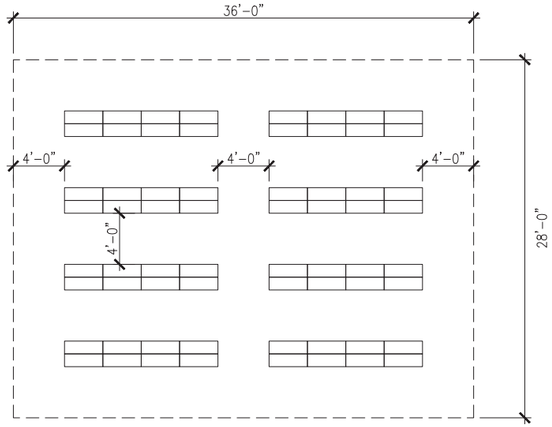
Adjacency	Children's Seating & Tech
Views	Within sight of Central Service Point

Technical Requirements

Flooring	TBD- durable, easy to clean
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Intercom
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	20-50 FC
Security	TBD
Signage	Room identification; Collection signage
ADA	4 feet between shelving

FFE and Casework

Casework/Specialties	Low height collection cases
Shelving	Mix of 2 and 3 shelves high
Furnishings	N/A
Equipment	TBD



54 Cases required for 9,600 volumes
(64 Cases shown)

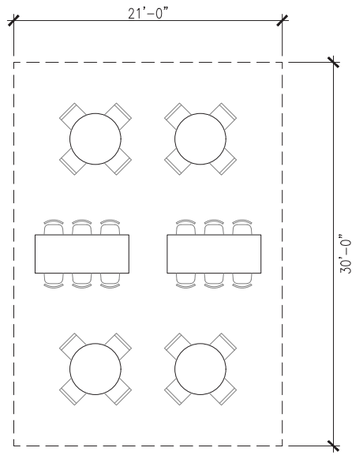
Single Case
3'-6" H x 3'-0" W
3 Shelves
9 Linear feet
Avg. 20 volumes/lf
180 Volumes

Fiction	12 vol/lf	
Nonfiction	25 vol/lf	
Graphic Novel	20 vol/lf	
Picture	30 vol/lf	
Folk & Fairy	25 vol/lf	
Easy Reader	30 vol/lf	
Holiday	25 vol/lf	
DVD	18 vol/lf	
Read Along	20 vol/lf	
Board	20 vol/lf	
World Language	18 vol/lf	

CHILDREN'S SEATING

630 SF

Reading room with a variety of seating options.



Functional Requirements	
Quantity	1
Occupant Load	N/A
Seating	28

Adjacency Requirements	
Adjacency	Children's Collections
Views	Within sight of Central Service Point; Views to exterior

Technical Requirements	
Flooring	TBD- durable, easy to clean
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Floor power & Table power; Intercom; Wifi
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	TBD
Security	TBD
Signage	Room identification
ADA	TBD

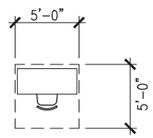
FFE and Casework	
Casework/Specialties	Low height displays
Shelving	TBD
Furnishings	Tables and chairs for 28 in groupings of 4 and 6
Equipment	TBD

Other Information	
	Space for strollers

SECONDARY SERVICE POINT

25 SF

* If Children's Area is separated from the Central Service Point, a secondary location for the Children's Librarian will be needed.



Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	TBD
Views	TBD

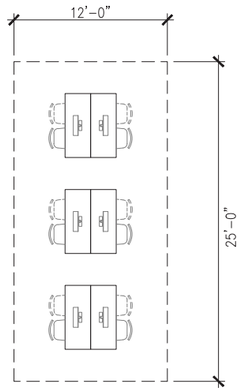
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	N/A
Mechanical	N/A
Technology/Electrical	Power
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	Desk and chair
Equipment	N/A

CHILDREN'S TECHNOLOGY

300 SF

To introduce children to computer use. Children can play games and look up materials.



Functional Requirements	
Quantity	1
Occupant Load	N/A
Seating	12

Adjacency Requirements	
Adjacency	Family Restroom
Views	Within sight of Central Service Point

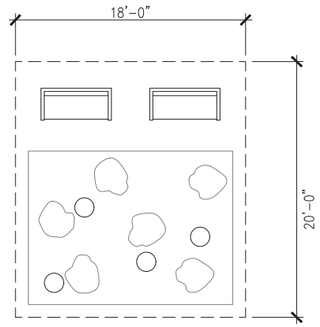
Technical Requirements	
Flooring	TBD- durable, easy to clean
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	2 power & 1 data per station; Intercom
Plumbing/FP	Sprinkler System
A/V	TBD
Lighting	30-50 FC
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	6 Workstations & 12 chairs (6 adult, 6 children)
Equipment	2 Computers; 2 AWE Computers; Reservation computer

EARLY LITERACY AREA

360 SF

Area for children to play with board books and toys and to be used for storytime and families to read together.



Functional Requirements	
Quantity	1
Occupant Load	N/A
Seating	12

Adjacency Requirements	
Adjacency	Board book storage
Views	Within sight of Central Service Point

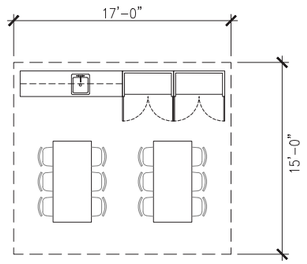
Technical Requirements	
Flooring	TBD- durable, easy to clean with area rug
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power
Plumbing/FP	Sprinkler System
A/V	TBD
Lighting	30-50 FC
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	TBD (Board bins stored under banquettes)
Shelving	N/A
Furnishings	Area rug for storytime and play Comfortable seating and stools (8) Banquettes (seats 4)
Equipment	TBD

CRAFT AREA

255 SF

Area for learning and craft activities.



Functional Requirements

Quantity	1
Occupant Load	N/A
Seating	12

Adjacency Requirements

Adjacency	Family Restroom
Views	Within sight of Central Service Point

Technical Requirements

Flooring	TBD- durable, easy to clean with area rug
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Intercom
Plumbing/FP	Sprinkler System; Sink
A/V	TBD
Lighting	30-50 FC
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework

Casework/Specialties	Counter & Lockable cabinets
Shelving	TBD
Furnishings	Tables and chairs for 12
Equipment	TBD

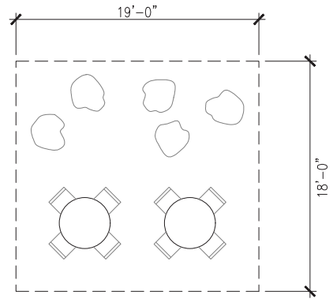
Other Information

Soap dispenser at sink

TWEEN AREA

345 SF

Reading area with a variety of seating options. Note: tween collections are part of children's collections.



Functional Requirements

Quantity	1
Occupant Load	N/A
Seating	13

Adjacency Requirements

Adjacency	Family Restroom
Views	Within sight of Central Service Point

Technical Requirements

Flooring	TBD- durable, easy to clean with area rug
Ceilings	TBD- acoustic, attractive
Walls	N/A
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Floor power & Table power; Intercom; Wifi
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	30-50 FC
Security	TBD
Signage	Room Identification
ADA	TBD

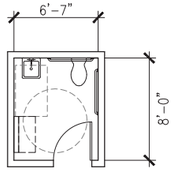
FFE and Casework

Casework/Specialties	Low height displays
Shelving	TBD
Furnishings	Comfortable seating (5) Tables with chairs (seats 8)
Equipment	TBD

FAMILY RESTROOM

55 SF

Dedicated restroom for families in children's library.



Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	Children's services- children's library use only
Views	N/A

Technical Requirements

Flooring	Porcelain tile
Ceilings	GWB
Walls	Full height ceramic tile
Doors/Windows	TBD
Mechanical	Exhaust fans
Technology/Electrical	Power
Plumbing/FP	Sprinkler System; Hardwired toilet and sink; Floor drain
A/V	N/A
Lighting	10-30 FC
Security	Lock with occupancy indicator
Signage	Room Identification
ADA	TBD

FFE and Casework

Casework/Specialties	N/A
Shelving	N/A
Furnishings	Step stool for children
Equipment	Hardwired hand dryer; Soap dispenser; Trash; Baby changing table; Sharps bin

COMMUNITY

2,325 SF

Community Room	1,355 sf
Learning Lab / Classroom	730 sf
Small Conf. / Study Room	120 sf
Small Conf. / Study Room	120 sf

Community spaces allow patrons to gather in dedicated spaces for community members to hold public events and learning sessions that are acoustically separated from the reading and collection areas.

The community room can hold up to 100 people and can be set up for lecture type events or set up for group learning with tables and chairs that can all be stored away if not in use. The community room needs to be easy to get to from the main entry without passing through the children's area. The community room also has multi-media functions that are easily accessible for library and community use.

A multi-purpose classroom can be used for computer instruction while remaining flexible for other uses, and small study rooms are for 4 people.

Adams Branch

Crandall Public Library

Gaithersburg Public Library

COMMUNITY ROOM

1,355 SF

Multi-purpose room accommodating a wide range of community and library programming, including lectures, movies, exhibitions, children & adult programs, training, classes, etc.

Functional Requirements

Quantity	1
Occupant Load	103
Seating	Lecture: 103 Work tables: 54

Adjacency Requirements

Adjacency	Near Restroom; Easy to get to from main entry without passing through children's area
Views	From Lobby

Technical Requirements

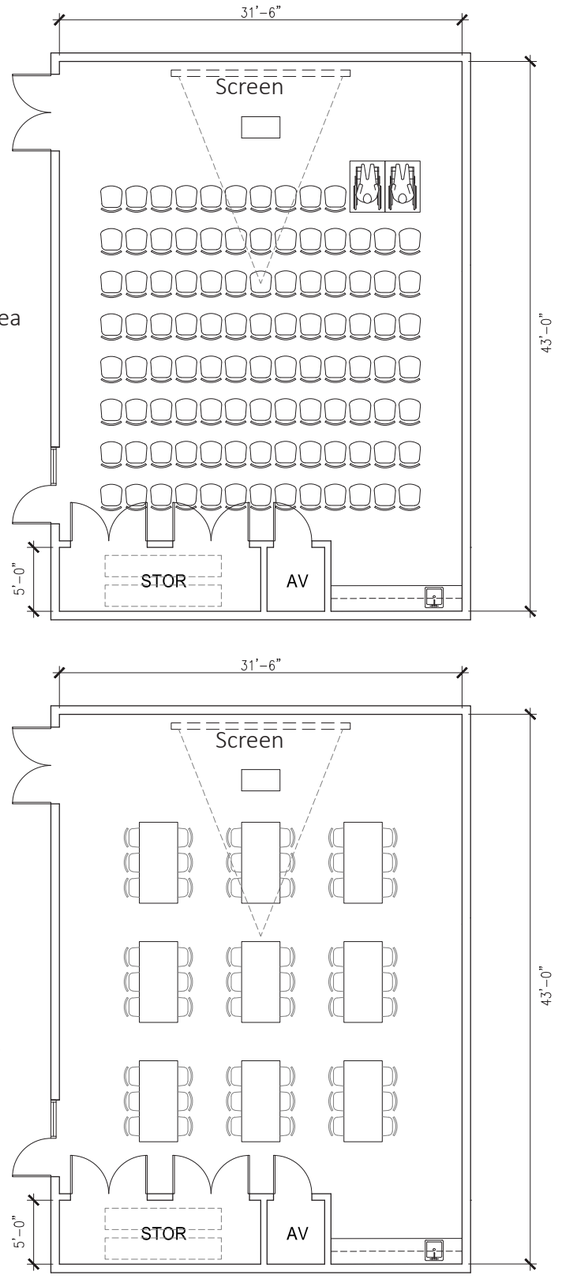
Flooring	TBD- durable, easy to clean
Ceilings	TBD- acoustic
Walls	TBD- designed for acoustics
Doors/Windows	Door with sidelite
Mechanical	N/A
Technology/Electrical	Floor box at podium; Power; Data; Intercom; Loop system
Plumbing/FP	Sprinkler system; Sink
A/V	Multimedia sound system; Screen; Projector
Lighting	Adjustable lighting levels
Security	Lock
Signage	Room Identification
ADA	Space for 2 wheelchairs; Hearing loop range

FFE and Casework

Casework/Specialties	Counter with cabinets; Picture rail; Podium
Shelving	Shelves above counter
Furnishings	Chairs for 100 people; Tables
Equipment	People's counter

Other Information

	Storage closet
	AV closet
	Soap dispenser at sink



LEARNING LAB / CLASSROOM

730 SF

Classroom accommodating smaller meetings, computer training sessions, and small group community events. Includes Food Pantry storage.

Functional Requirements

Quantity	1
Occupant Load	20
Seating	21

Adjacency Requirements

Adjacency	Near Restroom
Views	From Lobby

Technical Requirements

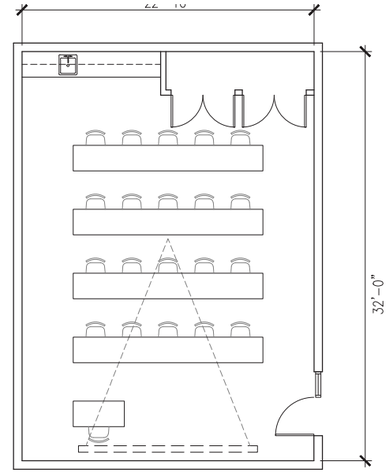
Flooring	TBD- durable, easy to clean
Ceilings	TBD- acoustic
Walls	GWB
Doors/Windows	Door with glass sidelite
Mechanical	N/A
Technology/Electrical	Floor power & Table power; Data; Intercom
Plumbing/FP	Sprinkler system; Sink
A/V	Multimedia sound system; Screen; Projector
Lighting	Adjustable lighting levels
Security	Lock
Signage	Room Identification
ADA	Hearing Loop

FFE and Casework

Casework/Specialties	Counter with cabinets below and shelves above; White board; Lockable Supply & equipment closet/casework
Shelving	N/A
Furnishings	Tables and chairs
Equipment	TBD

Other Information

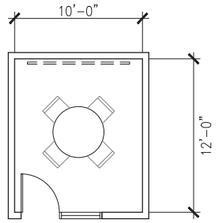
	Soap dispenser at sink



SMALL CONFERENCE / STUDY ROOM

240 SF (120 SF Each)

Quiet study rooms or small group work rooms.



Functional Requirements

Quantity	2
Occupant Load	N/A
Seating	4

Adjacency Requirements

Adjacency	Near adult and teen areas
Views	Within sight of Central Service Point

Technical Requirements

Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	Door with glass sidelite
Mechanical	N/A
Technology/Electrical	Power; Wifi
Plumbing/FP	Sprinkler system
A/V	intercom, conference
Lighting	30-50 FC
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework

Casework/Specialties	White board
Shelving	N/A
Furnishings	Table with chairs
Equipment	TBD

STAFF

720 SF

Workroom	290 sf
Librarian's Office	120 sf
Staff Break Room	255 sf
Staff Restroom	55 sf

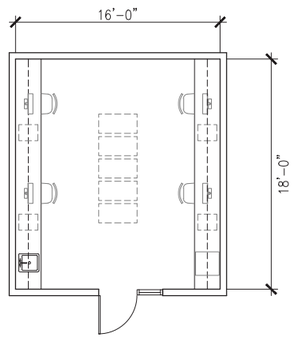
Staff spaces allow staff to process materials away from the public central service point, make phone calls away for program preparation, eat and take breaks, and store personal belongings.

The workroom needs to be located directly adjacent to the central service point and have easy access and routes for book carts to move to and from the book drop room. The librarian's office needs to be located off of public space.

WORKROOM

290 SF

Enclosed staff work room for processing library materials away from the public desk.



Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	Central Service Point and Staff Restroom
Views	To Central Service Point

Technical Requirements

Flooring	TBD - durable for carts
Ceilings	TBD
Walls	TBD
Doors/Windows	Door with glass sidelite
Mechanical	N/A
Technology/Electrical	Power; Data; Telephone; Intercom
Plumbing/FP	Sprinkler system; Sink
A/V	TBD
Lighting	30-75 FC
Security	Card reader
Signage	Room Identification
ADA	TBD

FFE and Casework

Casework/Specialties	Counter with cabinets below and shelves above; Work counter/desk
Shelving	Shelving
Furnishings	4 Office chairs; Book carts; Laptop carts; Book tote bags; Coat rack
Equipment	Each workstation: Desktop Computer, desensitizer, barcode scanner, receipt printer, mobile pedestals, phone, MF printer;

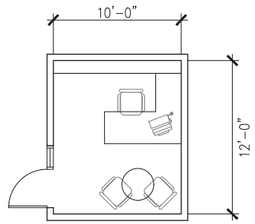
Other Information

Soap dispenser at sink

LIBRARIAN'S OFFICE

120 SF

Office for librarian with small meeting desk.



Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	Lobby or public area
Views	TBD

Technical Requirements

Flooring	Carpet
Ceilings	GWB
Walls	GWB
Doors/Windows	Door with glass sidelite
Mechanical	N/A
Technology/Electrical	Power; Data; Telephone
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	30-50 FC
Security	Card reader
Signage	Room Identification
ADA	TBD

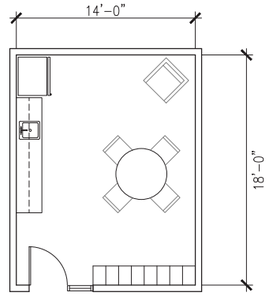
FFE and Casework

Casework/Specialties	TBD
Shelving	Shelving/storage; Lateral files 2 drawers
Furnishings	Desk & Office chair; Small table & 2 chairs
Equipment	Computer

STAFF BREAK ROOM

255 SF

Enclosed space for staff to eat meal/snacks, take breaks, and store personal items.



Functional Requirements

Quantity	1
Occupant Load	N/A
Seating	5

Adjacency Requirements

Adjacency	Back of house
Views	N/A

Technical Requirements

Flooring	Resilient
Ceilings	TBD
Walls	TBD
Doors/Windows	Door with glass sidelite
Mechanical	N/A
Technology/Electrical	Power; Phone VOIP; Intercom
Plumbing/FP	Sprinkler system; Sink with filtered water spout
A/V	N/A
Lighting	10-30 FC
Security	Card reader
Signage	Room Identification
ADA	TBD

FFE and Casework

Casework/Specialties	Counter with cabinets below and shelves above; (8) 12" W x 15" D Full height lockable lockers
Shelving	N/A
Furnishings	Table with chairs (seats 4) Soft seat (1)
Equipment	Refrigerator; Soap dispenser; Paper towel dispenser

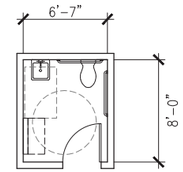
Other Information

Space for microwave, coffeemaker, toaster

STAFF RESTROOM

55 SF

Dedicated private staff restroom.



Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	Staff Workroom
Views	N/A

Technical Requirements

Flooring	Porcelain tile
Ceilings	GWB
Walls	full height ceramic tile
Doors/Windows	TBD
Mechanical	Exhaust fans
Technology/Electrical	Power
Plumbing/FP	Sprinkler System; Hardwired toilet and sink; Floor drain
A/V	N/A
Lighting	10-30 FC
Security	Lock with occupancy indicator
Signage	Room Identification
ADA	TBD

FFE and Casework

Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	Paper towel dispenser; Soap dispenser; Trash; Baby changing table; Sharps bin

SUPPORT/SERVICES/CIRCULATION

1,295 SF

*Elevator	70 sf
*Stairs	330 sf (165 sf each floor)
Friend's Storage	100 sf
Custodian's Closet	10 sf
Storage	300 sf
Facilities Storage	300 sf
Staff Bike Storage	230 sf
Server Room	180 sf
Electrical Room	75 sf
Elevator Machine Room	100 sf

All buildings require services that include storage, mechanical, electrical, water service, and servers for Internet, telephone and data. The Friends of the Library storage room is a dedicated space for the group to store and process donated materials.

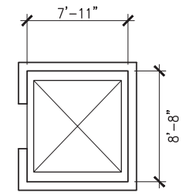
Spaces like storage, mechanical, electrical, water service and the servers can be located in the basement.

*These elements are not counted in total program area.

ELEVATOR

70 SF

Vertical means of egress.



Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	Lobby
Views	N/A

Technical Requirements

Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	N/A
Mechanical	N/A
Technology/Electrical	TBD
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework

Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

STAIRS

165 SF

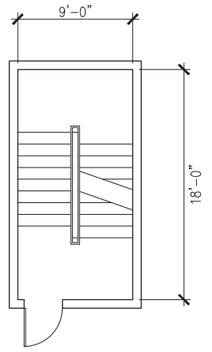
Vertical means of egress.

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Lobby
Views	from the Central Service Point

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	1-hr rated
Doors/Windows	1-hr rated
Mechanical	N/A
Technology/Electrical	TBD
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A



FRIEND'S STORAGE

100 SF

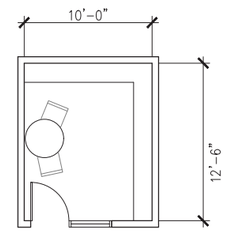
Large closet for the Friend's group to process and store donation materials.

Functional Requirements	
Quantity	1
Occupant Load	N/A
Seating	2

Adjacency Requirements	
Adjacency	Central Service Point & Lobby
Views	N/A

Technical Requirements	
Flooring	TBD
Ceilings	GWB
Walls	GWB
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	30-50 FC
Security	Lock
Signage	Room identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	15" Deep shelving
Furnishings	Small table with 2 chairs
Equipment	N/A



CUSTODIAN'S CLOSET

10 SF

Custodial station with mop sink and cleaning supplies.

Functional Requirements	
Quantity	1
Occupant Load	N/A
Adjacency Requirements	
Adjacency	Restrooms
Views	N/A
Technical Requirements	
Flooring	TBD
Ceilings	Open
Walls	TBD- durable & moisture resistant
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power
Plumbing/FP	Mop sink enclosure
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD
FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

STORAGE

300 SF

General storage for library staff including bibliocycle.

Functional Requirements	
Quantity	1
Occupant Load	N/A
Adjacency Requirements	
Adjacency	Staff areas
Views	N/A
Technical Requirements	
Flooring	Sealed concrete
Ceilings	Open
Walls	TBD
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Data; Intercom
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	5-20 FC
Security	Card reader
Signage	Room Identification
ADA	TBD
FFE and Casework	
Casework/Specialties	N/A
Shelving	Adjustable shelving
Furnishings	Desk and chair
Equipment	Computer

SERVER ROOM

160 SF

Enclosed room for network servers.

Functional Requirements	
Quantity	1
Occupant Load	N/A
Adjacency Requirements	
Adjacency	Can be in basement
Technical Requirements	
Flooring	Sealed Concrete
Ceilings	Open with rack access
Walls	TBD
Doors/Windows	TBD
Mechanical	Dedicated cooling
Technology/Electrical	Power; Data; Telephone
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	20-50 FC
Security	Card Reader
Signage	Room Identification
ADA	TBD
FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

ELECTRICAL ROOM

75 SF

Enclosed room for electrical panels.

Functional Requirements	
Quantity	1
Occupant Load	N/A
Adjacency Requirements	
Adjacency	Can be in basement; Near site utility connection.
Technical Requirements	
Flooring	Sealed Concrete
Ceilings	Fire rated
Walls	Fire rated
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Data; Telephone
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	20-50 FC
Security	Card Reader
Signage	Room Identification
ADA	TBD
FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

FACILITIES STORAGE

300 SF

Outdoor power, equipment, cleaning supplies, storage for attic stock, and trash & recycling. Includes employee bicycle storage.

Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	Exterior door
Views	Not visible from public

Technical Requirements

Flooring	Sealed Concrete
Ceilings	Fire rated
Walls	Fire rated
Doors/Windows	Exterior double door
Mechanical	N/A
Technology/Electrical	Power
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	5-20 FC
Security	Card reader
Signage	Room Identification
ADA	TBD

FFE and Casework

Casework/Specialties	N/A
Shelving	Adjustable shelving
Furnishings	N/A
Equipment	N/A

Other Information

5 Large trash/recycle bins
Ladder/lift
Interior & exterior access
Snow blower
Lawn Mower
Shovels
Sand/salt

OUTDOOR SPACE

2,000-3,000 SF *area is flexible based on building layout

Flexible site areas including reading garden, plantings, a small open lawn for flexible gathering and activities, bicycle parking, defined sidewalk access for entrances, and a flexible entrance plaza.

Functional Requirements

Occupant Load	N/A
Seating	TBD

Adjacency Requirements Entrance

Adjacency	N/A
Views	

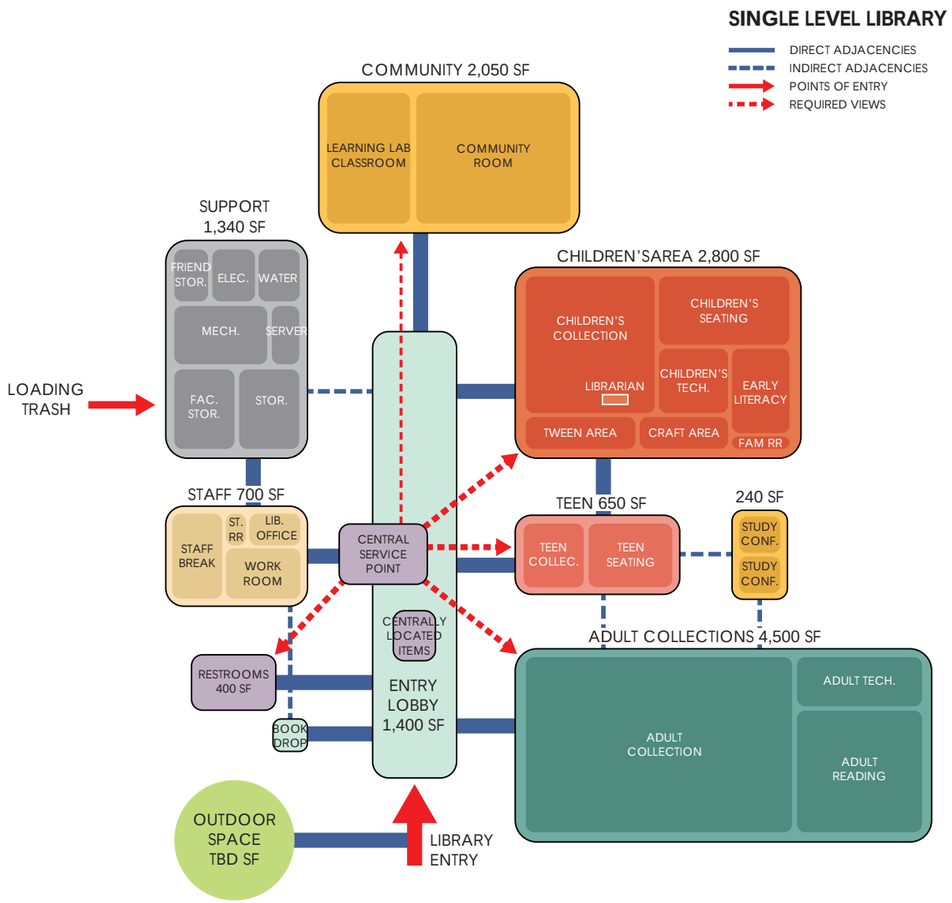
Technical Requirements

Ground	Mix of Specialty Paving and drought tolerant planting
Technology/Electrical	Wifi range
Plumbing/FP	Landscape Irrigation
A/V	N/A
Lighting	Light poles, bollards
Security	Security Camera
Signage	TBD
ADA	All areas accessible

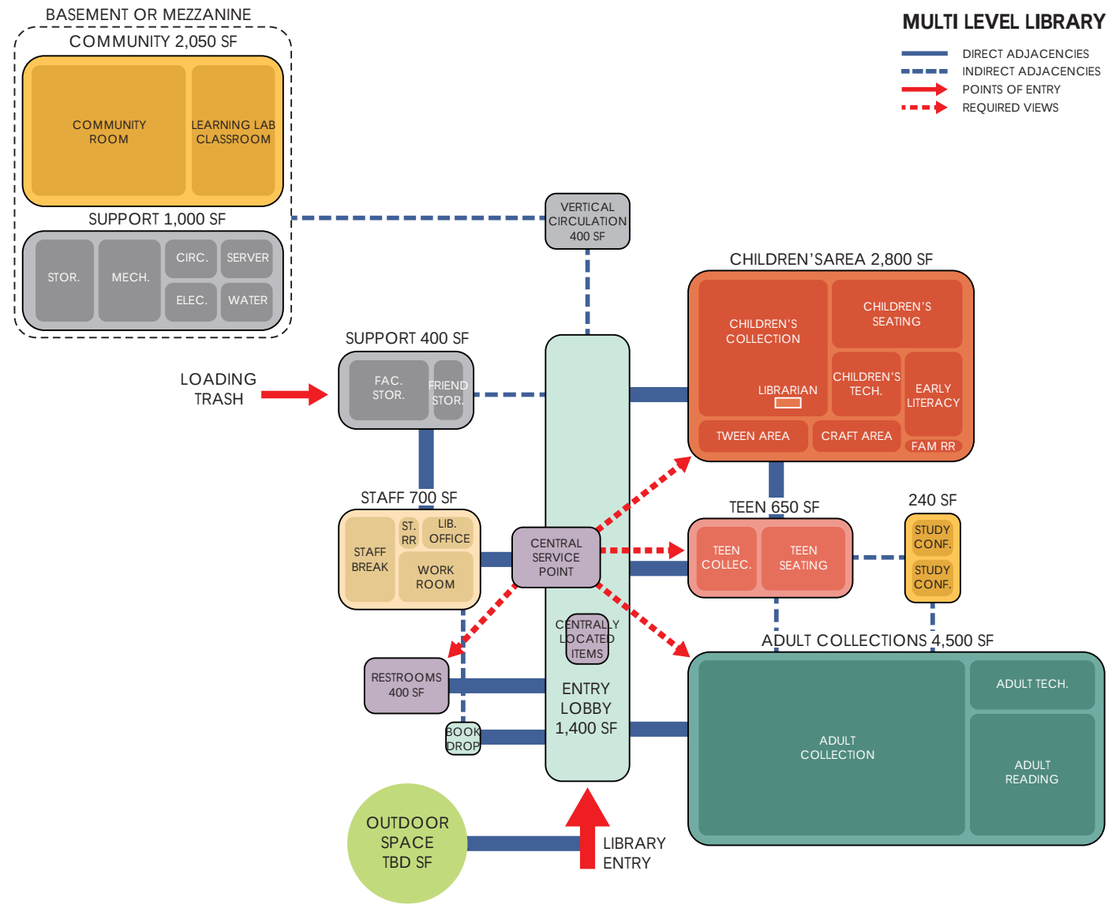
FFE and Casework

Casework/Specialties	N/A
Shelving	N/A
Furnishings	Bike racks, tables and chairs, benches, trash cans, raised planters.
Equipment	N/A

PROGRAM ADJACENCY - SINGLE LEVEL BRANCH LIBRARY



PROGRAM ADJACENCY - MULTI LEVEL BRANCH LIBRARY



3.3 RESIDENTIAL PROGRAM SUMMARY

The housing program has been developed independently of the library program. The two programs are intended to be completely separate within the building. This program uses studio, one-, two- and three-bedroom units as a placeholder. The exact type and number will be identified by DND public engagement process, the developer, and BPDA's Article 80 project review process. This program assumes no parking on the site.

The target square footage of unit types included in the study was determined by looking at square footage requirements for units set by the Massachusetts Department of Housing and Community Development (for state housing funds), Boston Department of Neighborhood Development (encompassing guidelines from HUD, Mass HOME, and CDBG), and the Boston Planning & Development Agency's "Metro Units" and Compact Living Unit standards for housing near transportation.

	SPACE	TARGET SF	TARGET UNITS	TARGET UNIT SIZE
GROUND FLOOR				
	Package Room	80		
	Mailboxes	25		
	Elevators	200		
	Waiting Area	160		
	Lobby Stair	145		
	Entrance	250		
	Trash Corridor	100		
	Trash Chutes	5		
	Fire Command Center	200		
	Circulation	130		
	Secondary Stair	230		
	Subtotal	815		
BASEMENT				
	Electrical	450		
	Domestic Water Service	200		
	Fuel Oil Storage for Generator	100		
	Fire Pump Room	200		
	Bike Storage	1,620		
	Elevators	230		
	Elevator Machine Room	85		
	Trash	480		
	Transformer Vault	900		
	Maintenance Office	120		
	Corridor	700		
	Subtotal	4,155		
SECOND FLOOR				
	Laundry	450		
	Community Room	450		
	Elevators	230		
	Stair	490		
	Trash Chutes	4		
	Recycling Closet	100		
	Mechanical shaft	70		
	Elect Closet	150		
	Tel Closet	20		
	Life Safety Closet	20		
	HVAC Closet	35		
	Studio	470	1	470
	1BR	1,280	2	640
	2BR	2,550	3	850
	3 BR	1,150	1	1,150
	Subtotal	6,675	7	

	SPACE	TARGET SF	TARGET UNITS	TARGET UNIT SIZE
THIRD FLOOR				
	Laundry	450		
	Community Room	450		
	Elevators	230		
	Stair	490		
	Trash Chutes	5		
	Recycling Closet	100		
	Mechanical shaft	70		
	Elect Closet	150		
	Tel Closet	20		
	Life Safety Closet	20		
	HVAC Closet	35		
	Studio	470	1	470
	1BR	1,280	2	640
	2BR	2,550	3	850
	3 BR	1,150	1	1,150
	Subtotal	6,675	7	
TYPICAL FLOOR				
	Elevators	230		
	Stair	490		
	Trash Chutes	5		
	Recycling Closet	100		
	Mechanical shaft	70		
	Elect Closet	150		
	Tel Closet	20		
	Life Safety Closet	20		
	HVAC Closet	35		
	Corridor	825		
	Studio	1,410	3	470
	1BR	1,280	2	640
	2BR	2,550	3	850
	3 BR	1,150	1	1,150
	Subtotal	6,715	9	

Total Housing Program Area - 4 STORIES	31,790
Total Housing Program Area - 9 STORIES	65,365

Unit Totals			
Floors of Housing - MIN		4	
Studio		10	29%
1BR		8	24%
2BR		12	35%
3 BR		4	12%
Total Units		34	

Floors of Housing - MAX		9	
Studio		26	33%
1BR		18	23%
2BR		27	34%
3 BR		9	11%
Total Units		80	

3.4 RESIDENTIAL ROOM DATA SHEETS

HOUSING GROUND FLOOR

The housing entry is the welcoming zone and orientation point for residents, allowing for connection to units on upper floors. This entry is independent from the entry to the library. The package room and mailboxes are accessed off of the lobby. A separate service entrance is provided to bring the trash and recycling bins up the elevator and out to the street.

HOUSING BASEMENT

The basement contains both a private corridor for the residents and facilities personnel of the housing that has access to the bike storage and trash room. There is also a corridor that is accessible to library staff that provides access to the shared building utility spaces.

HOUSING RESIDENTIAL LEVELS

The third level provides amenity spaces including a Community Room adjacent to a roof terrace that is accessible to residents and shared laundry facilities. Each residential level has stacked spaces for the building systems and trash.

HOUSING UNIT SIZES

The target square footage of unit types included in the study was determined by looking at square footage requirements for units set by the Massachusetts Department of Housing and Community Development (for state housing funds), Boston Department of Neighborhood Development (encompassing guidelines from HUD, Mass HOME, and CDBG), and the Boston Planning & Development Agency's "Metro Units" and Compact Living Unit standards for housing near transportation.

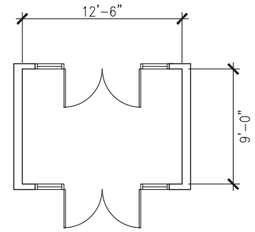
EXTERIOR

The entry to the housing lobby requires exterior paving and lighting, intended to give the housing a distinct identity separate from the library. There will be ongoing coordination and discussion with the community around trash pick-up and service deliveries.

VESTIBULE

112 SF

Welcoming and transparent main entry. This vestibule is independent from the vestibule of the branch. Not required if lobby space is tight.



Functional Requirements

Quantity	1
Occupant Load	N/A

Adjacency Requirements

Adjacency	Lobby
Views	N/A

Technical Requirements

Flooring	Walk-off mat
Ceilings	TBD
Walls	TBD
Doors/Windows	Glass storefront doors
Mechanical	Cabinet unit heater
Technology/Electrical	Power
Plumbing/FP	Sprinkler system; Fire panel
A/V	N/A
Lighting	TBD
Security	Building alarm, surveillance camera, exterior card reader
Signage	Building identification
ADA	TBD

FFE and Casework

Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

LOBBY

410 SF *area is flexible based on building layout

Orientation point for residents, allowing for connection to units on upper floors. This lobby is independent from the lobby of the branch.

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Entry and vertical circulation
Views	N/A

Technical Requirements	
Flooring	TBD- durable, easy to clean
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	Surveillance cameras
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	TBD
Shelving	TBD
Furnishings	TBD
Equipment	TBD

PACKAGE ROOM

80 SF

Package storage for residents

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Accessed from Lobby

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	TBD
Technology/Electrical	N/A
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	Locked
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

TRASH ROOM

480 SF

Room for Trash Compactors connected by chute to trash rooms on residential levels

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Can be in basement;

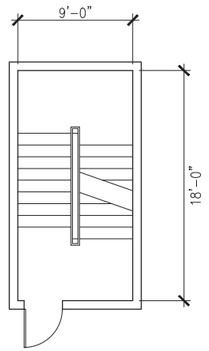
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Data; Telephone
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	Trash Compactor

STAIRS

324 SF (162 SF Each)

Vertical means of egress.



Functional Requirements	
Quantity	2
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Lobby
Views	N/A

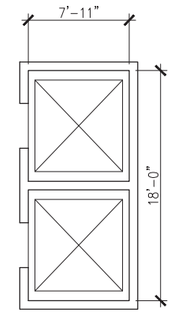
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	1-hr rated
Doors/Windows	1-hr rated
Mechanical	N/A
Technology/Electrical	TBD
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

ELEVATORS

145 SF

Vertical means of egress.



Functional Requirements	
Quantity	1 set
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Lobby
Views	N/A

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	N/A
Mechanical	N/A
Technology/Electrical	TBD
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

FIRE COMMAND CENTER

200 SF

Enclosed, rated communication room for the Fire Department. 10'x20'.

Functional Requirements	
Quantity	1
Occupant Load	N/A
Adjacency Requirements	
Adjacency	Accessed from Lobby
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	TBD
Technology/Electrical	Power; Data; Telephone; fire alarm
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD
FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

Note: This would not be required for building heights under 70 feet.

FIRE PUMP ROOM

200 SF

Fire Pump for sprinkler system in residential tower.

Functional Requirements	
Quantity	1
Occupant Load	N/A
Adjacency Requirements	
Adjacency	Can be in basement; 2-hr rated path from outside
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Data; Telephone
Plumbing/FP	Sprinkler system, Fire Pump
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD
FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	Trash Compactor

MAINTENANCE OFFICE

120 SF

Room for property management.

Functional Requirements	
Quantity	1
Occupant Load	N/A
Adjacency Requirements	
Adjacency	Can be in basement
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	TBD
Technology/Electrical	Power; Data; Telephone
Plumbing/FP	Sprinkler system, toilet
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD
FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

GENERATOR FUEL STORAGE

100 SF

Fuel storage for generator, connected to generator on roof. Connection to exterior for deliveries.

Functional Requirements	
Quantity	1
Occupant Load	N/A
Adjacency Requirements	
Adjacency	Can be in basement;
Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	N/A
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD
FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	Trash Compactor

ELECTRICAL ROOM

260 SF

Enclosed room for electrical panels.

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Can be in basement; Near site utility connection.

Technical Requirements	
Flooring	TBD
Ceilings	Fire rated
Walls	Fire rated
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Data; Telephone
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

EMERGENCY ELECTRICAL ROOM

150 SF

Enclosed room for electrical panels.

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Can be in basement; Near electrical room.

Technical Requirements	TBD
Flooring	Fire rated
Ceilings	Fire rated
Walls	TBD
Doors/Windows	N/A
Mechanical	Power; Data; Telephone
Technology/Electrical	Sprinkler system
Plumbing/FP	N/A
A/V	TBD
Lighting	TBD
Security	Room Identification
Signage	TBD
ADA	

FFE and Casework	N/A
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	

BIKE PARKING

1620 SF

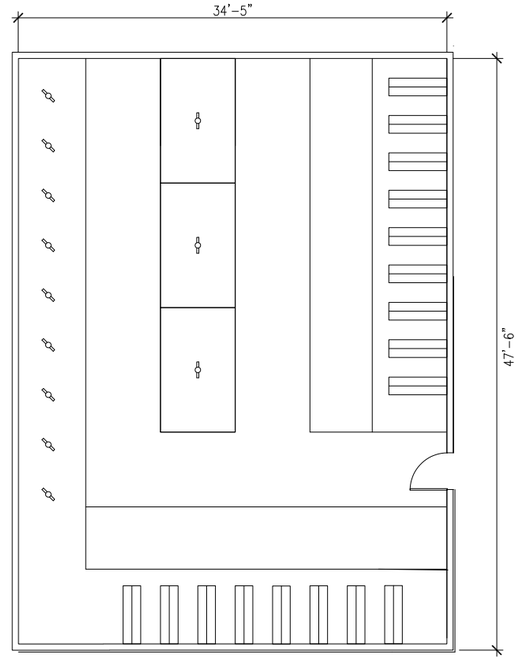
Bike parking for residents, 1 space per unit meetings the requirements of the Boston Bike Parking Guidelines. Sized here for 80 units included in the study but may be reduced for lower tower heights.

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Elevators
Views	N/A

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	N/A
Mechanical	N/A
Technology/Electrical	TBD
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	Bike Racks
Equipment	N/A



TRASH AND RECYCLING CLOSET

100 SF

Trash and recycling closet on each residential level

ELECTRIC CLOSET

150 SF

Enclosed 2-hour rated closet on each residential level

TELEPHONE CLOSET

20 SF

Enclosed Teldata closet on each residential level.

LIFE SAFETY CLOSET

20 SF

Enclosed 2-hr rated closet on each residential level.

HVAC Closet

35 SF

Enclosed mechanical closet on each residential level.

WATER SERVICE ROOM

300 SF

Enclosed room for water utility connections. Single shared space for the building with separate meters for library and residential.

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Can be in basement; Near site utility connection.

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	N/A
Technology/Electrical	Power; Data; Telephone
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

LAUNDRY

450 SF

Laundry facility for residents

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Near Community Room

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	TBD
Technology/Electrical	Electric Dryers
Plumbing/FP	Sprinkler system, washers
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	Washers and Dryers

COMMUNITY ROOM

500 SF

Community Room amenity for residents

Functional Requirements	
Quantity	1
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Adjacent to Roof Terrace; near Laundry

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	Dedicated fan coil unit
Technology/Electrical	Power; Data; Telephone
Plumbing/FP	Sprinkler system
A/V	N/A
Lighting	TBD
Security	TBD
Signage	Room Identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A

STUDIO UNIT

470 SF

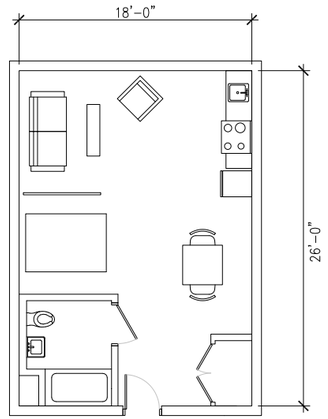
Housing unit with one bedroom for a single person.

Functional Requirements	
Quantity	TBD
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Circulation to egress
Views	Outside

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	TBD
Technology/Electrical	TBD
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A



1 BEDROOM UNIT

640 SF

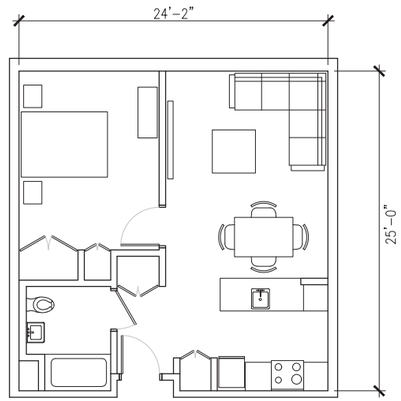
Housing unit with one bedroom for a single person or couple.

Functional Requirements	
Quantity	TBD
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Circulation to egress
Views	Outside

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	TBD
Technology/Electrical	TBD
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A



2 BEDROOM UNIT

850 SF

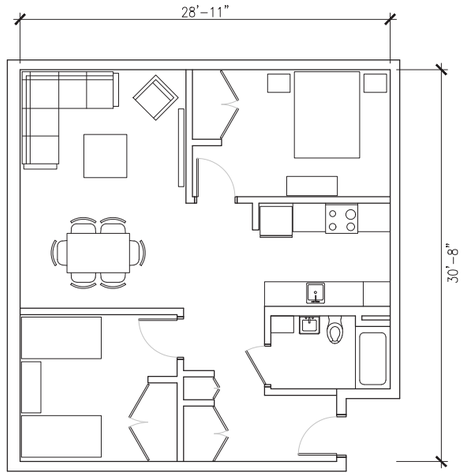
Housing unit with two bedrooms for families with children, couple, or other living arrangements.

Functional Requirements	
Quantity	TBD
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Circulation to egress
Views	Outside

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	TBD
Technology/Electrical	TBD
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A



3 BEDROOM UNIT

1,150 SF

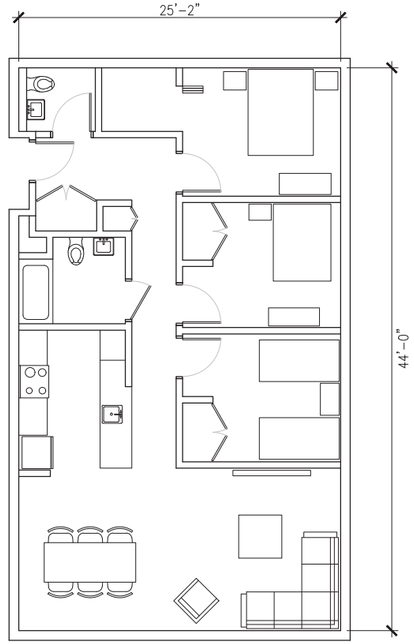
Housing unit with three bedrooms for families with children, couple, or other living arrangements.

Functional Requirements	
Quantity	TBD
Occupant Load	N/A

Adjacency Requirements	
Adjacency	Circulation to egress
Views	Outside

Technical Requirements	
Flooring	TBD
Ceilings	TBD
Walls	TBD
Doors/Windows	TBD
Mechanical	TBD
Technology/Electrical	TBD
Plumbing/FP	Sprinkler system
A/V	TBD
Lighting	TBD
Security	TBD
Signage	Building identification
ADA	TBD

FFE and Casework	
Casework/Specialties	N/A
Shelving	N/A
Furnishings	N/A
Equipment	N/A



4. DEVELOPMENT APPROACHES

4.1 INITIAL DESIGN OPTIONS

The major constraints of the site include limited site area and a deep, narrow property with limited site access. Due to these site limitations, the study of options began with the assumption that the library program would take up the majority of the site footprint. Each option looked at how the public open space in front of the library could be maintained to the greatest extent possible. A minimal rear yard was included to allow for windows for the program spaces at the rear of the building to be able to receive indirect light.

Because of the tight site constraints, both one-story and two-story options were tested. To coordinate with BPL's staffing and supervision capabilities, the two-story options looked at putting the community and classroom programs only on the second level while keeping all the collection areas on the ground floor.

The studies locate the housing entrance as far as possible from the library entrance to give each use a distinct identity. Because the ground floor area at the front of the site is at an especially high premium, Option C explored locating the entry to the residential tower mid-way back on the east side of the building, off of a dedicated residential plaza.

A range of heights were explored for the residential tower, expressed as a minimum and maximum number of units in early studies. The diagram building sections and 3D massing studies in Section 4.2 demonstrate the final range of heights that were included for the purposes of the study.

One of the major site constraints is the adjacent Charles River Plaza building developed up to the lot line on the West side of the site. This building includes existing windows starting at the second floor right up against the lot line. These windows are above the roof level of the existing library, but a new library would have a higher floor-to-floor height and would require the roof to be notched to include a 5'-1" minimum setback light well to avoid obstructing the windows. Various strategies for extending the building along the party wall were also considered to avoid exposing previously-concealed sections of the party wall that may not have been intended as a finished wall. To meet code, the wall adjacent to the lot line should be a 1-hour rated wall set 6" off of the property line.

OPTION A

Library on 1 level

TOTAL MIN UNITS: 43

(12) Studio - 500 sf
(20) 1 Bed - 600 sf
(11) 2 Bed - 850 sf

TOTAL Max UNITS: 98

(27) Studio - 500 sf
(45) 1 Bed - 600 sf
(26) 2 Bed - 850 sf

TOTAL LIBRARY AREA: 17,140 SF

TOTAL HOUSING AREA MIN: 45,227 SF
TOTAL HOUSING AREA MAX: 97,037 SF

TOTAL GREEN SPACE: 3,748 SF

OPTION B

Library on 1 level

TOTAL MIN UNITS: 39

(15) Studio - 500 sf
(12) 1 Bed - 600 sf
(08) 2 Bed - 850 sf
(04) 3 Bed - 1,100 sf

TOTAL Max UNITS: 89

(35) Studio - 500 sf
(27) 1 Bed - 600 sf
(18) 2 Bed - 850 sf
(09) 3 Bed - 1,100 sf

TOTAL LIBRARY AREA: 17,013 SF

TOTAL HOUSING AREA MIN: 37,946 SF
TOTAL HOUSING AREA MAX: 80,561 SF

TOTAL GREEN SPACE: 4,773 SF

OPTION C

Library on 2 levels

TOTAL MIN UNITS: 40

(18) Studio - 500 sf
(14) 1 Bed - 600 sf
(08) 2 Bed - 850 sf

TOTAL Max UNITS: 95

(43) Studio - 500 sf
(34) 1 Bed - 600 sf
(18) 2 Bed - 850 sf

TOTAL LIBRARY AREA: 19,106 SF

TOTAL HOUSING AREA MIN: 36,350 SF
TOTAL HOUSING AREA MAX: 80,960 SF

TOTAL GREEN SPACE: 5,219 SF

LIBRARY

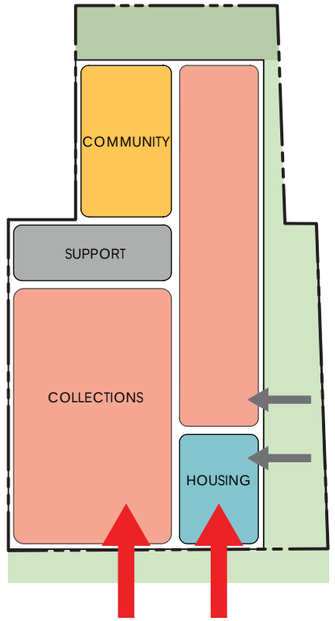
The main challenge for the library program on the site is organizing the program in a deep footprint without requiring an excessively long circulation path. Options locate larger program areas at the rear of the site, such as the Community Room or Children's Area, to take advantage of possible windows in the rear wall. Placing collection areas at the southwest and northeast corners of the building allow for the greatest access to natural light while leaving the support spaces located in the central part of the plan against the party wall.

FIRST FLOOR
PROGRAM LAYOUT

OPTION A

Library on 1 level
Housing entry at street

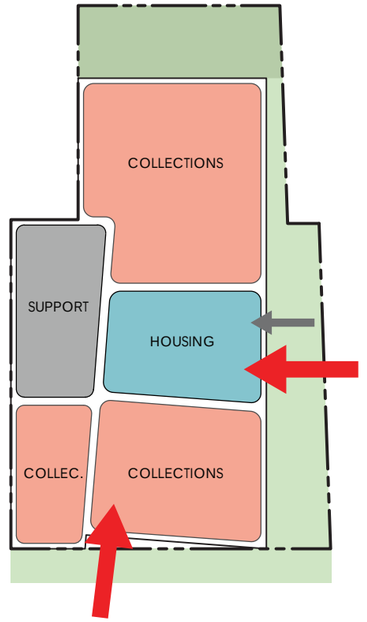
Library: 15,380 sf
Housing: 76,370 sf



OPTION B

Library on 2 levels
Community room 2nd floor
Housing entry back from street

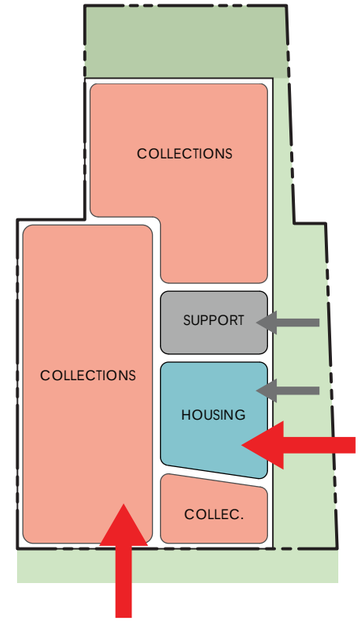
Library: 18,420
Housing: 75,270



OPTION C

Library on 2 levels
Community room 2nd floor
Housing entry back from street

Library: 19,700 sf
Housing: 79,360 sf

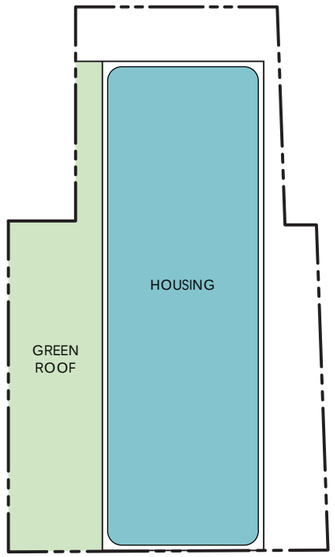


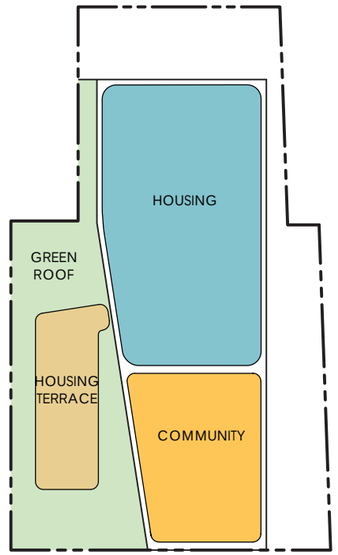
RESIDENTIAL TOWER

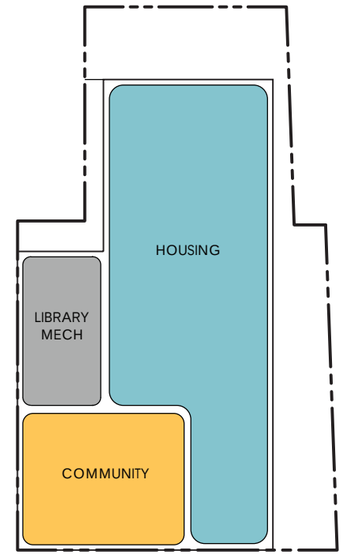
The location of the housing tower above was necessitated by the zero lot line condition of the existing adjacent tower abutting the west property line.

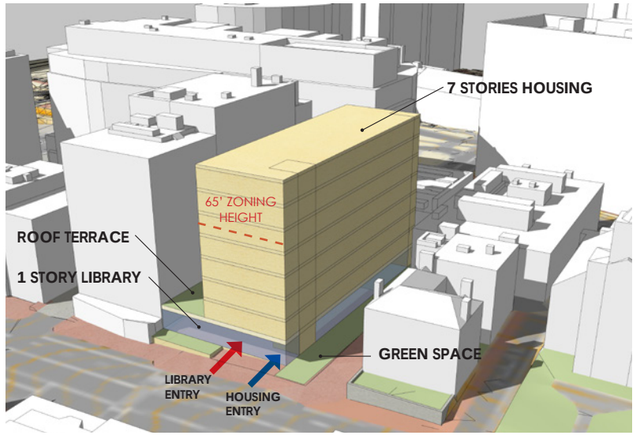
A one-story accessory space occupies the area toward the rear of the site where the property line jogs. All options assume a minimum distance of 35' between the residential tower and the existing tower to the west. The options maintain a 14' distance to the rear property line and to the adjacent building to the East near the rear of the site. The Otis house to the east poses minimal impact to the residential tower due to the siting and relatively low height.

SECOND FLOOR
PROGRAM LAYOUT

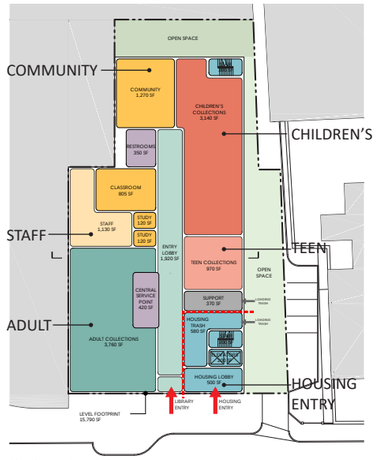








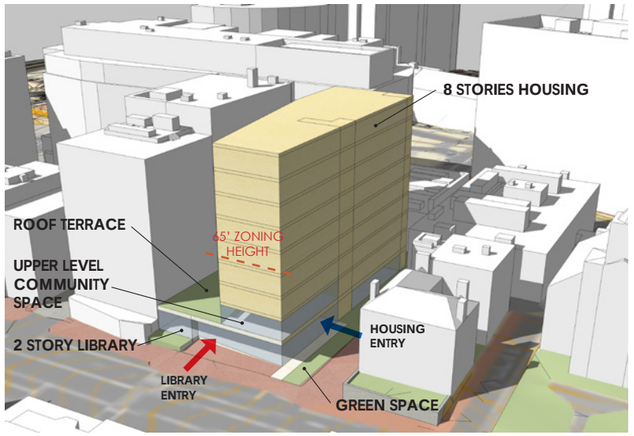
OPTION A - 8 STORIES - 91 FT



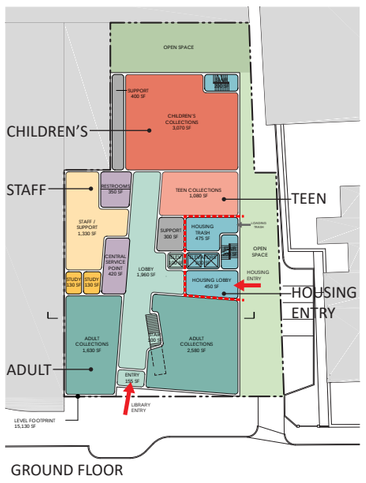
GROUND FLOOR

SECOND FLOOR

TYPICAL RESIDENTIAL LEVEL

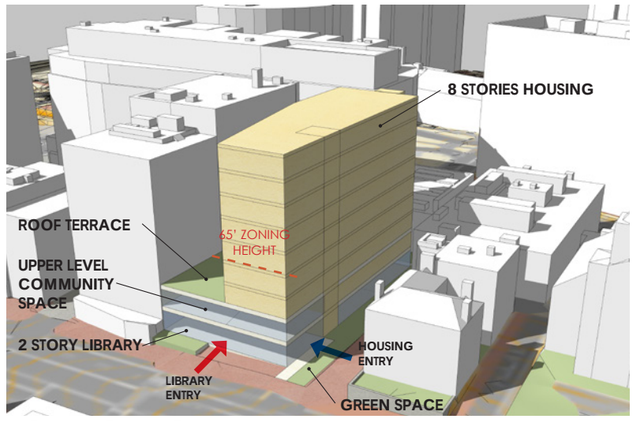


OPTION B - 9 STORIES - 101 FT

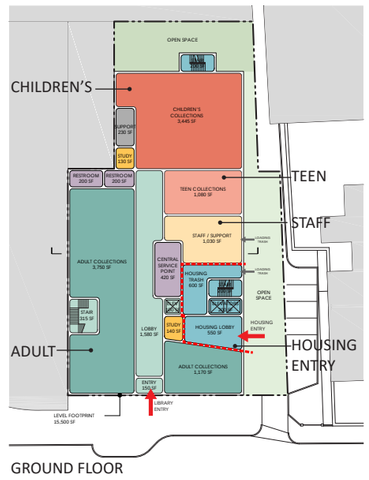


GROUND FLOOR

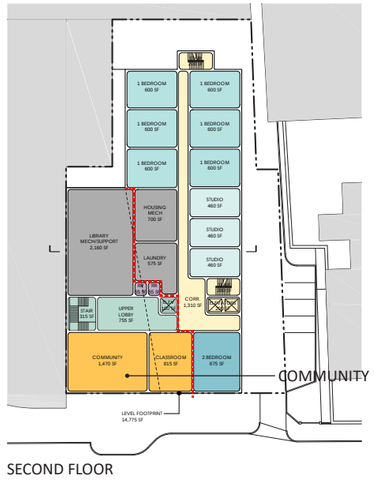
SECOND FLOOR



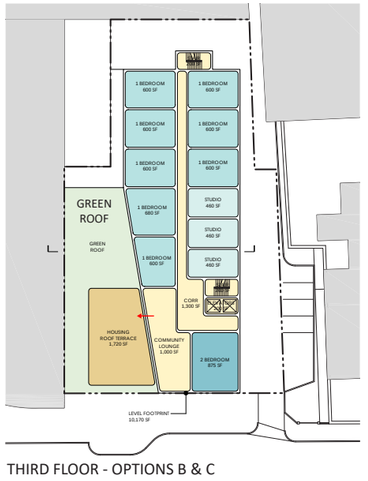
OPTION C - 9 STORIES - 101 FT



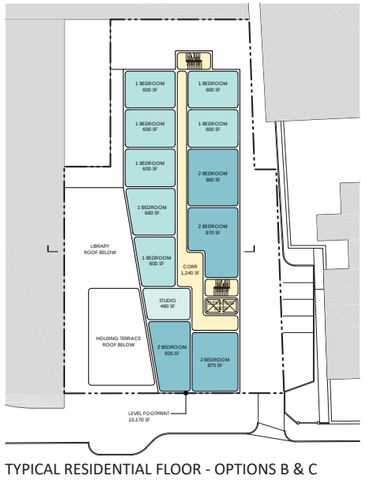
GROUND FLOOR



SECOND FLOOR



THIRD FLOOR - OPTIONS B & C



TYPICAL RESIDENTIAL FLOOR - OPTIONS B & C

4.2 DEVELOPMENT APPROACHES

The team selected two test fit approaches for further development. Approach 1 proposes a one-story library with the program organized as compactly as possible. Approach 2 explores a two-story library where the Community programs occupy the second level to allow for a more generous layout of the ground level collection spaces and create a stronger urban presence and identity for the library. Each approach assumes 4-9 residential levels above the library with an overall building height of 5-10 stories.

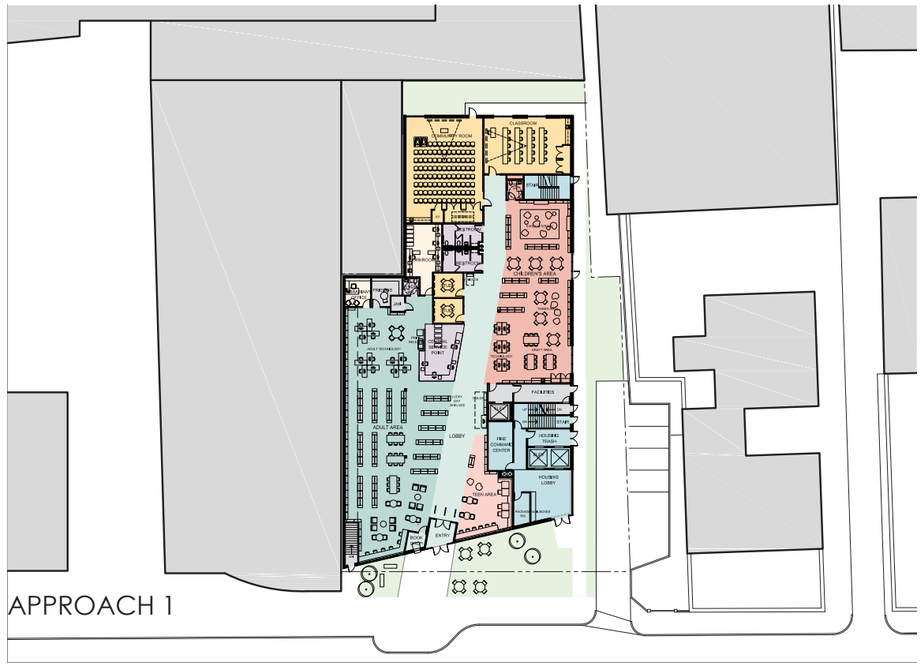
Both concepts anticipate a process where a developer is selected through a Request for Proposals and constructs the core and shell of the building and four levels of affordable housing, while the City of Boston is responsible for the fit-out of the branch library. The city will retain ownership of the property. The city will retain the services of a separate architect and design team for the fit-out of the library interior through a separate public bid process. The developer that is selected through the RFP process will need to coordinate with the Department of Neighborhood Services (DND) and meet DND requirements. The developer will also need to coordinate with BPL's fit out of the library space and BPDA's Article 80 process.

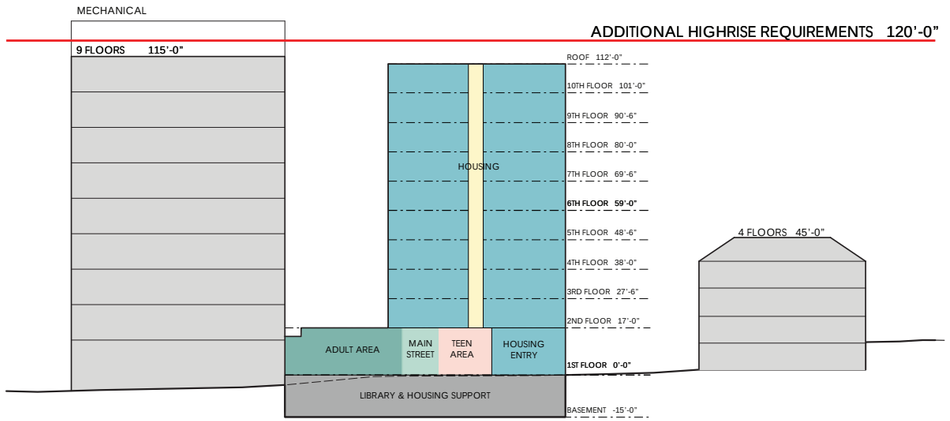
This private/public partnership is not allowable under current regulations, so the City will need to apply for a waiver(s) from the Commonwealth of Massachusetts's legislature. Additionally, the developer will submit to the City and State for affordable housing subsidies, a process that can add 2-3 years to the length of a standard 3-year schedule.

The building is set back 6" from the property line on the West side of the site with no wall openings. There are existing windows at the south end of the second floor of the adjacent building with no setback to the property line. While no record has been found of an existing agreement or easement in place that would require these windows to remain unobstructed by new development, BPDA believes that one may have been approved at the time and the massing of both approaches are shown with a lower roof height immediately adjacent to the property line in this area in order to leave the adjacent windows unobstructed.

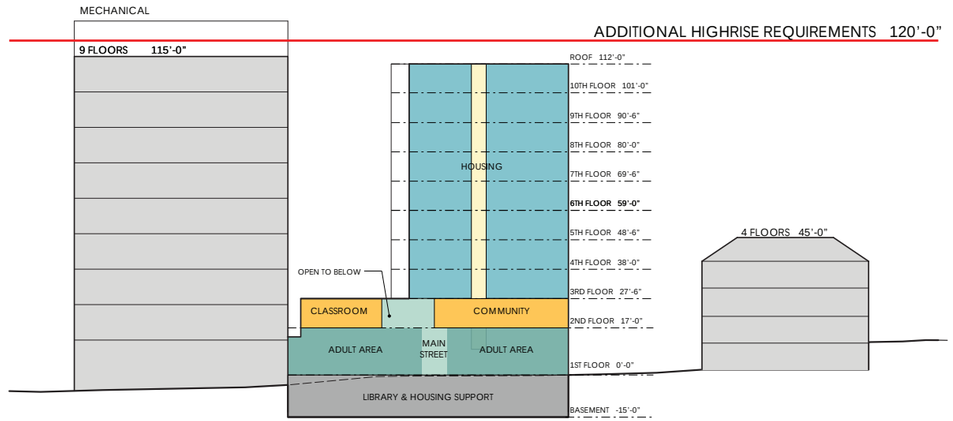
Both approaches assume a transformer vault will be located in the basement, with roof hatch access to the residential plaza on the East side of the building.

Although the developer will ultimately determine the unit mix, the layouts shown demonstrate two possible approaches. Approach 1 has 34-79 units depending on number of stories while Approach 2 has 35-85 units. Although the residential levels in Approach 2 have a slightly smaller floor plate and lose a partial housing floor for the second level of the library program, Approach 2 achieves the higher unit count by concentrating studio and 1-bedroom units (which would be better suited for elderly residents), while Approach 1 shows less units, but a greater emphasis on two and three-bedroom units that could accommodate families. The floor plate area in both approaches is similar, so either approach to the housing unit mix could be reconfigured to work with either library approach.

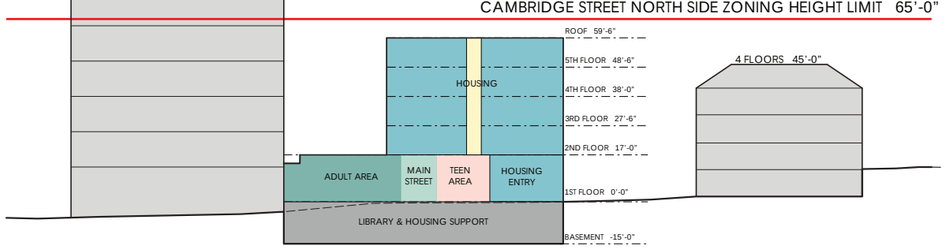




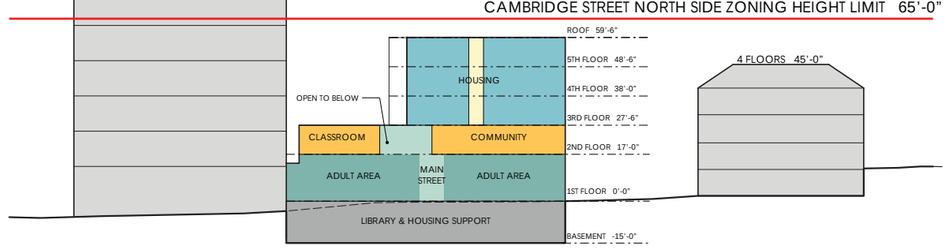
APPROACH 1 - MAXIMUM HEIGHT - FAR 4.6



APPROACH 2 - MAXIMUM HEIGHT - FAR 4.7



APPROACH 1 - MINIMUM HEIGHT - FAR 2.4



APPROACH 2 - MINIMUM HEIGHT - FAR 2.5

BUILDING HEIGHT

The library site falls within the West End Urban Renewal District that has a 155' height limit as well as the Cambridge Street North Side Protection Area, which has a lower height limit of 65'.

The study examined a range of possible heights for the building, from a minimum height of a one-story library with four residential levels above (5 story building) to maximum height of a library with 9 residential levels above (10 story building). There would be different construction type and building code implications depending on the height selected.

For 5-6 stories, a podium approach would be used, which would require a 3-hour fire resistance rated horizontal assembly to separate the library from the residential occupancy above. The podium would consist of type IA construction (protected, noncombustible) and the building above the program would be constructed of Type IIIB (unprotected, combustible). The most economical structural system would be wood-framed construction over a steel and concrete podium.

For 7-10 stories a non-separated mixed-use approach would be used, using Type IB construction.

This would mean the entire building would have a steel structure with composite concrete floors.

Heights above 5 stories would require a variance to exceed the 65' height restriction. The building would be classified as a high-rise structure if the roof is located more than 70 feet above the grade plane. High rise requirements include a fire command center, fire pump, secondary on-site water supply, and pressurized stairwells. A building height over 120' would trigger additional requirements such as fire service access elevators and for the purposes of this study it is assumed that the building height will remain below this threshold.

The spaces included on the plans assume a 10-story building. Some of these spaces may be able to be reduced or eliminated for the lower building heights.

Due to the value of this location, it is expected that a developer would seek a variance to allow the building to exceed the 65 foot height limit. The urban density of the existing buildings in the neighborhood also support a taller building at this location. Approach 1 ranges has an FAR of 2.4 to 4.6 for the heights shown while Approach 2 has an FAR of 2.5 to 4.7 for these same height options. All options and heights shown in this study fall below the maximum Urban Renewal FAR limit of 5.

APPROACH ONE: ONE-STORY BRANCH LIBRARY

This approach accommodates the entire public library program in a single story, with service and staff areas in the basement.

The Children's Area is arranged to meet the shelving and seating targets in a compact layout with efficient perimeter shelving, and use of the central "Main Street" passageway for some of its circulation area. The Adult Area also optimizes its layout to provide sufficient shelving and nearly the full amount of desired seating capacity, again utilizing a compact layout that includes efficient perimeter shelving and circulation space counted toward the Main Street.

The Adult and Children's Areas are arranged around a single central service point, with the community functions located in the rear of the floor plan. The Children's Area could include windows along the west wall, although any windows in the back half of the Children's Area where the exterior wall is less than 10' from the property line would need to include 45-minute fire rated glass or receive a variance for sprinkler coverage in lieu of the rating. Although the Adult Area would have curtain wall glazing along the front of the library, the deep floor plan of this area means that other methods such as a skylight or clerestory should be used to bring natural light deeper into the floor plan. Because the housing tower sits above the east side of the site, it is possible to incorporate skylights into the roof of the Adult Area.

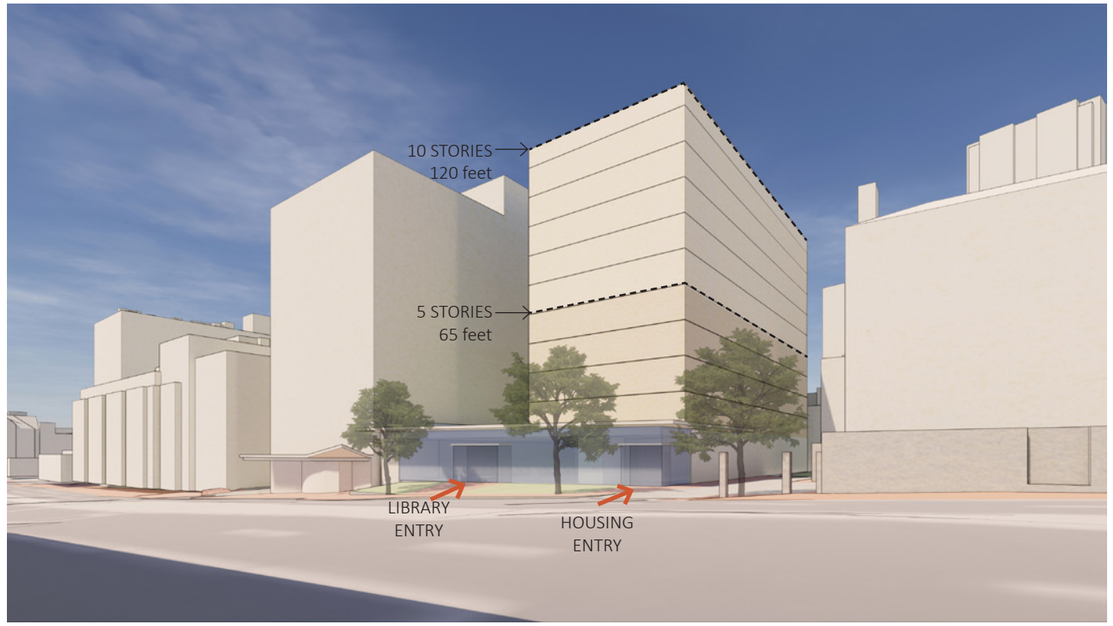
The Teen Area is located adjacent to the entry. At BPL's request, this area is located near to the adult area so that it can be used by adults during the day when teens are in school.

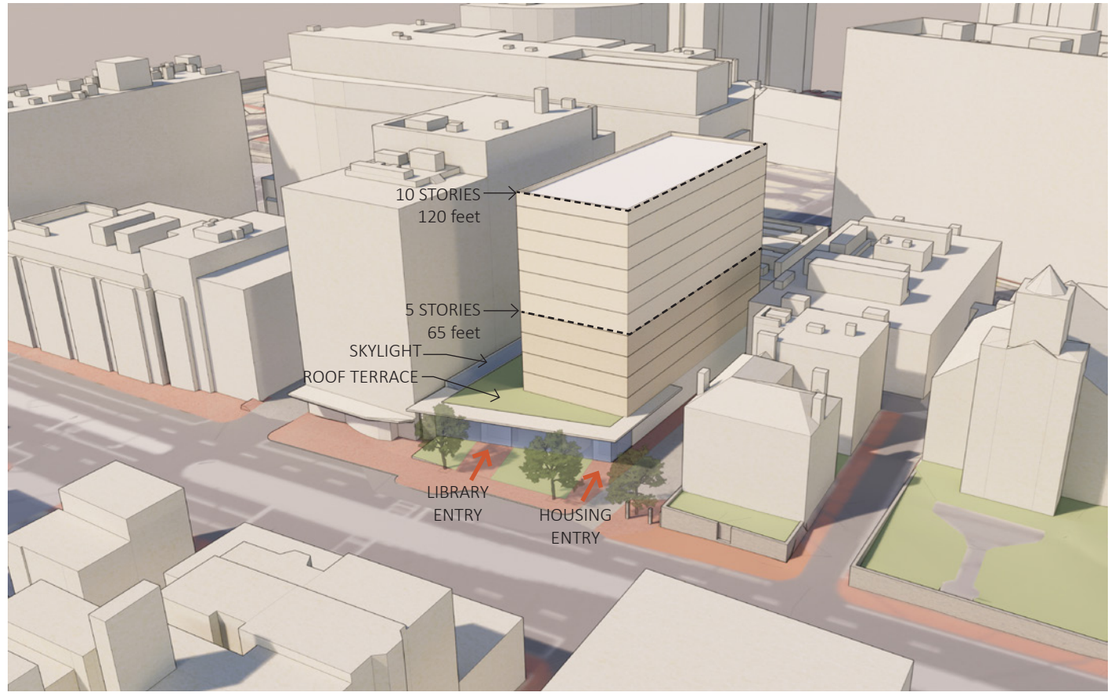
The Community Room and Classroom are located at the end of the Main Street. Because of the adjacent rear egress yard, these programs could contain high windows to allow for some amount of indirect light to enter the spaces while blocking unsightly views of this space.

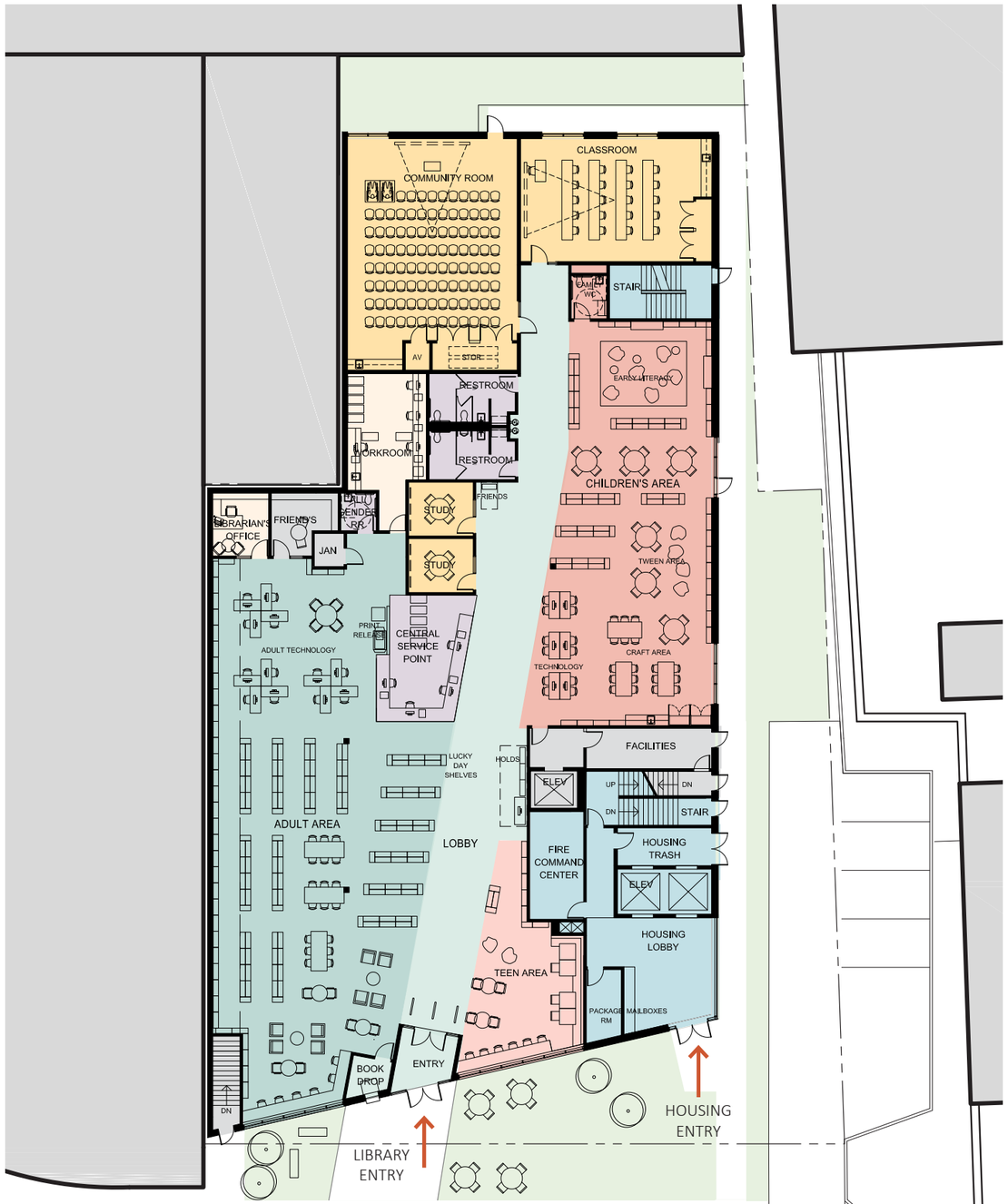
The staff and service spaces are located in the basement whenever possible, with spaces that require frequent or public access being located on the ground floor. These spaces are placed in the center of the floor plan against the party wall to allow other spaces access to areas with natural light.

The housing entrance is located on the far east end of the site, providing separation from the library entry. A walkway along the east side of the building provides egress and service access to both programs.

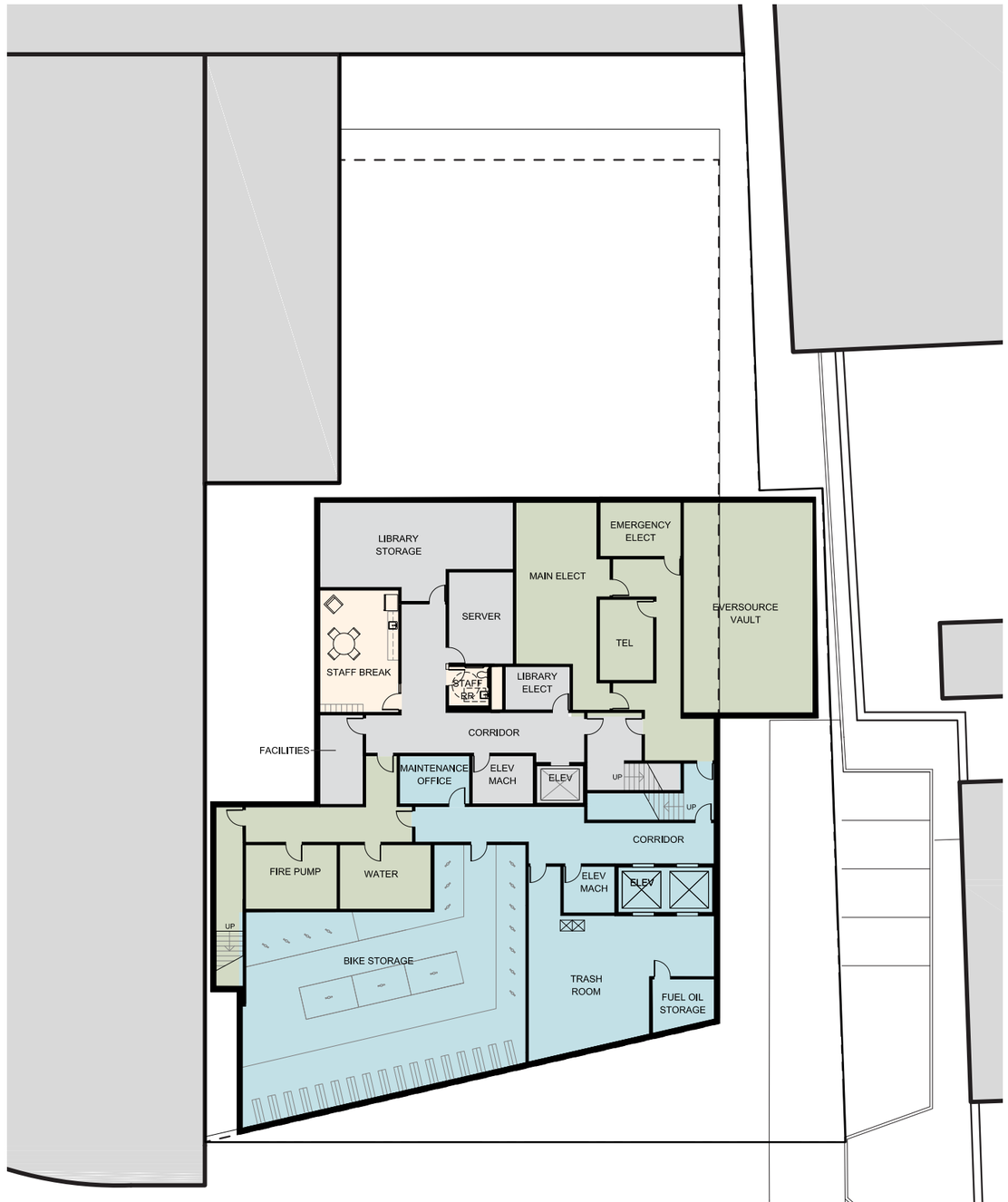
The second floor of the housing tower includes a roof terrace and green roof on the roof of the library for resident use as well as roof-top mechanical units for the library systems.



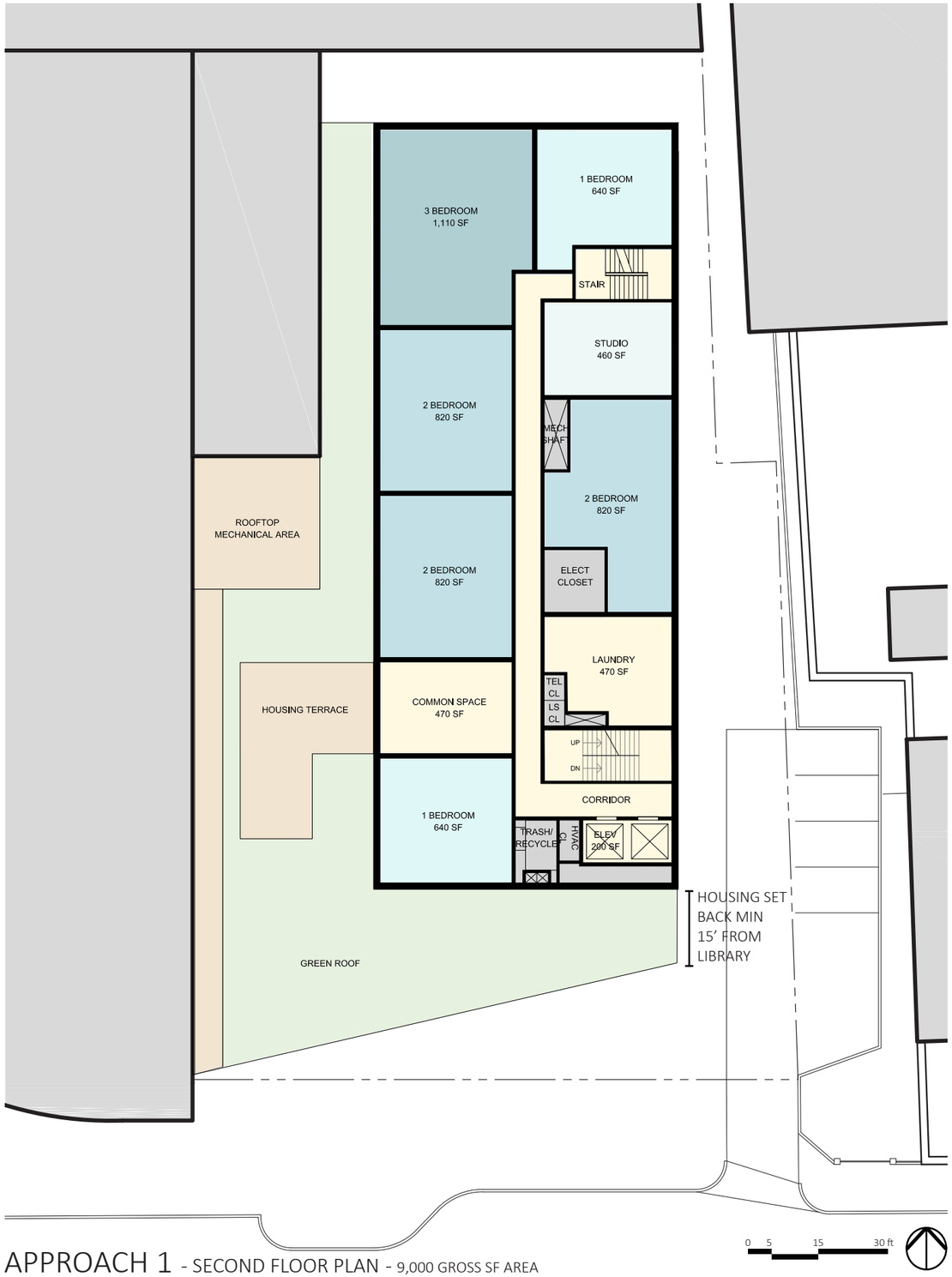




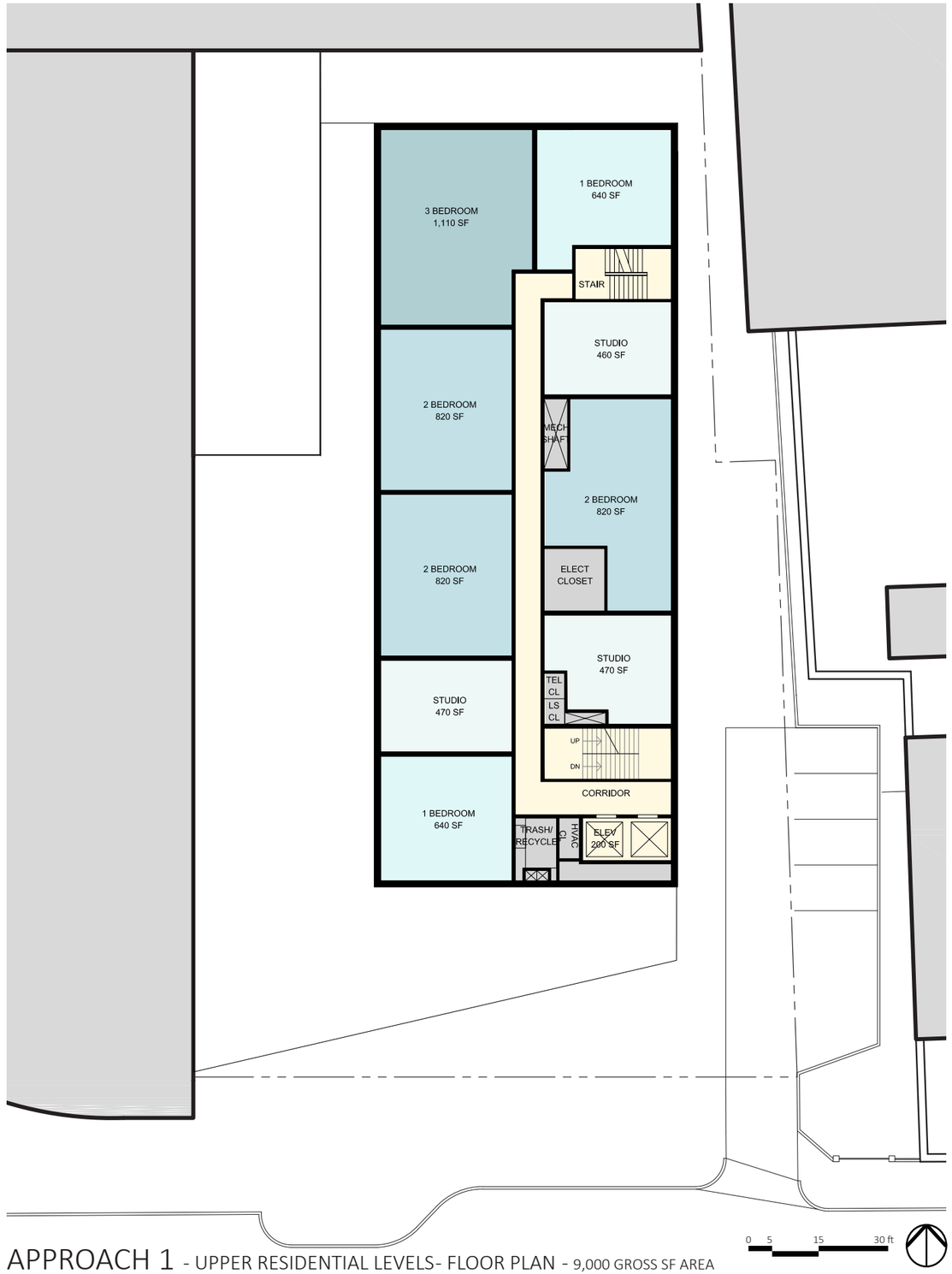
APPROACH 1 - GROUND FLOOR PLAN - 14,440 GROSS SF AREA



APPROACH 1 - BASEMENT PLAN - 9,780 GROSS SF AREA



APPROACH 1 - SECOND FLOOR PLAN - 9,000 GROSS SF AREA



APPROACH 1 - UPPER RESIDENTIAL LEVELS- FLOOR PLAN - 9,000 GROSS SF AREA

APPROACH TWO: TWO-STORY BRANCH LIBRARY

This approach locates the Classroom and Community Room functions on an upper mezzanine to make more of the ground floor available for library program and to create a more prominent 2-story street presence for the library. The housing entry is located toward the middle of the site, accessible from the walkway which runs along the east side of the site, in order to allow the library to occupy the entire width of the streetfront façade. Both the width and two-story height, give the library in this approach a strong urban presence. The housing entry is also able to expand to partially fill the residential plaza, allowing for a more generous lobby experience for the residents.

The two-story library layout allows for double-height spaces to be incorporated into the design over the Entry and Adult Area, creating an engaging experience and a civic-scaled feel to the library. The housing entry located away from the front of the site also allows the Adult Area to occupy both sides of the entry. A “Main Street” circulation path leads from the entry through the library, arriving in the Children’s Area. Locating important program such as the meeting rooms, Librarian’s Office, and Holds/Checkout and Print Release along the East side of the Main Street helps to make this a dynamic circulation zone.

The Children’s Area occupies the entire rear of the building, providing separation from the rest of the library and affording a large degree of privacy and security, but requiring a secondary service point.

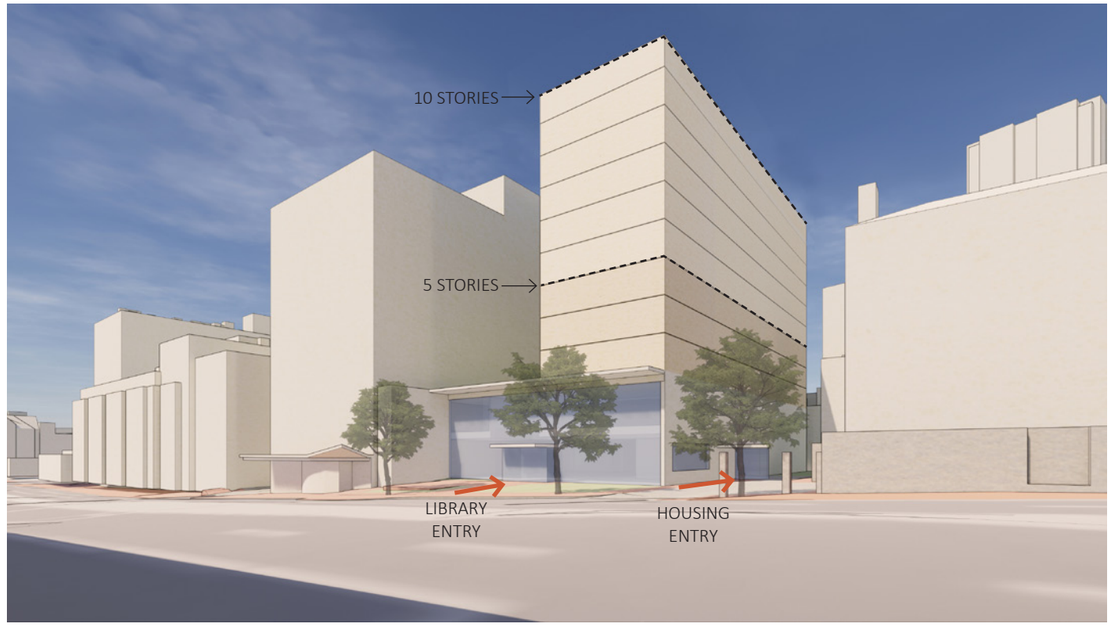
The generous layout for the Children’s Area slightly exceeds the shelving and seating targets. The narrow space behind the building allows for windows in the Children’s Area to receive natural light, although likely only indirect light due to the height of the adjacent building.

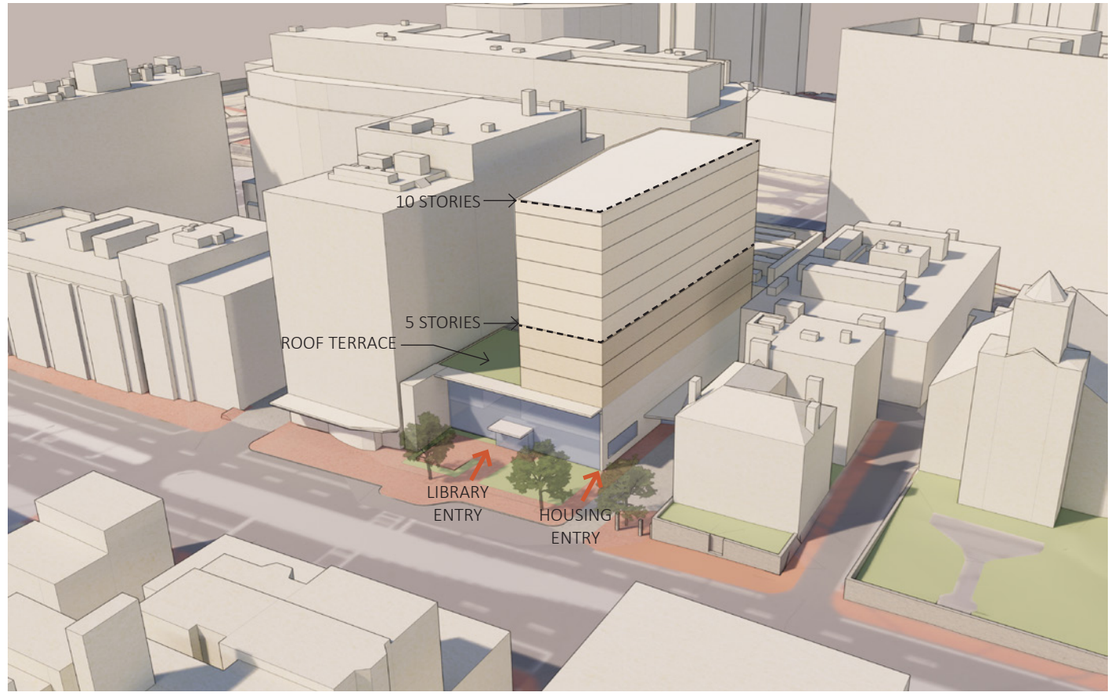
The aim is for the Teen Area to maintain its own distinct identity as a separate space, even though it is contained within the Adult Area. The location allows the flexibility for the Teen Area to be used by adults during the day when teens are in school. The Teen Area meets the shelving and seating targets.

The staff areas are included in the ground floor plan in this scheme, allowing for easier staff access. The Central Service Point is directly connected to the Staff Workroom.

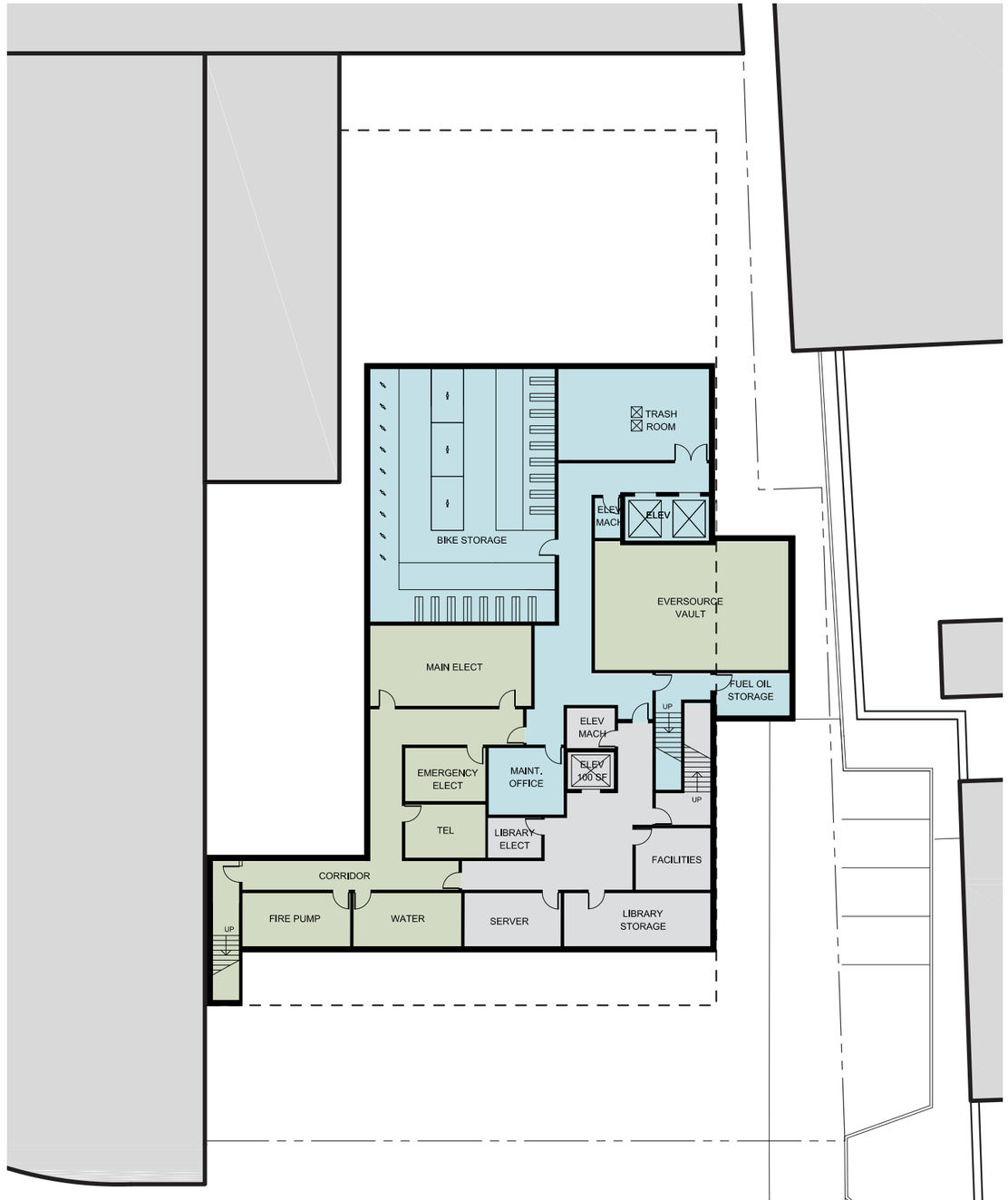
The Community Room and Classroom on the second level are accessed by an open stair in the Adult Area that can be supervised from the Central Service Point. This stair leads to a large balcony that functions as an open lobby for the upper level. This area can also be accessed by elevator and has an additional single occupancy restroom for convenience.

The roof of the ground floor of the library would be used for mechanical equipment, while the roof of the two-story library volume could be a green roof and terrace for the housing residents, accessed through a community room on the third level.

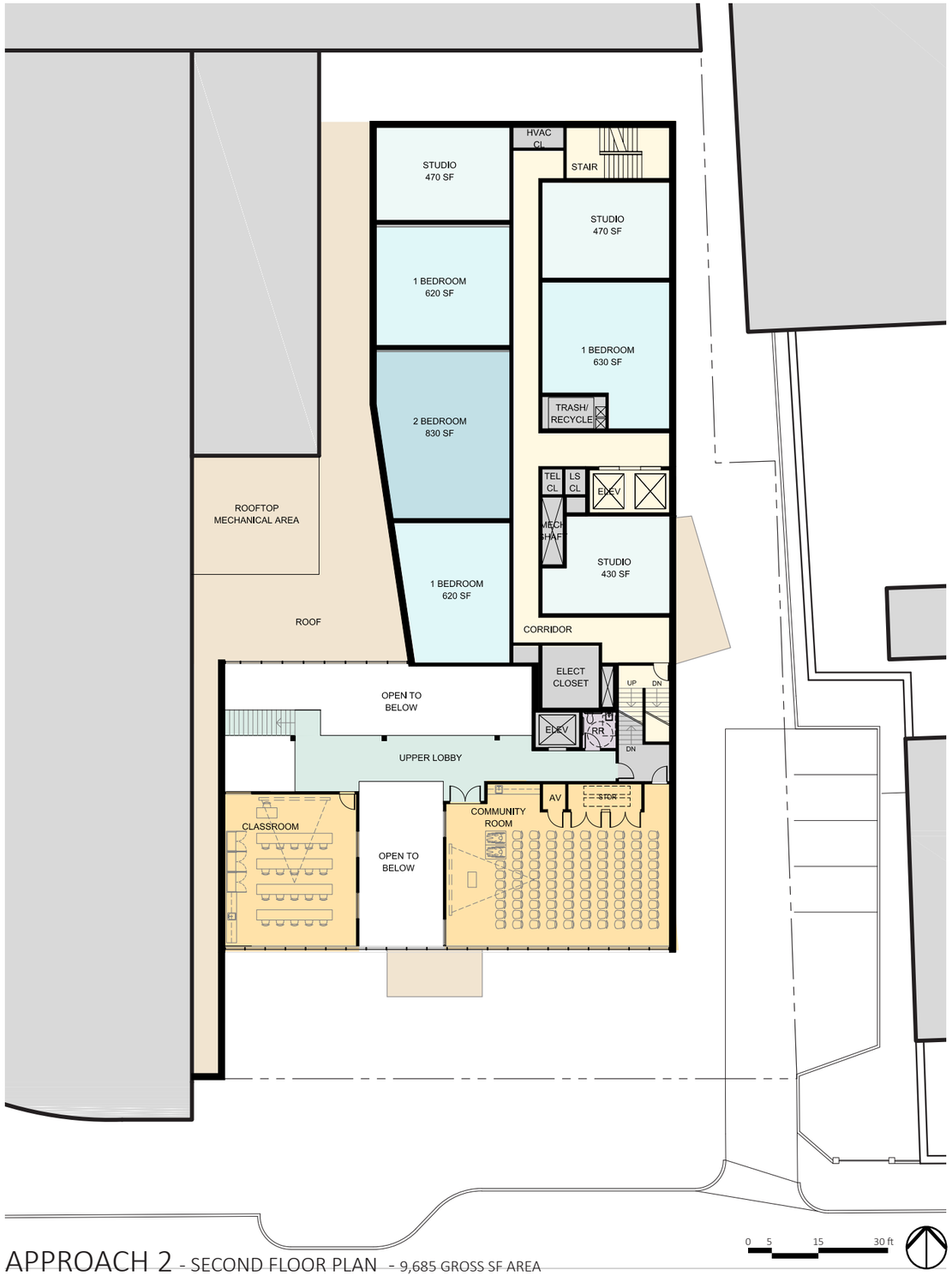




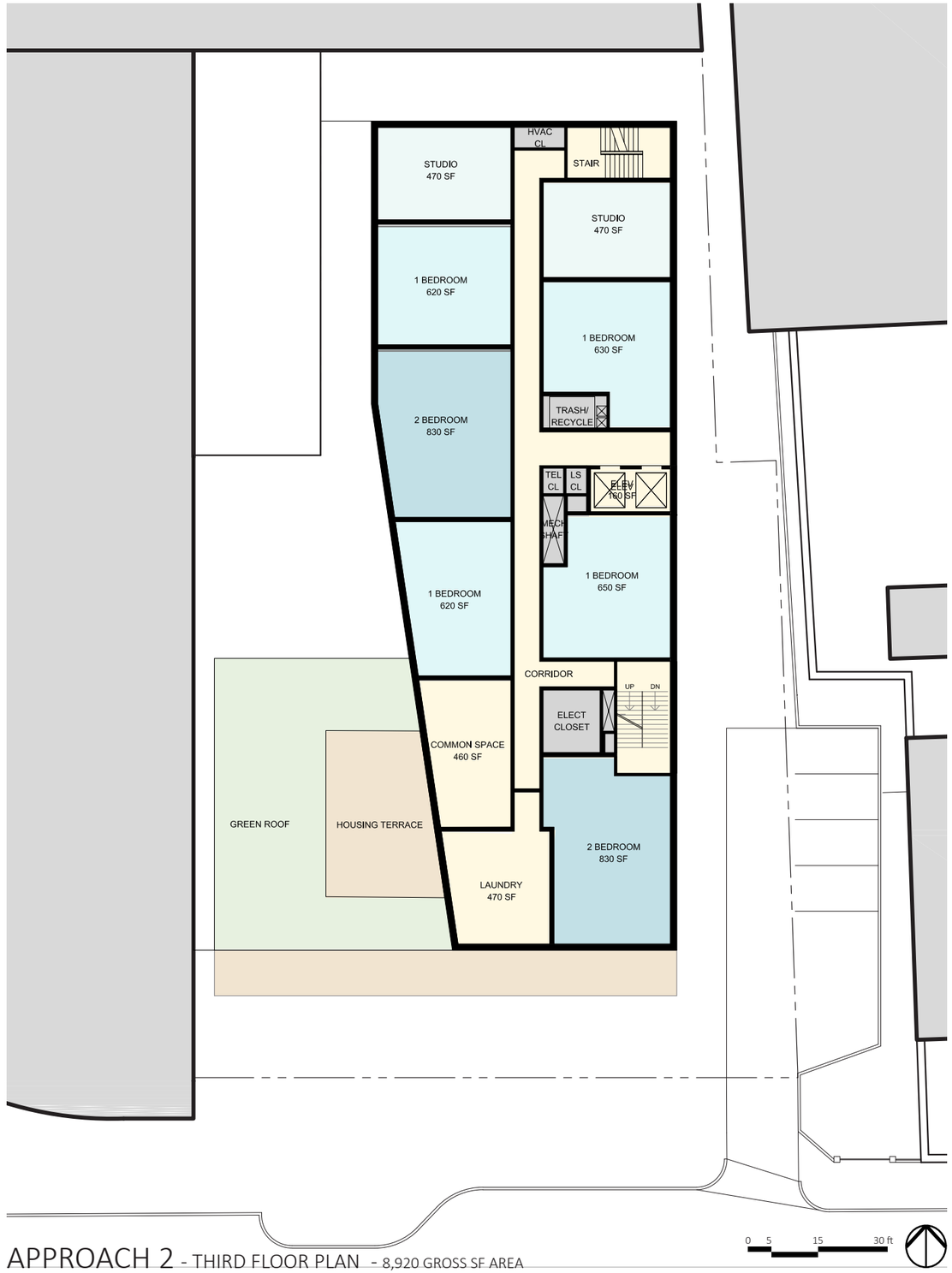
APPROACH 2 - GROUND FLOOR PLAN - 14,025 GROSS SF AREA



APPROACH 2 - BASEMENT PLAN - 8,220 GROSS SF AREA



APPROACH 2 - SECOND FLOOR PLAN - 9,685 GROSS SF AREA



APPROACH 2 - THIRD FLOOR PLAN - 8,920 GROSS SF AREA

APPROACH 2 - UPPER RESIDENTIAL LEVELS- FLOOR PLAN - 8,920 GROSS SF AREA

4.3 PROGRAM SUMMARY

LIBRARY PROGRAM SUMMARY

	SPACE	TARGET (sf)	TARGET Shelving (lf)	TARGET Seating	OPTION 1 (sf)	OPT 1 Shelving (lf)	OPT 1 Seating	OPTION 2 (sf)	OPT 2 Shelving (lf)	OPT 2 Seating
A	**ENTRY**									
	Vestibule	115			110			110		
	Lobby	600			1,665			1,275		
	Exterior Book Drop Room	60			50			45		
	Upper Level Lobby							560		
	Subtotal	**790**			**1,840**			**1,990**		
B	**CENTRALLY LOCATED ITEMS**									
	Central Service Point	475	4		415	4		415	4	
	*Secondary Service Point	25			-			25		
	Lucky Day Shelves	15			15			15		
	Holds / Pickups & Self Checkout	90	90		90	90		90	90	
	Print Release	60			60			60		
	Friend's Book Sale Shelves	15	9		15	9		15	9	
	Men's Restroom	145			145			145		
	Women's Restroom	145			145			155		
	All Gender Restroom	55			55			105		
	Single Level Subtotal	**1,000**			**940**					
	Multi Level Subtotal	**1,025**						**1,025**		
C	**ADULT AREA**									
	Adult Collections	2,520	1,956		2,055	1,962		2,320	1,965	
	Adult Seating	1,335		46	990		42	1,240		48
	Adult Technology	675		12	600		12	660		12
	Subtotal	**4,530**			**3,645**			**4,220**		
D	**TEEN AREA**									
	Teen Collections	275	72		160	84		150	72	
	Teen Seating	400		14	460		18	410		17
	Subtotal	**675**			**620**			**560**		
E	**CHILDREN AREA**									
	Children Collections	1,010	486		745	483		1,015	558	
	Children's Seating	630		65	400		64	860		77
	Children's Technology	300			300			270		
	Early Literacy Area	360			330			330		
	Craft Area	255			250			275		
	Tween	345			230			260		
	Family Restroom	55			55			55		
	Subtotal	**2,955**			**2,255**			**3,090**		
F	**COMMUNITY**									
	Community Room	1,355		103	1,355		103	1,355		103
	Learning Lab/Classroom	730		20	820		20	770		20
	Small Conference/Study Room	120		4	120		4	120		4
	Small Conference/Study Room	120		4	120		4	115		4
	Subtotal	**2,325**			**2,415**			**2,360**		
G	**STAFF**									
	Staff Lobby	--			--			--		
	Workroom	290			350			270		
	Librarian's Office	120			120			120		
	Staff Break Room	255			380			290		
	Staff Restroom	55			100			55		
	Subtotal	**720**			**950**			**735**		

	SPACE	TARGET (sf)	TARGET Shelving (lf)	TARGET Seating	OPTION 1 (sf)	OPT 1 Shelving (lf)	OPT 1 Seating	OPTION 2 (sf)	OPT 2 Shelving (lf)	OPT 2 Seating
H	**SUPPORT/SERVICES/CIRCULATION**									
	Friend's Storage	125			125			125		
	Custodian's Closet	10			10			25		
	Storage	300			300			285		
	Facilities Storage	300			300			300		
	Server Room	180			200			180		
	Electrical Room	75			95			75		
	Elevator Machine Room	100			100			70		
	Single Level Subtotal	**1,090**			**1,130**					
	Multi Level Subtotal	**1,090**						**1,060**		
	TOTAL NET AREA (SINGLE LEVEL LIBRARY)	**14,070**			**13,780**					
	***TOTAL NET AREA (MULTI LEVEL LIBRARY)**	**14,675**						**14,015**		
	Walls, Structures, Corridors, Stairs (Single Level) 20%	2,814			2,130					
	*Walls, Structures, Corridors, Stairs (Multi Level) 25%	3,669						3,425		
					13%			20%		
	Garden Space - Existing	3,530								
	Garden Space - Proposed				2,390			3,175		
	Total Seating and Shelving		3,103	333		3,115	331		3,256	362
	TOTAL GROSS AREA (SINGLE LEVEL LIBRARY)	**16,884**			**15,910**					
	***TOTAL GROSS AREA (MULTI LEVEL LIBRARY)**	**18,344**						**17,440**		

	GROSS AREA - GROUND FLOOR				**13,440**			**12,645**		
	GROSS AREA - BASEMENT				**2,470**			**1,650**		
	GROSS AREA - SECOND FLOOR				**-**			**3,145**		

RESIDENTIAL PROGRAM SUMMARY

	OPTION 1						
	NET PROGRAM AREA (SF)	GROSS AREA (SF)	STUDIO UNITS	1 BR UNITS	2 BR UNITS	3 BR UNITS	TOTAL UNITS
BASEMENT	4,880	7,310					
GROUND FLOOR	805	1,380					
2ND FLOOR	6,675	9,000	1	2	3	1	7
3RD FLOOR	6,715	9,000	3	2	3	1	9
4TH FLOOR	6,715	9,000	3	2	3	1	9
5TH FLOOR	6,715	9,000	3	2	3	1	9
6TH FLOOR	6,715	9,000	3	2	3	1	9
7TH FLOOR	6,715	9,000	3	2	3	1	9
8TH FLOOR	6,715	9,000	3	2	3	1	9
9TH FLOOR	6,715	9,000	3	2	3	1	9
10TH FLOOR	6,715	9,000	3	2	3	1	9
TOTAL - 5 STORY BUILDING	32,505	44,690	10	8	12	4	34
TOTAL - 10 STORY BUILDING	66,080	89,690	25	18	27	9	79
UNIT TYPE PERCENTAGE			32%	23%	34%	11%	
AVG UNIT SIZE (SF)			466	640	820	1,110	

	OPTION 2						
	NET PROGRAM AREA (SF)	GROSS AREA (SF)	STUDIO UNITS	1 BR UNITS	2 BR UNITS	3 BR UNITS	TOTAL UNITS
BASEMENT	4,130	6,570					
GROUND FLOOR	920	1,380					
2ND FLOOR	4,505	6,505	3	3	1	0	7
3RD FLOOR	6,425	8,920	2	4	2	0	8
4TH FLOOR	6,465	8,920	4	4	2	0	10
5TH FLOOR	6,465	8,920	4	4	2	0	10
6TH FLOOR	6,465	8,920	4	4	2	0	10
7TH FLOOR	6,465	8,920	4	4	2	0	10
8TH FLOOR	6,465	8,920	4	4	2	0	10
9TH FLOOR	6,465	8,920	4	4	2	0	10
10TH FLOOR	6,465	8,920	4	4	2	0	10
TOTAL - 5 STORY BUILDING	28,910	41,215	13	15	7	0	35
TOTAL - 10 STORY BUILDING	61,235	85,815	33	35	17	0	85
UNIT TYPE PERCENTAGE			39%	41%	20%	--	
AVG UNIT SIZE (SF)			466	630	830	--	

5. SITE DESIGN AND BUILDING SYSTEM REQUIREMENTS

5.1 SUSTAINABILITY APPROACH

The Boston Department of Neighborhood Development (DND) released their Zero Emission Buildings Guidebook in 2020. This guidebook references Mayor Walsh's 2017 commitment to make the City of Boston carbon neutral by 2050, and the 2019 Carbon Free Boston Summary Report. The 2019 Carbon Free Boston Summary Report references the Mayor's 2016 signing of the Metro Mayors Climate Mitigation Commitment, committing the City of Boston to achieving carbon neutrality by 2050.

The 2019 Carbon Free Boston Report recommends the city improve the energy efficiency of all buildings, electrify systems to the fullest extent feasible, and purchase 100 percent greenhouse gas free electricity and sustainably sourced fuels.

MIXED-USE DEVELOPMENT

DND works with the Boston Planning & Development Agency and developers to integrate sustainability initiatives with affordable housing. DND requires all new projects to be designed to be LEED Silver "certifiable" at a minimum, which for this project would be done under the LEED for Residential Design and Construction Multifamily system. DND Design Standards require that projects meet the Zero Emissions Building (ZEB) criteria. DND recognizes that resident comfort and health are integrally linked to these issues of energy conservation and sustainability in additional to operational savings.

The DND ZEB allows for the use of performance-based Passive House Institute US (PHIUS) or Passive House International (PHI) certification process as an acceptable means to demonstrate compliance with ZEB CO2 target budget of 0.7-1.1 tons/person/year or 1,800kWH/person/year and must use electricity and on-site photovoltaics as the sole (or primary) fuel source. Although the sustainability approach for the core/shell building and housing component will ultimately be determined by the selected developer, the MEPFP narrative in the following section is based on this approach.

The DND Design Standards lay out the following components of a zero emission building (ZEB):

- Prioritizes thermal bridge free / air-tight construction
- Prioritizes all electric systems and heat exchange ventilation
- Prioritizes on-site renewable energy generation
- Evaluates embodied energy of all materials
- Includes off-site renewable energy / carbon offsets as necessary

DND Design Standards* also include performance criteria for Window U-value performance, Window-to-wall Ratio, Solar Heat Gain Coefficient, Air Tightness, Domestic Hot Water System Efficiency, Ventilation, Heat Recovery Ventilation, Heating System, Cooling System, Building Envelope Component R-Values, On-Site Photovoltaics, and Lighting.

LIBRARY

The library fit-out will be required to meet LEED Silver, to be certified under the LEED for Interior Design and Construction's Commercial Interiors checklist. The proposed MEP systems approach for the library fitout is already intended to be all electric and energy efficient, and is to be considered "Net Zero Carbon (NZC) Ready" with the remaining step to achieve NZC being a combination of on-site PV renewables and/or procured off-site renewables. The library systems are planned as completely separate from the housing systems, with the assumption of a high performance building envelope.

* https://www.boston.gov/sites/default/files/file/2020/08/DND%20Design%20Standards_Checklists_Provision_0810_2020.pdf

5.2 LANDSCAPE DESIGN

EXISTING CONTEXT

The small West End Branch library parcel is located on Cambridge Street within the mixed-use urban renewal West End neighborhood but also at the interface between the West End and the historic Beacon Hill residential neighborhood on the south side of Cambridge Street. This area has high urban density. The library parcel is bounded by Cambridge Street to the south, and the 8-10 story Charles River Plaza office complex to the West and North. The East side is bounded by two separate properties: a 4-story R&D office building to the north and the Otis House Museum complex along Cambridge Street. The historic Harrison Gray Otis House (1795-6) and its neighbor to the east, the Old West Church (1806) are two to of the only remaining buildings from the original West End, prior to the 1960s urban renewal initiative that leveled the West End to make way for the mixed-use developments that replaced it.

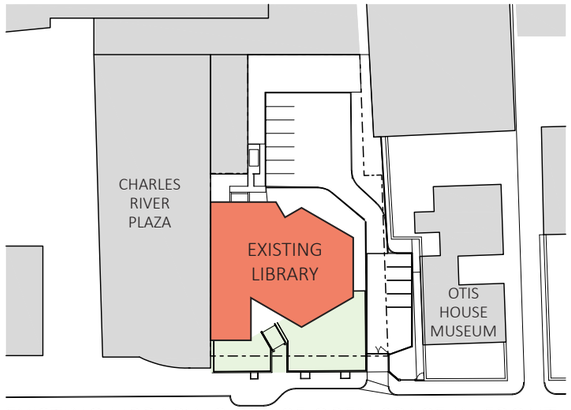
OPEN SPACE OPPORTUNITIES

The two approaches for the new branch library/ housing tower will have a larger footprint than the existing branch library, and will fill up most of the site, thus removing the parking and existing landscape at the rear of the site and will disturb much of the rest of the site during construction. The two building approaches will each hug the west side of the site, nearly touching the office building to the west, similar to the existing branch library building. The open space opportunities existing primarily along the south side along Cambridge Street, which will serve the new library entrance, and along the east side of the site which will serve the new housing entrance. A very small space to the north of the building is visible from an interior library reading space and might serve primarily as a lightwell and viewing garden.

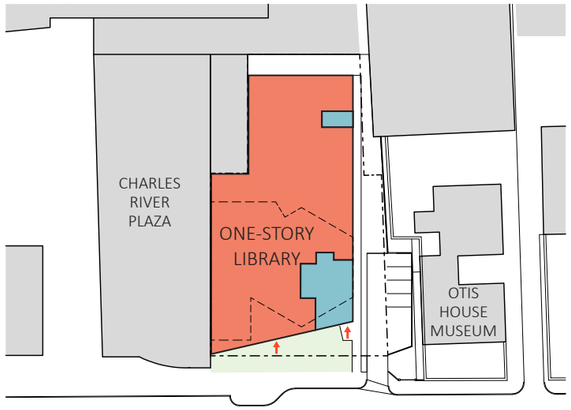
Both Approach 1 and Approach 2 have the building set back from Cambridge Street to allow for a gathering space and landscape at the library entrance. This space will get good solar exposure from late morning through mid-afternoon. In early morning and late afternoon, the neighboring buildings to the east and west will cast shade on the space. The east side space is quite narrow and will be in the shade of the Otis House Museum in the morning and the proposed library and housing tower in the afternoon but may get up to an hour of sun right around noon time. The small space to the north of the new building in both approaches will be in shade all day.

STREETSCAPE

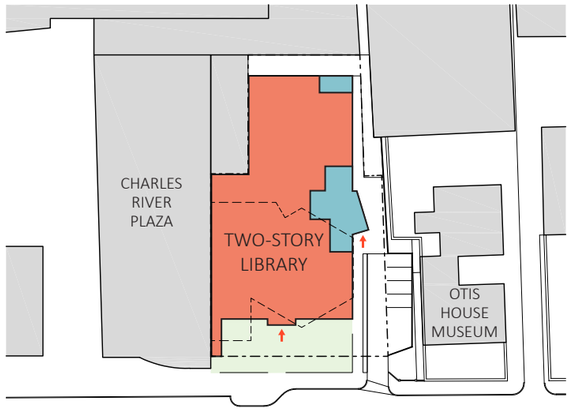
The portion of Cambridge Street running along the frontage of the Branch Library parcel has a wide brick sidewalk with a furnishing zone along the back of curb that contains street lights, parking meters, a US Post Office mail box, a traffic signal pole and a pedestrian-activated traffic control pole located at a crosswalk that serves the Joy Street intersection with Cambridge Street. At the back of sidewalk is a signal control box serving the traffic signal. While all of this is consistent with the rest of the Cambridge Street streetscape, this portion of the streetscape is distinct in that the three street trees are mature and are planted at the rear of the sidewalk against the property line, rather than at the back of curb, like the street trees on the rest of the street. The three mature trees are European Littleleaf Lindens, and appear to be in good health, though the easternmost one is leaning precariously over the sidewalk. The entire sidewalk will need to be reconstructed as part of this project due to the required access for construction, and the construction activity itself. The sidewalk will be reconstructed to City of Boston Complete Streets standards, with replacement-in-kind of the existing streetscape elements. New bike racks shall be added to the sidewalk furnishing zone to accommodate 7 bicycles for library visitor use. The street trees will not survive the construction of the new building, and are also idiosyncratically located at the rear of the sidewalk. Some consideration may be given to preserving the westernmost tree, given that it is mostly out of harm's way. We recommend an arborist examine it to verify its ability to survive



EXISTING LIBRARY- 3,230 SF OPEN SPACE IN FRONT



APPROACH 1 - 2,100 SF OPEN SPACE IN FRONT



APPROACH 2 - 3,200 SF OPEN SPACE IN FRONT

the construction process. If so, it may be incorporated into the renovated streetscape. The remaining new street trees will be placed within the traditional furnishing zone at the back of roadway curb. A continuous treeway system using structural soil will allow for recommended soil volumes for the new street trees, while adequately supporting sidewalk pavement. An existing Linden Tree within the Otis House Museum Property, just behind the sidewalk, will remain. If the westernmost Linden tree also remains, the two trees will help frame the view to the new library and housing buildings. The new street trees will be of a species that has a less dense canopy to be more visually permeable, also allowing views to the new library and housing buildings.

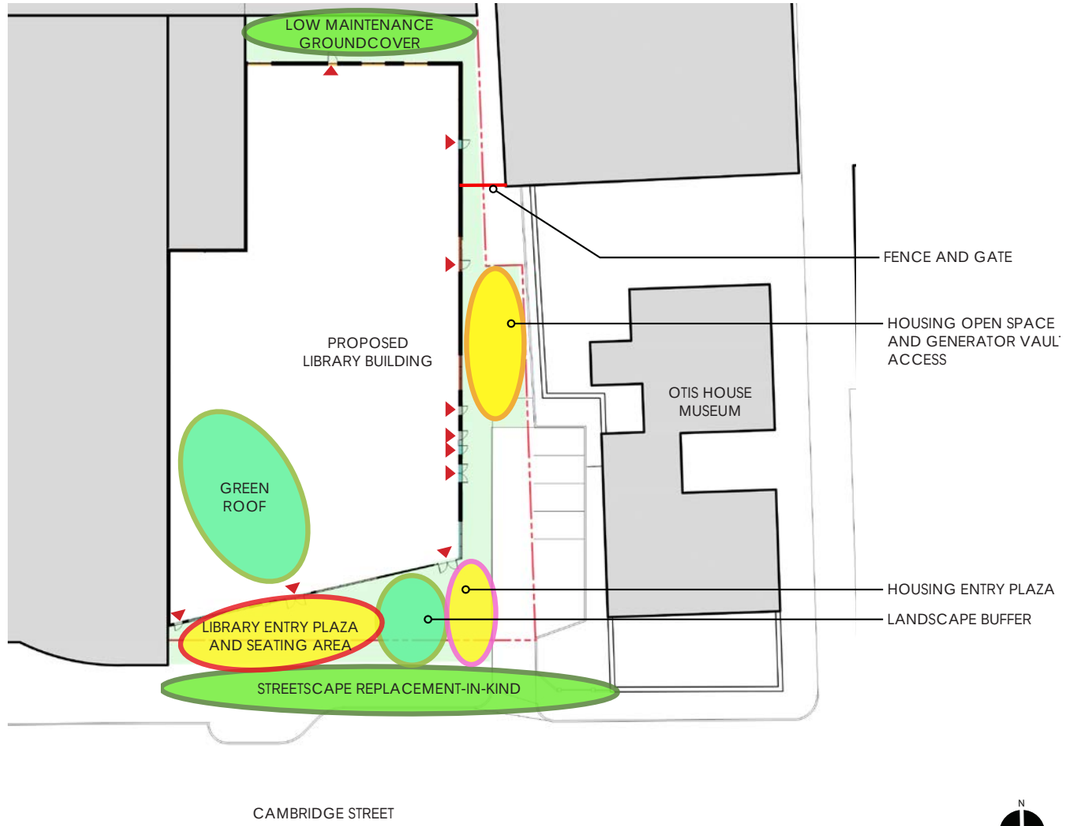
BUILDING ENTRIES

The space along Cambridge Street will accommodate the Library entrance, while the long narrow space along the east edge of the building will provide access to the housing entrance in Approach 2, and in both Approaches, a small plaza midway back along the east side. There will be separate and distinct access points from the sidewalk to the library and housing entrances. Using different paving materials for each walk will give further distinction to each entrance, with concrete paving being used for the Library entrance and either brick or concrete unit pavers for the housing walk and plaza, to give it more of a residential feel. At-grade or raised planted areas will be used to separate each of the two entrance walks and help establish distinct identities for each entrance.

SITE IMPROVEMENTS/LANDSCAPE

Both building approaches allow for a gathering space for the library to the west side of the entry walk. The gathering space would contain some benches and/or built-in seating that can be used for library programming, such as poetry readings, lectures, or children's groups. The space would include a small tree for shade, should the existing westernmost Linden not be able to be preserved. East of the library entrance would be a green space to separate the library and housing entrances. This space would include a small lawn area for flexible library programming and, if space allows, another small ornamental tree for visual separation of the entrance walks, while also providing interest from both the sidewalk and as viewed from within the library. The entire front landscape would include planting, a curb and low steel picket fence along the back of sidewalk that will buffer it from busy Cambridge Street and help control use of the space. In Approach 1, the housing entrance will be on the southeast corner of the building, accessed by its own walkway, which then will continue along the east side of the library, terminating at a small plaza at the midpoint of the building, containing bike racks to accommodate 8 bicycles for housing use. If space allows, a bench or seating element could be added here, along with a shade tolerant hedge to help screen the plaza from the back of the neighboring Otis House Museum. In Building Approach 2, the housing entrance is at the midpoint of the east side of the building, accessed by this same path,

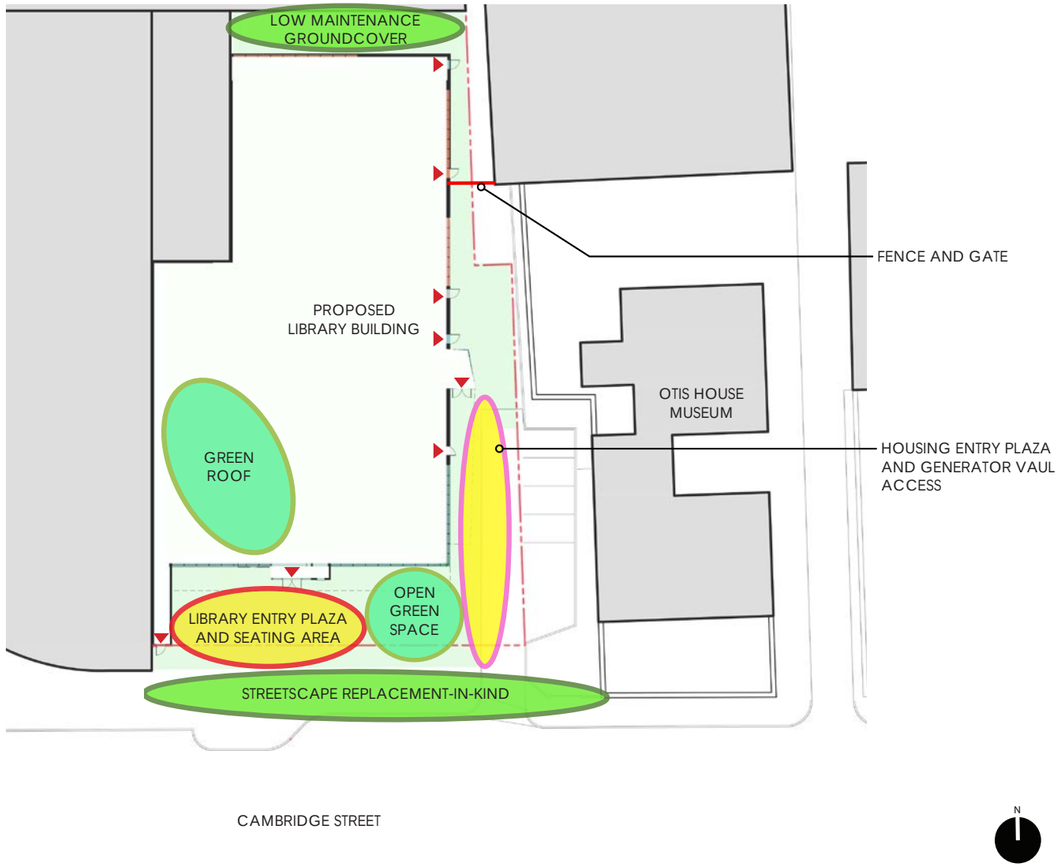
EXTERIOR SPACES STUDY - BUILDING DESIGN APPROACH 1



terminating with the same plaza. A steel picket fence and gate will provide controlled maintenance access from this plaza to the rear of the building. The rear of the building has a small shady area intended as a light well for windows on the north façade. The library, in both approaches, has a space that looks out onto this small space. Shade tolerant groundcover and/or perennials, such as pachysandra and hosta would be a low maintenance solution to this space, while also providing seasonal visual interest as viewed from within the library. All landscape materials and planting will be carefully chosen for durability and low maintenance. The library entrance plaza and seating area would include a trash receptacle meeting BPL standards. All planting will receive automatic irrigation, using state-of-the-art high efficiency irrigation systems with automatic controllers to minimize the use of potable water in order to meet the project's sustainability goals. In the next phases, the team will explore the feasibility of rainwater harvesting for use in landscape irrigation to further minimize potable water consumption.

All walkways will comply with local and Federal universal access codes. The site is fairly level, which will facilitate code compliance.

EXTERIOR SPACES STUDY - BUILDING DESIGN APPROACH 2



PARKING

Because the new footprint for both building approaches takes up most of the site, there will be no library parking on within the library property. There are approximately 8 parking spaces for the Otis House Museum on their side of the mutual property line, but they are accessed from the library property via an access drive that utilizes a curb cut along Cambridge Street. The curb cut and parking access drive will remain and be integrated into the site plan to allow for continued parking access for the Otis House Museum. The two metered parking spaces along the Cambridge Street parking space shall also remain. This study recommends coordinating with the Boston Transporation Department (BTD) to assign one of these parking spaces as a Handicapped Parking Space and the other as a pick-up/drop-off space during library hours.

GREEN ROOF OPPORTUNITIES

Both approaches allow for a green roof for housing residents atop the library podium. In Approach 1, the green roof includes a small terrace outside of a Community Room. The terrace is paved with pedestal pavers, and is large enough to accommodate some benches and/or seating elements, as well as some bistro tables with chairs. The portions of the green roof closest to Cambridge Street would get a few hours of sun in late morning and noontime. Outside of that, the green roof is in shade most of the day. The planting within the sunniest parts of the roof would be an extensive green roof, using sedum plants. This could be established using a temporary automatic irrigation system or hand watering for the first 2 years minimum. However, because a good part of the green roof is in shade for most of the day, planting in the shadier zone would need to be an extensive green roof with automatic irrigation to support shade-tolerant perennials or groundcovers. For Approach 2, the roof is located at the south end of the building but between the residential tower to the east and the commercial office tower to the west placing the roof garden in shade nearly all day. Similar to Approach 1, planting in this shady roof zone would need to be an extensive green roof with automatic irrigation to support shade-tolerant perennials or groundcovers. In both cases, the green roofs have both aesthetic and environmental value, providing more attractive views from within the building, while also helping to manage stormwater runoff from the building. In Approach 1, the green roof has the added social value of providing an outdoor gathering space.

SUSTAINABILITY

The library landscape contains various sustainability strategies. Plant material will favor native, drought tolerant and urban tolerant species. For energy conservation, the trees along the south face of the building, including the new street trees, will be deciduous and of species with semi-permeable canopies to provide dappled shade but some sun during the summer, and full solar benefit to the building during the winter. The outdoor spaces shall include permeable paving systems to reduce stormwater runoff and recharge groundwater. This will include the public sidewalk reconstruction, where there will be an 18"-24" permeable paving strip at the back of roadway curb in compliance with Boston Complete Streets guidelines. The Green Roof components mentioned above provide the benefits of stormwater management and energy conservation.

5.3 SITE UTILITIES AND DRAINAGE

EXISTING CONDITIONS

PROPERTY LOCATION & CONFIGURATION

The site is located at 151 Cambridge Street, on the north side of Cambridge Street between Staniford Street to the east and Blossom Street to the west. The library property is owned by the City of Boston and is listed with Parcel ID 0300656000 based on the City of Boston's online assessing information. The lot size is listed as 22,210 square feet or 0.51 acres.

The Site is an irregular shape but generally forms a rectangular shape with approximately 115 linear feet of frontage along Cambridge Street in the east-west direction and is approximately 200 linear feet deep in the north-south direction. The library building is situated on the southwest portion of the site. The building is comprised of a hexagonal single-story structure that is generally centered on the southern frontage. The hexagonal portion is connected to a rectangular structure that straddles the western property boundary. The rectangular portion is also one story but also has a basement level. The site has a zero-lot line party wall condition with the adjacent Charles River Plaza Building immediately to the west of the library.

ZONING CONDITIONS

The site is located in the Cambridge Street North Side Protection Area within the Cambridge Street North Zoning District. The site is also located within the West End Urban Renewal Area.

The Urban Renewal Plan zones this property for Public Use and would require a minor modification to the Urban Renewal Plan by the Boston Planning and Development Agency (BPDA) to allow mixed-use development on the site.

According to Article 47A of the Boston Zoning Code, a number of uses are permitted on the ground floor in the Cambridge Street North Side Protection Area, including libraries. Residential uses are allowed in most forms of multifamily dwellings. Other commercial and/or retail uses are allowed on the ground floor either by-right or with conditional approval. Allowable building height in the Cambridge Street North Side Protection Area is 65 feet with a maximum allowable FAR of 5.0. According to Table A of Article 47A, the library site may be specifically excluded from this height restriction as it is listed as the boundary of the Cambridge Street North Side Protection Area. Heights of up to 100 feet of the neighboring Blossom Street Restricted Growth Area to the west may be permitted. The test fits explored in this study have an FAR between 2.4 and 4.7.

As part of the Cambridge Street North Side Protection Area, any proposed project involving the erection of a building, or an addition or extension to an existing building is subject to Article 80 Small Project Review. With the additional program of a potential mixed-used project, the development would be subject to Article 80 Large Project Review.

SITE ACCESS

The site can be generally accessed by pedestrians and vehicles from Cambridge Street. Cambridge Street is four-lane, approximately 90-foot-wide urban arterial road. At the site, Cambridge Street has two travel lanes and an on-street parking lane on each the west bound and east bound sides. The road is divided by a city paver and landscaped median of substantial width.

The public sidewalk in front of the site is surfaced with city pavers. Directly in front of the building there are two metered on-street parking spaces. On the western side of the street frontage there is a large sidewalk bump out that receives a crosswalk that traverses Cambridge Street in the north-south direction. Pedestrian refuge is located within the center median of Cambridge Street, and the crossing distance is shortened with the bump outs on both sides. The crosswalk is also protected by a Boston Transportation Department pedestrian signal and vehicular stop light. The pedestrian signal and the traffic light mast arm are both in the public frontage of the property. The bump out on the north side lines up directly with the entrance to the library. The entrance to the library is highlighted by a pedestrian ramp walkway with handrails, as it is inset from the public walk and does raise in grade slightly before reaching the threshold.

On the east side of the frontage of Cambridge Street is a vehicular curb-cut that is approximately 15-feet wide. The driveway is protected with a wrought iron gate. The apron is surfaced with city paver that matches the rest of the public sidewalk along Cambridge Street. The 15-foot wide asphalt driveway runs along the east property line to the rear of the site, where 10 striped parking spaces are located in a small asphalt lot north of the existing building. Additionally, on the south side of the property, there are approximately four angled spaces situated between the site driveway and the neighboring property to the west, which belong to the abutter and should be maintained throughout the project.

EASEMENTS AND OTHER PROPERTY LIMITATIONS

There does not appear to be any easements or other encumbrances to the property. It appears that in 1960, as part of the Urban Renewal Area program in the West End, that the Boston Redevelopment Authority did grant the City of Boston an easement for the width of what is now the public sidewalk on Cambridge Street. Additionally, the City of Boston is required to record a property survey with the Suffolk County Registry of Deeds.

Although there the City does not have a record or an easement for the windows right on the property line starting at the second story of the Charles River Plaza building, there may have been an agreement and the design of the library should step back from the property line at the height of these windows as not to create an obstruction.

TOPOGRAPHY AND DRAINAGE

The site topography is generally flat as it is located in a commercial, urban area. The rear parking lot and the site driveway are drained by a series of three catch basin inlets. These inlets all combine to a 12-inch reinforced concrete pipe under the site driveway that connects to a 12-inch drainage main beneath Cambridge Street. These catch basins were observed on site, and the below grade drainage system was identified on the original building plans from 1966.

The stormwater runoff from the roof of the existing building is collected by internal roof drains. These roof drains lead to a separate 10-inch reinforced concrete storm service pipe that also connects to the 12-inch drainage main beneath Cambridge Street from the utility room in the southwest corner of the basement. The storm service pipe was observed in the utility room of the existing building and was also identified on the original building plans from 1966.

An information request was placed with the Boston Water and Sewer Commission to further review public utility systems in the vicinity of the site. According to GIS mapping, the 12-inch drainage main in Cambridge Street is still active. No material is listed for the 12-inch main. A BWSC-owned catch basin also exists in front of the property.

SOILS

A National Resources Conservation Service web-based soil survey was conducted for the property. The entire property is comprised of #602 – Urban Land, 0 to 15 percent slopes. Urban Land typically describes excavated and filled land. It is also not assigned a hydrologic soil group and is typically assumed to have poor drainage characteristics. Additional soil explorations are required as part of the development to further evaluate soil conditions, specifically site drainage capabilities.

SANITARY SEWAGE

Sanitary sewage discharge from the existing library exits the building from a 4-inch cast iron pipe in the utility room, which transitions to a 6-inch vitrified clay pipe that extends from the southwest foundation wall of the basement to a 10-inch sewer

main beneath Cambridge Street. The sanitary sewage discharge was observed in the utility room of the existing building and was also identified on the original building plans from 1966.

An information request was placed with the Boston Water and Sewer Commission to further review public utility systems in the vicinity of the site. According to GIS mapping, the 10-inch sewer main in Cambridge Street is still active. No material is listed for the 10-inch main.

WATER SERVICE

The existing building is supplied water via a 2-inch domestic service line. The domestic line extends from a 4-inch cement lined ductile iron service from the 12-inch Cambridge Street water main. This 4-inch service splits into the 2-inch domestic service and a 4-inch fire protection line that enter the building at the southwest corner to the utility room. Both the domestic and fire protection line penetrations were observed in the utility room, along with the water meter and sprinkler valve. The services are also identified on the original building plans from 1966.

An information request was placed with the Boston Water and Sewer Commission to further review public utility systems in the vicinity of the site. According to GIS mapping, the 12-inch water main in Cambridge Street is part of the Southern High system. No material is listed for the 12-inch water main.

ELECTRICAL AND COMMUNICATIONS SERVICES

Electrical and Communications services were observed entering the utility room of the library. According to the original drawings, two four-inch electric conduits extend from an electric manhole in Cambridge Street to the building foundation outside of the utility room. In the same trench, a two-inch fire alarm conduit and a two-inch communications conduit extends from a telephone manhole in Cambridge Street.

NATURAL GAS

A natural gas service penetration and meter was observed in the utility room of the library. Gas-fired boilers were present in the basement. It appears that the gas service may have been added after the original construction of the building as the gas service does not appear as part of the original drawings.

BUILDING SYSTEMS RECOMMENDATIONS

SITE UTILITIES & DRAINAGE

OPTIONS DESCRIPTIONS

Option 1 proposes a mixed-use development of a new one-story library with up to nine stories of affordable housing above. A single-story basement would support both uses.

Option 2 proposes a mixed-use development of a new two-story library with up to eight full stories of affordable housing above. The second story would split area between expanded library program and housing. A single-story basement would support both uses.

UTILITY SERVICES

With the planned redevelopment of the library to include a substantial housing use, it can be assumed that most utility connections servicing the site will need to be upgraded to meet additional demand. The existing utility services will be cut and capped per BWSC review and approval with the exception of site drainage which may be reused if possible. Cut and cap of the existing natural gas, electric and communications lines can be coordinated with the providers during the demolition phase of the project.
Water Systems

Due to the increase in demand due to the addition of nine stories and a multifamily residential use, it is assumed that the project will require new, larger domestic water supply and fire protection services. The project should assume two new tapping sleeve and valve connections will need to be made to the existing 12-inch water service in Cambridge Street. The existing water service was a single connection to the main which split into domestic and fire protection lines at the building. This type of installation is no longer allowed, and services must have individual connections to the main. The project should anticipate performing a hydrant flow test on Cambridge Street to identify if pressures are appropriate to serve the project and assist the plumbing engineer with design. The project should also anticipate an overnight shutdown of the water main in Cambridge Street that will have to be coordinated with BWSC and Massachusetts General Hospital and other abutters. Inside the building, there would be one main meter for domestic water with a separate sub meter going to each use. See MEP narrative for a description of how the fire protection system splits for the separate uses inside the building.

SANITARY SEWER

Due to the increase in sewage generation from the program of each option, it is assumed that the project will require a new, larger sanitary sewer service. Internal risers from both the library and residential programs would combine into one service that goes to the street. The project should anticipate making a new connection to the sewer main in Cambridge Street. If the projected sewer flow increase is greater than 15,000 gallons per day, an infiltration and inflow fee would be required by BWSC at the time the new water services are turned on at the completed project. This fee is negotiated and agreed to prior to construction. Based on the proposed program of both options, the project should be slightly under 15,000 gallons per day and should be recalculated during zoning approvals.

SITE DRAINAGE

The proposed project will be subject to BPDA large project review including the Smart Utilities Policy. The Smart Utilities Policy Green Infrastructure Standard requires all large projects to retain 1.25-inches of stormwater runoff from impervious areas of the site. BWSC's separate requirement is to infiltrate 1-inch of stormwater runoff from the impervious areas of the site. VHB typically recommends complying with these requirements by anticipating a design of an infiltration facility capable of handling 1.25 inches of runoff from the roof and paved impervious areas of the site.

Due to the urban nature of the site, it is anticipated that this will be achieved by using a subsurface infiltration system constructed of storage chambers of either high density polyethylene or precast concrete. Storage chambers will be placed on a section of drainage stone allowing stored runoff to recharge to groundwater. The system will be sized to meet BWSC and Smart Utilities Policy, but should be designed to meet MassDEP stormwater standards and regulations. It is likely that the system will combine site drainage and roof drainage and will discharge through an outlet control structure. This structure may be able to connect to the existing 12-inch drain service connecting to the 12-inch drainage main in Cambridge Street. A structural water quality unit should also be assumed to be part of the project to provide treatment to runoff from paved parking to remove pollutants prior to recharge.

OTHER UTILITIES

It is assumed that due to the increase in demand from each option, that upgraded services will be required for all private utilities including natural gas, electric and communications. These upgrades should be coordinated directly with the utility providers during the design process. Electric service should have separate meters for library and residential inside the building. See MEP narrative for further detail.

5.4 STRUCTURAL DESIGN

FOUNDATIONS

The foundation design will be developed based on recommendations from a geotechnical engineer. The existing building is supported by caissons drilled down approximately 15-25 feet below grade which infers that shallow foundations will not be appropriate for the new building. There is also a high-rise building on the western lot line and the new building's foundations will need to be offset to clear the neighboring building's foundations. A foundation system of either steel or precast concrete piles should be assumed, with concrete pile caps and grade beams spanning between the piles to create the support for the building. The partial basement, which can coincide with the existing basement for efficiency, will be supported by a reinforced concrete structural slab. 16" thick foundation walls can surround the basement and along the perimeter of the building spanning to pile caps. The existing drawings show borings with groundwater encountered near the basement elevation; waterproofing on the exterior of the walls and under the slab should be provided, along with underslab drainage.

Pricing Assumptions based on a 30'x30' column grid:

- 8'x8'x3'2" concrete pilecaps with 10 PSF rebar below columns
- 16" thick foundation and frost walls with 10 PSF rebar
- (5)-12" x20' long square precast concrete piles below columns
- 12" thick structural slab with 12 PSF rebar

SUPERSTRUCTURE

There are 2 options being considered. Option 1 has the library program on the 1st floor and basement, and Option 2 has the library program also partially on the 2nd floor. The library spaces will be designed for 150 PSF and the residential spaces will be designed for 40 PSF plus 15 PSF partition loading. The exterior roof deck at the 2nd floor will be an occupied green roof designed for 200 PSF. The high roof will be designed for snow load, light mechanical units, and ballasted PV.

Columns should be limited as much as possible in open plan areas of the library to accommodate sight lines and flexibility. The column locations indicated on the plans represent a 22'-40' structural bay that is compatible with the structural sizing and depth indicated here.

There are a range of building heights from 5 to 10 stories being considered for both options.

7-10 STORIES

Due to the building height, the building will be a high rise with type 1A or 1B construction. It should be assumed that there will be a 3-hour separation between the library and residential spaces. The structural system on all floors and roof will be a 3¼" lightweight concrete slab on 3" galvanized metal deck reinforced with 6x6 W2.1x2.1 WWF, over composite steel beams and W12 steel columns. The floor with the 3-hour separation will be 4¼" lightweight concrete over 3" deck. Lateral bracing will be provided by steel braced frames and moment frames. Relieving angles will be provided at every floor level to support a masonry facade. The elevator shaft will be framed with steel beams and supplemental steel to support the elevator rails.

Pricing Assumptions:

- 1st Floor steel weight – 15 PSF
- 2nd Floor steel weight – 18 PSF
- 3rd Floor steel weight – 18 PSF (Option 2 only)
- 4th Floor to Roof – 12 PSF
- (2)-3/4" diameter headed shear studs per foot of beam length

5-6 STORIES

A building with 5-6 stories can be built with a mix of 3A or 3B wood framing over a podium of 1A construction. The first floor framed over the partial basement will be supported by W12 steel columns, steel beams, and a 2-hour rated slab (3 ¼" lightweight concrete on 3" galvanized metal deck with 6x6 W2.1x2.1 WWF). The 2nd floor, which requires a 3-hour rated separation, will be framed with steel columns, steel beams, and a 4 ¼" lightweight concrete slab on 3" galvanized metal deck with 6x6 W2.9x2.9 WWF. If the library extends partially to the 2nd floor, the same 3-hr framing is required on the 3rd floor for a 3-hour separation. Lateral bracing will be provided by steel braced frames and moment frames. If there is a masonry façade, assume a continuous steel relieving angle at the 2nd floor supported by the steel spandrels. The elevator shaft can be framed with 8" load-bearing CMU walls.

Pricing Assumptions:

- 1st Floor steel weight – 15 PSF
- 2nd Floor steel weight – 18 PSF
- 3rd Floor steel weight (Option 2 only) – 18 PSF
- (2)-3/4" diameter headed shear studs per foot of beam length

The structure originating above the library and extending to the roof will be type 3A or 3B construction, which requires fire retardant-treated (FRT) wood to be used at exterior walls to achieve a 2 hours fire rating. There will be a thin (~1") gypcrete topping plus acoustic underlayment placed over the floor plywood to help mitigate sound and vibration. All exterior walls will be FRT 2x6 @ 16" oc, sheathed with ½" FRT plywood. All interior demising walls and corridor walls will be Spruce Pine Fir #2 double 2x4 or single 2x6 bearing and shear walls with ½" plywood.

Stud spacing would be as follows:

- o Level 2 to 3: (2)2x4 @ 12, or 2x6 @ 12 (Option 1 only)
- o Level 3 to 4: (2)2x4 @ 12, or 2x6 @ 12
- o Level 4 to 5: (2)2x4 @ 16, 2x6 @ 16
- o Level 5 to Roof: (2) 2x4 @ 16, or 2x6 @ 16

Floor framing at the units will consist of one of the following:

- o 18" deep wood trusses spaced at 16" on center, spanning up to 24 feet. There is an opportunity to distribute some mechanical systems through the trusses.
- o 11 7/8 TJI 360 spaced at 16" on center, spanning up to 22 feet. Mechanical distribution will need to occur below the TJIs, or between the joists and be coordinated with the direction of span of the joists.

Corridor framing can be shallower 2x6 or 2x8 @ 16" oc to allow room for mechanical distribution. The main roof framing can be the same as the floor framing outlined above with tapered insulation to create sloping drainage planes. Alternatively, 24" deep trusses may be sloped from the exterior walls towards the corridor walls to create the slope.

Elevator cores will be CMU. Stair cores can be constructed from CMU or wood stud bearings walls. Lateral bracing at the upper floors will be provided by wood shear walls at the exterior, interior corridor walls and demising walls. Shear walls will require APA rated structural sheathing on one or both sides. Selective use of steel on the upper floors may be required at larger, open areas, and is not included in any steel tonnage above.

5.5 ARCHITECTURAL DESIGN

OVERALL DESIGN

The site is located in an excellent location, in close proximity to public transportation and neighborhood anchors. The building should be designed to fit within the neighborhood context and be properly scaled to its surroundings.

The design of the building should use setbacks, material changes, and design differences to clearly express the library as distinctive from the housing. Each use should have its own distinct identity while forming a cohesive building. The library should be visible, welcoming, and accessible and reflect the character of the neighborhood. The entry to the library should incorporate a large degree of transparency to make the entry open and inviting from the street. The housing and library programs should be designed to function completely independently of one another. Stairs and elevators should not be shared between programs.

Primary structural frame and exterior bearing walls should be 3-hour rated construction. Floor construction and secondary members should be 2-hour rated. Housing and library programs must be acoustically separated as detailed in acoustic section.

ENVELOPE

The street-facing façade of the library should be mainly glazed, allowing for a large degree of transparency from the street and allowing the exterior landscape to be viewed from the interior of the library. The exterior facade of the library should be included in the library fit-out and should include curtain wall on the front façade of the library. This curtain wall should be a high performance thermally-broken, low-e coated, argon filled double triple-glazed system with an R-value of 2 or 3.

The building envelope should be designed to a high performance standard. The systems for the housing recommended in this report assume a building envelope that meets passive-house standards: R-20 basement walls, R-40 above-grade walls, R-50 to R-90 for roofs, and R-10 sub-slab insulation . Windows should be R-5 triple-glazed low-e windows and thermal bridges should be avoided. Required fire resistance ratings of exterior non-loadbearing walls should be reviewed with consideration to the distance of the wall to the lot line. Material choices for exterior walls should take the distinctive characteristics of the neighborhood into account.

Due to the character of the neighborhood, it is recommended that the residential facade use high grade cement panels with integral color or masonry.

ACOUSTICS AND LIGHTING

Close attention should be paid to the construction of interior walls and slabs to ensure that sound does not travel between the residential and library areas. The floor/ceiling assembly as well as any walls separating the housing and library should have a minimum STC rating of at least 55 and a minimum IIC rating of at least 50. The slab alone may not be sufficient to achieve these ratings and the entire floor and ceiling assembly should be designed with acoustic attenuation insulation and the ceiling system to achieve this criteria.

An acoustic engineer should provide recommendations for separation of key assembly spaces within the library. The degree of enclosure and acoustic separation desired for the teen areas should be studied. The acoustic engineer should also provide recommendations for acoustics within the Community room to ensure that events will be audible throughout the space. Events should be able to be held simultaneously in the classroom and community room without disturbing one another. Study rooms should be acoustically separated from the library while allowing visual transparency.

The ceiling treatment in the open plan areas of the library should be selected to mitigate noise in these areas while providing an attractive finish for these public spaces, such as an acoustic wood product.

Light levels in the library should be coordinated with the use of the spaces. Illumination levels should fall within the following ranges: 30-50 FC for open library spaces and offices, 10-30 FC for restrooms, 20-30 FC for lobby spaces, and 30-75 FC for staff work spaces. Lighting controls should include occupancy and daylight sensors.

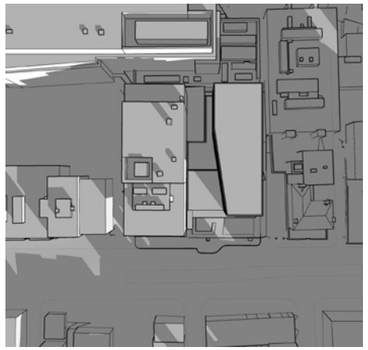
FINISHES AND FURNISHINGS

Finishes should be attractive and support the overall architectural design. Finishes should also support LEED Silver certification requirements. Floor finishes should be durable and easy to clean in high traffic areas, such as porcelain tile or terrazzo. Restrooms should include floor to ceiling tile for ease of maintenance. Areas with curtain wall should include mechanized window shades.

SOLAR STUDY

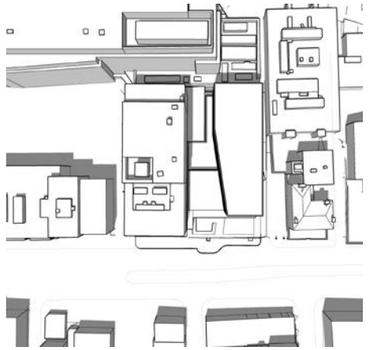
TYPICAL:

- Plaza gets southern sun exposure for most of the day
- Very minimal shadows cast on rear of the Otis House



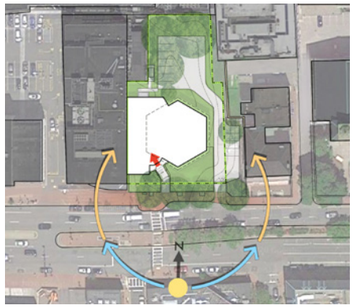
WINTER MORNINGS:

- Taller buildings across the street cast a shadow on the branch library and Otis House



AFTERNOONS:

- Roof terrace receives afternoon sunlight



5.6 MEPFP RECOMMENDATIONS

TABLE OF SYSTEMS

MEP/FP CONCEPTUAL BASIS OF DESIGN

A. Applicable Codes and Standards

B. HVAC Systems Criteria

C. Electrical Systems Criteria

1. Security

2. Technology

3. Communications

D. Plumbing Systems Criteria

E. Fire Protection Systems Criteria

F. Fire Alarm Systems Criteria

BASIS OF DESIGN

AHA Consulting Engineers, Inc. (AHA) has been engaged by Ann Beha Architects (ABA) to perform a Mechanical, Electrical, Plumbing and Fire Protection (MEP/FP) Systems due diligence on the existing West End Branch Library for a potential mixed-use development.

MIXED USE DEVELOPMENT APPROACH:

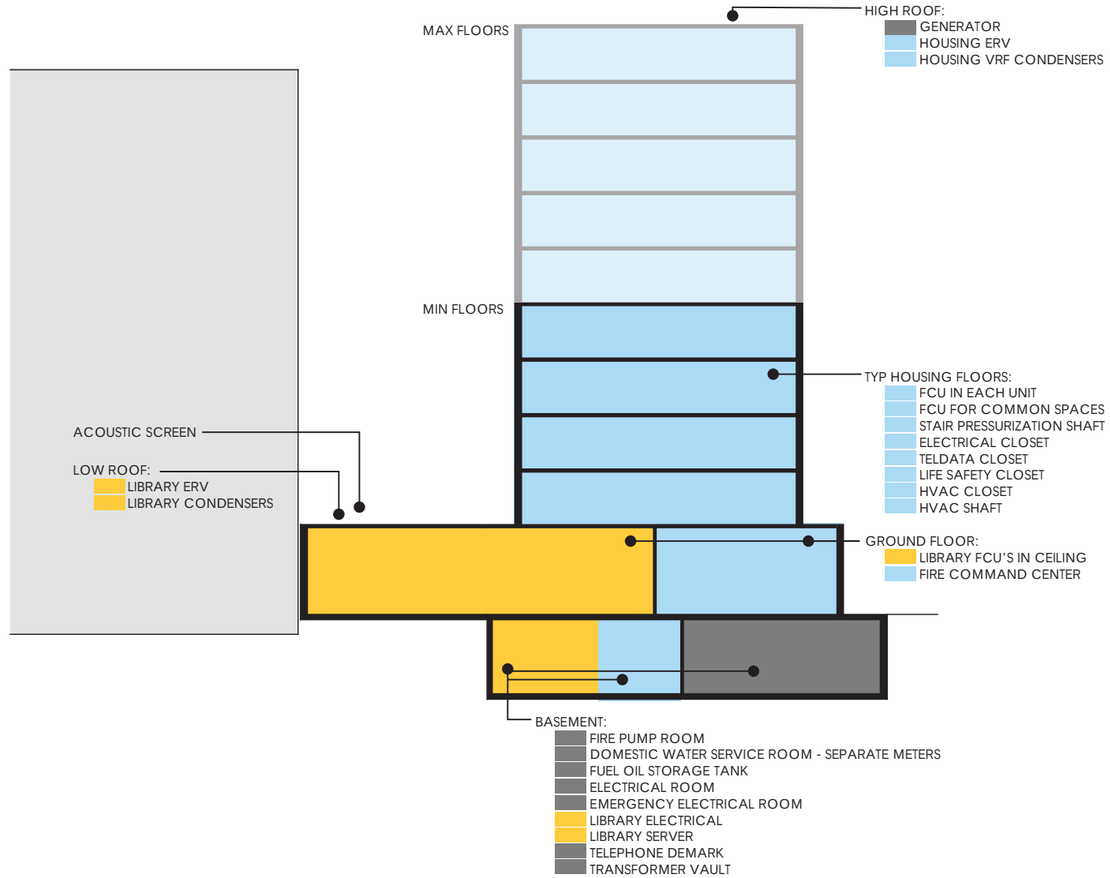
The City is exploring the possibility of a mixed-used development with a new 1 to 2 story library and affordable housing on the upper floors. The new mixed-use facility would be built by a private developer procured through the RFP process. The library will be a separate unit owned by the City of Boston and fitted out through the Public Bid process with separate MEP systems. It is envisioned that the housing access will be via a separate lobby on the ground floor with the number of floors of housing to be determined (height to be determined), but it is anticipated that the building will be classified as a high-rise. There will be a shared basement but with separate library and residential basement spaces for support, utilities, and MEP/FP systems. If the library is multiple floors, if will have its own dedicated elevator. The affordable housing will also have its own dedicated elevators.

The private developer will be responsible for the design of the construction of the new building including the entire affordable housing component and a core and shell for the library. The Public Facilities Department (PFD) will manage the design and construction of the library fit-out of the cold dark shell which include separate MEP systems and will be maintained by BPL.

The library fit-out will be designed and constructed to achieve LEED Silver certification as well as follow the BPL and PFD standards.

In addition, AHA's conceptual basis of design reflects a high-performance building envelope design approach for both the library and affordable housing portions of the new building as well as the housing portion of the building adhering to the Department of Neighborhood Development (DND) Design Standards, Section 04: New Construction – Sustainability which indicates all new buildings must be designed to LEED "certifiable" at the Silver level at a minimum as well as the Zero Emissions Building (ZEB) criteria for "Large Buildings" which also allows for the use of performance based Passive House Institute US (PHIUS) and Passive House International (PHI) certification process as an acceptable means to demonstrate compliance with ZEB CO2 target budget of 0.7-1.1 tons/person/year or 1,800kWH/person/year (source energy based on 2 occupants per bedroom) and must use electricity and on-site photovoltaics as the sole (or primary) fuel source. This target relates to the affordable housing portion of a mixed-use project plus the library must also use electricity and on-site photovoltaics as the sole (or primary) fuel source.

A. APPLICABLE CODES AND STANDARDS



We understand the following codes are presently enforced by the local authority:

- Boston Public Library & Public Facilities Department Standards
- Department of Neighborhood Development (DND) Design Standards – 2020 Edition
- Department of Public Health
- Department of Environmental Protection (DEP)
- 2015 International Building Code (IBC)
- 2015 International Mechanical Code (IMC)
- 2018 International Energy Conservation Code (IECC) with Massachusetts amendments
- 2015 International Fire Code
- 2020 National Electric Code (NEC)
- 780 CMR Massachusetts Amendments to the IBC
- 527 CMR Massachusetts Fire Prevention and Electrical Regulations
- 521 CMR Massachusetts Accessibility

Regulations

• 248 CMR Massachusetts Fuel Gas and Plumbing Code

• 524 CMR Massachusetts Elevator Regulations

• NFPA Standards for the design of fire alarm and fire protection systems.

- NFPA 13 – Installation of Sprinkler Systems- 2013 edition
- NFPA 14- Standard for the Installation of Standpipe and Hose Systems – 2013 edition
- NFPA 20 – Standard for the Installation of Stationary Pumps for Fire Protection – 2013 edition
- NFPA 72 – National Fire Alarm Code – 2013 edition
- NFPA 241 – Standard for Safeguarding Construction, Alteration, and Demolition Operations- 2013 edition

B. HVAC SYSTEMS CRITERIA

GENERAL

1. All HVAC equipment serving the building will be electric (no fossil fuels).

2. However, there will be a diesel-fired or biofuel emergency standby generator serving the residential building only installed to support the required life-safety requirements including the stair pressurization fans as well as standby power for operation of the residential multi-family Energy Recovery Units (ERUs) and Building Management ATC system. The library life-safety systems will utilize their own separate battery back-up standby power units.

3. Within the Fuel Oil Storage Room located in the basement level, provide a double-wall 600-gallon diesel storage tank and pumping system to provide fuel supply to the roof mounted emergency standby generator. Provide double-wall containment piping located in 2-hour rated shaft/chase as required by Code to interconnect the basement fuel storage system with the roof mounted generator.

4. Housing and Library HVAC systems will be completely separate.

LIBRARY

1. All HVAC equipment serving the library shall comply with the PFD and BPL standards as well as requirements to achieve LEED Silver certification.

2. To minimize penetrations in the high-performance building envelope as well minimize the amount of floor space required for HVAC ventilation equipment, a central ventilation approach with roof mounted energy recovery units (ERU's) will be used for the Library.

3. Central ERUs will be provided on the low roof to provide variable demand ventilation to the library and basement spaces. Both vertical and horizontal supply and exhaust/relief air ductwork will be provided from each ERU to all of the spaces to be ventilated. Each ERU will be balanced with 10% between supply and return/exhaust airflows. Each ERU will have VRF heating/coiling coil to condition the supply air being delivered from the ERU to the occupied spaces. Units to be provided with MERV 13 filtration.

4. A central heating and cooling VRF system with heat recovery to provide simultaneous heating and cooling approach will be used for the Library spaces. Energy efficiency ratings must meet or exceed the ASHRAE Standard 90.1

5. VRF air-cooled condensing units (ACCU's) will be provided on the low roof to provide centralized heat rejection for the fan coil evaporator units. Both ERU unit and VRF units on the low roof will use approximately. 400 sf of the roof space.

6. Horizontal fan coil units located above the ceiling with MERV 13 filtration and associated supply ductwork. Low pressure ductwork connected to supply diffusers will be used to condition the space and the ceiling will be used as a return plenum. Estimated Library cooling tunnage:

   Approx. 30 tons (Option 1),

   Approx. 40 tons (Option 2).

7. Mechanical spaces will be provided with electric unit heaters for heating.

8. All supply and return ducts from rooftop ERUs units will be provided with acoustically lining approx. 10-15 feet from the units.

9. A dedicated Library BMS system will be provided that connects to BPL system located in Copley.

10. Temperature and Humidity

	Winter	Summer
Outdoor Design Temperature	13°F (1% ASHRAE)	88°db / 72°wb (1% ASHRAE)
Indoor Design Temperature: Common Spaces	72 ± 5ºF	72 ± 5ºF

11. Ventilation Air, Equipment Load, Lighting Load, Air Changes and Pressurization

Outdoor Air	Per ASHRAE 62.1: •Common rooms: 5 CFM / person and 0.12 CFM / SF •Corridors & Storage: 0.06 CFM/ SF
Equipment Load	Per appliance cutsheets
Lighting Load	0.8 W/SF

RESIDENTIAL

1. To minimize penetrations in the high-performance building envelope as well as well minimize the amount of floor space required for HVAC ventilation equipment, a central ventilation approach with roof mounted energy recovery units (ERU's) will be used for the Residential Multi-Family portion of the building as well.

2. Central ERUs will be provided on the high roof to provide constant ventilation to the residential apartment units. Both vertical and horizontal supply and exhaust/relief air ductwork will be provided from each ERU to allow the spaces to be ventilated. Architectural vertical fire-rated shafts will be required to accommodate the vertical supply and exhaust/relief duct risers. Each ERU will be balanced with 10% between supply and return/exhaust airflows. ERU's with efficiency ratings of 80% + 0.77 watts per CFM as outlined in the DND Design Standards will be used as basis of design (BOD). Each ¬ERU will have VRF heating/cooling coil to condition the supply air being delivered from the ERU to the occupied spaces. Units to be provided with MERV 13 filtration.

3. Each ERU will have VRF heating/cooling coil to condition the supply air being delivered from the ERU to the occupied spaces. Units to be provided with MERV 13 filtration. Units we be on optional standby power.

4. A central heating and cooling VRF system with heat recovery to provide simultaneous heating and cooling approach will be used for the residential apartment units. Energy efficiency ratings must meet or exceed the DND Design Standards.

5. VRF air-cooled condensing units (ACCU's) will be provided on the high roof to provide centralized heat rejection for the fan coil evaporator units located the residential apartment units.

6. For the Residential Apartments: A single floor mounted vertical fan coil unit located in a utility

closet with MERV 13 filtration and associated supply ductwork to living space and bedroom(s). The utility closet will be provided with a louvered door for a central air return.

- All Apartments under 1,000SF: Assume 1-ton FCU

- All Apartments between 1,000 – 1,500SF: Assume 1.5-ton FCU

7. For the Residential Building Common spaces: Floor mounted vertical fan coil units located in a utility closets with MERV 13 filtration and associated supply ductwork throughout the associated Common Area(s). Low pressure ductwork connected to supply diffusers will be used to condition the space and the ceiling will be used as a return plenum.

8. The Architectural vertical fire-rated shafts will be sized to accommodate the vertical VRF piping.

9. Mechanical spaces will be provided with electric unit heaters for heating.

10. All supply and return ducts from rooftop ERU units will be provided with acoustically lining approx. 10-15 feet from the units.

11. A dedicated BMS system will be provided will be provided for the Residential portion of the building.

12. Temperature and Humidity

	Winter	Summer
Outdoor Design Temperature	13°F (1% ASHRAE)	88°db / 72°wb (1% ASHRAE)
Indoor Design Temperature:		
Living Spaces	72 ± 5ºF	72 ± 5ºF
Common Spaces	72 ± 5ºF	72 ± 5ºF

13. Ventilation Air, Equipment Load, Lighting Load, Air Changes and Pressurization

a. Living Spaces

Outdoor Air Ventilation	Per ASHRAE 62.1: •Min Supply = 18 CFM / Person •Min Exhaust = 50 CFM / Kitchen + 25 CFM / Full Bathroom •Min ACH = 0.39 ACH Assumptions: •People = n bedrooms + 1 Between Min Supply, Min Exhaust, Min ACH and ASHRAE 62.1, the greatest value will be used for ventilation.
Equipment Load	Per appliance cutsheets
Lighting Load	0.8 W/SF

b. Common Spaces

Outdoor Air	Per ASHRAE 62.1: •Common rooms: 5 CFM / person and 0.12 CFM / SF •Corridors & Storage: 0.06 CFM/ SF
Equipment Load	Per appliance cutsheets
Lighting Load	0.8 W/SF

14. Emergency and/or Stand-by Power HVAC Operation

a. Emergency Standby Generator Fuel Oil Storage and Pumping System

b. Residential Multi-Family ERU's

c. Stairwell Pressurization fans.

d. Residential Multi-Family DDC Building Management System.

C. ELECTRICAL SYSTEMS CRITERIA

UTILITIES

ELECTRICAL:

1. Service shall be provided to the building by Eversource to a vault located in the basement of the new building. A primary switch and 13.8kV-480V utility transformer shall be located in the vault. Currently, assume (4) 5" conduits from Eversource manhole in street to the primary switch location.

2. Provide 4" schedule 40 PVC conduits (concrete encased) and conductors from the transformer secondary terminals to the building's main incoming service equipment as shown in the attached electric service matrix.

3. Provide main service entrance equipment as indicated in the attached Building Electric Service Matrix. All main service equipment shall be equipped with a separate customer-metering package including all required instruments and switches. The service to the Library and Residential portions of the building shall be separated at this point and separately metered.

4. To serve the fire pump, provide two (2) 4" schedule 40 PVC conduits (concrete encased) from the utility transformer secondary terminals to fire pump switchboard located in the main electric room. Currently, assume one (1) set of #600 KCMIL copper conductors.

5. Telephone and Cable TV Services:

a. Provide building with incoming Telephone and CATV service entrance. The service entrance ductbank shall consist of four 4" conduits for Telephone and CATV. The service shall terminate in the building telephone demark room.

The Library and Residential Housing will share the incoming service entrance ductbank, but they will separate from that point. One conduit will run to the Library telcomm room and three conduits will run to the housing telcomm riser closets.

6. Fire Alarm

a. The City of Boston's municipal IMSA loop for fire alarm signal transmission shall be extended underground into the project site by Civil. Electrical shall install the conduit and IMSA wiring from a site manhole to each building's Fire Alarm Control Panel. IMSA loop is 20-6 Figure-8 for overhead runs and 20-6 four conductor or six conductor for underground runs. If allowed by BFD, provide separate municipal connections for the library and housing. If not allowed by BFD, the library and housing will need to share the same municipal loop connection.

7. Summary Matrices

Building Electric Service Matrix					
Building Estimated Load (kVA)	Building Secondary Conductors	Building Service Equipment Ampacity	Building Service Voltage	Building Service Equipment Location	Eversource Transformer Location
1,650	(7) Sets of 4-500KCMIL in 4" Conduit	2,500A	480/277V, 3PH, 4W	Basement Main Electric Room	Basement Vault

LIBRARY

1. For Library loads, provide a 480/277V distribution panel, step-down transformer, and 208/120V double-tub panelboard in the Library electric room. Provide feeders, branch circuit breaker panels, and wiring to mechanical equipment loads as required.

2. Plumbing equipment: provide 120v circuits to all restroom fixtures, sensors, flush valves, dispensers, etc.

3. Provide 120v circuits to trap primers.

4. Provide library lighting, lighting controls, and power throughout. LED lighting fixtures shall be as selected by the Architect or lighting designer. Lighting controls shall be coordinated with PFD and BPL standards including time of day operations schedules as well as LEED requirements and interconnected to the library BMS system.

5. Provide mechanical equipment rooms and back of house areas LED lighting, lighting controls and power.

6. Provide LED lighting, controls and power at exterior, roof mounted equipment and personnel doors as required.

7. Lighting design shall adhere to the following constraints:

- Corridors – 0.40 Watts/sf
- Common Stairwells – 0.40 Watts/sf
- Back of House – 0.40 Watts/sf
- Other Common Spaces – 0.80 Watts/sf

8. Provide two, 277v, single circuit, emergency inverters to serve emergency lighting.

9. The lighting control systems shall be tied into the BMS serving the Library, separate from the residential.

10. Provide power to Library BMS systems as well as power/raceway for the Library CCTV, intrusion, card access as well as technology and communications systems as required.

11. CCTV

- A Closed-Circuit TV system will consist of computer servers with video management software, computer monitors and IP based closed circuit TV cameras. The head end server will be located in the head end (MDF) room and will be rack mounted. The system can be accessed from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The network video recorders (SAN) will record all cameras and store this information for 45 days at 30 images per second (virtual real time).

- The location of the cameras is generally on exterior building perimeter and public spaces indoors. The cameras are fixed IP day/night type.

- The system will fully integrate with the access control system to allow viewing of events from a single alarm viewer. Camera images and recorded video will be linked to the access system to allow retrieval of video that is associated with an event.

12. Intrusion System

- An intrusion system will consist of security panel, card readers, motion detectors and door contacts. The system is addressable which means that each device will be identified when an alarm occurs. The system is designed so that each perimeter room with grade access will have dual tech sensors along the exterior wall and door contacts at each exterior door.

- The system will include a digital transmitter to summons the central station in the event of an alarm condition.

- The intrusion system will be connected to the automated lighting control system to automatically turn on lighting upon an alarm.

- Alarm system shall send a signal to municipal Police in the event of an alarm.

13. Card Access

- A card access system includes a card access controller, door controllers and proximity readers/ keypads. Proximity readers will be located at strategic locations. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer.

- The alarm condition will also initiate real time recording on the integrated CCTV System. The system may be programmed with graphic maps allowing the end-user to quickly identify alarm conditions and lock/unlock doors.

- The system is modular and may be easily expanded to accommodate any additional devices.

14. Technology Systems

The following is the Technology Systems narrative which defines scope of work, as well as, Basis of Design.

a. The Technology Systems design is intended as one where technology helps facilitate member access to information.

b. As technology changes at an ever increasing pace, it should be important to put in place the very best infrastructure to support not only today's technology but look to the future and ensure compatibility for tomorrow's needs.

c. Technology Components:

Installation and integration of multiple technology components are as follows:

1) Cabling for Voice, Data, and Video Technologies

2) Data Electronics for LAN/WAN Data Infrastructure (not included as part of scope)

3) Data Electronics for Internet Access (not included as part of scope)

4) Data Network Computer Hardware (not included as part of scope)

5) Data Network Software (not included as part of scope)

6) Computer Peripherals (not included as part of scope)

d. Data System:

The Data System is designed for a 10 Gig Ethernet (Category 6A cable) with 10 Gig connection to the work station. The high speed data transmission will allow users to retrieve data from the internet and local area network almost instantly. The data system has been designed for users to accomplish:

1) Internet access through a central router which will connect to an ISP (Internet Service Provider).

2) Access to central library equipment such as electronic catalogs.

3) Applications for word processing, spreadsheet, and alike through a central applications server.

4) Printing of documents from any user computer connected to network printers.

5) Access to miscellaneous library materials for children and adults such as learning/tutorial programs.

6) Dedicated user space on a public server for

member use such as storage of electronic files.

7) Connecting to town wide area network.

8) Wireless access for patrons and employees within library.

e. Telephone System:

The Telephone System will utilize Category 6A cable similar to the Data System. The infrastructure will be designed to accommodate Centrex service or a VOIP System.

f. Cable-TV System:

The Cable-TV System is not required for the library.

g. Sound System:

The Multi-Purpose Room will be equipment with a local sound system, the system will have inputs/outputs for hearing impaired instruments.

Provide a paging system capable of addressing the entire library through speakers via a microphone at the front desk.

h. Hearing Loop:

Provide a hearing loop technology system in each meeting room. A hearing loop is a sound system for use by people with hearing aids. The system provides a magnetic, wireless signal that is picked up by the hearing aid when it is set to "T" (telecoil) setting.

RESIDENTIAL

ELECTRICAL:

1. Provide residential service transformer, switchboard section, and unmetered busduct run through the stacked electric rooms to the top floor.

2. Provide 208Y/120V, three phase utility meter stacks on floors containing residential units, each with a bus plug-in unit to unmetered bus duct of corresponding ampacity.

3. Each meter stack shall be provided with 125 ampere, single phase disconnects and utility meters to serve units as required.

4. Each apartment shall be provided with 125 ampere single phase load center and connected to respective meter stack disconnect.

5. Emergency Generator

- Provide a diesel or biofuel generator with weatherproof, sound-attenuated enclosure located on the high roof as indicated in the attached Building Emergency Generator Matrix. Provide emergency, legal-standby, and optional-standby branch transfer switches for emergency lighting, elevators, fire pumps, stair-pressurization, and loads earmarked for standby power by the Owner. Provide exterior 50% rated load bank and load bank control panel. Mount load bank control panel within the generator enclosure.

- The emergency system (NEC 700) shall include a permanent switching means to connect a portable or temporary alternate source of power, which will be available for the duration of maintenance or repair of the permanent diesel generator.

- Provide emergency lighting panelboards on the ground floor and on every third floor of the residential tower. Feeders shall be MI cable if not routed within a 2-Hour shaft.

- Selected normal lighting fixtures shall be wired to the emergency lighting system for egress lighting. Provide exit signs wired to emergency lighting system.

- The Library emergency lighting requirements will be handled with battery or inverters, independent from the emergency generator.

6. For house loads, provide a 480/277V distribution panel, step-down transformer, and 208/120V double-tub panelboard in the main electric room. Provide feeders, branch circuit breaker panels, and wiring for house loads as required.

7. Plumbing equipment: provide 120v circuits to all restroom fixtures, sensors, flush valves, dispensers, etc.

8. Provide 120v circuits to trap primers.

9. Provide lobby, common area, and apartment lighting, lighting controls, and power throughout. LED lighting fixtures shall be as selected by the Architect or lighting designer.

10. Provide mechanical equipment rooms and back of house areas LED lighting, lighting controls and power.

11. Provide LED lighting, controls and power at exterior, roof mounted equipment and personnel doors as required.

12. Lighting design shall adhere to the following constraints:

13. Dwelling Units – Average Lamp Efficacy >= 70 Lumens/Watt

- Corridors – 0.40 Watts/sf (On 24 Hrs/Day)

- Common Stairwells – 0.40 Watts/sf (On 24 Hrs/Day)

- Back of House – 0.40 Watts/sf (On 4 Hrs/Day)

- Other Common Spaces – 0.80 Watts/sf (On 10 Hrs/Day)

14. The lighting control systems shall be tied into the separate BMS serving the Residential, separate from the Library.

15. Provide power to BMS system and power/raceway to building access and security systems as required.

16. Apartments:

a. Apartments shall be serviced with Copper conductors in EMT, sized in accordance with the voltage drop limitations identified in the energy code.

b. Provide each apartment with a 125 ampere, 208/120V rated, single phase load center as required per unit size, with branch circuit breakers required to serve the unit loads. Branch circuit breakers shall be AFCI, GFCI, or HACR rated where required by code. Load center bussing shall be aluminum. Load centers shall be series rated with the meter stack circuit breaker for 65KAIC.

c. Provide branch circuits and devices in each unit per the NEC. Branch circuit wiring in units shall be type NM. Devices shall be tamper-proof.

17. Telephone and Cable TV Services:

a. Provide sleeves through stacked communication closets, and communications ground bar in each closet.

b. Provide tele/data cabinet, wiring, and jacks in each unit. Install wiring back telephone closet on floor for Telephone and Cable TV services.

c. Provide access control, CCTV, and intercom as required.

d. Per the DND Design Standards, all buildings are required to be provided with broadband (high-speed data network) access in addition to appropriate technology for telephone, data and other communications with individual residential units. Residents should be provided with a choice in terms of broadband service providers.

18. Residential Building shall be provided with a photovoltaic (PV) ready design, ready for future

installation of an active PV system. Spare breakers shall be provided in the building's main switchboard/ distribution panel as follows to support future inverter:

(1) 150A-3P (80kW Expected PV System Size), 2"C. with Pullstring to Proposed Inverter Location.

19. Grounding electrode system per Article 250 of the NEC, including ground triad, concrete encased electrode, building steel connection, water service connection, etc.

20. A Lightning Protection System shall be installed by a certified Lightning Protection Contractor who can certify such a system under UL96 and NFPA-780. A separate permit shall be required. All roof mounted equipment, metallic pipe, etc. shall be bonded to lightning protection system as required by NFPA-780.

21. The Housing Developer shall contact the FAA and get a letter of determination based on the heights, locations and heights of mechanical equipment located on the roofs. Once the determination has been given, the E.C. shall provide a complete aviation lighting system on building roofs where required in accordance with the determined section of the FAA Advisory Circular 70/7460-1 (latest edition).

Building Standby Generator Matrix				
Generator Power Rating (kW/kVA)	Generator Electrical Characteristics	Factory Weatherproof Enclosure Dimensions (LxWxH)	Generator in Factory Weatherproof Enclosure Weight (lbs)	Required Fuel Oil Storage (24 Hr Runtime)
350kW/437kVA	480/277V, 3PH, 4W	216" x 94" x 142"	22,000 lbs	600 Gallon

D. PLUMBING SYSTEMS CRITERIA

UTILITIES

PLUMBING

1. The domestic cold water service size shall be 6" diameter. The incoming domestic water service will be coordinated with the local water department to determine the configuration of the utility water meter installation and size of the utility water meter. If the local water department requires a single master utility meter, then the subsequent feeds to the library and housing portions of the building will be provided with separate sub-meters. If allowed by the local water department, provide a separate utility water meter on the feed to the library and housing portions of the building for complete water metering separation.

2. Off of the 6" cold water service, provide 4" feed to the housing portion of the building (either sub-meter or utility meter). In general, it is assumed that the housing portion of the building shall require a domestic water booster pump. The booster pump shall be located within the domestic water service entrance room.

3. Off of the 6" cold water service, provide a 2" feed to the library portion of the building (either sub-meter or utility meter) and provide domestic cold water utilizing available street pressure, while the housing portion of the building is served by the domestic water booster pump.

4. The domestic cold water piping system shall be sized utilizing connected water supply fixture units (WSFU) and continuous flow demands. Information regarding water supply fixture units may be found in the Massachusetts Plumbing Regulations.

5. The domestic cold water system design pressure shall provide a minimum of 40 psi residual pressure at the highest, most remote connected fixture and a maximum pressure of 80 psi to any plumbing fixture. The piping system shall be sized to maintain a velocity of 5-7 f/s within the piping system.

6. Sanitary Waste and Vent System: at a minimum the building shall be provided with one 6-inch sanitary sewer exit which shall extend and connect to the site sanitary sewer system. The sanitary waste system shall extend and connect to all domestic plumbing fixtures requiring sanitary waste. If allowable by the local sewer department, the library and housing portions of the building will be provided with separate sanitary sewer exits including completely separate connections to the sanitary sewer main in the street.

7. In general, the residential portion of each building shall be provided with a Sovent system for collection of sanitary sewer. The library will be provided with a traditional sanitary, waste and vent piping system.

8. If required in the basement level for sanitary waste fixtures below the building sanitary sewer exit invert(s), duplex sewage ejector pumps shall be provided. Size, location and quantity of sewage ejector pumps will be determined upon design of the systems. Once again, these sanitary systems shall be separate between the library and housing portions of the building.

9. The sanitary waste and vent piping system shall be designed and sized based upon the number and type of plumbing fixtures to be programmed for the facility. Utilizing connected drainage fixture units (DFU) and any continuous flow demands is a common method for sizing waste piping systems. Information regarding drainage fixture units may be found in the Massachusetts Plumbing Regulations.

10. Additional flows may be calculated based upon two drainage fixture units per 1 gpm of continuous flow.

11. Storm Drainage: The housing Developer shall be responsible for the entire building roof drainage and foundation drainage systems including a primary roof drainage system and independent secondary (emergency) roof drainage system. All primary system roof drains, including main roof drains, terrace drains, deck drains, area way drains, planter drains and green roof drains within the building shall be connected to the building's primary storm water drainage system. Primary storm water drainage system shall extend to the exterior of the building, below grade, and connect to the site drainage system. Where area way drains are required, these drains shall be trapped and protected with a backwater valve. Backwater valve must be accessible and, in a location, not subject to freezing. Any roof, terrace, deck or other storm drains, which are at a lower elevation than the highest roof elevation and connect to the same piping system as the highest roof drains, shall be protected by backwater valves, as required by code.

Where secondary (emergency) drainage fixtures are required, these fixtures shall connect to the secondary (emergency) storm drainage system. This system shall be independent of the primary storm drainage system and shall discharge to daylight, above grade, visible to building facility maintenance personnel.

Where foundation/under slab drainage systems are required, the Plumbing Contractor shall be responsible for the installation, including piping, and ejector pumps/pits. All discharge from foundation/ under slab drainage systems shall extend and connect to the primary storm water drainage system. It is assumed that a minimum of two foundation/ under slab drainage system ejector pump locations will be required, but additional pump locations may be required based upon size and layout of foundation/under slab drainage systems. Each pump location shall be assumed to be a minimum Duplex 2 hp ejector.

The housing Developer shall design the roof and foundation drainage systems so the do not pass through the library's basement spaces and/or require access to the library's basement spaces for troubleshooting and maintenance.

12. Radon Mitigation: If required by site conditions and/or LEED requirements, the housing Developer shall be responsible for the installation of any Radon Mitigation Systems as typically designed by the Geotechnical Engineer and installed by the Plumbing Contractor.

LIBRARY

1. Off of the 6" cold water service, provide a 2" feed to the library portion of the building (either sub-meter or utility meter) and provide domestic cold water utilizing available street pressure, while the housing portion of the building is served by the domestic water booster pump. The domestic cold water will supply distrusted point of use water heaters and plumbing fixtures.

2. Domestic water sub-meters shall also be provided for any Library fixtures or equipment including but not limited to exterior hose bibbs, roof hydrants.

3. Library spaces, which require domestic hot water, shall be provided with point of use instant electric water heaters as required by the programming.

4. Domestic hot water heating system shall be designed and sized in accordance with the Massachusetts Plumbing Regulations, ASHRAE 90.1, ASHRAE 90003, ASPE Standards.

5. The domestic hot water piping systems shall be sized based upon the number of plumbing fixtures to be programmed for the Library space. Utilizing connected water supply fixture units (WSFU) and continuous flow demands is a common method for sizing water piping systems. Information regarding water supply fixture units may be found in the Massachusetts Plumbing Regulations.

6. The piping system shall be sized to maintain a velocity of 5-7 f/s within the piping system.

7. Sanitary waste and vent piping for the Library sanitary waste and vent systems shall be cast iron pipe and fittings.

8. The pressure portion of any sewage ejector pumps shall be Type L Copper with press fittings.

9. Plumbing Fixtures: In general, plumbing fixtures shall be white, vitreous china with chrome plated faucets, stops and traps. All supply stop valves shall be brass body and stem and have threaded or sweat solder inlet. All water closets and faucets shall be Water Sense Certified.

10. Library water closets shall be wall mounted with a 12-inch rough in and shall have sensor activated flushometer valves. Lavatory basins shall be either wall mount or counter undermount with sensor activated faucets. Water closets shall be rated for an average of 1.1 gallons per flush or lower, lavatory faucets shall be rated for a maximum of 0.5 gallons per minute flow rate, and shower valves shall be rated for a maximum of 1.75 gallons per minute flow rate. Library lavatory faucets shall be hands-free, hard-wired, not battery powered.

11. Library kitchen sinks shall be Type 304, 18 gauge stainless steel, single bowl, under mount installation. Kitchen faucets shall be rated for a maximum of 1.5 gallons per minute flow rate.

12. Per Mass. Plumbing Code, Library Restrooms which have 2 or more toilets or urinals shall be equipped with a hose bibb and floor drain with trap primer.

13. Storm drainage piping which serves roof, terrace or deck drainage of the Library portions of the building shall be cast-iron pipe and fittings.

14. All domestic water piping shall be insulated. Domestic hot water piping shall be provided with insulation of an R-4 rating.

15. All horizontal roof drainage piping and roof drain bodies shall be insulated.

16. Hose bibbs and floor drains shall be provided at all mechanical rooms and all trash rooms. A hose bibb and floor drain. All floor drains shall be protected with automatic, electronic trap priming devices.

17. Elevator Sump Pumps: Each elevator shaft shall be provided with a minimum of one (1) sump pit, with dimensions of 2'x2'x2'. Each sump pit shall be provided with a float operated, submersible sump pump with remote located control panel and audible alarm. Each pump shall have a rating of 50 GPM for each elevator car within the elevator shaft (i.e. two elevator cars = 100 GPM pump). Elevator sump pumps shall discharge indirectly to an open-end drain assembly (with backwater valve and properly vented P-trap) which shall be connected to a properly sized oil/water separator prior to connecting to the building's sanitary waste system. Pump systems which will stop pump operation upon detection of oil shall not be utilized.

RESIDENTIAL

1. Off of the 6" cold water service, provide 4" feed to the housing portion of the building (either sub-meter or utility meter). In general, it is assumed that the housing portion of the building shall require a domestic water booster pump. The booster pump shall be located within the domestic water service entrance room.

2. For purposes of tracking domestic water use, a housing tenant sub-meter shall be provided on the cold water feed to each housing apartment unit. The housing tenant sub-meter located within a mechanical closet within each unit.

3. Each residential tenant space (1 bedroom and studio) shall be provided with its own in unit electric storage water heater. Each heater shall be a minimum of 50-gallon capacity, and 4.5 kW input.

4. The maximum allowable set temperature for water heaters shall be 130°F for the residential units and 140°F for the amenity and commercial units. All domestic hot water piping shall be provided with insulation with an R-4 rating. Each water heater installation shall be provided with a safe waste pan and leak detection system with automatic water shut-off solenoid valve.

5. The domestic hot water piping systems shall be sized based upon the number of plumbing fixtures to be programmed for the tenant space. Utilizing connected water supply fixture units (WSFU) and continuous flow demands is a common method for sizing water piping systems. Information regarding water supply fixture units may be found in the Massachusetts Plumbing Regulations.

6. The piping system shall be sized to maintain a velocity of 5-7 f/s within the piping system.

7. For Buildings which are over Six Stories in height (as listed in the Permit Applications) all domestic hot water distribution piping, including that piping, which is located within residential dwelling areas, shall be Type L copper with press fittings.

8. Sanitary waste and vent piping for the Residential sanitary waste and vent systems shall be cast iron or Schedule 40 PVC pipe and fittings. Except for the residential apartment units directly on the floor above library space, the residential PVC sanitary waste and vent piping systems shall not be allowed to pass through or collect within the Library space. In addition, the layout of any piping related to residential apartment units on the floor directly above, must be reviewed and approved by BPL, plus no commercial drainage shall connect to the PVC piping system.

9. Elevator Sump Pumps: Each elevator shaft shall be provided with a minimum of one (1) sump

pit, with dimensions of 2'x2'x2'. Each sump pit shall be provided with a float operated, submersible sump pump with remote located control panel and audible alarm. Each pump shall have a rating of 50 GPM for each elevator car within the elevator shaft (i.e. two elevator cars = 100 GPM pump). Elevator sump pumps shall discharge indirectly to an open-end drain assembly (with backwater valve and properly vented P-trap) which shall be connected to a properly sized oil/water separator prior to connecting to the building's sanitary waste system. Pump systems which will stop pump operation upon detection of oil shall not be utilized.

10. Plumbing Fixtures: In general, plumbing fixtures shall be white, vitreous china with chrome plated faucets, stops and traps. All supply stop valves shall be brass body and stem and have threaded or sweat solder inlet. All water closets, faucets and shower valves shall be Water Sense Certified.

11. Residential water closets water closets shall be floor mounted with flush tank and 12-inch rough. Lavatory basins shall be under mount installation. Water closets shall be rated for an average of 1.1 gallons per flush or lower, lavatory faucets shall be rated for a maximum of 1.5 gallons per minute flow rate, and shower valves shall be rated for a maximum of 1.75 gallons per minute flow rate.

12. Residential kitchen sinks shall be Type 304, 18 gauge stainless steel, single bowl, under mount installation. Kitchen faucets shall be rated for a maximum of 1.5 gallons per minute flow rate.

13. Residential clothes washers (provided by others) shall be Energy Star certified. All residential clothes washer installations shall be provided with a safe waste pan and leak detection system with automatic water shut-off solenoid valve.

14. Storm drainage piping which serves roof, terrace or deck drainage of the Residential portions of the building shall be Schedule 40 PVC pipe and fittings or cast-iron pipe and fittings. Any storm drainage not part of the Residential portion of the building shall be cast iron pipe and fittings.

15. All domestic water piping shall be insulated. Domestic hot water piping shall be provided with insulation of an R-4 rating.

16. All horizontal roof drainage piping and roof drain bodies shall be insulated.

17. Exterior wall hydrants shall be provided on all Buildings as required by code and shall be installed no more than 100 feet apart.

18. A floor drain shall be provided within the water heater closet of the lowest apartment unit in the stack. This floor drain shall collect the indirect waste from water heater safe waste pans and temperature /pressure relief valves of the water heaters (refer to 248 CMR 10,22 Figure 14). The trap seal on the floor drain shall be protected by an automatic, electronic trap priming device.

E. FIRE PROTECTION SYSTEMS CRITERIA

UTILITIES

1. Automatic sprinkler protection will be provided throughout the building in accordance with NFPA 13, 2013 Edition, as required by MGL 148 and 780 CMR, 9th Edition. Combination wet standpipe/ sprinkler system will be provided for all heated areas in the building.

2. A single 8" water service shall be installed to feed building's fire protection systems. The 8" fire service shall be equipped with an 8" double check valve backflow preventer. The fire service shall then split to serve (2) dedicated systems: (1) for the Library and Library support areas, (2) for the Residential and Residential support areas. Refer to the Library and Residential sections below for additional information.

3. Class I automatic wet pipe standpipe systems will be installed in the required egress stairs of the high rise building as required by the Massachusetts State Building Code. The automatic standpipe system is designed to provide a minimum of 100 psi at the hydraulically most remote fire department hose outlet, with a 500 GPM flow for the hydraulically most remote standpipe system riser and 250 GPM for each additional standpipe system riser. The standpipe system shall be served via the Residential Wet Alarm Valve system. Refer to the matrix for standpipe requirements per building.

4. The standpipe system design is based on automatic wet standpipe system that shall be hydraulically designed per 2013 NFPA 14 requirements. Occupant use hose stations and 1 ½" valves will not be provided. Fire department hose valves will consist of 2 ½" hose valves with 2 ½" to 1 ½" reducers, caps, and chains located in each of the egress stairs at each floor landing, located five feet above the finished floor.

5. Each stairwell in buildings requiring standpipes will be equipped with combination sprinkler/standpipe systems as required by the 9th Edition of the Massachusetts State Building Code (780 CMR). All sprinkler/standpipe control valves will be provided with tamper switches and flow switches will be provided at each floor's sprinkler zone control valve assembly.

6. Dedicated zone control valves will be located within stairwells to further isolate Library areas and Residential areas from one another. Refer to the Library and Residential sections below for more information.

7. Two remotely located fire department connections with 2-1/2" inlets will be provided as required for high-rise buildings. Each fire department connection will serve all sprinkler and standpipe systems within the building.

8. Pressure regulating type valves and 3" test/ drain risers will be provided where internal pressures exceed 175psi. Where pressure regulating valves are installed, a 3" test and drain riser with 2-1/2" test ports will be provided for testing each pressure regulating valve under full flow condition.

9. Elevator machine rooms and elevator hoist ways will not be provided with sprinkler protection.

10. All sprinkler/standpipe control valves will be provided with tamper switches and flow switches will be provided for each floor. The dry pipe systems will have pressure switches monitored by the base building fire alarm system.

11. Sprinkler types (typical throughout building): Concealed pendent sprinklers with white cover plates will be installed in all spaces having suspended / finished ceilings, including finished lobby areas, back of house areas and residential units. Concealed sidewall sprinklers with white cover plates will be installed in residential units. Dry concealed pendent sprinklers with white cover plates will be installed in spaces that could be exposed to freezing temperatures such as vestibules. Upright sprinkler heads will be installed in areas without suspended ceilings.

12. Hazard Design Categories (typical throughout building):

a. Automatic wet sprinkler systems in areas of Light Hazard Occupancy will be designed with a minimum design density of 0.10 GPM per square foot over the hydraulically most remote 1,500 square feet. Maximum protection area per sprinkler head will be 225 square feet for upright and pendent sprinkler heads, and 196 feet for sidewall sprinkler heads. Hose allowance will be 100 GPM. Light Hazard Areas include lobbies, elevator lobbies, corridors, restrooms, common areas, workspaces, fire command center, private dining, lounge spaces, gym areas, Library areas including reading rooms and community areas and similar spaces.

b. Automatic wet sprinkler systems in areas of Ordinary Hazard Group 1 Occupancy will be designed with a minimum design density of 0.15 GPM per square foot over the hydraulically most

remote 1,500 square feet. Maximum protection area per sprinkler head will be 130 square feet. Hose allowance will be 250 GPM. Ordinary Hazard Group 1 Areas include mechanical rooms, electric rooms, Tel/Data rooms, life safety closets, storage rooms, janitor's closets, kitchens, supply rooms, trash rooms, recycling rooms, Bike storage rooms, fire pump room, and similar spaces.

13. Summary Matrix:

Fire Protection Matrix						
Fire Service Entrance Diameter	Fire Service Location	High-Rise	Fire Pump Size	Combustible Construction (Sprinkler coverage req'd above & below ceilings)	Library on Level 1 (Separate FCVA)	Standpipe Required
8"	Basement, in Mechanical Room	Yes	TBD	No	Yes	Yes, Automatic

LIBRARY

1. A single 6" Wet Alarm Riser shall be installed to serve the sprinkler system throughout only the Library and Library support areas. The library sprinkler system wet alarm riser valve will not be supported by the fire pump.

2. Each floor with Library space shall have a dedicated floor control valve assembly feeding the space so that the sprinkler system in the Library space is the only area to be shut down in the building when the Library fitup/renovation work is ongoing, and the remainder of the building system remains uncompromised for continuity of business. Refer to the matrix for details of each building.

3. Install black steel piping with Victaulic fittings throughout all areas of the library. Steel piping 1" and 1-1/4" shall be schedule 40, steel piping 1-1/2" and larger shall be schedule 10.

4. Electric rooms, sub electric rooms and telephone/data equipment rooms will be sprinkler protected.

5. All sprinklers in Light and Ordinary Hazard occupancies will be quick response type sprinklers.

6. Hazard Design criteria for all Library and Library support areas is shown above in number 12 of the Utilities section.

RESIDENTIAL

1. A fire pump will be required for the Residential tower portions of the building since it is classified as a high-rise by the Massachusetts State Building Code (Buildings greater than 70 feet in height above the lowest level of Fire Department vehicle access) for the new sprinkler/standpipe systems. A complete electric driven fire pump designed in accordance with 2013 NFPA 20, shall be provided with connection to the municipal water supply for each high-rise building. The fire pump controller shall be equipped with an automatic transfer switch which will supply power from the emergency generator upon loss of primary power. The fire pump room shall have direct access to the exterior or a 2-hour rated passageway to the exterior. The fire pump room shall be 2-hour fire resistance rated and shall be dedicated to fire pump equipment only. Each fire pump room shall be a minimum of 200 sq. ft. Refer to matrix at in this section for preliminary fire pump requirements.

2. Each floor with residential space or residential support space shall have a dedicated floor control valve assembly feeding the residential space so that the sprinkler system in the residential space is the only area to be shut down in the building when renovation work is ongoing, and the remainder of the building system remains uncompromised for continuity of business. Refer to the matrix for details of each building.

3. Pressure regulating type valves and 3" test/drain risers will be provided where internal pressures exceed 175psi. Where pressure regulating valves are installed, a 3" test and drain riser with 2-1/2" test ports will be provided for testing each pressure regulating valve under full flow condition.

4. Install black steel piping with Victaulic fittings throughout every building except in residential units. Steel piping shall be used in the corridors and transition into CPVC piping to feed each individual residential unit. Steel piping 1" and 1-1/4" shall be schedule 40, steel piping 1-1/2" and larger shall be schedule 10.

5. Sprinkler protection shall be provided in any vertical shaft that utilizes combustible piping (PVC) which is not water-filled, in accordance with 2013 NFPA 13 Section 8.15.1.2.14.

6. Hazard Design criteria for general floor areas to be used shown above in Utilities number 12. Hazard design criteria for residential dwelling units is as follows:

a. Residential dwelling units will be designed per NFPA 13, 2013 Edition. Residential sprinklers shall be used in dwelling units, and quick response standard spray sprinklers will be used in adjoining corridors. Residential areas will be designed based on a NFPA 13 residential hydraulic design (4 head calculation) using residential listed sprinkler heads. The building's sprinkler systems within dwelling units will be designed with residential sprinklers with specific discharge criteria and the simultaneous operation of up to the four most hydraulically demanding sprinklers within a dwelling unit plus a 100 GPM hose allowance in all residential areas.

F. FIRE ALARM SYSTEMS CRITERIA

UTILITIES

1. The building fire alarm systems shall operate in conjunction with the building fire protection system(s) in accordance with all-applicable codes and standards including 2013 NFPA 13, 2013 NFPA 72, NFPA 90A, and the 9th Edition of the Massachusetts State Building Code.

2. The head-end Fire Alarm Control Panel in the high-rise building shall be installed in the Fire Command Center. The fire Command Center shall be a minimum of 200 sq. ft. with a minimum dimension of 10 feet, located on the ground floor with direct access to the exterior and shall be 1-hour fire rated. The Fire Command Center will also be equipped with a dedicated telephone, elevator status indicator panel, graphic fire fighter's smoke control panel with manual override switches, post fire smoke purge panel with manual switches, printer, emergency and standby power status indicators, remote annunciator for the fire fighter's in-building radio communications bi-directional amplifier system, switch or button for unlocking all stairwell doors simultaneously, work table and an as built drawing cabinet.

3. The high-rise fire alarm system shall be a microprocessor-based multiplex, analog/addressable system with complete audible (voice evacuation) and visual occupant notification, and municipal reporting via local energy Masterbox and central station monitoring service. Each initiating point (waterflow switch, tamper switch, smoke detector, duct-mounted smoke detector, heat detector or manual pull station) shall be individually addressable. Upon activation, the specific device address, type, status and location will be presented at an LCD annunciator integral to the FACP and the remote annunciator(s) in the building.

4. The building will require a 2-hour fire rated stacked life safety electric room on every floor for the fire alarm system riser cabling, terminal cabinets,

notification device power booster panels, and BDA system riser cabling. The room does not need to be dedicated for fire alarm equipment. The fire alarm equipment can share a room with emergency electric equipment or regular electric equipment but needs to be in a 2-hour rated enclosure.

5. Smoke detection shall be installed in all electrical rooms, tel/data rooms, fire command center, adjacent to each pressurized stairwell door, elevator machine rooms, elevator lobbies, and fire alarm equipment closets. Heat detection shall be provided in Fuel Oil storage rooms (if applicable).

6. Wiring Styles (typical throughout building):

a. Signaling Line Circuits shall be wired in a Class X manner, with outgoing and return wiring in separate risers.

b. Notification appliance circuits shall be wired in a Class A fashion.

c. Riser circuits will have a Level 3 pathway survivability and the fire alarm circuits distributed on each floor of the building will have a Level 1 pathway survivability.

7. Related Systems Interface (typical throughout building):

a. The fire alarm system shall interface to the fire protection system(s) by monitoring each individual waterflow and tamper switch via dedicated addressable modules.

b. The fire alarm system shall interface to the HVAC System in order to conduct the required control functions via programmable control module outputs.

c. The fire alarm system shall interface to the security system in order to initiate the required door release sequences, via programmable system control module outputs.

d. The fire alarm system shall interface with all door holder hardware (unrelated to security doors) in order to initiate the required door release sequences via smoke detection installed on each side of the door and programmable system control module outputs at each door holder.

e. The fire alarm system shall interface with the A/V system. Sound and video displays are to be disabled upon fire alarm system activation.

f. The fire alarm system shall interface with the Building Management System (BMS) to monitor and control building systems upon fire alarm system activation.

8. Bi-Directional Antenna (BDA)/Building Radio System (System shall serve entire building):

a. The contractor shall provide an in-building radiating cable system or internal antenna system throughout the building using an FCC approved Output Level Control (OLC) Type bi-directional antenna/UHF amplifier as needed to encompass the Local Fire Department radio frequencies.

b. The system shall be configured to maintain minimum radio signal strengths of-95 dBm uplink and-100dBm downlink available in 99% in critical areas (i.e. emergency command center, fire pump room, exit stairs, exit passageways, elevator lobbies, standpipe cabinets, sprinkler sectional valve locations and similar critical areas) and 95% in all other areas of each floor of the building transmitted and received by the Local Fire Department's Communications Division.

c. Installation and location of roof-mounted or feed antenna shall be coordinated directly with the Local Fire Department and the Local Emergency Communications Division.

d. Provisions shall be made for extension of in-building (radiating) coverage antennas to be provided as required for the tenant improvements.

e. The installation and testing of the system shall be in accordance with the Local Fire Department requirements.

f. The system shall be capable of operating on an independent battery/secondary power source for a period of at least 12 hours without external power input.

g. The bi-directional amplifier shall be powered by two dedicated twenty ampere circuits. Amplifier cabinet shall be installed in a 2-hour fire rated enclosure. Riser cable shall also be installed in a 2-hour fire rated enclosure.

h. The cabinet shall be a NEMA 4 painted steel cabinet. The color will be red and bear the lettering as follows: "BOSTON FIRE DEPT. RADIO" in bright yellow lettering. The maintenance vendor and telephone number will be marked on the cabinet. The cabinet will have a locking mechanism to keep the unit(s) secure.

i. Each amplifier unit will have a monitoring system that monitors amplifier operation and primary power. The Fire Department shall be notified of any system failures that extend past the two-hour time limit. The Fire Alarm contractor shall be responsible for furnishing, installing, and coordinating the above-mentioned equipment.

j. System and Signal booster supervisory signals shall include Antenna Malfunction and Signal booster failure.

k. The building's fire alarm system shall monitor the BDA system for malfunctions and shall include the following: Circuit Integrity, Antenna Malfunction and Signal Booster Failure, Low Battery Capacity (alarming at 70% of battery capacity), Loss of Normal AC Power, and Failure of Battery Charger.

l. A dedicated remote monitoring panel shall be provided within the Fire Command Center for high rise buildings or another suitable location for low-rise buildings to annunciate the status of all signal booster locations. The monitoring panel shall provide visual and labeled indication of the following for each signal booster:

(1) Normal AC power

(2) Signal booster trouble

(3) Loss of normal AC power

(4) Failure of battery charger

(5) Low battery capacity

(6) Antenna failure

m. A donor antenna must maintain isolation from the distributed antenna system and shall be a minimum of 15db above the signal booster gain under all operating conditions.

LIBRARY

1. Provide a "slave" fire alarm head-end control panel in the Library Electrical Room, and interface the "slave" control panel to the head-end Main Fire Alarm Control Panel in the Fire Command Center which will provide for maximum isolation between the Library and Residential fire alarm systems while still providing an integrated overall system required by Code so unless head-end control panel related, any work in the Residential Building should not impact the Library and vice versus.

2. Duct mounted smoke detectors will be installed for HVAC Equipment over 2,000 CFM.

3. Manual Pull Stations shall be placed at entries into every egress stairwell as well as all exits of building on the ground floor.

4. In high-rise buildings, occupant notification shall consist of audible/visual signaling. Audible signaling shall include pre-alert tone, pre-recorded voice messaging, and manual voice paging throughout the building on a selective and all-call

basis via microphone in the FACP which is located in the respective Building's Fire Command Center (FCC).

5. Visual signaling shall be by xenon strobes in accordance with NFPA 72 and the Americans with Disabilities Act. All strobe devices shall be synchronized, per Code.

RESIDENTIAL

1. Each residential floor shall have a dedicated fire alarm terminal cabinet and occupant notification booster panel feeding the floor so that the fire alarm system on that floor is the only area to shut down in the building when renovation work is ongoing, and the remainder of the building system remains uncompromised for continuity of business.

2. Duct mounted smoke detectors will be installed for HVAC Equipment over 2,000 CFM.

3. Manual Pull Stations shall be placed at entries into every egress stairwell as well as all exits of building on the ground floor.

4. Fire/smoke dampers shall be installed at all shaft penetrations. Install a monitor module and control module at each damper position for damper operation and monitoring of damper position. In residential building areas, dwelling unit smoke detectors shall be programmed to tie into all fire/smoke dampers on the associated floor. Upon smoke sensed by any ceiling mounted smoke detector in any dwelling unit or common space area on a residential floor, all corresponding supply smoke dampers on that particular floor shall close.

5. In high-rise buildings, occupant notification shall consist of audible/visual signaling. Audible signaling shall include pre-alert tone, pre-recorded voice messaging, and manual voice paging throughout the building on a selective and all-call basis via microphone in the FACP which is located in the respective Building's Fire Command Center (FCC). The pre-alert tone shall be 520Hz low frequency in dwelling units.

6. Visual signaling shall be by xenon strobes in accordance with NFPA 72 and the Americans with Disabilities Act. All strobe devices shall be synchronized, per Code.

7. Each residential dwelling unit will be provided with fire alarm system 24VDC single and multiple station smoke alarms with 520 Hz low frequency sounders as required by Chapter 9 of the Massachusetts State Building Code, and NFPA 72. The smoke alarms in the residential living units will alarm locally in each residential dwelling unit only and will send a supervisory signal to the fire alarm control panel and central station monitoring service. All common areas in the residential building will be provided with common area 24VDC fire alarm system monitored smoke detection, manual pull stations, and general notification devices meeting current ADA requirements.

8. Carbon monoxide detection shall be provided in residential floor corridors in accordance with 527 CMR 13.7.7(6) Type F Technical Option compliance. Detectors in corridors where this is required can be combination smoke/CO detectors in lieu of separate CO and smoke detectors.

9. LEED for Residential presently requires carbon monoxide detection regardless of whether the building systems contain any natural gas-fired equipment or not. Therefore, carbon monoxide detectors will also be installed in the residential portion of the building as required by Code. Addressable monitor modules shall be installed for each carbon monoxide detector which will interface the carbon monoxide detectors with the building fire alarm system. Activation of a carbon monoxide detector shall initiate a supervisory/trouble signal from the fire alarm control panel and will be sent to central station monitoring service which will notify the Boston Fire Department.

6. ESTIMATED COST, SCHEDULE, AND COMPARATIVE ANALYSIS

6.1 PROJECT COSTS

The following section summarizes the construction and project costs for each of the Approaches and height options described in this report. A detailed cost estimate for each of the approaches is included in the Appendix.

A private developer would be selected through an RFP process to develop the mixed-use building, identifying a space for the new library on the ground floor and identifying the housing portion of the building. It is understood that a developer would perform their own cost analysis of the project and approach. The library would be responsible for the core and shell of the library portion as well as the systems and interior fit-out. Shared costs have been identified in the estimate and divided between the developer and library in the summary based on the percentage of square footage in the building. The scope has been divided in this way for cost estimating and funding purposes only.

The mixed-use core/shell project would need to be coordinated and constructed by the developer under a single project, even if the city is providing the funding to cover the costs of the core/shell of the library space. PFD and BPL would hire a separate architect to design the library fit-out and coordinate with the developer on the design of the building, exterior and interior, as it relates to shared shapes. The architect will provide the library fit out construction documents, which will be bid out as a publicly-bid separate project.

At the time this estimate was produced during the fall of 2021, there is currently a lot of unpredictability in inflation, supply chain issues and construction costs. The estimate is also based off very preliminary conceptual plans and narratives included in this report, in which the housing types, number, and sizes have not been determined. The Department of Neighborhood Development will conduct a community process to explore and define these housing issues before an RFP is advertised.

General Developer Costs:

- Building Demolition and Hazardous Waste Removal
- Slabs and floor structure with common areas and residence as well as all roof structures.
- Wood frame structure above podium for 5-story option, Steel structure for 10-story option.
- All exterior envelopes at residence and entry areas for residence
- Core Areas and Residence Interiors, Doors and Partitions
- Residence assumes City of Boston/DND standards for finish, cabinets and appliances Residential component will be subject to DND design review.
- Fire pump
- Emergency generator
- All other site features and pavement excluding the reading garden
- Additional residential stories were calculated using per square foot costs from the residential levels. An additional High-Rise Construction “Premium” was included for stories above five floors.

Shared Costs within Developer Scope (work performed by developer but funded partially by the city in proportion to the percentage of the building occupied by the library):

- Foundations
- Library roofing, which also forms the roof terrace used by the housing
- Utilities are shown as split 50/50 in each of the library and developer costs and are not included in the shared cost number.
- Shared costs are allocated according to the building square footage for each program. This means the library costs reduce as additional residential levels are added since the library would occupy less of a percentage of the total area.
- The electrical vault is included in this estimate and is mainly carried in the foundation numbers.

Library Costs (these are separated for cost estimating purposes only. Core/shell work within this scope would be coordinated and performed by developer with library funding while the library fit-out scope would be a separate project) :

- Slab on grade and floor structure cost within the library area.
- Podium-style steel frame
- All exterior envelope for library area
- Library fit-out including all finishes, casework, doors and partitions
- All related mechanical and electrical costs for library fit-out
- Sitework and landscape costs for reading garden including irrigation system
- Library elevator and elevator shaft
- FFE is called out in the soft costs
- Chapter 149 bid is assumed for library fit-out. A portion of the design contingency for the library is assumed to account for these higher costs.
- Assumes prevailing wage rates
- Stair to basement and stairs to upper level in Approach 2
- Library ACT cost assumes a higher-end acoustic wood product
- FFE costs are based on numbers provided by BPL and are listed in the soft costs. Network switches and computer systems are included in the FFE cost. Tel/Data includes racks and punch down blocks as well as fiber backbone. AV costs include AV equipment. FFE and equipment costs are use data provided by BPL from the Adams Branch Library.

Other Assumptions:

- An allowance of $38 per footprint for caisson foundations has been carried.
- An Allowance of $20 per SF has been carried for Hazardous Waste Removal.
- All Options assume Brick Veneer with Precast concrete trim and a high-performance building envelope.
- Windows are triple glazed
- Assumes and all Electric VRF heating and cooling system designed to Passive House standard
- Cost exclude Mass Sales Tax for the Library Component of the project
- Unit costs assume “State Prevailing Wage” Rates for the Library Component of hte project
- The Developer cost includes Mass Sales Tax and Open shop labor rates.
- Pricing is escalated to Second quarter 2022.

Summary of 9/28/2021 Cost Estimate for West End Branch Library Study

See Appendix for detailed estimate prepared by AM Fogarty

Aproach 1	**5 story**	**Total**	**10 story**	**Total**
Library (sf)	**15,910**		**15,910**	
Developer (sf)	**44,690**		**89,690**	
Total (sf)	**60,600**		**105,600**	
Library - Total Project Cost		$ 20,037,749		$ 19,361,163
Library - one story	$ 18,438,544		$ 18,438,544	
Library shared 26%/15%	$ 1,599,205		$ 922,619	
Developer		$ 32,295,209		$ 75,721,796
Developer	$ 27,743,624		$ 70,493,624	
Developer shared 74%/85%	$ 4,551,585		$ 5,228,172	
TOTALS		**$ 52,332,958**		**$ 95,082,958**

Aproach 2	**5 story**	**Total**	**10 story**	**Total**
Library (sf)	**17,440**		**17,440**	
Developer (sf)	**41,215**		**85,815**	
Total (sf)	**58,655**		**103,255**	
Library - Total Project Cost		$ 24,307,872		$ 23,445,028
Library - two story	$ 22,316,694		$ 22,316,694	
Library shared 30%/17%	$ 1,991,178		$ 1,128,334	
Developer		$ 30,990,874		$ 74,223,718
Developer	$ 26,344,792		$ 68,714,792	
Developer shared 70%/83%	$ 4,646,082		$ 5,508,926	
TOTALS		**$ 55,298,746**		**$ 97,668,746**

Construction Cost and Project Cost for West End Branch Library

prepared by AM Fogarty, see Appendix for detailed estimate

		LIBRARY	**DEVELOPER**	**SHARED**
WEST END - APPROACH 1 5-STORY		$9,620,518	$15,418,122	$3,478,456
TOTAL DIRECT COST		$9,620,518	$15,418,122	$3,478,456
DESIGN CONTINGENCY - LIBRARY	15%	$1,443,078		
DESIGN CONTINGENCY - DEVELOPER	5%		$770,906	$173,923
ESCALATION (summer 2022)	3%	$331,908	$462,544	$104,354
GENERAL CONDITIONS - LIB	10%	$1,139,550	$1,665,157	$375,673
OVERHEAD AND PROFIT- LIB	8%	$1,002,804		$330,592
GENERAL CONDITIONS - DEV	5%		$915,836	
OVERHEAD AND PROFIT- DEV	5%		$961,628	
BOND & INSURANCE	3.5%	$473,825	$641,085	$156,205
PERMIT	1%		$208,353	$46,192
TOTAL CONSTRUCTION COST		$14,011,684	$21,043,631	$4,665,395
SOFT COSTS:				
CONSTRUCTION CONTINGENCY	10%	$1,401,168	$2,104,363	$466,540
ARCHITECTURAL & ENGINEERING - DEV.	6.3%		$1,458,324	$323,312
ARCHITECTURAL & ENGINEERING - LIB.	10.0%	$1,541,285		
LIBRARY FF&E		$650,000		
BPL EQUIPMENT ($600K + 20% CONTINGENCY/ESCALATION)		$720,000		
OTHER SOFT COSTS	10%		$2,460,632	$545,525
SOFT COST CONTINGENCY	2.5%	$458,103	$676,674	$150,019
		$18,782,241	$27,743,624	$6,150,790
GROSS FLOOR AREA		15,910	44,690	
COST PER SF		$1,181	$621	

		LIBRARY	**DEVELOPER**	**SHARED**
WEST END - APPROACH 2 5-STORY		$11,577,204	$14,640,741	$3,753,569
TOTAL DIRECT COST		$11,577,204	$14,640,741	$3,753,569
DESIGN CONTINGENCY - LIBRARY	15%	$1,736,581		
DESIGN CONTINGENCY - DEVELOPER	5%		$732,037	$187,678
ESCALATION (summer 2022)	3%	$399,414	$439,222	$112,607
GENERAL CONDITIONS - LIB	10%	$1,371,320	$1,581,200	$405,385
OVERHEAD AND PROFIT- LIB	8%	$1,206,761		$356,739
GENERAL CONDITIONS - DEV	5%		$869,660	
OVERHEAD AND PROFIT- DEV	5%		$913,143	
BOND & INSURANCE	3.5%	$570,195	$608,762	$168,559
PERMIT	1%		$197,848	$49,845
TOTAL CONSTRUCTION COST		$16,861,474	$19,982,613	$5,034,384
SOFT COSTS:				
CONSTRUCTION CONTINGENCY	10%	$1,686,147	$1,998,261	$503,438
ARCHITECTURAL & ENGINEERING - DEV.	6.3%		$1,384,795	$348,883
ARCHITECTURAL & ENGINEERING - LIB.	10.0%	$1,854,762		
LIBRARY FF&E		$650,000		
BPL EQUIPMENT ($600K + 20% CONTINGENCY/ESCALATION)		$720,000		
OTHER SOFT COSTS	10%		$2,336,567	$588,671
SOFT COST CONTINGENCY	2.5%	$544,310	$642,556	$161,884
		$22,316,694	$26,344,792	$6,637,260
GROSS FLOOR AREA		17,440	41,215	
COST PER SF		$1,280	$639	

FFE, AV, and Operations Assumptions for West End Branch Library

prepared by AM Fogarty

Furniture, Fixtures, and Equipment:

- The FFE budget under soft costs includes all library shelving, table, chairs and loose furniture. FFE Cost is based on 2020 Adams Street Branch Library $33.29/gsf with 12% contingency and escalation added, adjusted for the largest of the options in this study. The $650,000 budget amount is used for both options.
- This does not include fixed furniture and custom millwork, which is included within the construction budget, including circulation desks, work counters, built-in perimeter exterior wall shelving (only), and kitchen and program room counters and cabinets. Custom mill work for shelving surrounds need to use prevailing wage rates.

Audio-Visual

Construction Cost includes:

- Complete Security System including cabling, cameras, intrusion detection and security head end equipment.
- Complete Technology System including cabling, devices, equipment racks and punch down blocks.
- Complete AV system including cabling, speakers, amplifiers, paging system.

Soft Cost includes:

- Library Computers, Monitors, Loose cable connection and Servers are included within Other Soft Costs

Other Soft Costs

These items are procured through the Boston Public Library and is is budgeted at $720,000, which is based on $600,000 budget from the 2020 Adams Street Branch with 20% contingency and escalation). This includes:

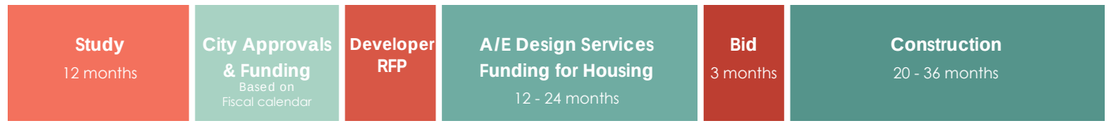
- Moving expenses
- Opening Day Collection
- Book carts
- Decor
- Trash/recycle bins
- AV equipment- digital displays
- IT Systems- people counters, security gates, WAPs, network switches
- Public IT equipment- computers, monitors, laptops, printers, tablets, self check-out units, and software for public use
- Staff IT equipment- computers, monitors, desensitizer, phones, and receipt printers
- Building maintenance Equipment
- Cash drawers, coat racks, coffee makers, and easels

6.2 CONSTRUCTION SCHEDULE

The timeline below compares the schedule for a mixed-use project like this one against a typical schedule for a stand-alone library. Because of the additional funding and approvals needed for the mixed-use building, and a longer construction period for a larger building, this project would require an extended schedule. The project would require an Article 80 review process. There would also need to be a review process for funding from the City of Boston. This project assumes separate A/E teams for the developer housing and core/shell project and the library fit-out. The two projects would need to run concurrently with extensive coordination and collaboration between the teams.

STAND ALONE LIBRARY

LIBRARY AND HOUSING



* Durations are all estimates

6.3 COMPARATIVE ANALYSIS

Although both approaches meet the program targets for the library, each have some important advantages and disadvantages that should be noted.

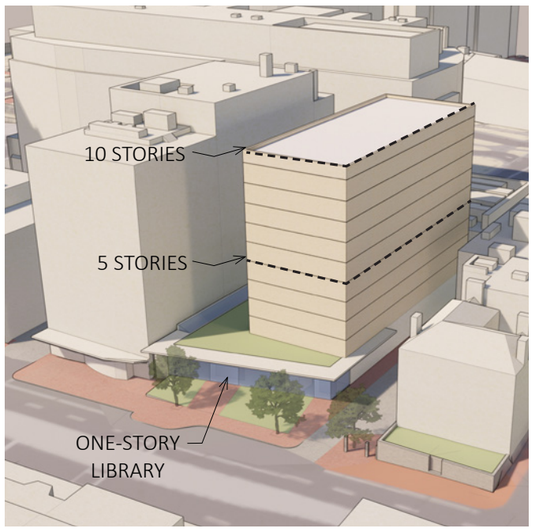
Approach 1 fits the entire library program into the ground floor footprint, which is convenient for staff and operations, but leaves a reduced outdoor space in front of the library compared to what is there today. With both the library and housing entrances located on the front facade, the architectural design would need to clearly differentiate them as to give the library a clear identity.

Approach 2 moves the Community Room and Classroom program to a second level of the library, allowing both for a more generous layout of program spaces on the ground level and an outdoor space in front of the library the same size as the current one.

However, a two-story library is more challenging from an operations standpoint, requiring staff to monitor access to the upper level spaces and requiring patrons with strollers or wheelchairs to use the elevator. The library in Approach 2 has a stronger civic and urban presence at the street level due to the occupying the entire width of the two-level streetfront facade.

The economics of development on this site mean that a developer will likely seek a variance to build 10 stories or more to maximize the economics of a steel structure. The costs mean that this would likely be developed as a combination of affordable and market-rate housing.

	Approach 1 5 stories	Approach 1 10 stories	Approach 2 5 stories	Approach 2 10 stories
Library Program	15,910 sf	15,910 sf	17,440 sf	17,440 sf
Number of Housing Units	34	79	35	85
Library Construction Cost	$ 15.2M	$ 14.7M	$ 18.3M	$ 17.7M
Library Project Cost	$ 20.0M	$19.4M	$ 24.3M	$23.4M
Zoning variances required	Use modification only	Use and height	Use modification only	Use and height
FAR	2.4	4.6	2.5	4.7



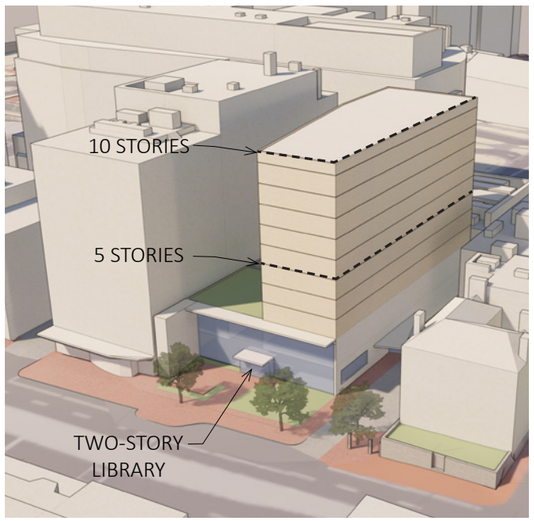
APPROACH ONE: ONE-STORY LIBRARY

Advantages:

- Ease of operations
- Convenient Housing Entrance

Disadvantages:

- Reduced public outdoor space



APPROACH ONE: TWO-STORY LIBRARY

Advantages:

- More generous program layouts for library
- Stronger civic and urban presence for library

Disadvantages:

- Safety concerns with separated housing entrance
- Monitoring of and access to second level of library

6.4 PRO FORMA AFFORDABLE HOUSING

The following analysis has been performed by Peregrine Group. The models describe the potential financing for the residential portion of the approaches only. The affordable residential units were capped at $525,000/unit total development cost (to account for Passive House) and it is assumed these units will require some additional public subsidy from DND and DHCD, which is commonplace with low-income units. The optimal number of affordable units is typically about 50 units. This maximizes the efficiency of the Low-income Housing Tax Credits (LIHTC).

The per units costs have been based on several current affordable housing project currently in development in Boston. The cost estimate shows higher per unit costs than is what is currently supported, but it is assumed that much of this is due to the preliminary nature of the design materials at this point as well as the current uncertainty in the construction market and that a developer coming in to the RFP process will do their own analysis to bring the project in line with the costs of other similar projects and employ all means professionally available to them to address any funding gaps. The city reserves the right to make the ability to address any gaps an evaluation criteria during the RFP process.

The Housing with Public Assets mixed-use model is new to Boston and would require a legislative framework to be allowable with a municipal facility.

ASSUMPTIONS

The Economic Analysis presented in the Housing Proforma(s) included in this study are based on a series of assumptions and relate to the scopes as outlined in this Programming Summary:

- Assumptions as to cost to construct are based on a preliminary (pre-schematic) cost estimates by a third-party and should only be used as a reference point. The assumptions made on the Housing Proforma(s) are not to be deemed as a definitive cost directive. Developers will be required to prepare their own cost estimates.
- Developers that respond to the RFP issued by the City, will be directed not to rely on this economic analysis, the purpose of which is to estimate the potential costs related to the library component and to establish the amount of City funds needed to support the BPL branches.
- The sample proforma's provided in this study were created to estimate the preliminary pre-schematic costs associated with: (1) the Residential component; (2) the Library component and (3) the "shared costs" of the shell and core – again, with the goal to estimate the amount of City funding needed to support the library component.
- The estimated housing costs approximate development costs typically associated with LIHTC/Publicly subsidized ("mixed-finance") projects, on a per unit/per s.f. basis and do not rely on the estimate provided by the third-party estimator.
- The amount indicated as the "variant" represents the projected funding gap in anticipated funding based on the assumptions described herein. The variant estimates and highlights the potential need for additional public funding for the housing component.
- It is anticipated that the developer responses will employ all means professionally available to them, at the time the proposals are crafted, to anticipate and address any funding gaps. The City reserves the right to make the proponent's ability to address any funding gaps an 'evaluative criterion' subject to all Ch. 30(b) procurement laws.
- It is assumed that the Residential and Library components will be financed separately.

10/19/21 Summary of Pro Forma Models- West End

prepared by Peregrine Group

This summarizes the four models presented in detail on the following pages

SUMMARY OF USES

Rev. 10.18.21

West End Branch Library: Uses			Residential	Library*	Variance		TDC
		Units					
Approach 1 - 5 stories	All Affordable	34	$ 17,850,000	$ 20,037,749	$ 14,445,209		$ 52,332,958
		Units					
Approach 1 - 10 stories	Mixed-income	79	$ 41,475,000	$ 19,361,163	$ 34,246,795	*	$ 95,082,958
Add'l cost of steel high-rise not efficient							
		Units					
Approach 2 - 5 stories	All Affordable	35	$ 18,375,000	$ 24,307,872	$ 12,615,874		$ 55,298,746
		Units					
Approach 2 - 10 stories	Mixed-income	85	$ 44,625,000	$ 23,445,028	$ 29,598,718	*	$ 97,668,746
Add'l cost of steel high-rise not efficient							

*** The variant for the mixed-use properties should be partially absorbed by the developer - depending on the actual number of market rate units built.**

Note:

- Residential cost is based on $525,000 limit per unit (DHCD/DND standard).
- Library Total Project Cost is based on A.M. Fogarty Estimate dated July 2021.

10/19/21 West End- Approach 1- All-Affordable Model

prepared by Peregrine Group

Programming Study: Boston Public Library, West End Branch

ECONOMIC ANALYSIS: RESIDENTIAL PROJECT ASSUMPTIONS

Program Narrative

The Economic Analysis presented in the Housing Proforma's included in this Study are based on a series of assumptions (see below) and relate to the scopes as outlined in this Programming Summary:

- Assumptions as to cost to construct are based on a preliminary cost estimate (pre-schematic) and should only be used as a reference point. The assumption made herein are not to be deemed to be a definitive cost directive. Developers will be required to prepare their own costs estimates.

- Developers that respond to the RFP (when released) will be directed not to rely on this economic analysis -- the purpose of the cost estimate was to identify costs related to the library component, and to establish the amount of City funding needed to develop a new West End Branch.

- This sample proforma was created to estimate the preliminary pre-schematic costs associated with: (1) the residential component; (2) the library component; and (3) the "shared costs" -- again, with the goal to estimate the amount of City funding that will be needed to support a new West End Library.

- The estimated housing costs approximate development costs typically associated with LIHTC/publicly subsidized ("mixed-finance") projects on a per unit/per s.f. basis

- The amount indicated as the 'variant' represents the projected project gap in anticipated funding, based on the assumptions described herein and below, and highlight the potential need for additional public funding, for the housing components.

- It is anticipated that the developer responses will employ all means professionally available to them, at the time the proposal is crafted, to anticipate and address any funding gaps. The City reserves the right to make the proponent's ability to address any gaps an evaluation-criteria, subject to all Ch. 30(b) procurement laws.

- It is assumed the Residential and Library components will be financed separately.

Project Type	**100% Affordable to < 60% AMI (Low-income Housing Tax Credits + Public Subsidies) rental**

Project Summary:	**Square Footage (gross):**	**Units:**
- Residential Rental (gross)	44,690	34
- Shared Common Space	Need	
- Circulation (residential only)	Approx. 20%	
- Mechanical (including rooftop)	See Shared Common	
- Garage	NA	
Total	44,690	34 *Average per unit gross s.f.*

Architectural Assumptions:

	Unit count
- Residential net rentable s.f. (ave.)	
Studio	471	10
1 Bedroom	647	8
2 Bedroom	854	12
3 Bedroom	1,081	4

Renta Assumptions:

	Subsidized rents (100% FMR)	LIHTC Rents
- Residential net rentable s.f. (ave.)		
Studio	1,742	1,344
1 Bedroom	1,924	1,440
2 Bedroom	2,336	1,728
3 Bedroom	2,906	1,995

Ownership Structure

- Project Owner	Single Purpose LLC - TBD
- Project Sponsor	Non-profit Sponsor
- 21% partner (if needed)	TBD, as needed

Financing Assumptions

- Gross Income	$653,266
- Operating Expenses	$340,000
- Net Operating Income	$313,266
- Interest Rate (blended constr to perm)	4.5%
- Amortization	30 Yrs
- Max Loan-to-Value	80%
- Parking space (rental rate)	$0.00
- Valuation Cap Rate	6.0%
- Debt Service Coverage requirement	1.15
- Rental inflation factor Phase I (years)	3
- Rental inflation (annual %)	1.03
- Construction discount (1:1)	1.00
- Projected Developer Fee/Overhead	DHCD Max

Project Schedule: RFP Issued 2023 Confirm

Attachment 1
Project Sources and Uses

PROJECT ANALYSIS **10/19/2021**

Project Name: BPL West End Branch - Approach #1 - all affordable
Project Address: 151 Cambridge Street, Boston, MA 02114

Project Gross Square Footage:	60,600	**Total Project Cost**	$ 52,332,958
Residential Gross Square Footage:	44,690	**Residential share of shell and core:**	$ 17,850,000
Library Gross Square Footage:	15,910	**Library share of Total Project Cost**	$ 22,217,583
Construction Start Date:		**Per Unit Cost (Res.):**	$ 525,000
Construction Period:		**Total DND Subsidy:**	$ 1,015,080
		Total DHCD Subsidy:	$ 1,000,000
Residential Units	**34**	**COB Subsidy Per Unit:**	$ 59,267

RENT LIMITS	**SRO**	**0 BR**	**1 BR**	**2 BR**	**3 BR**	**4 BR**
Homeless Set-aside Rents *note 1	0	1,742	1,924	2,336	2,906	0
Current Low HOME Rents (50%)	0	1,120	1,200	1,440	1,663	0
LIHTC Rents (60%)	0	1,344	1,440	1,728	1,995	0
Current Sec. 8 FMR:	0	1,742	1,924	2,336	2,906	0
Current 100% FMR Rents	0	1,742	1,924	2,336	2,906	0
NON FED FUNDS RENT LIMITS						
BRA IDP Rents (70%)	0	1,125	1,318	1,492	1,672	0
Non Fed Mod Rents (80%)	0	1,769	1,895	2,148	2,400	
Middle Income Rents (100%)	0	2,048	2,233	2,531	2,827	0
Middle Income Rents (110%)	0	2,293	2,456	2,784	3,110	

RENTAL DEVELOPMENT		**SRO**	**0 BR**	**1 BR**	**2 BR**	**3 BR**	**4 BR**	**Totals**
30% AMI - MRVP/Sec 8 @ 100% FMR	# *note 2	**0**	**2**	**2**	**2**	**2**	**0**	**8**
Average Sq. Footage			*500*	*600*	*750*	*1,000*		
Rent		$0	$1,742	$1,924	$2,336	$2,906	$0	**$17,816**
Rent and Utilities								
50% of AMI - DND subsidy	#	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Average Sq. Footage			*500*	*600*	*750*	*1,000*		
Rent			**$999**	**$1,069**	**$1,278**	**$1,471**		**$0**
Rent and Utilities			$1,064	$1,140	$1,368	$1,580		
Min. Income Required		$0	$42,560	$45,600	$54,720	$63,194	$0	
Max. Income Allowed - (hh size = #brs)		$41,500	$41,500	$41,500	$47,400	$53,350	$59,250	
60% of AMI (LIHTC) *note 3	#	**0**	**8**	**6**	**10**	**2**	**0**	**26**
Average Sq. Footage			*500*	*600*	*750*	*1,000*		
Rent			**$1,304**	**$1,393**	**$1,689**	**$1,904**		**$39,488**
Rent and Utilities			$1,344	$1,440	$1,728	$1,995		
Min. Income Required		$0	$53,760	$57,600	$69,120	$79,800	$0	
Max. Income Allowed - (hh size = #brs)		$49,800	$49,800	$56,880	$56,880	$64,020	$71,100	
Total Number of Units		0	10	8	12	4	0	34
Total Monthly Rental Income			17	7	9	8		$57,304
Total Annual Rental Income								$687,648

Note: Calculations are based on 34 units at $525,000/unit limit = $17,850,000 for total residential costs. City cost estimate by AM Fogarty for Library funding only and developer must meet affordable housing project total of $525,000/unit.

*note 1: Assume homeless units use S8 or MRVP to 100% FMR
*note 2: Not to exceed 25%
*note 3: Net of 30% ELI units; assumes 100% app fraction (all affordable)

Attachment 1
Project Sources and Uses

Project Name: BPL West End Branch - Approach #1 - all affordable — **10/19/2021**
Project Address: 151 Cambridge Street, Boston, MA 02114
Number of Units: 34
Residential share of SF 0.74 **Use s.f. calcs below instead**
Library share of SF 0.26

DEVELOPMENT PRO FORMA

USES OF CASH *Square feet, gsf*	**Total** *60,600*	**Residential** *44,690*	**Library** *15,910*	**Variance**	**Residential Per Unit**
Acquisition - Land	100	100	0		3
Acquisition - Building	0	0	0		0
Subtotal: Acquisition	**100**	**100**	**0**		**3**
Total Development costs (Shared between library and housing), excluding Library TI's					
CONSTRUCTION and SOFT COSTS		$ 17,850,000	$ 20,037,749	$ 14,445,209	$ 525,000
TOTAL BASE BUILDING TOTAL DEVELOPMENT COST	**$ 52,332,958**	**$ 17,850,000**	**$ 20,037,749**	**$ 14,445,209**	**$ 525,000**
		34%	38%	28%	

Attachment 1
Project Sources and Uses

Project Name: BPL West End Branch - Approach #1 - all affordable — **10/19/2021**
Project Address: 151 Cambridge Street, Boston, MA 02114
Number of Units: 34

SOURCES OF FUNDS

Available from Operations:				
Effective Gross Income:	653,266			
Annual Operating Expenses	-340,000			
Net Operating Income	313,266			
Required Debt Service Coverage	1.15			
Available for Debt Service	272,405			
		term	*int. rate*	*amortization*
Maximum Supportable Debt	4,480,178	30	4.50%	30

These projects need to be funded s

Permanent Financing	**Total**	**Residential**	**Library**	*int. rate*	*amort.*	Ann. Pyment
Permanent Loan	$4,480,178	$4,480,178	$0	4.50%	30	(272,405)
Developer Equity	$0	$0	$0			
Deferred Fee	$0	$0	$0			
LIHTC Equity (9% @ $0.93)	$11,354,742	$11,354,742	$0	25% deffered fee		
State Tax Credit Equity	$0	$0	$0			
DHCD	$1,000,000	$1,000,000	$0	$29,412		
DND	$1,015,080	$1,015,080	$0	$29,855		
FHLB	$0		$0			
City Capital Budget	$0	$0	$0			
Total Permanent Financing	**$17,850,000**	**$17,850,000**	**$0**			
	GAP	GAP	GAP			
Surplus/Gap	**$0**	**$0**	**$0**			

Project Name: BPL West End Branch - Approach #1 - all affordable
Project Address: 151 Cambridge Street, Boston, MA 02114

Tax Credit Allocation Calculation

Low Income Units	34		Total Units	34	
Percent of Units	100%				
Low Income Square Footage	44,690		Total SF	44,690	Resi only
Percent of Area	100%				
Non-qualified financing		$ -			
Grants deducted from Acqisition		$ -			
Grants deducted from Rehabilition		$ -			
40% of units for less than 60% of AMI					
20% of units for less than 50% of AMI		yes			
Qualified Census Tract/Difficult to Develop Area (yes =1,no=0		1			
Historic Tax Credits (yes = 1; no =0)		0		$ -	

Maximum Tax Credit Calculation:			ACQUISITION	REHABILITATION/NEW CONSTRUCTION	
Total Eligible Development Costs (from Section 5 of One_Stop)			$ -	$ 14,280,000	80% of TDC (est.)
Less: Grants			$ -	$ -	
Less: 20% Historic Rehab Credit Basis Reduction			$ -	$ -	
Less: Non-Qualified Financing			$ -	$ -	
Subtotal : Eligible Basis			**$ -**	**$ 14,280,000**	
Qualified Census Tract/Difficult to Develop Area			100%	130%	
Percent of Low Income Units			100%	100%	
Subtotal: Total Eligible Basis	**$ 546,000**	**/unit**	**$ -**	**$ 18,564,000**	
Maximum Eligible Basis per DHCD Basis Cap	**$ 399,000**	**/unit**	**$ -**	**$ 13,566,000**	*note 1
Applicable Rate: (from One_Stop Application)			9.00%	9.00%	
Maximum Annual Tax Credit Amount			$ -	$ 1,220,940	
Total Annual Tax Credit Amount				$ 1,220,940	
Estimated Net LIHTC Syndication Yield	0.93	per TC $		$ 11,354,742	
Estimated Net Historic Tax Credit Yield	0.90	per TC $		$ -	
Total Estimated Net Tax Credit Yield				$ 11,354,742	
Applicant's Estimated Tax Credit Equity: **(from Section 3 of the One_Stop)**				$ -	
Variance:				**$ 11,354,742**	

*note 1: Assumes project qualifies as large urban units at $399,000 per 2021 QAP

10/19/21 West End- Approach 1- Mixed-Income Model

prepared by Peregrine Group

Programming Study: Boston Public Library, West End Branch

ECONOMIC ANALYSIS: RESIDENTIAL PROJECT ASSUMPTIONS

Program Narrative

The Economic Analysis presented in the Housing Proforma's included in this Study\ are based on a series of assumptions (see below) and relate to the scopes as outlined in this Programming Summary:

- Assumptions as to cost to construct are based on a preliminary cost estimate (pre-schematic) and should only be used as a reference point. The assumption made herein are not to be deemed to be a definitive cost directive. Developers will be required to prepare their own costs estimates.

- Developers that respond to the RFP (when released) will be directed not to rely on this economic analysis -- the purpose of the cost estimate was to identify costs related to the library component, and to establish the amount of City funding needed to develop a new West End Branch.

- This sample proforma was created to estimate the preliminary pre-schematic costs associated with: (1) the residential component; (2) the library component; and (3) the "shared costs" -- again, with the goal to estimate the amount of City funding that will be needed to support a new West End Library.

- The estimated housing costs approximate development costs typically associated with LIHTC/publicly subsidized ("mixed-finance") projects on a per unit/per s.f. basis

- The amount indicated as the 'variant' represents the projected project gap in anticipated funding, based on the assumptions described herein and below, and highlight the potential need for additional public funding, for the housing components.

- It is anticipated that the developer responses will employ all means professionally available to them, at the time the proposal is crafted, to anticipate and address any funding gaps. The City reserves the right to make the proponent's ability to address any gaps an evaluation-criteria, subject to all Ch. 30(b) procurement laws.

- It is assumed the Residential and Library components will be financed separately.

Project Type	**Mixed-income LIHTCs + market rate rental**

Project Summary:	**Square Footage (gross):**	**Units:**
- Residential Rental (gross)	89,690	79
- Shared Common Space	Need	
- Circulation (residential only)	Approx. 20%	
- Mechanical (including rooftop)	See Shared Common	
- Garage	NA	
Total	89,690	79 *Average per unit gross s.f.*

Architectural Assumptions:

- Residential net rentable s.f. (ave.)		Unit count
Studio	471	25
1 Bedroom	647	18
2 Bedroom	854	27
3 Bedroom	1,081	9

Renta Assumptions:

- Residential net rentable s.f. (ave.)	Subsidized rents (100% FMR)	LIHTC Rents
Studio	1,742	1,344
1 Bedroom	1,924	1,440
2 Bedroom	2,336	1,728
3 Bedroom	2,906	1,995

Ownership Structure

- Project Owner	Single Purpose LLC - TBD
- Project Sponsor	Non-profit Sponsor
- 21% partner (if needed)	TBD, as needed

Financing Assumptions

- Gross Income	$1,715,483
- Operating Expenses	$790,000
- Net Operating Income	$925,483
- Interest Rate (blended constr to perm)	4.5%
- Amortization	30 Yrs
- Max Loan-to-Value	80%
- Parking space (rental rate)	$0.00
- Valuation Cap Rate	6.0%
- Debt Service Coverage requirement	1.15
- Rental inflation factor Phase I (years)	3
- Rental inflation (annual %)	1.03
- Construction discount (1:1)	1.00
- Projected Developer Fee/Overhead	DHCD Max

Project Schedule: RFP Issued 2023 Confirm

Attachment 1
Project Sources and Uses

PROJECT ANALYSIS **10/19/2021**

Project Name: BPL West End Branch - Approach #1 - Mixed-income (max LIHTC eff.)
Project Address: 151 Cambridge Street, Boston, MA 02114

Project Gross Square Footage:	105,600	**Total Project Cost**	$ 95,082,958
Residential Gross Square Footage:	89,690	**Residential share of shell and core:**	$ 41,475,000
Library Gross Square Footage:	15,910	**Library share of shell and core:**	$ 19,361,163
Construction Start Date:		**Per Unit Cost (Res.):**	$ 525,000
Construction Period:		**Total DND Subsidy:**	$ 6,496,018
		Total DHCD Subsidy:	$ 2,000,000
Residential Units	79	**COB Subsidy Per Res. Unit:**	$ 107,545

RENT LIMITS	**SRO**	**0 BR**	**1 BR**	**2 BR**	**3 BR**	**4 BR**
Homeless Set-aside Rents *note 1	0	1,742	1,924	2,336	2,906	0
Market rate	0	2,000	2,400	2,700	3,200	0
LIHTC Rents (60%)	0	1,344	1,440	1,728	1,995	0
Current Sec. 8 FMR:	0	1,742	1,924	2,336	2,906	0
Current 100% FMR Rents	0	1,742	1,924	2,336	2,906	0
NON FED FUNDS RENT LIMITS						
BRA IDP Rents (70%)	0	1,125	1,318	1,492	1,672	0
Non Fed Mod Rents (80%)	0	1,769	1,895	2,148	2,400	
Middle Income Rents (100%)	0	2,048	2,233	2,531	2,827	0
Middle Income Rents (110%)	0	2,293	2,456	2,784	3,110	

RENTAL DEVELOPMENT	**SRO**	**0 BR**	**1 BR**	**2 BR**	**3 BR**	**4 BR**	**Totals**
30% AMI - MRVP/Sec 8 @ 100% FMR # *note 2	**0**	**2**	**3**	**4**	**2**	**0**	**11**
Average Sq. Footage		*500*	*600*	*750*	*1,000*		
Rent	$0	$1,742	$1,924	$2,336	$2,906	$0	**$24,412**
Rent and Utilities							
Market (Unrestricted) #	**0**	**20**	**3**	**6**	**0**	**0**	**29**
Average Sq. Footage		*500*	*600*	*750*	*1,000*		
Rent		**$2,000**	**$2,400**	**$2,700**	**$3,200**		**$63,400**
60% of AMI (LIHTC) *note 3 #	**0**	**3**	**12**	**17**	**7**	**0**	**39**
Average Sq. Footage		*500*	*600*	*750*	*1,000*		
Rent		**$1,304**	**$1,393**	**$1,689**	**$1,904**		**$62,669**
Rent and Utilities		$1,344	$1,440	$1,728	$1,995		
Min. Income Required	$0	$53,760	$57,600	$69,120	$79,800	$0	
Max. Income Allowed - (hh size = #brs)	$49,800	$49,800	$56,880	$56,880	$64,020	$71,100	
Total Number of Units	0	25	18	27	9	0	79
Total Monthly Rental Income		17	7	9	8		$150,481
Total Annual Rental Income							$1,805,772

*note 1: Assume homeless units use S8 or MRVP to 100% FMR
*note 2: Not to exceed 25%
*note 3: Net of 30% ELI units; assumes 100% app fraction (all affordable)

Attachment 1
Project Sources and Uses

Project Name: BPL West End Branch - Approach #1 - Mixed-income (max LIHTC eff.) **10/19/2021**
Project Address: 151 Cambridge Street, Boston, MA 02114
Number of Units: 79
Residential share of SF 0.85 **Use s.f. calcs below instead**
Library share of SF 0.15

DEVELOPMENT PRO FORMA

USES OF CASH		**Total**	**Residential**	**Library**	**Variance**	**Residential Per Unit**
Square feet, gross		*105,600*	*89,690*	*15,910*		
Acquisition - Land		100	100	0		1
Acquisition - Building		0	0	0		0
Subtotal: Acquisition		**100**	**100**	**0**		**1**
Total Development costs (Shared between library and housing), excluding Library Tis						
CONSTRUCTION and SOFT COSTS			$ 41,475,000	$ 19,361,163	$ 34,246,795	
TOTAL BASE BUILDING DEVELOPMENT COST	$900	**$ 95,082,958**	**$ 41,475,000**	**$ 19,361,163**	**$ 34,246,795**	**$ 525,000**
			44%	20%	36%	

Attachment 1
Project Sources and Uses

Project Name: BPL West End Branch - Approach #1 - Mixed-income (max LIHTC eff.) **10/19/2021**
Project Address: 151 Cambridge Street, Boston, MA 02114
Number of Units: 79

SOURCES OF FUNDS

Available from Operations:

Effective Gross Income:	1,715,483
Annual Operating Expenses	-790,000
Net Operating Income	925,483
Required Debt Service Coverage	1.15
Available for Debt Service	804,768

		term	*int. rate*	*amortization*
Maximum Supportable Debt	13,235,832	30	4.50%	30

These projects need to be funded s

Permanent Financing	**Total**	**Residential**	**Library**	*int. rate*	*amort.*	Ann. Pyment
Permanent Loan	$13,235,832	$13,235,832	$0	4.50%	30	(804,768)
Developer Equity	$3,045,000	$3,045,000	$0	20%	Market rate units	
Deferred Fee	$0	$0	$0			
LIHTC Equity (9% @ $0.93)	$16,698,150	$16,698,150	$0			
State Tax Credit Equity	$0	$0	$0			
DHCD	$2,000,000	$2,000,000	$0	$40,000		
DND	$6,496,018	$6,496,018	$0	$129,920		
FHLB	$0		$0			
City Capital Budget	$0	$0	$0			
Total Permanent Financing	**$41,475,000**	**$41,475,000**	**$0**			
	GAP	GAP	GAP			
Surplus/Gap	**$0**	**$0**	**$0**			

Project Name: BPL West End Branch - Approach #1 - Mixed-income (max LIHTC eff.)
Project Address: 151 Cambridge Street, Boston, MA 02114

Tax Credit Allocation Calculation

Low Income Units	50		Total Units	79
Percent of Units	63%			
Low Income Square Footage	89,690		Total SF	89,690 Resi only
Percent of Area	100%			
Non-qualified financing		$ -		
Grants deducted from Acqisition		$ -		
Grants deducted from Rehabilition		$ -		
40% of units for less than 60% of AMI				
20% of units for less than 50% of AMI		yes		
Qualified Census Tract/Difficult to Develop Area (yes =1,no=0		1		
Historic Tax Credits (yes = 1; no =0)		0		$ -

Maximum Tax Credit Calculation:			ACQUISITION	REHABILITATION/NEW CONSTRUCTION	
Total Eligible Development Costs (from Section 5 of One_Stop)			$ -	$ 33,180,000	80% of TDC (est.)
Less: Grants			$ -	$ -	
Less: 20% Historic Rehab Credit Basis Reduction			$ -	$ -	
Less: Non-Qualified Financing			$ -	$ -	
Subtotal : Eligible Basis			**$ -**	**$ 33,180,000**	
Qualified Census Tract/Difficult to Develop Area			100%	130%	
Percent of Low Income Units			63%	63%	
Subtotal: Total Eligible Basis	**$ 546,000**	**/unit**	**$ -**	**$ 27,300,000**	
Maximum Eligible Basis per DHCD Basis Cap	**$ 399,000**	**/unit**	**$ -**	**$ 19,950,000**	*note 1
Applicable Rate: (from One_Stop Application)			9.00%	9.00%	
Maximum Annual Tax Credit Amount			$ -	$ 1,795,500	
Total Annual Tax Credit Amount				$ 1,795,500	
Estimated Net LIHTC Syndication Yield	0.93	per TC $		$ 16,698,150	
Estimated Net Historic Tax Credit Yield	0.90	per TC $		$ -	
Total Estimated Net Tax Credit Yield				$ 16,698,150	

Applicant's Estimated Tax Credit Equity: **(from Section 3 of the One_Stop)** $ -

Variance: **$ 16,698,150**

*note 1: Assumes project qualifies as large urban units at $399,000 per 2021 QAP

10/19/21 West End- Approach 2- All-Affordable Model

prepared by Peregrine Group

Programming Study: Boston Public Library, West End Branch

ECONOMIC ANALYSIS: RESIDENTIAL PROJECT ASSUMPTIONS

Program Narrative

The Economic Analysis presented in the Housing Proforma's included in this Study\ are based on a series of assumptions (see below) and relate to the scopes as outlined in this Programming Summary:

- Assumptions as to cost to construct are based on a preliminary cost estimate (pre-schematic) and should only be used as a reference point. The assumption made herein are not to be deemed to be a definitive cost directive. Developers will be required to prepare their own costs estimates.

- Developers that respond to the RFP (when released) will be directed not to rely on this economic analysis -- the purpose of the cost estimate was to identify costs related to the library component, and to establish the amount of City funding needed to develop a new West End Branch.

- This sample proforma was created to estimate the preliminary pre-schematic costs associated with: (1) the residential component; (2) the library component; and (3) the "shared costs" -- again, with the goal to estimate the amount of City funding that will be needed to support a new West End Library.

- The estimated housing costs approximate development costs typically associated with LIHTC/publicly subsidized ("mixed-finance") projects on a per unit/per s.f. basis

- The amount indicated as the 'variant' represents the projected project gap in anticipated funding, based on the assumptions described herein and below, and highlight the potential need for additional public funding, for the housing components.

- It is anticipated that the developer responses will employ all means professionally available to them, at the time the proposal is crafted, to anticipate and address any funding gaps. The City reserves the right to make the proponent's ability to address any gaps an evaluation-criteria, subject to all Ch. 30(b) procurement laws.

- It is assumed the Residential and Library components will be financed separately.

Project Type	**100% LIHTC <60% AMI**

Project Summary:	**Square Footage (gross):**	**Units:**
- Residential Rental (gross)	41,215	35
- Shared Common Space	Need	
- Circulation (residential only)	Approx. 20%	
- Mechanical (including rooftop)	See Shared Common	
- Garage	NA	
Total	41,215	35 *Average per unit gross s.f.*

Architectural Assumptions:

- Residential net rentable s.f. (ave.)		Unit count
Studio	471	13
1 Bedroom	647	15
2 Bedroom	854	7
3 Bedroom	1,081	-

Renta Assumptions:

- Residential net rentable s.f. (ave.)	Subsidized rents (100% FMR)	LIHTC Rents
Studio	1,742	1,344
1 Bedroom	1,924	1,440
2 Bedroom	2,336	1,728
3 Bedroom	2,906	1,995

Ownership Structure

- Project Owner	Single Purpose LLC - TBD
- Project Sponsor	Non-profit Sponsor
- 21% partner (if needed)	TBD, as needed

Financing Assumptions

- Gross Income	$614,129
- Operating Expenses	$350,000
- Net Operating Income	$264,129
- Interest Rate (blended constr to perm)	4.5%
- Amortization	30 Yrs
- Max Loan-to-Value	80%
- Parking space (rental rate)	$0.00
- Valuation Cap Rate	6.0%
- Debt Service Coverage requirement	1.15
- Rental inflation factor Phase I (years)	3
- Rental inflation (annual %)	1.03
- Construction discount (1:1)	1.00
- Projected Developer Fee/Overhead	DHCD Max

Project Schedule: RFP Issued 2023 Confirm

Attachment 1
Project Sources and Uses

PROJECT ANALYSIS **10/19/2021**

Project Name: BPL West End Branch - Approach #2 - All Affordable
Project Address: 151 Cambridge Street, Boston, MA 02114

Project Gross Square Footage:	58,655	**Shell and Core TDC:**	$ 55,298,746
Residential Gross Square Footage:	41,215	**Residential share of shell and core:**	$ 18,375,000
Library Gross Square Footage:	17,440	**Library share of shell and core:**	$ 24,307,872
Construction Start Date:		**Per Unit Cost (Res.):**	$ 525,000
Construction Period:		**Total DND Subsidy:**	$ 1,908,840
		Total DHCD Subsidy:	$ 1,000,000
Residential Units	35	**COB Subsidy Per Unit:**	$ 83,110

RENT LIMITS	**SRO**	**0 BR**	**1 BR**	**2 BR**	**3 BR**	**4 BR**
Homeless Set-aside Rents *note 1	0	1,742	1,924	2,336	2,906	0
Market rate	0	2,000	2,400	2,700	3,200	0
LIHTC Rents (60%)	0	1,344	1,440	1,728	1,995	0
Current Sec. 8 FMR:	0	1,742	1,924	2,336	2,906	0
Current 100% FMR Rents	0	1,742	1,924	2,336	2,906	0
NON FED FUNDS RENT LIMITS						
BRA IDP Rents (70%)	0	1,125	1,318	1,492	1,672	0
Non Fed Mod Rents (80%)	0	1,769	1,895	2,148	2,400	
Middle Income Rents (100%)	0	2,048	2,233	2,531	2,827	0
Middle Income Rents (110%)	0	2,293	2,456	2,784	3,110	

RENTAL DEVELOPMENT		**SRO**	**0 BR**	**1 BR**	**2 BR**	**3 BR**	**4 BR**	**Totals**
30% AMI - MRVP/Sec 8 @ 100% FMR	# *note 2	0	3	3	2	0	0	8
Average Sq. Footage			*500*	*600*	*750*	*1,000*		
Rent		$0	$1,742	$1,924	$2,336	$2,906	$0	**$15,670**
Rent and Utilities								
Market (Unrestricted)	#	0	0	0	0	0	0	0
Average Sq. Footage			*500*	*600*	*750*	*1,000*		
Rent			**$2,000**	**$2,400**	**$2,700**	**$3,200**		**$0**
60% of AMI (LIHTC) *note 3	#	0	10	12	5	0	0	27
Average Sq. Footage			*500*	*600*	*750*	*1,000*		
Rent			**$1,304**	**$1,393**	**$1,689**	**$1,904**		**$38,201**
Rent and Utilities			$1,344	$1,440	$1,728	$1,995		
Min. Income Required		$0	$53,760	$57,600	$69,120	$79,800	$0	
Max. Income Allowed - (hh size = #brs)		$49,800	$49,800	$56,880	$56,880	$64,020	$71,100	
Total Number of Units		0	13	15	7	0	0	35
Total Monthly Rental Income			17	7	9	8		$53,871
Total Annual Rental Income								$646,452

*note 1: Assume homeless units use S8 or MRVP to 100% FMR
*note 2: Not to exceed 25%
*note 3: Net of 30% ELI units; assumes 100% app fraction (all affordable)

Attachment 1
Project Sources and Uses

Project Name: BPL West End Branch - Approach #2 - All Affordable — **10/19/2021**
Project Address: 151 Cambridge Street, Boston, MA 02114
Number of Units: 35
Residential share of SF 0.70 **Use s.f. calcs below instead**
Library share of SF 0.30

DEVELOPMENT PRO FORMA

USES OF CASH	**Total**	**Residential**	**Library**	**Variance**	**Residential Per Unit**
Square feet, gross	*58,655*	*41,215*	*17,440*		
Acquisition - Land	100	100	0		3
Acquisition - Building	0	0	0		0
Subtotal: Acquisition	**100**	**100**	**0**		**3**
Total Development costs (Shared between library and housing), excluding Library TI's					
CONSTRUCTION					
Direct Construction Budget		$ 18,375,000	$ 24,307,872	$ 12,615,874	
TOTAL BASE BUILDING DEVELOPMENT COST	**$ 55,298,746**	**$ 18,375,000**	**$ 24,307,872**	**$ 12,615,874**	**$ 525,000**
		33%	44%	23%	

Attachment 1
Project Sources and Uses

Project Name: BPL West End Branch - Approach #2 - All Affordable — **10/19/2021**
Project Address: 151 Cambridge Street, Boston, MA 02114
Number of Units: 35

SOURCES OF FUNDS

Available from Operations:

Effective Gross Income:	614,129			
Annual Operating Expenses	-350,000			
Net Operating Income	264,129			
Required Debt Service Coverage	1.15			
Available for Debt Service	229,678			
		term	*int. rate*	*amortization*
Maximum Supportable Debt	3,777,455	30	4.50%	30

These projects need to be funded s

Permanent Financing	**Total**	**Residential**	**Library**	*int. rate*	*amort.*	Ann. Pyment
Permanent Loan	$3,777,455	$3,777,455	$0	4.50%	30	(229,678)
Developer Equity	$0	$0	$0			
Deferred Fee	$0	$0	$0			
LIHTC Equity (9% @ $0.93)	$11,688,705	$11,688,705	$0	25% deffered fee		
State Tax Credit Equity	$0	$0	$0			
DHCD	$1,000,000	$1,000,000	$0	$28,571		
DND	$1,908,840	$1,908,840	$0	$54,538		
FHLB	$0		$0			
City Capital Budget	$0	$0	$0			
Total Permanent Financing	**$18,375,000**	**$18,375,000**	**$0**			
	GAP	GAP	GAP			
Surplus/Gap	**$0**	**$0**	**$0**			

Project Name: BPL West End Branch - Approach #2 - All Affordable
Project Address: 151 Cambridge Street, Boston, MA 02114

Tax Credit Allocation Calculation

Low Income Units	35			Total Units	35
Percent of Units	100%				
Low Income Square Footage	41,215			Total SF	41,215 Resi only
Percent of Area	100%				
Non-qualified financing		$ -			
Grants deducted from Acqisition		$ -			
Grants deducted from Rehabilition		$ -			
40% of units for less than 60% of AMI					
20% of units for less than 50% of AMI		yes			
Qualified Census Tract/Difficult to Develop Area (yes =1,no=0		1			
Historic Tax Credits (yes = 1; no =0)		0			$ -

Maximum Tax Credit Calculation:			ACQUISITION		REHABILITATION/NEW CONSTRUCTION	
Total Eligible Development Costs (from Section 5 of One_Stop)			$ -		$ 14,700,000	80% of TDC (est.)
Less: Grants			$ -		$ -	
Less: 20% Historic Rehab Credit Basis Reduction			$ -		$ -	
Less: Non-Qualified Financing			$ -		$ -	
Subtotal : Eligible Basis			**$ -**		**$ 14,700,000**	
Qualified Census Tract/Difficult to Develop Area			100%		130%	
Percent of Low Income Units			100%		100%	
Subtotal: Total Eligible Basis	**$ 546,000**	**/unit**	**$ -**		**$ 19,110,000**	*note 1
Maximum Eligible Basis per DHCD Basis Cap	**$ 399,000**	**/unit**	**$ -**		**$ 13,965,000**	
Applicable Rate: (from One_Stop Application)			9.00%		9.00%	
Maximum Annual Tax Credit Amount			$ -		$ 1,256,850	
Total Annual Tax Credit Amount				$ 1,256,850		
Estimated Net LIHTC Syndication Yield	0.93	per TC $		$ 11,688,705		
Estimated Net Historic Tax Credit Yield	0.90	per TC $		$ -		
Total Estimated Net Tax Credit Yield				$ 11,688,705		

Applicant's Estimated Tax Credit Equity: **(from Section 3 of the One_Stop)**	$ -
Variance:	**$ 11,688,705**

*note 1: Assumes project qualifies as large urban units at $399,000 per 2021 QAP

10/18/21 West End- Approach 2- Mixed-Income Model

prepared by Peregrine Group

Programming Study: Boston Public Library, West End Branch

ECONOMIC ANALYSIS: RESIDENTIAL PROJECT ASSUMPTIONS

Program Narrative

The Economic Analysis presented in the Housing Proforma's included in this Study\ are based on a series of assumptions (see below) and relate to the scopes as outlined in this Programming Summary:

- Assumptions as to cost to construct are based on a preliminary cost estimate (pre-schematic) and should only be used as a reference point. The assumption made herein are not to be deemed to be a definitive cost directive. Developers will be required to prepare their own costs estimates.

- Developers that respond to the RFP (when released) will be directed not to rely on this economic analysis -- the purpose of the cost estimate was to identify costs related to the library component, and to establish the amount of City funding needed to develop a new West End Branch.

- This sample proforma was created to estimate the preliminary pre-schematic costs associated with: (1) the residential component; (2) the library component; and (3) the "shared costs" -- again, with the goal to estimate the amount of City funding that will be needed to support a new West End Library.

- The estimated housing costs approximate development costs typically associated with LIHTC/publicly subsidized ("mixed-finance") projects on a per unit/per s.f. basis

- The amount indicated as the 'variant' represents the projected project gap in anticipated funding, based on the assumptions described herein and below, and highlight the potential need for additional public funding, for the housing components.

- It is anticipated that the developer responses will employ all means professionally available to them, at the time the proposal is crafted, to anticipate and address any funding gaps. The City reserves the right to make the proponent's ability to address any gaps an evaluation-criteria, subject to all Ch. 30(b) procurement laws.

- It is assumed the Residential and Library components will be financed separately.

Project Type	**100% LIHTC <60% AMI**

Project Summary:	**Square Footage (gross):**	**Units:**
- Residential Rental (gross)	85,815	85
- Shared Common Space	Need	
- Circulation (residential only)	Approx. 20%	
- Mechanical (including rooftop)	See Shared Common	
- Garage	NA	
Total	85,815	85 *Average per unit gross s.f.*

Architectural Assumptions:

- Residential net rentable s.f. (ave.)		Unit count
Studio	471	33
1 Bedroom	647	35
2 Bedroom	854	17
3 Bedroom	1,081	-

Renta Assumptions:

- Residential net rentable s.f. (ave.)	Subsidized rents (100% FMR)	LIHTC Rents
Studio	1,742	1,344
1 Bedroom	1,924	1,440
2 Bedroom	2,336	1,728
3 Bedroom	2,906	1,995

Ownership Structure

- Project Owner	Single Purpose LLC - TBD
- Project Sponsor	Non-profit Sponsor
- 21% partner (if needed)	TBD, as needed

Financing Assumptions

- Gross Income	$1,799,718
- Operating Expenses	$850,000
- Net Operating Income	$949,718
- Interest Rate (blended constr to perm)	4.5%
- Amortization	30 Yrs
- Max Loan-to-Value	80%
- Parking space (rental rate)	$0.00
- Valuation Cap Rate	6.0%
- Debt Service Coverage requirement	1.15
- Rental inflation factor Phase I (years)	3
- Rental inflation (annual %)	1.03
- Construction discount (1:1)	1.00
- Projected Developer Fee/Overhead	DHCD Max

Project Schedule: RFP Issued 2023 Confirm

Attachment 1
Project Sources and Uses

PROJECT ANALYSIS **10/19/2021**

Project Name: BPL West End Branch - Approach #2 - Mixed-income
Project Address: 151 Cambridge Street, Boston, MA 02114

Project Gross Square Footage:	103,255	**Shell and Core TDC:**	$ 97,668,746
Residential Gross Square Footage:	85,815	**Residential share of shell and core:**	$ 44,625,000
Library Gross Square Footage:	17,440	**Library share of shell and core:**	$ 23,445,028
Construction Start Date:		**Per Unit Cost (Res.):**	$ 525,000
Construction Period:		**Total DND Subsidy:**	$ 1,000,000
		Total DHCD Subsidy:	$ 1,000,000
Residentail Units	85	**COB Subsidy Per Unit:**	$ 23,529

RENT LIMITS	**SRO**	**0 BR**	**1 BR**	**2 BR**	**3 BR**	**4 BR**
Homeless Set-aside Rents *note 1	0	1,742	1,924	2,336	2,906	0
Market rate	0	2,000	2,400	2,700	3,200	0
LIHTC Rents (60%)	0	1,344	1,440	1,728	1,995	0
Current Sec. 8 FMR:	0	1,742	1,924	2,336	2,906	0
Current 100% FMR Rents	0	1,742	1,924	2,336	2,906	0
NON FED FUNDS RENT LIMITS						
BRA IDP Rents (70%)	0	1,125	1,318	1,492	1,672	0
Non Fed Mod Rents (80%)	0	1,769	1,895	2,148	2,400	
Middle Income Rents (100%)	0	2,048	2,233	2,531	2,827	0
Middle Income Rents (110%)	0	2,293	2,456	2,784	3,110	

RENTAL DEVELOPMENT	**SRO**	**0 BR**	**1 BR**	**2 BR**	**3 BR**	**4 BR**	**Totals**
30% AMI - MRVP/Sec 8 @ 100% FMR # *note 2	**0**	**4**	**4**	**3**	**0**	**0**	**11**
Average Sq. Footage		*500*	*600*	*750*	*1,000*		
Rent and Utilities Rent	$0	$1,742	$1,924	$2,336	$2,906	$0	**$21,672**
Market (Unrestricted) #	**0**	**12**	**13**	**10**	**0**	**0**	**35**
Average Sq. Footage		*500*	*600*	*750*	*1,000*		
Rent		**$2,000**	**$2,400**	**$2,700**	**$3,200**		**$82,200**
60% of AMI (LIHTC) *note 3 #	**0**	**17**	**18**	**4**	**0**	**0**	**39**
Average Sq. Footage		*500*	*600*	*750*	*1,000*		
Rent		**$1,304**	**$1,393**	**$1,689**	**$1,904**		**$53,998**
Rent and Utilities		$1,344	$1,440	$1,728	$1,995		
Min. Income Required	$0	$53,760	$57,600	$69,120	$79,800	$0	
Max. Income Allowed - (hh size = #brs)	$49,800	$49,800	$56,880	$56,880	$64,020	$71,100	
Total Number of Units	0	33	35	17	0	0	85
Total Monthly Rental Income		17	7	9	8		$157,870
Total Annual Rental Income							$1,894,440

*note 1: Assume homeless units use S8 or MRVP to 100% FMR
*note 2: Not to exceed 25%
*note 3: Net of 30% ELI units; assumes 100% app fraction (all affordable)

Attachment 1
Project Sources and Uses

Project Name: BPL West End Branch - Approach #2 - Mixed-income — **10/19/2021**
Project Address: 151 Cambridge Street, Boston, MA 02114
Number of Units: 85
Residential share of SF 0.83 **Use s.f. calcs below instead**
Library share of SF 0.17

DEVELOPMENT PRO FORMA

USES OF CASH	**Total**	**Residential**	**Library**	**Variance**	**Residential Per Unit**
Square feet, gross	*103,255*	*85,815*	*17,440*		
Acquisition - Land	100	100	0		1
Acquisition - Building	0	0	0		0
Subtotal: Acquisition	**100**	**100**	**0**		**1**
Total Development costs (Shared between library and housing), excluding Library TI's					
CONSTRUCTION and SOFT COSTS		$ 44,625,000	$ 23,445,028	$ 29,598,718	$ 525,000
TOTAL BASE BUILDING DEVELOPMENT COST	**$ 97,668,746**	**$ 44,625,000**	**$ 23,445,028**	**$ 29,598,718**	**$ 525,000**
		46%	24%	30%	

Attachment 1
Project Sources and Uses

Project Name: BPL West End Branch - Approach #2 - Mixed-income — **10/19/2021**
Project Address: 151 Cambridge Street, Boston, MA 02114
Number of Units: 85

SOURCES OF FUNDS

Available from Operations:

Effective Gross Income:	1,799,718
Annual Operating Expenses	-850,000
Net Operating Income	949,718
Required Debt Service Coverage	1.15
Available for Debt Service	825,842

		term	*int. rate*	*amortization*
Maximum Supportable Debt	13,582,424	30	4.50%	30

These projects need to be funded s

Permanent Financing	**Total**	**Residential**	**Library**	*int. rate*	*amort.*	Ann. Pyment
Permanent Loan	$13,582,424	$13,582,424	$0	4.50%	30	(825,842)
Developer Equity	$655,721	$655,721	$0	20% of market rate units		
Deferred Fee	$0	$0	$0			
LIHTC Equity (9% @ $0.93)	$28,386,855	$28,386,855	$0			
State Tax Credit Equity	$0	$0	$0			
DHCD	$1,000,000	$1,000,000	$0	$11,765		
DND	$1,000,000	$1,000,000	$0	$11,765		
FHLB	$0	$0	$0			
City Capital Budget	$0	$0	$0			
Total Permanent Financing	**$44,625,000**	**$44,625,000**	**$0**			
	GAP	GAP	GAP			
Surplus/Gap	**$0**	**$0**	**$0**			

Project Name: BPL West End Branch - Approach #2 - Mixed-income
Project Address: 151 Cambridge Street, Boston, MA 02114

Tax Credit Allocation Calculation

Low Income Units	85		Total Units	85
Percent of Units	100%			
Low Income Square Footage	85,815		Total SF	85,815 Resi only
Percent of Area	100%			
Non-qualified financing		$ -		
Grants deducted from Acqisition		$ -		
Grants deducted from Rehabilition		$ -		
40% of units for less than 60% of AMI				
20% of units for less than 50% of AMI		yes		
Qualified Census Tract/Difficult to Develop Area (yes =1,no=0		1		
Historic Tax Credits (yes = 1; no =0)		0		$ -

Maximum Tax Credit Calculation:			ACQUISITION	REHABILITATION/NEW CONSTRUCTION	
Total Eligible Development Costs (from Section 5 of One_Stop)			$ -	$ 35,700,000	80% of TDC (est.)
Less: Grants			$ -	$ -	
Less: 20% Historic Rehab Credit Basis Reduction			$ -	$ -	
Less: Non-Qualified Financing			$ -	$ -	
Subtotal : Eligible Basis			**$ -**	**$ 35,700,000**	
Qualified Census Tract/Difficult to Develop Area			100%	130%	
Percent of Low Income Units			100%	100%	
Subtotal: Total Eligible Basis	**$ 546,000**	**/unit**	**$ -**	**$ 46,410,000**	
Maximum Eligible Basis per DHCD Basis Cap	**$ 399,000**	**/unit**	**$ -**	**$ 33,915,000**	*note 1
Applicable Rate: (from One_Stop Application)			9.00%	9.00%	
Maximum Annual Tax Credit Amount			$ -	$ 3,052,350	
Total Annual Tax Credit Amount				$ 3,052,350	
Estimated Net LIHTC Syndication Yield	0.93	per TC $		$ 28,386,855	
Estimated Net Historic Tax Credit Yield	0.90	per TC $		$ -	
Total Estimated Net Tax Credit Yield				$ 28,386,855	

Applicant's Estimated Tax Credit Equity: **(from Section 3 of the One_Stop)** $ -

Variance: **$ 28,386,855**

*note 1: Assumes project qualifies as large urban units at $399,000 per 2021 QAP

APPENDIX

A Detailed Cost Estimate
B Meeting Minutes
C Public Comments
D Collections and Seating Calculations
E LEED Scorecards
F Existing Building Assessments
G Existing Building Drawings
H Precedent Projects
I Trash, Bike, and Parking Memos
J Urban Renewal and Title Information
K Site Survey

APPENDIX A:
Detailed Cost Estimate

Project Cost Summary
Estimating Assumptions
Construction Cost Estimate

PROJECT COSTS

The following section summarizes the construction and project costs for each of the Approaches and height options described in this report. A detailed cost estimate for each of the approaches is included in the Appendix.

A private developer would be selected through an RFP process to develop the mixed-use building, identifying a space for the new library on the ground floor and identifying the housing portion of the building. It is understood that a developer would perform their own cost analysis of the project and approach. The library would be responsible for the core and shell of the library portion as well as the systems and interior fit-out. Shared costs have been identified in the estimate and divided between the developer and library in the summary based on the percentage of square footage in the building. The scope has been divided in this way for cost estimating and funding purposes only.

The mixed-use core/shell project would need to be coordinated and constructed by the developer under a single project, even if the city is providing the funding to cover the costs of the core/shell of the library space. PFD and BPL would hire a separate architect to design the library fit-out and coordinate with the developer on the design of the building, exterior and interior, as it relates to shared shapes. The architect will provide the library fit out construction documents, which will be bid out as a publicly-bid separate project.

At the time this estimate was produced during the fall of 2021, there is currently a lot of unpredictability in inflation, supply chain issues and construction costs. The estimate is also based off very preliminary conceptual plans and narratives included in this report, in which the housing types, number, and sizes have not been determined. The Department of Neighborhood Development will conduct a community process to explore and define these housing issues before an RFP is advertised.

General Developer Costs:

- Building Demolition and Hazardous Waste Removal
- Slabs and floor structure with common areas and residence as well as all roof structures.
- Wood frame structure above podium for 5-story option, Steel structure for 10-story option.
- All exterior envelopes at residence and entry areas for residence
- Core Areas and Residence Interiors, Doors and Partitions
- Residence assumes City of Boston/DND standards for finish, cabinets and appliances Residential component will be subject to DND design review.
- Fire pump
- Emergency generator
- All other site features and pavement excluding the reading garden
- Additional residential stories were calculated using per square foot costs from the residential levels. An additional High-Rise Construction “Premium” was included for stories above five floors.

Shared Costs within Developer Scope (work performed by developer but funded partially by the city in proportion to the percentage of the building occupied by the library):

- Foundations
- Library roofing, which also forms the roof terrace used by the housing
- Utilities are shown as split 50/50 in each of the library and developer costs and are not included in the shared cost number.
- Shared costs are allocated according to the building square footage for each program. This means the library costs reduce as additional residential levels are added since the library would occupy less of a percentage of the total area.
- The electrical vault is included in this estimate and is mainly carried in the foundation numbers.

Library Costs (these are separated for cost estimating purposes only. Core/shell work within this scope would be coordinated and performed by developer with library funding while the library fit-out scope would be a separate project) :

- Slab on grade and floor structure cost within the library area.
- Podium-style steel frame
- All exterior envelope for library area
- Library fit-out including all finishes, casework, doors and partitions
- All related mechanical and electrical costs for library fit-out
- Sitework and landscape costs for reading garden including irrigation system
- Library elevator and elevator shaft
- FFE is called out in the soft costs
- Chapter 149 bid is assumed for library fit-out. A portion of the design contingency for the library is assumed to account for these higher costs.
- Assumes prevailing wage rates
- Stair to basement and stairs to upper level in Approach 2
- Library ACT cost assumes a higher-end acoustic wood product
- FFE costs are based on numbers provided by BPL and are listed in the soft costs. Network switches and computer systems are included in the FFE cost. Tel/Data includes racks and punch down blocks as well as fiber backbone. AV costs include AV equipment. FFE and equipment costs are use data provided by BPL from the Adams Branch Library.

Other Assumptions:

- An allowance of $38 per footprint for caisson foundations has been carried.
- An Allowance of $20 per SF has been carried for Hazardous Waste Removal.
- All Options assume Brick Veneer with Precast concrete trim and a high-performance building envelope.
- Windows are triple glazed
- Assumes and all Electric VRF heating and cooling system designed to Passive House standard
- Cost exclude Mass Sales Tax for the Library Component of the project
- Unit costs assume “State Prevailing Wage” Rates for the Library Component of hte project
- The Developer cost includes Mass Sales Tax and Open shop labor rates.
- Pricing is escalated to Second quarter 2022.

Summary of 9/28/2021 Cost Estimate for West End Branch Library Study

Detailed estimate prepared by AM Fogarty on following pages

Aproach 1	**5 story**	**Total**	**10 story**	**Total**
Library (sf)	**15,910**		**15,910**	
Developer (sf)	**44,690**		**89,690**	
Total (sf)	**60,600**		**105,600**	
Library - Total Project Cost		$ 20,037,749		$ 19,361,163
Library - one story	$ 18,438,544		$ 18,438,544	
Library shared 26%/15%	$ 1,599,205		$ 922,619	
Developer		$ 32,295,209		$ 75,721,796
Developer	$ 27,743,624		$ 70,493,624	
Developer shared 74%/85%	$ 4,551,585		$ 5,228,172	
TOTALS		**$ 52,332,958**		**$ 95,082,958**

Aproach 2	**5 story**	**Total**	**10 story**	**Total**
Library (sf)	**17,440**		**17,440**	
Developer (sf)	**41,215**		**85,815**	
Total (sf)	**58,655**		**103,255**	
Library - Total Project Cost		$ 24,307,872		$ 23,445,028
Library - two story	$ 22,316,694		$ 22,316,694	
Library shared 30%/17%	$ 1,991,178		$ 1,128,334	
Developer		$ 30,990,874		$ 74,223,718
Developer	$ 26,344,792		$ 68,714,792	
Developer shared 70%/83%	$ 4,646,082		$ 5,508,926	
TOTALS		**$ 55,298,746**		**$ 97,668,746**

Construction Cost and Project Cost for West End Branch Library

prepared by AM Fogarty, see detailed estimate on following pages

		LIBRARY	**DEVELOPER**	**SHARED**
WEST END - APPROACH 1 5-STORY		$9,620,518	$15,418,122	$3,478,456
TOTAL DIRECT COST		$9,620,518	$15,418,122	$3,478,456
DESIGN CONTINGENCY - LIBRARY	15%	$1,443,078		
DESIGN CONTINGENCY - DEVELOPER	5%		$770,906	$173,923
ESCALATION (summer 2022)	3%	$331,908	$462,544	$104,354
GENERAL CONDITIONS - LIB	10%	$1,139,550	$1,665,157	$375,673
OVERHEAD AND PROFIT- LIB	8%	$1,002,804		$330,592
GENERAL CONDITIONS - DEV	5%		$915,836	
OVERHEAD AND PROFIT- DEV	5%		$961,628	
BOND & INSURANCE	3.5%	$473,825	$641,085	$156,205
PERMIT	1%		$208,353	$46,192
TOTAL CONSTRUCTION COST		$14,011,684	$21,043,631	$4,665,395
SOFT COSTS:				
CONSTRUCTION CONTINGENCY	10%	$1,401,168	$2,104,363	$466,540
ARCHITECTURAL & ENGINEERING - DEV.	6.3%		$1,458,324	$323,312
ARCHITECTURAL & ENGINEERING - LIB.	10.0%	$1,541,285		
LIBRARY FF&E		$650,000		
BPL EQUIPMENT ($600K + 20% CONTINGENCY/ESCALATION)		$720,000		
OTHER SOFT COSTS	10%		$2,460,632	$545,525
SOFT COST CONTINGENCY	2.5%	$458,103	$676,674	$150,019
		$18,782,241	$27,743,624	$6,150,790
GROSS FLOOR AREA		15,910	44,690	
COST PER SF		$1,181	$621	

		LIBRARY	**DEVELOPER**	**SHARED**
WEST END - APPROACH 2 5-STORY		$11,577,204	$14,640,741	$3,753,569
TOTAL DIRECT COST		$11,577,204	$14,640,741	$3,753,569
DESIGN CONTINGENCY - LIBRARY	15%	$1,736,581		
DESIGN CONTINGENCY - DEVELOPER	5%		$732,037	$187,678
ESCALATION (summer 2022)	3%	$399,414	$439,222	$112,607
GENERAL CONDITIONS - LIB	10%	$1,371,320	$1,581,200	$405,385
OVERHEAD AND PROFIT- LIB	8%	$1,206,761		$356,739
GENERAL CONDITIONS - DEV	5%		$869,660	
OVERHEAD AND PROFIT- DEV	5%		$913,143	
BOND & INSURANCE	3.5%	$570,195	$608,762	$168,559
PERMIT	1%		$197,848	$49,845
TOTAL CONSTRUCTION COST		$16,861,474	$19,982,613	$5,034,384
SOFT COSTS:				
CONSTRUCTION CONTINGENCY	10%	$1,686,147	$1,998,261	$503,438
ARCHITECTURAL & ENGINEERING - DEV.	6.3%		$1,384,795	$348,883
ARCHITECTURAL & ENGINEERING - LIB.	10.0%	$1,854,762		
LIBRARY FF&E		$650,000		
BPL EQUIPMENT ($600K + 20% CONTINGENCY/ESCALATION)		$720,000		
OTHER SOFT COSTS	10%		$2,336,567	$588,671
SOFT COST CONTINGENCY	2.5%	$544,310	$642,556	$161,884
		$22,316,694	$26,344,792	$6,637,260
GROSS FLOOR AREA		17,440	41,215	
COST PER SF		$1,280	$639	

FFE, AV, and Operations Assumptions for West End Branch Library

prepared by AM Fogarty

Furniture, Fixtures, and Equipment:

- The FFE budget under soft costs includes all library shelving, table, chairs and loose furniture. FFE Cost is based on 2020 Adams Street Branch Library $33.29/gsf with 12% contingency and escalation added, adjusted for the largest of the options in this study. The $650,000 budget amount is used for both options.
- This does not include fixed furniture and custom millwork, which is included within the construction budget, including circulation desks, work counters, built-in perimeter exterior wall shelving (only), and kitchen and program room counters and cabinets. Custom mill work for shelving surrounds need to use prevailing wage rates.

Audio-Visual

Construction Cost includes:

- Complete Security System including cabling, cameras, intrusion detection and security head end equipment.
- Complete Technology System including cabling, devices, equipment racks and punch down blocks.
- Complete AV system including cabling, speakers, amplifiers, paging system.

Soft Cost includes:

- Library Computers, Monitors, Loose cable connection and Servers are included within Other Soft Costs

Other Soft Costs

These items are procured through the Boston Public Library and is is budgeted at $720,000, which is based on $600,000 budget from the 2020 Adams Street Branch with 20% contingency and escalation.

This includes:

- Moving expenses
- Opening Day Collection
- Book carts
- Decor
- Trash/recycle bins
- AV equipment- digital displays
- IT Systems- people counters, security gates, WAPs, network switches
- Public IT equipment- computers, monitors, laptops, printers, tablets, self check-out units, and software for public use
- Staff IT equipment- computers, monitors, desensitizer, phones, and receipt printers
- Building maintenance Equipment
- Cash drawers, coat racks, coffee makers, and easels

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Boston Public Libraries - West End Branches
Boston, MA

September 28, 2021

GRAND SUMMARY

		LIBRARY	DEVELOPER	SHARED
WEST END - APPROACH 2				
TOTAL DIRECT COST		$11,577,204	$14,640,741	$3,753,569
DESIGN CONTINGENCY - LIBRARY	15%	$1,736,581		
DESIGN CONTINGENCY - DEVELOPER	5%		$732,037	$187,678
ESCALATION (summer 2022)	3%	$399,414	$439,222	$112,607
GENERAL CONDITIONS - LIB	10%	$1,371,320	$1,581,200	$405,385
OVERHEAD AND PROFIT- LIB	8%	$1,206,761		
GENERAL CONDITIONS - DEV	5%		$869,660	$356,739
OVERHEAD AND PROFIT- DEV	5%		$913,143	
BOND & INSURANCE	3.5%	$570,195	$608,762	$168,559
PERMIT	1%		$197,848	$49,845
TOTAL CONSTRUCTION COST		$16,861,474	$19,982,613	$5,034,384
SOFT COSTS:				
CONSTRUCTION CONTINGENCY	10%	$1,686,147	$1,998,261	$503,438
ARCHITECTURAL & ENGINEERING - DEV.	6.3%		$1,384,795	$348,883
ARCHITECTURAL & ENGINEERING - LIB.	10.0%	$1,854,762		
LIBRARY FF&E		$650,000		
BPL EQUIPMENT ($600K + 20% CONTINGENCY/ESCALATION)		$720,000		
OTHER SOFT COSTS	10%		$2,336,567	$588,671
SOFT COST CONTINGENCY	2.5%	$544,310	$642,556	$161,884
		$22,316,694	$26,344,792	$6,637,260
GROSS FLOOR AREA		17,440	41,215	
COST PER SF		$1,280	$639	

Prepared by: A. M. Fogarty & Associates, Inc.

PROJECT: Boston Public Libraries - West End Branches
LOCATION: Boston, MA
CLIENT: Ann Beha Architects
DATE: 28-Sep-21

APPROACH 1

No.:

SUMMARY	LIBRARY TOTAL	DEVELOPER TOTAL	SHARED TOTAL
DIVISION 02 - EXISTING CONDITIONS	0	0	483,000
DIVISION 03 - CONCRETE	368,984	175,756	1,636,800
DIVISION 04 - MASONRY	395,935	1,194,252	0
DIVISION 05 - METALS	1,107,655	47,595	0
055000 METAL FABRICATIONS	134,550	574,800	0
DIVISION 06 - WOOD, PLASTICS & COMPOSITES	505,593	886,968	0
DIVISION 07 - THERMAL & MOISTURE PROTECTION			
071000 DAMPPROOFING & WATERPROOFING	194,888	350,808	90,148
072000 THERMAL PROTECTION	107,865	199,688	41,080
073000 STEEP SLOPE ROOFING	0	0	0
074000 ARCHITECTURAL PANELS	67,750	179,120	0
075000 MEMBRANE ROOFING	25,000	422,350	211,155
076000 FLASHING AND SHEET METAL	0	0	0
077000 ROOF & WALL SPECIALTIES & ACCESSORIES	0	0	0
078000 FIRE AND SMOKE PROTECTION	92,751	59,370	0
079000 JOINT PROTECTION	0	0	0
DIVISION 08 - OPENINGS	115,348	308,361	0
084000 ENTRANCES, STOREFRONTS & CURTAIN WALLS	460,125	572,250	0
085000 WINDOWS	0	0	0
088000 GLAZING	0	0	0
DIVISION 09 - FINISHES			
092000 PLASTER & GYPSUM BOARD	697,070	1,940,122	0
093000 TILING	824,000	320,400	0
095100 ACOUSTICAL CEILINGS	240,000	0	0
096400 WOOD FLOORING	0	0	0
096500 RESILIENT FLOORING	92,850	452,900	0

	LIBRARY TOTAL	DEVELOPER TOTAL	SHARED TOTAL
096600 TERRAZZO FLOORING	0	0	0
096800 CARPETING	0	0	0
098000 ACOUSTIC TREATMENT	0	0	0
099000 PAINTING & COATING	77,164	138,415	0
DIVISION 10 - SPECIALTIES	94,700	234,171	0
DIVISION 11 - EQUIPMENT	5,000	131,400	0
DIVISION 12 - FURNISHINGS	57,875	325,912	0
DIVISION 13 - SPECIAL CONSTRUCTION	7,500	0	0
DIVISION 14 - CONVEYING EQUIPMENT	115,000	690,000	0
DIVISION 21 - FIRE SUPPRESSION	135,235	384,865	0
DIVISION 22 - PLUMBING	314,938	1,049,782	0
DIVISION 23 - HVAC	1,511,450	2,409,550	0
DIVISION 25 - INTEGRATED AUTOMATION	0	0	0
DIVISION 26 - ELECTRICAL	1,407,921	1,894,040	0
DIVISION 27 - COMMUNICATIONS	0	0	0
DIVISION 28 - ELECTRONIC SAFETY & SECURITY	0	0	0
DIVISION 31 - EARTHWORK	0	37,780	1,016,273
DIVISION 32 - EXTERIOR IMPROVEMENTS	150,000	124,093	0
DIVISION 33 - UTILITIES	313,375	313,375	0
DIRECT COST	9,620,518	15,418,122	3,478,456

Prepared by: A. M. Fogarty & Associates, Inc.
BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
DIVISION 02 - EXISTING CONDITIONS								
022600 HAZARDOUS MATERIAL ASSESSMENT								
Hazardous Waste Allowance	$20.00	GSF					13,800	276,000
024100 DEMOLITION								
Demolish Existing Building	$15.00	GSF					13,800	207,000
				0		0		483,000
DIVISION 03 - CONCRETE								
033000 CAST IN PLACE CONCRETE								
Total Foundation Cost $1,089,600	1,089,600	LS					1	1,089,600
Caisson Foundation	$38.00	FTP					14,400	547,200
Slabs:								
5" Slab on Grade	$15.00	SF	6,712	100,680	7,688	115,320		
Stego vapor barrier	$1.30	SF	6,712	8,726	7,688	9,994		
Vault Cast Roof	$45.00	SF			876	39,420		
4 1/2" LW Deck fill								
First Floor	$11.00	SF	9,198	101,178	1,002	11,022		
Podium	$11.00	SF	14,400	158,400				
				368,984		175,756		1,636,800

BPL - West End Approach 1 9/28/2021

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
DIVISION 04 - MASONRY								
042000 UNIT MASONRY								
8" CMU elev. shaft wall	$41.00	SF	1,560	63,960	5,940	243,540		
Interior CMU	$8.00	GSF			9,128	73,024		
Exterior:								
Brick Veneer	$44.00	SF	6,775	298,100	17,912	788,128		
Allow for Precast Trim	$5.00	SF	6,775	33,875	17,912	89,560		
				395,935		1,194,252		0
DIVISION 05 - METALS								
051000 STRUCTURAL METAL FRAMING								
First Floor frame (15 lbs / SF)	$5,500.00	TONS	48	264,743	8	41,333		
Podium Steel frame (18 lbs / SF)	$5,500.00	TONS	130	712,800				
053100 STEEL DECKING								
2" x 20 Ga. comp deck	$6.25	SF	6,418	40,113	1,002	6,263		
Podium Deck	$6.25	SF	14,400	90,000				
				1,107,655		47,595		0
055000 METAL FABRICATIONS								
Metal Pan Stair and Rail	$50,000.00	FLTS	1	50,000	10	500,000		
Elevator Metals	$2,500.00	STOP	2	5,000	12	30,000		

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BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Misc. Metals	$5.00	GSF	15,910	79,550	8,960	44,800		
				134,550		574,800		0
DIVISION 06 - WOOD, PLASTICS & COMPOSITES								
061000 ROUGH CARPENTRY								
Upper Floor Framing:								
Floor framing and sub floor	$20.00	SF			27,000	540,000		
Roof Framing and Sub floor	$20.00	SF			9,000	180,000		
Interior Blocking	$1.00	GSF	15,910	15,910	44,690	44,690		
Exterior Blocking	$0.75	GSF	15,910	11,933	44,690	33,518		
Misc. Carpentry	$1.50	GSF	15,910	23,865	44,690	67,035		
062000 FINISH CARPENTRY								
Interior Millwork - library	$15.00	GSF	15,910	238,650				
Interior Millwork - Common Area	$2.50	GSF			8,690	21,725		
Circulation Desk	$40,000.00	EA	1	40,000				
Children's Desk	$40,000.00	EA	1	40,000				
Library Casework and Built-in	$8.50	GSF	15,910	135,235				
				505,593		886,968		0
DIVISION 07 - THERMAL & MOISTURE PROTECTION								
071000 DAMPPROOFING & WATERPROOFING								

BPL - West End Approach 1 9/28/2021

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Under slab Waterproofing	$18.00	SF	6,712	120,816	7,688	138,384		
Foundation damp proofing	$4.50	SF					1,144	5,148
Foundation/vault waterproofing	$10.00	SF					8,500	85,000
Elev. pit waterproofing	$6,850.00	EA			2	13,700		
Air and Vapor Barrier	$7.50	SF	6,775	50,813	17,912	134,340		
Interior Sealants	$1.10	SF	15,910	17,501	44,690	49,159		
Exterior Sealants	$0.85	SF	6,775	5,759	17,912	15,225		
				194,888		350,808		90,148
072000 THERMAL PROTECTION								
Exterior Wall:								
4" Mineral wool	$7.50	SF	6,775	50,813	17,912	134,340		
Foundation:								
2" Rigid ext. found. insul - frost wall	$5.00	SF					1,144	5,720
2" Rigid ext. found. insul - basement	$5.00	SF					7,072	35,360
4" Rigid Slab Insul.	$8.50	SF	6,712	57,052	7,688	65,348		
				107,865		199,688		41,080
074000 ARCHITECTURAL PANELS								
Exterior Wall:								
Allow for trim and Detail	$10.00	SF	6,775	67,750	17,912	179,120		
				67,750		179,120		0
075000 MEMBRANE ROOFING								

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BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Library Roof and Terrace	$35.00	SF					6,033	211,155
General Building Roof	$50.00	SF			8,447	422,350		
Skylight	$25,000.00	LS	1	25,000				
				25,000		422,350		211,155
078000 FIRE AND SMOKE PROTECTION								
Fire Saffing	$1.25	GSF	15,910	19,888	44,690	55,863		
Spray on Fireproofing	$3.50	GSF	20,818	72,863	1,002	3,507		
				92,751		59,370		0
DIVISION 08 - OPENINGS								
081100 METAL DOORS FRAMES AND HARDWARE								
Door Frames and Hardware - Library	$7.25	GSF	15,910	115,348				
Door Frames and Hardware - Developer/Res.	$6.90	GSF			44,690	308,361		
				115,348		308,361		0
084000 ENTRANCES, STOREFRONTS & CURTAIN WALLS								
Alum Entry Door - dbl	$12,500.00	EA	2	25,000	1	12,500		
Aluminum Curtainwall	$200.00	SF	1,200	240,000				
Aluminum Storefront - 20%	$175.00	SF	1,115	195,125				
Aluminum Window - 25%	$125.00	SF			4,478	559,750		
*assumes triple glaze windows								
				460,125		572,250		0

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BPL - West End Approach 1 9/28/2021

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
DIVISION 09 - FINISHES								
092000 PLASTER & GYPSUM BOARD								
Stud/ Gyp Sheathing	$16.00	SF	6,775	108,400	17,912	286,592		
Interior Partition	$22.00	GSF	15,910	350,020	44,690	983,180		0
Gyp Ceiling and Soffit	$15.00	GSF	15,910	238,650	44,690	670,350		0
				697,070		1,940,122		0
093000 TILING								
Terrazzo Flooring	$75.00	SF	10,000	750,000				0
Multi User Bathroom	$22,000.00	EA	2	44,000				0
Single User Bathroom	$7,500.00	EA	4	30,000				
Residential Bathroom	$8,900.00	EA			36	320,400		0
				824,000		320,400		0
095100 ACOUSTICAL CEILINGS								
Library ACT/Wood Combination	$24.00	SF	10,000	240,000				
				240,000		0		0
096500 RESILIENT FLOORING								
Resilient Flooring and Base - library	$15.00	SF	5,910	88,650				0
Resilient Flooring and Base - core area	$10.00	SF			8,690	86,900		
Resilient Flooring and Base - residence	$9.00	SF			36,000	324,000		
Stair Treatment	$4,200.00	FLTS	1	4,200	10	42,000		0

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DESCRIPTION	UNIT COST	UNIT	QUANTITY	LIBRARY TOTAL	QUANTITY	DEVELOPER TOTAL	QUANTITY	SHARED COST TOTAL
				92,850		452,900		0
096800 CARPETING								
				0		0		0
099000 PAINTING & COATING								
Interior Painting - Library	$4.85	GSF	15,910	77,164				
Interior Painting - core area	$3.50	GSF			8,690	30,415		
Interior Painting - Residence	$3.00	GSF			36,000	108,000		
				77,164		138,415		0
DIVISION 10 - SPECIALTIES								
101100 VISUAL DISPLAY SURFACES								
Visual Display Board	5,000	LS	1	5,000				
101400 SIGNAGE								
Interior Signage	2.00	GSF	15,910	31,820	44,690	89,380		
Exterior Signage	$10,000.00	LS	1	10,000				
102100 COMPARTMENTS AND CUBICLES								

BPL - West End Approach 1 9/28/2021

DESCRIPTION	UNIT COST	UNIT	QUANTITY	LIBRARY TOTAL	QUANTITY	DEVELOPER TOTAL	QUANTITY	SHARED COST TOTAL
HC Stall	$2,000.00	EA	2	4,000				
Reg Stall	$1,800.00	EA	1	1,800				
Urinal Screen	$500.00	EA	1	500				
102800 TOILET, BATH AND LAUNDRY ACCESSORIES								
Toilet Accessories	$0.95	GSF	15,910	15,115	44,690	42,456		
104400 FIRE PROTECTION SPECIALTIES								
Fire Extinguisher	$650.00	EA	4	2,600	12	7,800		
105600 STORAGE ASSEMBLIES								
Bike Storage - Basement	25,000	EA			1	25,000		
Bike Rack - sitework	2,500	EA			1	2,500		
Misc. Specialties	$1.50	GSF	15,910	23,865	44,690	67,035		
				94,700		234,171		0
DIVISION 11 - EQUIPMENT								
113100 RESIDENTIAL APPLIANCES								
28 -30" Refrigerator	$1,100.00	UNITS			36	39,600		
24" Electric range	$750.00	UNITS			36	27,000		
24" Recirculating range hood	$400.00	UNITS			36	14,400		
Microwave	$350.00	UNITS			36	12,600		
Garbage disposal-allow	$300.00	UNITS			36	10,800		
Dishwasher	$750.00	UNITS			36	27,000		
Break Room Appliances	$5,000.00	LS	1	5,000				

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BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	QUANTITY	LIBRARY TOTAL	QUANTITY	DEVELOPER TOTAL	QUANTITY	SHARED COST TOTAL
				5,000		131,400		0
DIVISION 12 - FURNISHINGS								
120000 FURNISHINGS								
Elec Op Shade	$25.00	SF	2,315	57,875				
Residential Blinds	$4.00	SF			4,478	17,912		
Residence Kitchen Cabinets	$8,500.00	EA			32	272,000		
ADA Residence Kitchen Cabinet	$9,000.00	EA			4	36,000		
				57,875		325,912		0
DIVISION 13 - SPECIAL CONSTRUCTION								
130000 SPECIAL CONSTRUCTION								
Book Drop	7,500	EA	1	7,500				
				7,500		0		0
DIVISION 14 - CONVEYING EQUIPMENT								
142000 ELEVATORS								
Hydraulic Elevator	57,500	STOP	2	115,000	12	690,000		

BPL - West End Approach 1 9/28/2021

DESCRIPTION	UNIT COST	UNIT	QUANTITY	LIBRARY TOTAL	QUANTITY	DEVELOPER TOTAL	QUANTITY	SHARED COST TOTAL
				115,000		690,000		0
DIVISION 21 - FIRE SUPPRESSION								
210000 FIRE SUPPRESSION								
Fire Pump	$95,000.00	EA			1	95,000		
Sprinkler System - nfp 13	$8.50	GSF	15,910	135,235	8,690	73,865		
Sprinkler System - nfp 13	$6.00	GSF			36,000	216,000		
				135,235		384,865		0
DIVISION 22 - PLUMBING								
220000 PLUMBING								
Library:								
Toilet	$1,975.00	EA	6	11,850				
Wall Lav	$1,500.00	EA	4	6,000				
Urinal	$1,875.00	EA	1	1,875				
Kitchen Sink	$1,650.00	EA	1	1,650				
Drinking Fountain	$3,300.00	EA	1	3,300				
Floor Drain	$2,700.00	EA	4	10,800				
Jan Sink	$1,600.00	EA	1	1,600				
Under Slab	$4.00	SF	6,712	26,848	7,688	30,752		
Roof Drainage	$2.50	GSF	15,910	39,775	44,690	111,725		
Water Heater	$20,000.00	LS	1	20,000				
Domestic Piping and Insul.	$2,750.00	FXT	18	49,500				
Sanitary and Vent	$2,950.00	FXT	18	53,100				
San. Water Pumps	$20,000.00	LS			1	20,000		
Test, Permit, Misc. Plumbing	$4.00	SF	15,910	63,640				
Test, Permit, Misc. Plumbing	$0.50	SF			44,690	22,345		
Developer:								
Water Service	15,000	EA	1	15,000	1	15,000		
Sanitary Service	10,000	EA	1	10,000	1	10,000		

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BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Residence								
Toilet	985	EA			36	35,460		
Bathroom sink	875	EA			36	31,500		
Tub/shower unit	2,600	EA			36	93,600		
Kitchen Sink	1,050	EA			36	37,800		
Local Water heater	2,750	EA			36	99,000		
Domestic Piping and Insul.	1,520	FXT			180	273,600		
Sanitary and Vent	1,300	FXT			180	234,000		
Laundry Facility	35,000	LS			1	35,000		
				314,938		1,049,782		0
DIVISION 23 - HVAC								
230000 HVAC								
VRF - Library and Common Area	$95.00	GSF	15,910	1,511,450	8,690	825,550		
VRF - Residence	$44.00	GSF			36,000	1,584,000		
				1,511,450		2,409,550		0
DIVISION 26 - ELECTRICAL								
260000 ELECTRICAL								
Library:								
Service, Panels and Feeders	$6.50	GSF	15,910	103,415	8,690	56,485		
Lighting - lib	$22.00	GSF	15,910	350,020				
Lighting - common area	$1.00	GSF			8,690	8,690		
Lighting Control	$4.00	GSF	15,910	63,640	8,690	34,760		
Devices	$3.90	GSF	15,910	62,049	8,690	33,891		
Fire Alarm	$4.85	GSF	15,910	77,164	8,690	42,147		
BDA	$1.75	GSF	15,910	27,843	8,690	15,208		

BPL - West End Approach 1 9/28/2021

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Mechanical Wiring	$2.90	GSF	15,910	46,139	8,690	25,201		
General Branch wiring	$3.85	GSF	15,910	61,254	8,690	33,457		
Tele data Wiring	$5.00	GSF	15,910	79,550	8,690	43,450		
AV Systems	$12.00	GSF	15,910	190,920				
Intrusion Detection	$4.50	GSF	15,910	71,595	8,690	39,105		
CCTV System	$9.00	GSF	15,910	143,190	8,690	78,210		
Lightning Protection	$1.00	GSF	15,910	15,910	8,690	8,690		
Demo Disconnect	$15,000.00	LS	1	15,000				
Temp Light and Power	$2.30	GSF	15,910	36,593	8,690	19,987		
Permit, Test Misc.	$4.00	GSF	15,910	63,640	8,690	34,760		
Developer:								
350 kw Emergency Generator	295,000	EA			1	295,000		
Fuel oil system	45,000	EA			1	45,000		
Residential Unit	30,000	UNITS			36	1,080,000		
				1,407,921		1,894,040		0
DIVISION 31 - EARTHWORK								
310000 EARTHWORK								
Total Excavation $641,273	641,273	LS					1	641,273
311000 SITE CLEARING								
Construction Fence	35	LF			508	17,780		
Staging	20,000	LS			1	20,000		
315000 EXCAVATION SUPPORT AND PROTECTION								
Earth retention system	2,500	LF					150	375,000

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DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
				0		37,780		1,016,273
DIVISION 32 - EXTERIOR IMPROVEMENTS								
Bit Pavement	$8.00	SF			2,251	18,008		
12" Gravel sub base	$75.00	CY			84	6,300		
Granite Curbing	$55.00	LF			230	12,650		
New Site Walkways:								
Concrete walk	$20.00	SF			1,818	36,360		
Allow for Specialty pavement	$25,000.00	LS			1	25,000		
8" Gravel @ walks	$75.00	CY			45	3,375		
ADA paver	$1,200.00	LOC			2	2,400		
*Also included w/ Site Improvements								
323000 SITE IMPROVEMENTS								
Reading Garden	$75,000.00	LS	1	75,000				
Site Amenities	$50,000.00	EA	1	50,000				
Site Sign	$25,000.00	LOC	1	25,000				
329000 PLANTING								
Shade tree 3.5" cal	$2,000.00	EA			4	8,000		
Shrubs, perennials	$5.00	SF			1,500	7,500		
Lawn 6" Loam & sod	$3.00	SF			1,500	4,500		
				150,000		124,093		0
DIVISION 33 - UTILITIES								
330000 UTILITIES								

BPL - West End Approach 1 9/28/2021

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Site Water Service :								
Library Water Service	$45,000.00	LS	1	45,000				
Building Water Service	$45,000.00	LS			1	45,000		
Site Sanitary Service :								
New main	$175.00	LF	50	8,750	50	8,750		
Sanitary manhole	$6,500.00	EA	1	6,500	1	6,500		
Street Connection	$30,000.00	LS	1	30,000	1	30,000		
Exist St Pavement cut & patch @ new utilities	$10,000.00	LOC	1	10,000	1	10,000		
Site Drainage	$125,000.00	LS	1	125,000	1	125,000		
Electrical Service :								
Primary Duct Bank	$200.00	LF	75	15,000	75	15,000		
Secondary Duct Bank	$375.00	LF	25	9,375	25	9,375		
Communication Ductbank	$150.00	LF	75	11,250	75	11,250		
Transformer Pad	$10,000.00	EA	1	10,000	1	10,000		
Generator Pad	$7,500.00	EA	1	7,500	1	7,500		
CTE Exist Elec manhole	$5,000.00	EA	1	5,000	1	5,000		
Elec manhole	$15,000.00	EA	1	15,000	1	15,000		
Site Lighting	$15,000.00	LS	1	15,000	1	15,000		
				313,375		313,375		0
ALTERNATES:								
NO. 1 IN LIEU OF BRICK VENEER SUBSTITTUE UHPC PANELS - BASE								
Deduct:								
Brick Veneer	($44.00)	SF			23,000	-1,012,000		
Allow for Precast Trim	($5.00)	SF			23,000	-115,000		
Add:								
UHPC Rainscreen	$98.00	SF			23,000	2,254,000		

Prepared by: A. M. Fogarty & Associates, Inc.
BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
						1,127,000		
		48%				540,960		
	TOTAL ALT NO.1					1,667,960		
NO. 1 IN LIEU OF BRICK VENEER SUBSTITTUE UHPC PANELS - ADD'L 5 FLOORS								
Deduct:								
Brick Veneer	($44.00)	SF			20,900	-919,600		
Allow for Precast Trim	($5.00)	SF			20,900	-104,500		
Add:								
UHPC Rainscreen	$98.00	SF			20,900	2,048,200		
				---		---		---
						1,024,100		
		48%				491,568		
	TOTAL ALT NO.2					1,515,668		

PROJECT: Boston Public Libraries - West End Branches
LOCATION: Boston, MA
CLIENT: Ann Beha Architects
DATE: 28-Sep-21

No.:

APPROACH 2

SUMMARY	LIBRARY TOTAL	DEVELOPER TOTAL	SHARED TOTAL
DIVISION 02 - EXISTING CONDITIONS	0	0	483,000
DIVISION 03 - CONCRETE	385,483	131,335	1,728,091
DIVISION 04 - MASONRY	564,985	1,171,565	0
DIVISION 05 - METALS	1,284,103	102,790	0
055000 METAL FABRICATIONS	142,200	623,805	0
DIVISION 06 - WOOD, PLASTICS & COMPOSITES	546,520	706,351	0
DIVISION 07 - THERMAL & MOISTURE PROTECTION			
071000 DAMPPROOFING & WATERPROOFING	245,117	322,875	80,116
072000 THERMAL PROTECTION	139,826	186,627	44,920
073000 STEEP SLOPE ROOFING	0	0	0
074000 ARCHITECTURAL PANELS	102,250	174,410	0
075000 MEMBRANE ROOFING	192,895	461,400	0
076000 FLASHING AND SHEET METAL	0	0	0
077000 ROOF & WALL SPECIALTIES & ACCESSORIES	0	0	0
078000 FIRE AND SMOKE PROTECTION	106,105	59,093	0
079000 JOINT PROTECTION	0	0	0
DIVISION 08 - OPENINGS	126,440	284,384	0
084000 ENTRANCES, STOREFRONTS & CURTAIN WALLS	1,156,125	557,500	0
085000 WINDOWS	0	0	0
088000 GLAZING	0	0	0
DIVISION 09 - FINISHES			
092000 PLASTER & GYPSUM BOARD	808,880	1,804,011	0
093000 TILING	824,000	275,900	0
095100 ACOUSTICAL CEILINGS	240,000	0	0
096400 WOOD FLOORING	0	0	0
096500 RESILIENT FLOORING	115,800	430,056	0

	LIBRARY TOTAL	DEVELOPER TOTAL	SHARED TOTAL
096600 TERRAZZO FLOORING	0	0	0
096800 CARPETING	0	0	0
098000 ACOUSTIC TREATMENT	0	0	0
099000 PAINTING & COATING	84,584	128,026	0
DIVISION 10 - SPECIALTIES	101,508	218,707	0
DIVISION 11 - EQUIPMENT	5,000	113,150	0
DIVISION 12 - FURNISHINGS	144,850	282,940	0
DIVISION 13 - SPECIAL CONSTRUCTION	7,500	0	0
DIVISION 14 - CONVEYING EQUIPMENT	115,000	805,000	0
DIVISION 21 - FIRE SUPPRESSION	148,240	364,193	0
DIVISION 22 - PLUMBING	327,747	923,193	0
DIVISION 23 - HVAC	1,656,800	2,260,271	0
DIVISION 25 - INTEGRATED AUTOMATION	0	0	0
DIVISION 26 - ELECTRICAL	1,541,872	1,777,913	0
DIVISION 27 - COMMUNICATIONS	0	0	0
DIVISION 28 - ELECTRONIC SAFETY & SECURITY	0	0	0
DIVISION 31 - EARTHWORK	0	37,780	1,417,442
DIVISION 32 - EXTERIOR IMPROVEMENTS	150,000	124,093	0
DIVISION 33 - UTILITIES	313,375	313,375	0
DIRECT COST	11,577,204	14,640,741	3,753,569

BPL - West End Approach 2 9/28/2021

DESCRIPTION	UNIT COST	UNIT	QUANTITY	LIBRARY TOTAL	QUANTITY	DEVELOPER TOTAL	QUANTITY	SHARED COST TOTAL
DIVISION 02 - EXISTING CONDITIONS								
022600 HAZARDOUS MATERIAL ASSESSMENT								
Hazardous Waste Allowance	$20.00	GSF					13,800	276,000
024100 DEMOLITION								
Demolish Existing Building	$15.00	GSF					13,800	207,000
				0		0		483,000
DIVISION 03 - CONCRETE								
033000 CAST IN PLACE CONCRETE								
Total Foundation Cost $1,196,281	1,196,281	LS					1	1,196,281
Caisson Foundation	$38.00	FTP					13,995	531,810
Slabs:								
5" Slab on Grade	$15.00	SF	7,428	111,420	6,597	98,955		
Stego vapor barrier	$1.30	SF	7,428	9,656	6,597	8,576		
4 1/2" LW Deck fill								
First Floor	$11.00	SF	6,783	74,613	2,164	23,804		
Second Floor	$11.00	SF	3,229	35,519				
Podium	$11.00	SF	14,025	154,275				
				385,483		131,335		1,728,091

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
DIVISION 04 - MASONRY								
042000 UNIT MASONRY								
8" CMU elev. shaft wall	$41.00	SF	1,560	63,960	5,940	243,540		
Interior CMU	$8.00	GSF			9,177	73,416		
Exterior:								
Brick Veneer	$44.00	SF	10,225	449,900	17,441	767,404		
Allow for Precast Trim	$5.00	SF	10,225	51,125	17,441	87,205		
				564,985		1,171,565		0
DIVISION 05 - METALS								
051000 STRUCTURAL METAL FRAMING								
First Floor frame (15 lbs / SF)	$5,500.00	TONS	51	279,799	16	89,265		
Second Floor frame (18 lbs / SF)	$5,500.00	TONS	29	159,836				
Podium Steel frame (18 lbs / SF)	$5,500.00	TONS	126	694,238				
053100 STEEL DECKING								
2" x 20 Ga. comp deck	$6.25	SF	10,012	62,575	2,164	13,525		
Podium Deck	$6.25	SF	14,025	87,656				
				1,284,103		102,790		0
055000 METAL FABRICATIONS								
Metal Pan Stair and Rail	$50,000.00	FLTS	1	50,000	11	550,000		

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Elevator Metals	$2,500.00	STOP	2	5,000	12	30,000		
Misc. Metals	$5.00	GSF	17,440	87,200	8,761	43,805		
				142,200		623,805		0
DIVISION 06 - WOOD, PLASTICS & COMPOSITES								
061000 ROUGH CARPENTRY								
Upper Floor Framing:								
Floor framing and sub floor	$20.00	SF			17,840	356,800		
Roof Framing and Sub floor	$20.00	SF			9,685	193,700		
Interior Blocking	$1.00	GSF	17,440	17,440	41,215	41,215		
Exterior Blocking	$0.75	GSF	17,440	13,080	41,215	30,911		
Misc. Carpentry	$1.50	GSF	17,440	26,160	41,215	61,823		
062000 FINISH CARPENTRY								
Interior Millwork - library	$15.00	GSF	17,440	261,600				
Interior Millwork - Common Area	$2.50	GSF			8,761	21,903		
Circulation Desk	$40,000.00	EA	1	40,000				
Children's Desk	$40,000.00	EA	1	40,000				
Library Casework and Built-in	$8.50	GSF	17,440	148,240				
				546,520		706,351		0
DIVISION 07 - THERMAL & MOISTURE PROTECTION								
071000 DAMPPROOFING & WATERPROOFING								
Under slab Waterproofing	$18.00	SF	7,428	133,704	6,567	118,206		

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Foundation damp proofing	$4.50	SF					1,768	7,956
Foundation waterproofing	$10.00	SF					7,216	72,160
Elev. pit waterproofing	$6,850.00	EA	1	6,850	2	13,700		
Air and Vapor Barrier	$7.50	SF	10,225	76,688	17,441	130,808		
Interior Sealants	$1.10	GSF	17,440	19,184	41,215	45,337		
Exterior Sealants	$0.85	SF	10,225	8,691	17,441	14,825		
				245,117		322,875		80,116
072000 THERMAL PROTECTION								
Exterior Wall:								
4" Mineral wool	$7.50	SF	10,225	76,688	17,441	130,808		
Foundation:								
2" Rigid ext. found. insul - frost wall	$5.00	SF					1,768	8,840
2" Rigid ext. found. insul - basement	$5.00	SF					7,216	36,080
4" Rigid Slab Insul.	$8.50	SF	7,428	63,138	6,567	55,820		
				139,826		186,627		44,920
074000 ARCHITECTURAL PANELS								
Exterior Wall:								
Allow for trim and Detail	$10.00	SF	10,225	102,250	17,441	174,410		
				102,250		174,410		0
075000 MEMBRANE ROOFING								
Library Roof and Terrace	$35.00	SF	4,797	167,895				

BPL - West End Approach 2 9/28/2021

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
General Building Roof	$50.00	SF			9,228	461,400		
Clerestory	$25,000.00	LS	1	25,000				
				192,895		461,400		0
078000 FIRE AND SMOKE PROTECTION								
Fire Saffing	$1.25	GSF	17,440	21,800	41,215	51,519		
Spray on Fireproofing	$3.50	GSF	24,087	84,305	2,164	7,574		
				106,105		59,093		0
DIVISION 08 - OPENINGS								
081100 METAL DOORS FRAMES AND HARDWARE								
Door Frames and Hardware - Library	$7.25	GSF	17,440	126,440				0
Door Frames and Hardware - Developer/Res.	$6.90	GSF			41,215	284,384		
				126,440		284,384		0
084000 ENTRANCES, STOREFRONTS & CURTAIN WALLS								
Alum Entry Door - dbl	$12,500.00	EA	2	25,000	1	12,500		
Aluminum Curtainwall	$200.00	SF	4,687	937,400				0
Aluminum Storefront - 20%	$175.00	SF	1,107	193,725				0
Aluminum Window - 25%	$125.00	SF			4,360	545,000		0
*assumes triple glaze windows								
				1,156,125		557,500		0

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BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
DIVISION 09 - FINISHES								
092000 PLASTER & GYPSUM BOARD								
Stud/ Gyp Sheathing	$16.00	SF	10,225	163,600	17,441	279,056		
Interior Partition	$22.00	GSF	17,440	383,680	41,215	906,730		0
Gyp Ceiling and Soffit	$15.00	GSF	17,440	261,600	41,215	618,225		0
				808,880		1,804,011		0
093000 TILING								
Terrazzo Flooring	$75.00	SF	10,000	750,000				0
Multi User Bathroom	$22,000.00	EA	2	44,000				0
Single User Bathroom	$7,500.00	EA	4	30,000				
Residential Bathroom	$8,900.00	EA			31	275,900		0
				824,000		275,900		0
095100 ACOUSTICAL CEILINGS								
Library ACT/Wood Combination	$24.00	SF	10,000	240,000				
				240,000		0		0
096500 RESILIENT FLOORING								
Resilient Flooring and Base - library	$15.00	SF	7,440	111,600				0
Resilient Flooring and Base - core area	$10.00	SF			9,177	91,770		
Resilient Flooring and Base - residence	$9.00	SF			32,454	292,086		
Stair Treatment	$4,200.00	FLTS	1	4,200	11	46,200		0

BPL - West End Approach 2 9/28/2021

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
				115,800		430,056		0
096800 CARPETING								
				0		0		0
099000 PAINTING & COATING								
Interior Painting - Library	$4.85	GSF	17,440	84,584				0
Interior Painting - core area	$3.50	GSF			8,761	30,664		
Interior Painting - Residence	$3.00	GSF			32,454	97,362		
				84,584		128,026		0
DIVISION 10 - SPECIALTIES								
101100 VISUAL DISPLAY SURFACES								
Visual Display Board	$5,000.00	LS	1	5,000				
101400 SIGNAGE								
Interior Signage	$2.00	GSF	17,440	34,880	41,215	82,430		0
Exterior Signage	$10,000.00	LS	1	10,000				0
								0
								0
102100 COMPARTMENTS AND CUBICLES								

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BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	QUANTITY	LIBRARY TOTAL	QUANTITY	DEVELOPER TOTAL	QUANTITY	SHARED COST TOTAL
HC Stall	$2,000.00	EA	2	4,000				
Reg Stall	$1,800.00	EA	1	1,800				
Urinal Screen	$500.00	EA	1	500				
102800 TOILET, BATH AND LAUNDRY ACCESSORIES								0
								0
Toilet Accessories	$0.95	GSF	17,440	16,568	41,215	39,154		0
104400 FIRE PROTECTION SPECIALTIES								
Fire Extinguisher	$650.00	EA	4	2,600	12	7,800		0
								0
								0
105600 STORAGE ASSEMBLIES								0
								0
Bike Storage - Basement	25,000	EA			1	25,000		0
Bike Rack - sitework	2,500	EA			1	2,500		0
Misc. Specialties	$1.50	GSF	17,440	26,160	41,215	61,823		0
				101,508		218,707		0
DIVISION 11 - EQUIPMENT								
113100 RESIDENTIAL APPLIANCES								
28 -30" Refrigerator	$1,100.00	UNITS			31	34,100		
24" Electric range	$750.00	UNITS			31	23,250		
24" Recirculating range hood	$400.00	UNITS			31	12,400		
Microwave	$350.00	UNITS			31	10,850		
Garbage disposal-allow	$300.00	UNITS			31	9,300		
Dishwasher	$750.00	UNITS			31	23,250		
								0
Break Room Appliances	$5,000.00	LS	1	5,000				0
								0

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BPL - West End Approach 2 9/28/2021

DESCRIPTION	UNIT COST	UNIT	QUANTITY	LIBRARY TOTAL	QUANTITY	DEVELOPER TOTAL	QUANTITY	SHARED COST TOTAL
				5,000		113,150		0
DIVISION 12 - FURNISHINGS								
120000 FURNISHINGS								
Elec Op Shade	$25.00	SF	5,794	144,850				
Residential Blinds	$4.00	SF			4,360	17,440		
Residence Kitchen Cabinets	$8,500.00	EA			27	229,500		
ADA Residence Kitchen Cabinet	$9,000.00	EA			4	36,000		
				144,850		282,940		0
DIVISION 13 - SPECIAL CONSTRUCTION								
130000 SPECIAL CONSTRUCTION								
Book Drop	7,500	EA	1	7,500				
				7,500		0		0
DIVISION 14 - CONVEYING EQUIPMENT								
142000 ELEVATORS								
Hydraulic Elevator	57,500	STOP	2	115,000	14	805,000		0
				115,000		805,000		0

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BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
DIVISION 21 - FIRE SUPPRESSION								
210000 FIRE SUPPRESSION								
Fire Pump	$95,000.00	EA			1	95,000		
Sprinkler System - nfp 13	$8.50	GSF	17,440	148,240	8,761	74,469		0
Sprinkler System - nfp 13	$6.00	GSF			32,454	194,724		
				148,240		364,193		0
DIVISION 22 - PLUMBING								
220000 PLUMBING								
Library:								
Toilet	$1,975.00	EA	6	11,850				
Wall Lav	$1,500.00	EA	4	6,000				
Urinal	$1,875.00	EA	1	1,875				
Kitchen Sink	$1,650.00	EA	1	1,650				
Drinking Fountain	$3,300.00	EA	1	3,300				
Floor Drain	$2,700.00	EA	4	10,800				
Jan Sink	$1,600.00	EA	1	1,600				
Under Slab	$4.00	SF	7,428	29,712	6,597	26,388		
Roof Drainage	$2.50	GSF	17,440	43,600	41,215	103,038		
Water Heater	$20,000.00	LS	1	20,000				
Domestic Piping and Insul.	$2,750.00	FXT	18	49,500				
Sanitary and Vent	$2,950.00	FXT	18	53,100				
San. Water Pumps	$20,000.00	LS			1	20,000		
Test, Permit, Misc. Plumbing	$4.00	SF	17,440	69,760				
Test, Permit, Misc. Plumbing	$0.50	SF			41,215	20,608		
Developer:								
Water Service	15,000	EA	1	15,000	1	15,000		
Sanitary Service	10,000	EA	1	10,000	1	10,000		

BPL - West End Approach 2 9/28/2021

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Residence								
Toilet	985	EA			31	30,535		
Bathroom sink	875	EA			31	27,125		
Tub/shower unit	2,600	EA			31	80,600		
Kitchen Sink	1,050	EA			31	32,550		
Local Water heater	2,750	EA			31	85,250		
Domestic Piping and Insul.	1,520	FXT			155	235,600		
Sanitary and Vent	1,300	FXT			155	201,500		
Laundry Facility	35,000	LS			1	35,000		
				327,747		923,193		0
DIVISION 23 - HVAC								
230000 HVAC								
VRF - Library and Common Area	$95.00	GSF	17,440	1,656,800	8,761	832,295		0
VRF - Residence	$44.00	GSF			32,454	1,427,976		
				1,656,800		2,260,271		0
DIVISION 26 - ELECTRICAL								
260000 ELECTRICAL								
Library:								
Service, Panels and Feeders	$6.50	GSF	17,440	113,360	8,761	56,947		
Lighting - lib	$22.00	GSF	17,440	383,680				
Lighting - common area	$1.00	GSF			8,761	8,761		
Lighting Control	$4.00	GSF	17,440	69,760	8,761	35,044		
Devices	$3.90	GSF	17,440	68,016	8,761	34,168		
Fire Alarm	$4.85	GSF	17,440	84,584	8,761	42,491		
BDA	$1.75	GSF	17,440	30,520	8,761	15,332		

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BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
Mechanical Wiring	$2.90	GSF	17,440	50,576	8,761	25,407		
General Branch wiring	$3.85	GSF	17,440	67,144	8,761	33,730		
Tele data Wiring	$5.00	GSF	17,440	87,200	8,761	43,805		
AV Systems	$12.00	GSF	17,440	209,280				
Intrusion Detection	$4.50	GSF	17,440	78,480	8,761	39,425		
CCTV System	$9.00	GSF	17,440	156,960	8,761	78,849		
Lightning Protection	$1.00	GSF	17,440	17,440	8,761	8,761		
Demo Disconnect	$15,000.00	LS	1	15,000				
Temp Light and Power	$2.30	GSF	17,440	40,112	8,761	20,150		
Permit, Test Misc.	$4.00	GSF	17,440	69,760	8,761	35,044		
Developer:								
350 kw Emergency Generator	295,000	EA			1	295,000		
Fuel oil system	45,000	EA			1	45,000		
Residential Unit	30,000	UNITS			32	960,000		
				1,541,872		1,777,913		0
DIVISION 31 - EARTHWORK								
310000 EARTHWORK								
Total Excavation $1,042,442	1,042,442	LS					1	1,042,442
311000 SITE CLEARING								
Construction Fence	35	LF			508	17,780		
Staging	20,000	LS			1	20,000		
315000 EXCAVATION SUPPORT AND PROTECTION								
Earth retention system	2,500	LF					150	375,000

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BPL - West End Approach 2 9/28/2021

DESCRIPTION	UNIT COST	UNIT	LIBRARY QUANTITY	LIBRARY TOTAL	DEVELOPER QUANTITY	DEVELOPER TOTAL	SHARED COST QUANTITY	SHARED COST TOTAL
				0		37,780		1,417,442
DIVISION 32 - EXTERIOR IMPROVEMENTS								
Bit Pavement	$8.00	SF			2,251	18,008		
12" Gravel sub base	$75.00	CY			84	6,300		
Granite Curbing	$55.00	LF			230	12,650		
New Site Walkways:								
Concrete walk	$20.00	SF			1,818	36,360		
Allow for Specialty pavement	$25,000.00	LS			1	25,000		
8" Gravel @ walks	$75.00	CY			45	3,375		
ADA paver	$1,200.00	LOC			2	2,400		
*Also included w/ Site Improvements								
323000 SITE IMPROVEMENTS								
Reading Garden	$75,000.00	LS	1	75,000				
Site Amenities	$50,000.00	EA	1	50,000				
Site Sign	$25,000.00	LOC	1	25,000				
329000 PLANTING								
Shade tree 3.5" cal	$2,000.00	EA			4	8,000		
Shrubs, perennials	$5.00	SF			1,500	7,500		
Lawn 6" Loam & sod	$3.00	SF			1,500	4,500		
				150,000		124,093		0
DIVISION 33 - UTILITIES								
330000 UTILITIES								

Prepared by: A. M. Fogarty & Associates, Inc.

BPL WEST END LIBRARY STUDY 9 - 2110/5/202112:07 PM

DESCRIPTION	UNIT COST	UNIT	QUANTITY	LIBRARY TOTAL	QUANTITY	DEVELOPER TOTAL	QUANTITY	SHARED COST TOTAL
Site Water Service :								
Library Water Service	$45,000.00	LS	1	45,000				
Building Water Service	$45,000.00	LS			1	45,000		
Site Sanitary Service :								
New main	$175.00	LF	50	8,750	50	8,750		
Sanitary manhole	$6,500.00	EA	1	6,500	1	6,500		
Street Connection	$30,000.00	LS	1	30,000	1	30,000		
Exist St Pavement cut & patch @ new utilities	$10,000.00	LOC	1	10,000	1	10,000		
Site Drainage	$125,000.00	LS	1	125,000	1	125,000		
Electrical Service :								
Primary Duct Bank	$200.00	LF	75	15,000	75	15,000		
Secondary Duct Bank	$375.00	LF	25	9,375	25	9,375		
Communication Ductbank	$150.00	LF	75	11,250	75	11,250		
Transformer Pad	$10,000.00	EA	1	10,000	1	10,000		
Generator Pad	$7,500.00	EA	1	7,500	1	7,500		
CTE Exist Elec manhole	$5,000.00	EA	1	5,000	1	5,000		
Elec manhole	$15,000.00	EA	1	15,000	1	15,000		
Site Lighting	$15,000.00	LS	1	15,000	1	15,000		
				313,375		313,375		0
ALTERNATES:								
NO. 1 IN LIEU OF BRICK VENEER SUBSTITTUE UHPC PANELS - BASE								
Deduct:								
Brick Veneer	($44.00)	SF			25,000	-1,100,000		
Allow for Precast Trim	($5.00)	SF			25,000	-125,000		
Add:								
UHPC Rainscreen	$98.00	SF			25,000	2,450,000		
						1,225,000		

DESCRIPTION	UNIT COST	UNIT	QUANTITY	LIBRARY TOTAL	QUANTITY	DEVELOPER TOTAL	QUANTITY	SHARED COST TOTAL
		48%				588,000		
	TOTAL ALT NO.1					1,813,000		
NO. 2 IN LIEU OF BRICK VENEER SUBSTITTUE UHPC PANELS - ADD'L 5 FLOORS								
Deduct:								
Brick Veneer	($44.00)	SF			21,300	-937,200		
Allow for Precast Trim	($5.00)	SF			21,300	-106,500		
Add:								
UHPC Rainscreen	$98.00	SF			21,300	2,087,400		
						1,043,700		
		48%				500,976		
	TOTAL ALT NO.2					1,544,676		

APPENDIX B:
Meeting Minutes

AnnBehaArchitects

33 Kingston Street
Boston, MA 02111
617.338.3000 T
617.482.9097 F

Boston Public Facilities Department – West End Study
October 22, 2020; 6:30pm – 8:00pm

MEETING NOTES – West End Community Meeting

Panelists:

David Leonard, BPL
Michael Colford, BPL
Priscilla Foley, BPL
Alison Ford, BPL
Eamon Shelton, BPL
Taylor Cain, Housing Innovation Lab
Joseph Backer, DND
Paul Donnelly, PFD
Maureen Anderson, PFD
John Romano, PFD
Erika Perez, translator
Philip Chen, ABA
Steven Gerrard, ABA
Amanda Malone, ABA
Ashley Merchant, ABA

Approximately 55 participants (not including the panelists)

State Representative Jay Livingstone attended.
City Counselor (District 8) Kenzie Bok attended.

*A copy of the presentation can be found on the BPL's West End Branch webpage and print copies will be available at the branch.

Presentation

- David Leonard introduced the project in the context of Mayor Walsh's core library projects and explained that libraries are our cultural heritage, and while a 21st century library includes many additional services, books are still the core of the physical space. David also noted that these are open meetings for the community and encouraged community members to stay involved with the process.
- Maureen Anderson gave an overview of the process and schedule of this study and the project in its entirety through construction.
- Philip Chen introduced the project team and informed participants that Ann Beha Architects is working closely with the Boston Public Library and the Public Facilities Department to develop this study. In addition to the typical team of consultants working with ABA, it was noted that we are also working with a housing consultant, Boehm Architecture. Finally, Philip shared some of the firm's portfolio and highlighted our work with the Cambridge Public Library.
- Taylor Cain gave an overview of Housing with Public Assets and how the Department of Neighborhood Development, the Boston Public Library, and the Public Facilities Department are collaborating to explore thoughtful co-location of BPL branches and housing for Boston's residents.
- Steven Gerrard shared insights into ABA's assessment of the existing building and site, noting some of the positive takeaways and areas that need improvement.
- SG pointed out the new program areas that are needed by the library: a larger community room, multi-purpose classroom, group study rooms.
- ABA is also studying some comparable new and renovated BPL branches to inform development of the building program.
- SG shared precedent projects combining housing with libraries that have been completed in other cities across the country.
- Philip Chen moderated a discussion of community feedback and next steps in the study. The section below outlines the community feedback that was heard.

Community Feedback

- The following questions were provided for participants to answer. This time also allowed participants to ask their own question or provide any additional feedback to the team.
  - The best thing about the West End Branch is…
  - The spaces I use the most at the branch are…
  - The most important services the Library provides are…
  - I wish the branch had…
  - What aspects of the existing branch would be nice to see in a new facility?
  - This neighborhood is unique because…
  - When thinking about the design of the housing, the most important consideration will be...
  - Combining housing with this branch library will benefit our neighborhood by...
- Participant requests that flexible workspace be provided for patrons to use the library to work.
- Participant reiterated to everyone that a new branch library will be around for the next 50 years. Participant also asked for dedicated space for the friend's group.
- Participant shared that George Forbes was the first African American librarian in the City of Boston and he worked at the West End Branch for 32 years without a day off. The participant would like to see recognition of him and other history in the new branch. Participant questioned whether the demographics include MGH and noted that MGH is working on an expansion plan which could be an important source of mitigation funds for the library. Participant also noted that the existing green space is also integral to the program, allowing people to gather socially distant with Covid, and is also sustainable for the environment.
- Participant encouraged the team to keep the octagonal shape of the building, as it is a great feature and provides great daylight. Participant also questioned what types of housing are being considered and noted that he would like to see more affordable housing in the neighborhood.
  - Response: All types and quantities of units are being considered now. We are still in the early study phase, so nothing has been decided yet.

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- Participant questioned if the demographics presented include only the West End or if they include Beacon Hill as well?
    - Response: The demographics are for the service area of the branch, which does include the Beacon Hill neighborhood as well.
- Participant asked how tall a building is that ABA and the Public Library System are planning on proposing for housing and the library?
    - Response: The team will be exploring options.
- The participant noted that they live at the West End Place and would like to know how the housing portion will be managed and what is meant by affordable.
    - Response: The Department of Neighborhood Development (DND) helps support affordable housing at many levels and all types of housing are part of the conversation right now.
- Participant commented that if there is affordable housing in the development, they would like to see it integrated with the library building rather than off-site as is so often done with private developments in Boston. Downtown needs affordable housing. This is public land, and they hope that this space can encourage increase diversity in this part of the city.
- Participant commented that Beacon hill has a history of building and supporting affordable housing and they are very excited to see this move along and be a part of the process.
- Participant commented that this is a pivotal site between the West End and Beacon Hill and that this project can improve Cambridge Street's snaggle tooth skyline and bring more continuity to the streetscape. The participant also supports the idea of mixing incomes and ages in the housing and would like to see green space more green space for the community.
- Participant supported the representation of Boston history in the new library (ex. William Lloyd Garrison, Louisa May Alcott).
- Participant asked where they can send further comments and how they can get more involved.
    - Response: Community members should take the survey, which can be found on the BPL's West End Branch webpage, or they can contact Priscilla Foley at pfoley@bpl.org or 617-859-2233.
- Participant questioned if there is any consideration to include a senior center in this site since they do not have one in this community.
    - Response: The program is being developed for the library and housing project.
- Participant commented that they support the idea of affordable housing since that was a commitment made in the 1950's that was not fulfilled after the West End was leveled.
- Participant noted that the children's space and community room is heavily used. Since there are no public schools in the neighborhood the library is used as a neighborhood meeting space for children in the community. The green space is also very important and beneficial to the community and this participant would like to see spaces that flow out to green spaces.

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- Participant questioned if team would be getting input from teenagers for what they want. The Participant noted that input from the younger generation is important as they become the next generation that continues to use the library.
    - Response: The survey is for patrons of all ages.
- Participant commented that they would like to see senior housing in the neighborhood for citizens that have been around since the West End was leveled in the 1950's. The neighborhood provided all the services for independent seniors and affordable housing would allow more to stay in their community.
- Councilor Bok supports space for families in the neighborhood and will work with the team to reach and engage with all users of the library.

Next Steps

- The next community meeting will be in the winter 2021.
- Community members should take our survey, which can be found on the BPL's West End Branch webpage, or they can contact Priscilla Foley at pfoley@bpl.org or 617-859-2233.

Notes prepared by: Amanda Malone
This is ABA's understanding of the issues discussed during our presence; please issue any clarifications/omissions to ABA within five working days of receipt of these minutes.

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Boston Public Facilities Department – West End Study
January 26, 2021; 6:30pm – 8:00pm

MEETING NOTES – West End Community Meeting

Panelists:

Michael Colford, BPL
Priscilla Foley, BPL
Alison Ford, BPL
Eamon Shelton, BPL
Laura Irmscher, BPL
Helen Bender, BPL
Taylor Cain, Housing Innovation Lab
Joseph Backer, DND
Maureen Anderson, PFD
John Romano, PFD
Erika Perez, translator
Philip Chen, ABA
Steven Gerrard, ABA
Ashley Merchant, ABA

Approximately 57 participants (including the panelists)

City Counselor (District 8) Kenzie Bok attended.

*A copy of the presentation can be found on the BPL's West End Branch webpage and print copies will be available at the branch.

Presentation

- Priscilla Foley opened the meeting.
- Maureen Anderson introduced the project team and informed participants that Ann Beha Architects is working closely with the Boston Public Library and the City of Boston to develop this study.
- Maureen Anderson gave an overview of the process and schedule of this study and the project in its entirety through construction. MA gave a detailed overview of what each of the steps of the study will include.
- Philip Chen presented feedback about the library that was received at the previous community meeting in October and survey responses. PC noted that the project will tie into city-wide sustainability initiatives.
- Steven Gerrard presented analysis of existing library and site, noting that the existing library is undersized for its current functions.
- Steven Gerrard shared the proposed program that ABA is developing with BPL, PFD, and community input.
- Steven Gerrard showed images of similar program spaces from BPL branches and other libraries.
- Patricia Foley moderated a discussion of community feedback and next steps in the study. The section below outlines the community feedback that was heard.

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- Philip Chen summarized feedback about housing that was received at the previous community meeting and survey responses.
- Taylor Cain gave an overview of Housing with Public Assets and how the Department of Neighborhood Development, the Boston Public Library, and the Public Facilities Department are collaborating to explore thoughtful co-location of BPL branches and housing for this branch in collaboration with city-wide housing initiatives.
- Taylor Cain gave an overview of how DND supports housing in the city and the typical process that projects go through to get funding and approvals.
- Patricia Foley moderated a discussion of community feedback and next steps in the study. The section below outlines the community feedback that was heard.

Community Feedback - Library

- The following questions were provided for participants to answer. This time also allowed participants to ask their own question or provide any additional feedback to the team.
  - The spaces I use the most at the branch are…
  - The activities I would like to do in the branch area…
  - Something specific to the West End that should be included in the branch are…
- Participant expressed disappointment that open space was not given more priority in the presentation and encouraged the team to consider the garden as the main face of the library.
- Participant questioned whether green space is the best use of the property given nearby parks. Participant stated that the existing library and green space look suburban, prefers to bring back the urban street wall and hopes there will be no additional parking included in the project due to the proximity to subway stations. Participant noted that the green space requires a budget to maintain and the existing garden has not always been well-maintained.
- Participant requests senior programming, including a dedicated room or partial room for use as a social space for seniors and noted that the green space could be better implemented than it is currently.
  - Response: Patricia Foley responded that seniors have use of the community room and that BPL prefers flexible spaces.
- Participant requests green space be considered as functional space, possibly with open-air seating. Participant noted there are no public schools in the area and noted that the children's area should have space for stroller parking and be located on the ground floor, accessible from the entrance by a wide pathway without needing to use an elevator.
- Participant residents new to the neighborhood in their 20's, 30's, and 40's be considered in the program and outreach and asked whether the project will be kept to the current footprint.
  - Response: Philip Chen explained that the team is proposing expanding the existing spaces and will refine the program based on the feedback from the community.
  - Maureen Anderson noted that options for how the building can lay out on the site will be presented at the spring community meeting.
- Participant asked that multi-functional spaces be considered for the library and that efforts be made to connect to West End museums and faith-based initiatives that work with the library. Participant asks that diversity, equity and inclusivity be considered in the design.
- Participants noted concern about what will happen to the food pantry and efforts pertaining to the homeless both during and after construction. Participants expressed love for the existing building and public programs, including classes and lectures.
- Participant asked that the design of the new library be unique to the West End.

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- Councilor Bok pointed out that the neighborhood does not have a youth center, school, or senior center and highlighted how much the library does for the community, including the food pantry. Councilor Bok suggested an open space that connects to the library such as an outdoor play space, and multi-functional spaces.
- Participant noted that the library also serves people working in the area who cannot visit home libraries due to limited working hours.
- Participant supports housing as a part of this project and asks that it not include parking. Participant noted that the present green space is decorative and would like more programmatic exterior spaces that include places for strollers and bikes. Participant asks that no new parking be included in the project.
- Participant requests trees and quiet spaces for seniors.

Community Feedback - Housing

- The following questions were provided for participants to answer. This time also allowed participants to ask their own question or provide any additional feedback to the team.
    - When thinking about the type and mix of the housing, the most important consideration will be…
    - Combining housing with this branch library will benefit our neighborhood by…
- Participant asks if the food pantry could be a separate space.
- Participant expresses support for housing being built on the site and notes that market rate condos could subsidize affordable units and shell of library without city money and asks that the project move quickly to provide housing.
- Participant expresses support for affordable housing and asks what income thresholds are considered.
    - Response: Taylor Cain responded that affordability is based on household size, which for a household of one would be 60% AMI, $53,760.
- Participant requests that all units be affordable and that alternate funding sources be considered, such as funds raised from developers of other projects to build off-site affordable housing.
- Councilor Bok expressed support for affordable housing and offered to talk further with any constituents that want to share more comments.
- Participant agreed with the need for housing and asked about height and number of units being considered. Participant asked whether a school on top of the library is being considered.
    - Response: Maureen Anderson replied that this study is strictly looking at a library with affordable housing
- Participant requested more community amenities in the library including a community room and a gym.
- Participant noted support for affordable housing and referenced the history of developers with urban renewal in the West End.
- Participant suggests a vegetable garden on the roof and covered, paved outdoor space at the ground level. Participant noted that the suburban look of the current library should be avoided and the building should contribute to the street wall and not require landscaping expenses.

Next Steps

- The next community meeting will be in the Spring 2021. At this meeting, the team will show different options of how the library could potentially lay out on the site.

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- Community members should take our survey, which can be found on the BPL's West End Branch webpage, or they can contact Priscilla Foley at pfoley@bpl.org or 617-859-2233.

Notes prepared by: Ashley Merchant
This is ABA's understanding of the issues discussed during our presence; please issue any clarifications/omissions to ABA within five working days of receipt of these minutes.

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Boston Public Facilities Department – West End Study
May 11, 2021; 6:30pm – 8:00pm

MEETING NOTES – West End Community Meeting

Panelists:

Michael Colford, BPL
Priscilla Foley, BPL
Alison Ford, BPL
Eamon Shelton, BPL
Laura Irmscher, BPL
Taylor Cain, Housing Innovation Lab
Joseph Backer, DND
Maureen Anderson, PFD
Erika Perez, translator
Philip Chen, ABA
Steven Gerrard, ABA
Ashley Merchant, ABA

Approximately 49 participants (including the panelists)

City Counselor (District 8) Kenzie Bok attended.

*A copy of the presentation can be found on the BPL's West End Branch webpage and print copies will be available at the branch.

Presentation

- Priscilla Foley opened the meeting.
- Maureen Anderson introduced the project team and gave an overview of the process and schedule of this study and the project process for standalone and mixed use project in its entirety through construction.
- Philip Chen presented feedback about the library that was received at the previous community meetings in October and January and survey responses.
  Poll #1 – What is your relationship with the West End?
- Steven Gerrard presented analysis of existing library and site and the proposed program that ABA is developing with BPL, PFD, and community input.
- Steven Gerrard showed images of similar program spaces from BPL branches and other libraries.
  Poll #2 (after slide 23) – What spaces do you use most in the library?
- Taylor Cain gave an overview of Housing with Public Assets and how the Department of Neighborhood Development, the Boston Public Library, and the Public Facilities Department are collaborating to explore thoughtful co-location of BPL branches and housing for this branch in collaboration with city-wide housing initiatives. The affordable housing model, type and percentages of affordability have not been decided, but the study will use a mix of 1, 2 and 3 bedroom units as a place holder.
- Ashley Merchant presented two approaches to Test Fits, test of how the entire program could be located on the site and what the implications would be. The fit tests are NOT designs, but

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test of the program on the site. The two approaches also provided two different heights of development for public comment. A sun study was presented, which illustrated that the proposed new building would not cast a shadow on the Otis house.

- *Poll #3 – What type of building do you think fits best with the height and density of the surrounding area?*
- Maureen Anderson concluded the presentation by reviewing the next steps should the project receive funding and move forward; DND would continue community engagement on the housing before advertising a request for proposal(RFP) and the Public Facilities Department would begin the process to hire a design team that would work with the library, developer and community.
- Priscilla Foley moderated a discussion of community feedback. The section below outlines the community feedback that was heard.

Community Feedback

- Participant noted polls should clarify between number of stories of housing and total building height.
- Participant asked about the accessibility of the upper level in the two-story approach.
  - Response: Philip Chen noted the design includes and elevator for public use.
- Participant noted a building on the site should bridge the architectural styles of the Otis House and the modern styles of surrounding buildings.
  - Response: Philip Chen noted that this study didn't address the design of the building.
- Participant asked what the AMI for affordable housing would be?
  - Response: Taylor Cain noted that the AMI has not been prescribed for these scenarios, but the priority is a greater depth of affordability and this would be studied further by DND in collaboration with the community.
- Participant expressed concerns about the MGH, Hurley building, and Blue line projects happening simultaneously and asked what coordination is being done?
  - Response: Kenzie Bok responded that her office is involved with the discussions of all these projects and looking at the coordination. Noted there are opportunities to doing all these projects simultaneously instead of a longer period of ongoing construction and that it would be preferable if all work to Cambridge Street was done at the same time instead of tearing it up multiple times.
- Participant asked how green space is programmed?
  - Response: Philip Chen noted the green space would be designed to be flexible for a variety of uses including a reading garden and outdoor classroom.
- Participant asked that open space include plantings, not just paved areas and noted that the community room on the upper level in the 2-story library approach would be challenging for programming for young children that require many strollers to use the elevator.
- Participant supports the city investigating how to build more housing. Participant suggested additional locations for outdoor space that are set back from the noise of Cambridge Street and suggested looking at other sides of the building that may be quieter. Participant asked how the 10-story option would compare to proposed heights of the MGH project and suggested that the tower may not be limited to 10 stories if higher buildings are being planned for the neighborhood.
  - Follow-up: Planning materials for the MGH project may be found here: https://bpda.app.box.com/s/malc19157zfllg4y8w09ag210ad1i91p

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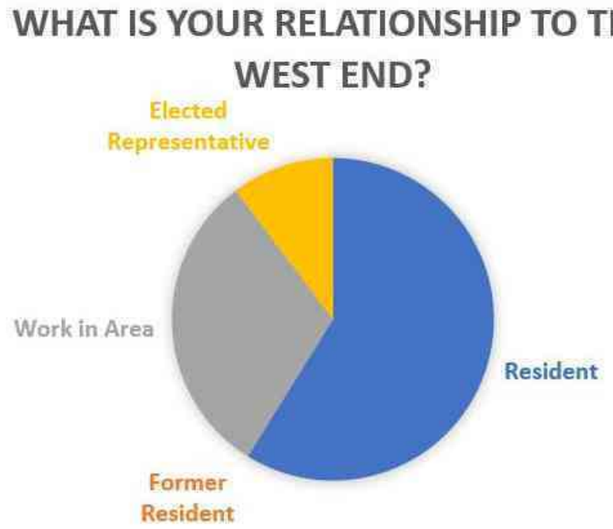
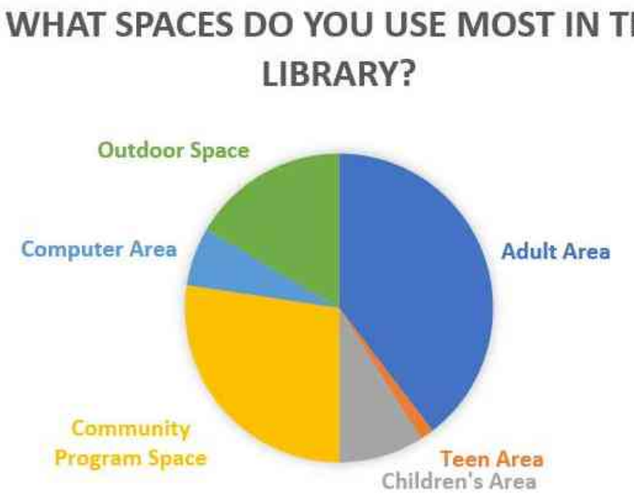
- Carissa Demore from Historic New England expressed concerns about the construction activity in relation to the Otis House and sensitive artifacts.
    - Response: Maureen Anderson noted that the construction activity would be coordinated with abutters.
- Participant expressed safety concerns about the housing entry set back from the street in Approach 2.
    - Response: Philip Chen noted safety concerns would be prioritized in design process and addressed through lighting and making sure there was good visibility and no dark niches so that the spaces created would be both welcoming and safe.
- Participant asked whether staff parking would be provided.
    - Response: Philip Chen noted that BPL does not have a requirement for staff parking and because of the small size of the site, green space and library program have been prioritized.
- Participant expressed preference for 2-story library and noted that the 1-story library in Approach 1 with the taller housing gets lost.
- Participant asked about a loading dock.
    - Response: Philip Chen noted there is no loading dock planned in the program and noted that deliveries would use the existing curb cut for the Otis House parking.
- Participant asked whether the city will fund a professional service to maintain the landscape and noted that current volunteer efforts fall short and leave the garden as an eyesore.
    - Response: Maureen Anderson noted that maintenance concerns will be addressed in the design of the landscaping, which will be planned to be low-maintenance.
- Participant noted that maximizing the area of the library should be a priority and noted that the two-story library approach would be best for that. Participant noted that because this is a branch library instead of the main library, elevator crowing may not be an issue. Participant expressed support for a 7-8 story building on the site.

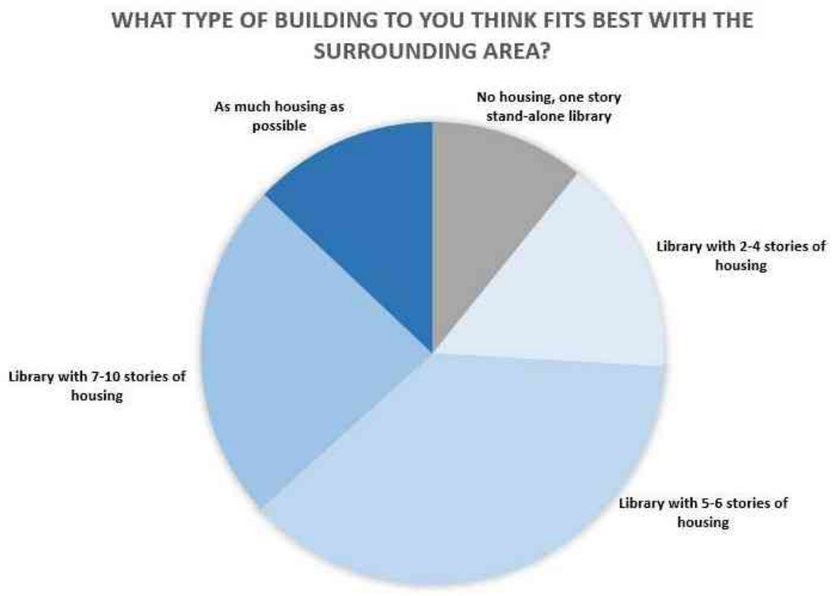
Next Steps

- The study will be completed in June and posted on the BPL website.
- Community members should take our survey, which can be found on the BPL's West End Branch webpage, or they can contact Priscilla Foley at pfoley@bpl.org or 617-859-2233. Community members with further questions about housing with public assets can contact Taylor Cain at taylor.cain@boston.gov.

Notes prepared by: Ashley Merchant
This is ABA's understanding of the issues discussed during our presence; please issue any clarifications/omissions to ABA within five working days of receipt of these minutes.






WHAT TYPE OF BUILDING TO YOU THINK FITS BEST WITH THE SURROUNDING AREA?
As much housing as possible
No housing, one story stand-alone library
Library with 2-4 stories of housing
Library with 7-10 stories of housing
Library with 5-6 stories of housing

APPENDIX C:
Public Comments

Form Name:	West End Community Feedback
Submission Time:	October 23, 2020 11:46 am
Browser:	Firefox 78.0 / OS X
IP Address:	73.114.163.64
Unique ID:	684643433
Location:	42.349601745605, -71.074600219727

1. What is your zip code?	02114
2. What is your age range?	65 or over
3. How often do you visit the West End Branch?	Once a week
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	Friendly staff, ease of access to location.
6. The spaces I use the most at the Library are…	Borrower's desk Holds pickup Other: adult books
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	browse the adult collection (pre-pandemic), holds pickup
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	Expand local collection of adult reading.
9. What aspects of the existing library would be nice to see in a new facility?	adult reading collection, community room
10. What new, different, or expanded collections would you like to see in the branch?	adult books
12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...	I do not support combining housing with the library.
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	I do not support combining housing with the library.

Form Name:	West End Community Feedback
Submission Time:	November 5, 2020 11:55 am
Browser:	Chrome 86.0.4240.183 / Windows
IP Address:	172.58.236.221
Unique ID:	694899619
Location:	40.703498840332, -73.923500061035

1. What is your zip code?	02108
2. What is your age range?	65 or over
3. How often do you visit the West End Branch?	Once a week
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	That it serves as a real community center--very active schedule of activities brings people of all ages together
6. The spaces I use the most at the Library are…	Community room General seating Borrower's desk
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	Browsing, adult programming, Friends' group
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	Technology, more hospitable children's area, better general seating, more rooms for activities, better access to garden space
9. What aspects of the existing library would be nice to see in a new facility?	Openess, brightness, informality, accessibility of circulation desk, garden space
10. What new, different, or expanded collections would you like to see in the branch?	I can find all I need and wat, but it would be great to have a display related to local history and culture
11. This neighborhood is unique because (example: history, location, etc.)…	The mix of populations, its location at the heart of so many groups of people, T stations make it immensely accessIntegrInible
12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...	Such an important goal for the City and for this neighborhood, as prices of housing go steadily up
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	Integration with the surroundings, projection of quality and dignity, access to services

Form Name:	West End Community Feedback
Submission Time:	November 19, 2020 11:11 am
Browser:	Chrome 87.0.4280.66 / Windows
IP Address:	71.255.163.93
Unique ID:	706708070
Location:	42.342399597168, -71.087799072266

1. What is your zip code?	02114
2. What is your age range?	65 or over
3. How often do you visit the West End Branch?	Couple times a month
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	friendly helpful staff, great location
6. The spaces I use the most at the Library are…	Community room Borrower's desk
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	browsing the collection, adult programming
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	computer classes
9. What aspects of the existing library would be nice to see in a new facility?	welcoming atmosphere and help for our homeless population
11. This neighborhood is unique because (example: history, location, etc.)…	West End history/residents plus medical community especially MGH and MEEI (employees, patients and visitors), and the tourists as well as students
12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...	providing safe pleasant living space for members of the community who are struggling to stay in the area the call home
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	safe attractive units

Form Name:	West End Community Feedback
Submission Time:	November 19, 2020 11:13 am
Browser:	Chrome 87.0.4280.66 / Windows
IP Address:	71.255.163.93
Unique ID:	706709087
Location:	42.342399597168, -71.087799072266

1. What is your zip code?	02114
2. What is your age range?	65 or over
3. How often do you visit the West End Branch?	Couple times a month
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	friendly helpful staff, great location
6. The spaces I use the most at the Library are…	Community room Borrower's desk
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	browsing the collection, adult programming
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	computer classes
9. What aspects of the existing library would be nice to see in a new facility?	The lovely greenspace that currently exists is very important for visitors and residents; a welcoming atmosphere and help for our homeless population
11. This neighborhood is unique because (example: history, location, etc.)…	West End history/residents plus medical community especially MGH and MEEI (employees, patients and visitors), and the tourists as well as students
12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...	providing safe pleasant living space for members of the community who are struggling to stay in the area the call home
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	safe attractive units

Form Name:	West End Community Feedback
Submission Time:	January 13, 2021 3:39 pm
Browser:	Chrome 87.0.4280.88 / Windows
IP Address:	146.115.90.84
Unique ID:	739670831
Location:	42.345100402832, -71.099296569824

1. What is your zip code?	02114
2. What is your age range?	35-64
3. How often do you visit the West End Branch?	Couple times a month
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	Children's programming
6. The spaces I use the most at the Library are…	Children's area Holds pickup
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	Children's programming, holds pickup
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	More children's programming!
9. What aspects of the existing library would be nice to see in a new facility?	Community space for children's programming
11. This neighborhood is unique because (example: history, location, etc.)…	Location near Beacon Hill, lots of young children in the neighborhood that utilize the library

Form Name:	West End Community Feedback
Submission Time:	January 22, 2021 7:06 pm
Browser:	Chrome 87.0.4280.141 / OS X
IP Address:	65.96.40.10
Unique ID:	744211002
Location:	42.208099365234, -70.775001525879

1. What is your zip code?	02114
2. What is your age range?	35-64
3. How often do you visit the West End Branch?	Once a month or less
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	location
6. The spaces I use the most at the Library are…	General seating Other: magazines
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	adult programming
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	speakers
11. This neighborhood is unique because (example: history, location, etc.)…	location
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	universal access for disabled or elderly

Form Name:	West End Community Feedback
Submission Time:	May 3, 2021 6:00 pm
Browser:	Safari 13.1.3 / OS X
IP Address:	24.91.172.170
Unique ID:	803230839
Location:	42.267501831055, -71.017700195312

1. What is your zip code?	02110
2. What is your age range?	65 or over
3. How often do you visit the West End Branch?	Couple times a month
4. How do you usually get to the West End Branch?	Walk Public transit
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	Staff
6. The spaces I use the most at the Library are…	Children's area Borrower's desk Holds pickup
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	I love this branch. The people are so helpful so I bring my grandchildren and I use myself to take out books of interest.
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	More workshops would be a great asset to the community at large.
9. What aspects of the existing library would be nice to see in a new facility?	Large Childrens's area....and more computer space with enhanced opportunities for using.
10. What new, different, or expanded collections would you like to see in the branch?	I think this library does a lot for its size and resources...some more programs with authors would be great.
11. This neighborhood is unique because (example: history, location, etc.)…	The neighborhood serves a broad array of Boston residents.
12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...	I can't speak to this as I am not sure how the housing would be developed.
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	How much housing would there be? Will it replace the library facility itself?

Form Name:	West End Community Feedback
Submission Time:	May 7, 2021 3:46 pm
Browser:	Safari 14.1 / OS X
IP Address:	73.219.241.247
Unique ID:	805655130
Location:	42.336601257324, -71.072601318359

1. What is your zip code?	02114
2. What is your age range?	35-64
3. How often do you visit the West End Branch?	Couple times a month
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	Location, helpful staff and kid friendly space
6. The spaces I use the most at the Library are…	Teen area Borrower's desk
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	holds pickup
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	some fun classes for teens like an art class
9. What aspects of the existing library would be nice to see in a new facility?	comfy reading areas
10. What new, different, or expanded collections would you like to see in the branch?	More comic books for kids. Get them to read any way possible!
11. This neighborhood is unique because (example: history, location, etc.)…	Lots of pedestrians. You could attach more people with a renovation
12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...	sure
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	Senior living would be amazing. So close to hospitals and grocery stores. I would love to see that!

Form Name: West End Community Feedback
Submission Time: May 28, 2021 6:52 am
Browser: Mobile Safari 12.1.2 / iOS
IP Address: 73.219.234.52
Unique ID: 815353434
Location: 42.380100250244, -71.06420135498

1. What is your zip code?	02114
2. What is your age range?	35-64
3. How often do you visit the West End Branch?	Once a month or less
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	Proximity to my home
6. The spaces I use the most at the Library are…	Community room General seating Borrower's desk
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	Browsing, voting, pickup
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	Workspace, outdoor space
9. What aspects of the existing library would be nice to see in a new facility?	Open plan, bright,
10. What new, different, or expanded collections would you like to see in the branch?	Rotating exhibits from central library special collections,
12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...	More street level activation, resident diversity, diversity of funding, increasing density of use
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	Unit types, maintainability,

Form Name: West End Community Feedback
Submission Time: June 11, 2021 8:22 am
Browser: Chrome 91.0.4472.77 / OS X
IP Address: 73.219.234.96
Unique ID: 822319031
Location: 42.336601257324, -71.072601318359

1. What is your zip code?	02114
2. What is your age range?	35-64
3. How often do you visit the West End Branch?	Once a week
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	location and the used books for sale
6. The spaces I use the most at the Library are…	Borrower's desk Holds pickup
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	browsing and holds pick up
9. What aspects of the existing library would be nice to see in a new facility?	used books for sale section
10. What new, different, or expanded collections would you like to see in the branch?	Textbooks
12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...	how about housing for young families, there are not enough children in the neighborhood that keeps everything cleaner and safer.
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	livability and larger family units.

Form Name:	West End Community Feedback
Submission Time:	June 11, 2021 9:02 am
Browser:	Chrome 91.0.4472.77 / Windows
IP Address:	64.112.182.14
Unique ID:	822332798
Location:	42.33459854126, -71.036201477051

1. What is your zip code?	02114
2. What is your age range?	65 or over
3. How often do you visit the West End Branch?	Once a month or less
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	location and collection
6. The spaces I use the most at the Library are…	Borrower's desk
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	borrowing books
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	expand collection and pick up books from other libraries
9. What aspects of the existing library would be nice to see in a new facility?	Very airy and good natural lighting
11. This neighborhood is unique because (example: history, location, etc.)…	Beacon Hill and West End are village-like, residents in the community walk to most places and use local resources.
13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	Affordability

Form Name:	West End Community Feedback
Submission Time:	June 11, 2021 10:32 am
Browser:	Chrome 88.0.4324.182 / Windows
IP Address:	146.115.86.10
Unique ID:	822368983
Location:	42.342399597168, -71.087799072266

1. What is your zip code?	02114
2. What is your age range?	65 or over
3. How often do you visit the West End Branch?	Once a month or less
4. How do you usually get to the West End Branch?	Walk
5. The best thing about the West End branch is (example: location, collections, staff, etc.)...	Staff
6. The spaces I use the most at the Library are…	Community room
7. The services I use the library most for are (example: holds pickup, browsing the collection, children's programming, adult programming, computer use, etc.)...	Books
8. The library could serve me more if (example: expanded collections, more children's programming, more access to technology, computer classes, resume workshops, etc.)…	More adult programs
9. What aspects of the existing library would be nice to see in a new facility?	Expanded commmunity meeting space.
10. What new, different, or expanded collections would you like to see in the branch?	More current best selling books
11. This neighborhood is unique because (example: history, location, etc.)…	More history books
12. Combining housing with this branch library will benefit our neighborhood by (example: strengthening community, etc.)...	An excellent idea. Site should maximize [10 story] age restricted apartments for over 65.

13. When thinking about the design of the housing, the most important consideration will be (example: sustainability, unit types, etc.)...	Maximum number of 1 bedroom apartments for over 65. Site not suitable for family housing.

Dear Mr. Romano,

The Friends of the West End Branch of the Public Library serve as a liaison between the library and the adjoining communities that support the library. One of our responsibilities is maintaining the small garden areas in front of the Library. In the past two years, we have spent many hours of volunteer time and raised substantial funds for them. Even in this time of pandemic, the garden has been a safe focus and builder of our community. We continue to make plans to work with the Library to develop environmental programs for children and adults using the garden,
Visitors, residents and passers-by appreciate the greenery.

We are pleased with the work on the plans for library portion of the project so far, and look forward to future meetings. I am writing to just ask that our small front, south facing, community garden space remain or be replaced after the reconstruction. It is important to us that the garden should be south facing, automatically irrigated and at least the same size as the current one in order to fulfill our needs and aspirations.

As an urban population living in towers, we do not have any other shared garden space we can work on. There has been discussion of adding affordable housing to the library project. The garden and housing are not in conflict,, since the new construction is unlikely to fill the entire site.

The Urban Renewal policies of the 1960's and for-profit developers demolished the old West End. The former community spaces were not replaced in the new development, so we have no public school, no community center and no senior center. The West End Library is the only place in our community that is free and open and offers services to everyone. Our residents depend on the Library and its garden, and it also serves and knits together the Downtown, Beacon Hill, West End and the MGH populations.

We hope that you can find a way to retain a sunny, irrigated, library garden for our community.. I would be happy to discuss this request at any time. We appreciate your hard work on this project.

Warm regards,

Robin Al-Khatib, President,
Friends of the West End Library

APPENDIX D:
Collections and Seating Calculations

WEST END - SHELVING COUNT

ADULT — ADULT 1956 LF REQUIRED

OPTION 1

PERIMETER UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL PERIMETER SHELVING (LF)		CENTER UNITS (#)	UNIT LENGTH (FT)	END UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL CENTER SHELVING (LF)		TOTAL LF
38	3	5	**570**		100	3	24	2	4	**1392**		**1962**

OPTION 2

PERIMETER UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL PERIMETER SHELVING (LF)		CENTER UNITS (#)	UNIT LENGTH (FT)	END UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL CENTER SHELVING (LF)		TOTAL LF
19	3	5	**285**		126	3	21	2	4	**1680**		**1965**

CHILDREN — CHILDRED 486 LF REQUIRED

OPTION 1 — REQUIRED

PERIMETER UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL PERIMETER SHELVING (LF)		CENTER UNITS (#)	UNIT LENGTH (FT)	END UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL CENTER SHELVING (LF)		TOTAL LF
23	3	3	**207**		38	3	12	2	2	**276**		**483**

OPTION 2

PERIMETER UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL PERIMETER SHELVING (LF)		CENTER UNITS (#)	UNIT LENGTH (FT)	END UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL CENTER SHELVING (LF)		TOTAL LF
30	3	3	**270**		42	3	9	2	2	**288**		**558**

TEEN — TEEN 72 LF REQUIRED

OPTION 1 — REQUIRED

PERIMETER UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL PERIMETER SHELVING (LF)		CENTER UNITS (#)	UNIT LENGTH (FT)	END UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL CENTER SHELVING (LF)		TOTAL LF
6	3	3	**54**		2	3	2	2	3	**30**		**84**

OPTION 2

PERIMETER UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL PERIMETER SHELVING (LF)		CENTER UNITS (#)	UNIT LENGTH (FT)	END UNITS (#)	UNIT LENGTH (FT)	# OF SHELVES PER UNIT	TOTAL CENTER SHELVING (LF)		TOTAL LF
8	3	3	**72**		0	3	0	2	3	**0**		**72**

WEST END - SEATING COUNT

ADULT

TARGETS

SOFT SEATING (4 SEAT)	SOFT SEATING (2 SEAT)	TABLE SEATING (6 SEAT)	TABLE SEATING (4 SEAT)	TABLE SEATING (2 SEAT)	LAPTOP BAR SEATS		TOTAL SOFT SEATS	TOTAL TABLE SEATS	LAPTOP BAR	TOTAL SEATS
3		3	**1**	2	8		**12**	**26**	**8**	**46**

OPTION 1

SOFT SEATING (4 SEAT)	SOFT SEATING (2 SEAT)	TABLE SEATING (6 SEAT)	TABLE SEATING (4 SEAT)	TABLE SEATING (2 SEAT)	LAPTOP BAR SEATS		TOTAL SOFT SEATS	TOTAL TABLE SEATS	LAPTOP BAR	TOTAL SEATS
2		3	**1**	3	6		**8**	**28**	**6**	**42**

OPTION 2

SOFT SEATING (4 SEAT)	SOFT SEATING (2 SEAT)	TABLE SEATING (6 SEAT)	TABLE SEATING (4 SEAT)	TABLE SEATING (2 SEAT)	LAPTOP BAR SEATS		TOTAL SOFT SEATS	TOTAL TABLE SEATS	LAPTOP BAR	TOTAL SEATS
2	2	3	**1**	3	8		**12**	**28**	**8**	**48**

CHILDREN

TARGETS

STOOLS AND COMF. SEAT	SOFT SEATING (2 SEAT)		TABLE SEATING (6 SEAT)	TABLE SEATING (4 SEAT)	TABLE SEATING (2 SEAT)		TOTAL SOFT SEATS	TOTAL TABLE SEATS		TOTAL SEATS
13	2		4	**6**			**17**	**48**		**65**

OPTION 1

STOOLS AND COMF. SEAT	SOFT SEATING (2 SEAT)	SOFT SEATING (4 SEAT)	TABLE SEATING (6 SEAT)	TABLE SEATING (4 SEAT)	TABLE SEATING (2 SEAT)		TOTAL SOFT SEATS	TOTAL TABLE SEATS		TOTAL SEATS
14		2	3	**6**			**22**	**42**		**64**

OPTION 2

STOOLS AND COMF. SEAT	SOFT SEATING (2 SEAT)	SOFT SEATING (4 SEAT)	TABLE SEATING (6 SEAT)	TABLE SEATING (4 SEAT)	TABLE SEATING (2 SEAT)		TOTAL SOFT SEATS	TOTAL TABLE SEATS		TOTAL SEATS
13	5	2	4	**4**	3		**31**	**46**		**77**

TEEN

TARGETS

SOFT SEATING (4 SEAT)	SOFT SEATING (2 SEAT)	TABLE SEATING (6 SEAT)	TABLE SEATING (4 SEAT)	TABLE SEATING (2 SEAT)				TOTAL TABLE SEATS		TOTAL SEATS
			2	3				**14**		**14**

OPTION 1

SOFT SEATING			TABLE SEATING (4 SEAT)	TABLE SEATING (2 SEAT)	LAPTOP BAR SEATS			TOTAL TABLE SEATS	LAPTOP BAR	TOTAL SEATS
2			**2**	2	6			**12**	**6**	**18**

OPTION 2

SOFT SEATING			TABLE SEATING (4 SEAT)	TABLE SEATING (2 SEAT)	LAPTOP BAR SEATS			TOTAL TABLE SEATS	LAPTOP BAR	TOTAL SEATS
3			**2**	1	7			**10**	**7**	**17**

APPENDIX E:
LEED Scorecards

LEED v4.1 Residential: Multifamily Scorecard

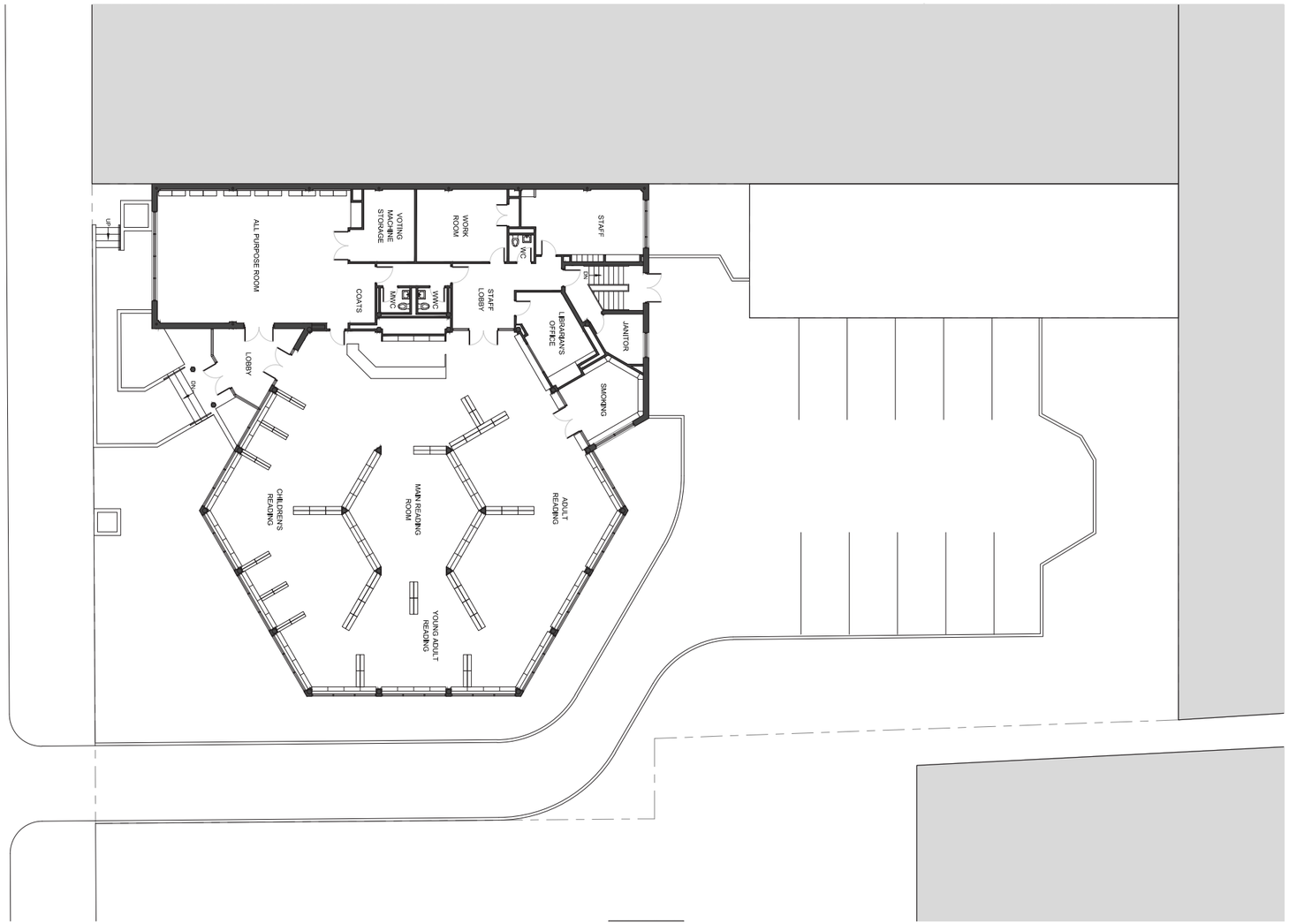
INTEGRATIVE PROCESS		**1**
Credit	Integrative Process	1
LOCATION AND TRANSPORTATION		**15**
Credit	LEED for Neighborhood Development Location	15
Credit	Sensitive Land Protection	2
Credit	High-Priority Site	1
Credit	Surrounding Density and Diverse Uses	5
Credit	Access to Quality Transit	3
Credit	Bicycle Facilities	1
Credit	Reduced Parking Footprint	1
Credit	Electric Vehicles	2
SUSTAINABLE SITES		**10**
Prerequisite	Construction Activity Pollution Prevention	P
Credit	Site Assessment	1
Credit	Protect or Restore Habitat	1
Credit	Open Space	1
Credit	Rainwater Management	3
Credit	Heat Island Reduction	2
Credit	Light Pollution Reduction	1
WATER EFFICIENCY		**12**
Prerequisite	Water Use Reduction	P
Prerequisite	Building-Level Water Metering	P
Credit	Water Use Reduction	10
Credit	Water Metering	2
ENERGY AND ATMOSPHERE		**34**
Prerequisite	Fundamental Systems Testing and Verification	P
Prerequisite	Minimum Energy Performance	P
Prerequisite	Energy Metering	P
Prerequisite	Fundamental Refrigerant Management	P
Credit	Enhanced Commissioning	6
Credit	Optimize Energy Performance	18
Credit	Whole Building Energy Monitoring and Reporting	1
Credit	Grid Harmonization	2
Credit	Renewable Energy	5
Credit	Enhanced Refrigerant Management	1
Credit	Efficient Hot Water Distribution Systems	1
MATERIALS AND RESOURCES		**13**
Prerequisite	Storage and Collection of Recyclables	P
Prerequisite	Construction and Demolition Waste Management Planning	P
Credit	Building Life-Cycle Impact Reduction	5
Credit	Environmentally Preferable Products	6
Credit	Construction and Demolition Waste Management	2
INDOOR ENVIRONMENTAL QUALITY		**16**
Prerequisite	Minimum Indoor Air Quality Performance	P
Prerequisite	Combustion Venting	P
Prerequisite	Garage Pollutant Protection	P
Prerequisite	Radon-Resistant Construction	P
Prerequisite	Interior Moisture Management	P
Prerequisite	Environmental Tobacco Smoke Control	P
Prerequisite	Compartmentalization	P
Credit	Enhanced Compartmentalization	1
Credit	No Environmental Tobacco Smoke	1
Credit	Enhanced Indoor Air Quality Strategies	4
Credit	Low-Emitting Materials	4
Credit	Indoor Air Quality Assessment	2
Credit	Thermal Comfort	1
Credit	Daylight and Quality Views	1
Credit	Acoustic Performance	2
INNOVATION		**6**
Credit	Innovation	5
Credit	LEED Accredited Professional	1
REGIONAL PRIORITY		**4**
Credit	Regional Priority	4
TOTAL POINTS		**110 POSSIBLE POINTS**

LEED v4.1 ID+C Scorecard

		New Construction	Retail	Hospitality
INTEGRATIVE PROCESS		**1**	**1**	**1**
Credit	Integrative Process	1	1	1
LOCATION AND TRANSPORTATION		**18**	**18**	**18**
Credit	LEED for Neighborhood Development Location	18	18	18
Credit	Surrounding Density and Diverse Uses	8	8	8
Credit	Access to Quality Transit	7	7	7
Credit	Bicycle Facilities	1	1	1
Credit	Reduced Parking Footprint	2	2	2
WATER EFFICIENCY		**12**	**12**	**12**
Prerequisite	Indoor Water Use Reduction	P	P	P
Credit	Indoor Water Use Reduction	12	12	12
ENERGY AND ATMOSPHERE		**38**	**38**	**38**
Prerequisite	Fundamental Commissioning and Verification	P	P	P
Prerequisite	Minimum Energy Performance	P	P	P
Prerequisite	Fundamental Refrigerant Management	P	P	P
Credit	Enhanced Commissioning	5	5	5
Credit	Optimize Energy Performance	24	24	24
Credit	Advanced Energy Metering	2	2	2
Credit	Renewable Energy	6	6	6
Credit	Enhanced Refrigerant Management	1	1	1
MATERIALS AND RESOURCES		**13**	**14**	**13**
Prerequisite	Storage and Collection of Recyclables	P	P	P
Prerequisite	Construction and Demolition Waste Management Planning	P	P	P
Credit	Long-Term Commitment	1	1	1
Credit	Interiors Life-Cycle Impact Reduction	4	5	4
Credit	Building Product Disclosure and Optimization – EPD	2	2	2
Credit	Building Product Disclosure and Optimization – Sourcing of Raw Materials	2	2	2
Credit	Building Product Disclosure and Optimization – Material Ingredients	2	2	2
Credit	Construction and Demolition Waste Management	2	2	2
INDOOR ENVIRONMENTAL QUALITY		**17**	**16**	**17**
Prerequisite	Minimum Indoor Air Quality Performance	P	P	P
Prerequisite	Environmental Tobacco Smoke Control	P	P	P
Credit	Enhanced Indoor Air Quality Strategies	2	3	2
Credit	Low-Emitting Materials	3	3	3
Credit	Construction Indoor Air Quality Management Plan	1	1	1
Credit	Indoor Air Quality Assessment	2	2	2
Credit	Thermal Comfort	1	1	1
Credit	Interior Lighting	2	2	2
Credit	Daylight	3	3	3
Credit	Quality Views	1	1	1
Credit	Acoustic Performance	2		2
INNOVATION			**6**	**6**
Credit	Innovation	5	5	5
Credit	LEED Accredited Professional	1	1	1
REGIONAL PRIORITY		**4**	**4**	**4**
Credit	Regional Priority	4	4	4
TOTAL			**110 POSSIBLE POINTS**	

APPENDIX F:
Existing Building Assessments

A LANDSCAPE REPORT



SITE VISIT ANALYSIS
IBI visited the site on July 10, 2020 to conduct their analysis. Below, and in the following pages is a summary of those findings:

Accessibility
Accessibility to the main building entrance from Cambridge Street is in need of some improvements. Currently a sloped concrete sidewalk leads visitors to a narrow ramp, with handrails, up to the main entry. At the top of this ramp, a small landing restricts movements due to its size. The ornamental steel fence on either side of the walk and ramp makes this route feel enclosed and unwelcoming. There is no exterior pedestrian access to the rear of the site. The rear building entrance has a step so it is not ADA compliant.

Parking Lot and On-street Parking:
There is a staff only parking lot in the rear of the property which is gated with access from Cambridge Street. Cambridge Street has a combination of metered and resident permit on-street parking spaces. There are no designated accessible parking spaces in close proximity to the building entrance.

Site Amenities:
Site amenities are very limited on this site. Currently there is no exterior public space for gathering and activities. Bench seating is also not provided anywhere on the site. There are three bike racks located within the public sidewalk on Cambridge Street.

Site Landscape/Vegetation:
The perimeter of the site and rear of the property has some large mature trees. They should be pruned of dead and damaged limbs to maintain their health. The street trees in front of the building on Cambridge Street block views of the building and entry. Consider pruning the lower branches to provide better visibility in and out of the site. The two smaller ornamental trees closer to the building should be removed as they are planted too close to the building and their health is suffering. Shrubs located behind the fence along Cambridge Street are a mixture of yews and rhododendrons with some perennials. Most of this area is covered in mulch with lots of weeds visible. There is a small lawn area behind the building that is full of weeds. No maintenance program in place for any of the softscape areas throughout the site.

PLACEMAKING

B STRUCTURAL REPORT

RSE ASSOCIATES Inc.
63 Pleasant Street, Suite 300, Watertown, MA 02472 | Tel (617) 926-9300

WEST END BRANCH – BOSTON PUBLIC LIBRARY
Existing Structural Conditions Summary
July 29, 2020

Existing Structural Framing System

Foundations

- The foundations consist of cast in place concrete caissons that support foundations walls and a partial basement under the administration spaces. The basement floor is framed with a concrete slab spanning to concrete grade beams.

First floor framing

- The first floor is framed with reinforced concrete beams, one-way reinforced concrete slabs and ribbed slabs. The columns between the first floor and roof are round steel pipes with a concrete encasement used for fireproofing with a total diameter of 10 inches.

Roof framing

- The higher roof over the reading room consists of steel beams in a hexagonal layout with a reinforced concrete slab.
- The lower roof over the administration spaces consists of a hybrid of steel girders encased in concrete and reinforced concrete beams with a ribbed concrete slab.

Condition of Structure

The only structure that was visible for observation was in the partial basement, and the condition was good to excellent. Although the roof framing was not visible, there were no signs of structural distress.

Structural Issues

- There was some slight discoloration in the ceiling of the voting machine storage room that may be caused by roof leaks. Further investigation is needed to determine the cause and if water infiltration is causing any rusting of rebar and concrete spalling.
- The building is in contact with the 9-story building on the adjacent site. There appears to be a vertical caulked joint in the brick which does not provide a seismic separation between the 2 buildings. Any structural work that triggers a seismic upgrade should address this condition by installing a flexible joint material that will allow building movement without impacting loads to the neighboring building.

C MEP/FP REPORT

Mechanical, Electrical, Plumbing and Fire Protection

Systems Assessment Report

Boston Public Library
West End Branch
151 Cambridge Street
Boston, MA

Prepared By:

AHA

Prepared For:

AnnBehaArchitects
33 Kingston Street
Boston, MA 02111

July 29, 2020

Boston Public Library
West End Branch

MECHANICAL, ELECTRICAL, PLUMBING and FIRE PROTECTION

Systems Assessment Report

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BPL – West End Branch
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July 29, 2020

Boston Public Library
West End Branch

MECHANICAL, ELECTRICAL, PLUMBING and FIRE PROTECTION

Systems Assessment Report

Project Description

The AHA Consulting Engineers, Inc. (AHA) Team performed a site walk-through of the West End Branch Library on Friday, July 10th, 2020 as a part of the overall AnnBeha Architects (ABA) Project Team.

The following Mechanical, Electrical, Plumbing and Fire Protection (MEP/FP) Systems Assessment Report summarizes our observations and findings as a part of this Study's Phase 1 – Information Gathering phase.

Mechanical

A. Description of Systems

1.) Building is served by the Air Handling Unit AHU-1 located in the main Mechanical Equipment Room (MER) in the Basement. The unit is constant flow, DX cooling, hot water heating, recirculating type unit. Zone temperature control is provided by the zone mixing dampers located in the branch ducts. The outdoor intake louver is located on the outside wall of the basement. The condensing unit is located outside the building in the fenced area next to the Parking Lot.

2.) Perimeter heat is provided by the hot water finned tube radiators.

3.) Building front Lobby and back stairs are heated by the hot water cabinet unit heaters.

4.) There are two hot water boilers and associated recirculating hot water pumps located in the Basement. The boilers provide hot water to the AHU heating coil and to the finned tube radiators and unit heaters.

5.) Basement MER cooling is provided by the split DX system. The indoor fan coil unit is located at the ceiling in the Basement and outdoor condensing unit is located on the outside wall of the Basement level.

6.) Toilet Rooms throughout the building are exhausted by passively and are terminated with a gravity hood on the Roof.

7.) All equipment is controlled by the DDC system

8.) The following is the available nameplate data for AHU-1, boilers, and hot pumps:

AHU-1: Johnson York Custom AHU, model YC, ser. TD AM387430, 10,000 cfm.
Boilers: HTP Elite Heating Boilers; model EL-399N, direct vent boiler, 461 MRV capacity.
(2) supply pumps: 40 gpm, 30 ft head, 1 HP, 208-230 V.
(2) return pumps: 40 gpm, 30 ft head, 3/4 HP, 208-230 V.

B. Conditions of Systems/Evaluation

1.) All mechanical systems including AHU-1, Condensing Unit, boilers, pumps and Basement DX split cooling system were installed in 2014 and appear to be in good condition.

2.) All ductwork, diffusers, finned tube radiators are seemed to be original to the building and in fair condition.

3.) Both cabinet unit heaters in the front Lobby and at the back stairs are in poor condition.

C. Recommendations

1.) Provide preventive maintenance on the existing AHU-1, Condensing Unit, boilers, pumps and Basement DX split cooling system to ensure their proper operation.

2.) Clean all existing finned tube radiators and covers. Inspect their respective control valves to ensure proper operation.

3.) Clean all existing supply and return diffusers and grilles throughout the entire building.

4.) Replace cabinet unit heaters in the front Lobby and at the back stairs with new.

5.) Test and balance all mechanical systems.

Electrical

A. Description of Systems

1.) The existing service to this building is a 200amp, 208/120v, 3-phase, 4-wire service. The service is metered with an Nstar/Eversource utility meter.

2.) There is a 200amp main distribution panel that feeds sub-panels of 70amps, 100amps and 150amps.

3.) Where the service comes penetrates into the Basement MER, there is an open junction box that appears to be the original panel but is just being used as a splice box.

4.) The existing lighting includes fluorescent T8's in linear recessed downlights and pendant downlights that are compact fluorescent and possibly incandescent. Existing emergency lighting includes emergency battery units and battery powered exits.

B. Conditions of Systems/Evaluation

1.) The electrical distribution is in working condition but is at the end of its useful life. Most of the distribution appears to be original to the building.

2.) There is an open junction box near the service entrance disconnect being used as a splice box, wiring is exposed.

3.) The lighting and controls are in working order but are out dated and inefficient compared to current LED fixture and control options.

C. Recommendations

1.) Replace or provide a cover for the open junction box near the service entrance disconnect.

2.) Provide testing of the existing electrical distribution.
<u>Alternate:</u> Provide a new 200amp, 208/120v, 3-phase, 4-wire distribution panel and new sub panels.

3.) Demo the existing lighting, controls, receptacles and associated wiring. Provide new led lighting and a sensor based control system.

4.) Demo the existing emergency battery units and exit signs. Provide select light fixtures with emergency battery backup and new edge-lit exits with battery backup.

5.) Provide feeds to Mechanical and Plumbing equipment in the Basement Mechanical Room.

Plumbing

A. Description of Systems

1.) Building is supplied with the following:
- 2-inch domestic cold water main with water meter.
- 2-inch natural gas with gas meter located in the basement. Supplies (1) water heater and (2) HVAC boilers.
- 4-inch sanitary main.
- Roof drainage by roof drains and internal storm conductors to 10-inch storm main.

- Area drainage by area drains and running trap in basement.
- Cold water feeds to yard hydrant and exterior wall hydrants.

2.) Hot water is produced by a residential, gas-fired, power-vented, water heater, with no recirculation pump.

3.) Basement level Restroom is non-ADA accessible.

B. Conditions of Systems/Evaluation

1.) Plumbing fixtures are older high-flow type, manual flush valves and manual faucets.

2.) Gas-fired water heater was installed in 07-30-2014. Delivery time of hot water to Lavatories is over 5 minutes.

C. Recommendations

1.) Replace water closets and manual flush valves with low-flow, battery powered, sensor operated flush valves. Replace lavatories and manual faucets with low gpm, battery powered, sensor operated faucets.

2.) Remove and replace existing water heater with new commercial type water heater.

3.) Provide new insulation on all cold water and hot water piping.

4.) Provide and install hot water return piping/insulation with recirculation pump.

Fire Protection

A. Description of Systems

1.) The building is equipped with an existing 4” fire protection service and a 4” wet alarm riser valve located in the Basement Mechanical area. The 4” riser valve is currently in shut off position.

2.) The building is currently not equipped with an existing backflow preventer.

3.) An existing 2-way 2-1/2” fire department connection is located on the front side of the building on Cambridge Street which serves the existing sprinkler system.

4.) Existing sprinklers are distributed throughout the Basement area and appear adequately spaced for Ordinary Hazard design requirements. As stated above, the existing sprinkler system is currently shut off.

5.) There are no existing sprinklers located on the Main Floor of the Library.

B. Conditions of Systems/Evaluation

1.) The existing wet sprinkler valve, existing sprinkler distribution throughout the Basement and existing sprinklers all appear to be old and outdated. Much of the piping is rusting and corroding.

C. Recommendations

1.) Complete demolition of the fire protection system back to the street including all sprinklers, sprinkler distribution piping, mains, wet alarm riser valve and fire service.

2.) Install a new 6” fire sprinkler service line into the building.

3.) Install a new 6” double check valve back flow preventer and 6” wet alarm check valve riser valve to serve the building.

4.) The 2-way 2-1/2” fire department connection shall be existing to remain. Reconnect existing fire department connection into the new sprinkler system.

5.) Redistribute new sprinkler mains and branch lines throughout both the Mechanical Basement level as well as the 1st Floor Reading/Circulation area.

6.) New sprinkler design criteria shall be as follows:

a. Automatic sprinkler systems in areas of light hazard occupancy shall be designed with a minimum design density of .10 GPM per square foot over the hydraulically most remote 1500 square feet. Maximum protection area per sprinkler head shall be 225 square feet for upright and pendent sprinkler heads, and 196 feet for sidewall sprinkler heads. Hose allowance shall be 100 GPM. Areas of Light Hazard Occupancy include Reading Areas, Offices, Conference Rooms, Restrooms, Lobby Areas, Meeting Rooms, Reading Rooms, Children’s Areas and similar areas.
b. Automatic sprinkler systems in areas of ordinary hazard group 1 occupancy shall be designed with a minimum design density of .15 GPM per square foot over the hydraulically most remote 1500 square feet. Maximum protection area per sprinkler head shall be 130 square feet. Hose allowance shall be 250 GPM. Areas of Ordinary Hazard Group I Occupancy include Mechanical Rooms, Basement Areas, Storage Rooms, Server Rooms, Janitors Closets, Electrical Rooms and similar areas.

7.) Provide a new hydrant flow test. Use the results of this new hydrant flow test to hydraulically design the sprinkler systems within the buildings.

Fire Alarm

A. Description of Systems

1.) The building is equipped with an old conventional fire alarm system with the head end Simplex panel located in the Basement.

2.) There are a few old outdated horn/strobe devices located in the building. Devices are not ADA compliant.
3.) There are a few smoke detectors located throughout the main floor.

4.) The building is equipped with a few old pull stations, but they are not installed at every egress door.

B. Conditions of Systems/Evaluation

1.) The existing fire alarm control panel, existing notification devices, and existing smoke detectors are all very old and outdated and mostly not compliant with today's codes.

C. Recommendations

1.) Complete demolition of the existing fire alarm system including the control panel, all notification devices, smoke detectors, pull stations and wiring.

2.) The building shall be equipped with a new microprocessor-based multiplex, analog/addressable system with complete audible and visual occupant notification, and municipal reporting. Each initiating point (waterflow switch, tamper switch, smoke detector, duct-mounted smoke detector, heat detector or manual pull station) will be individually addressable. Upon activation, the specific device address, type, status and location will be presented at an LCD annunciator integral to the FACP and remote LCD annunciators.

3.) Occupant notification shall consist of audible/visual signaling. Audible signaling will be a general temporal-3 pulse evacuation tone. Visual signaling will be by xenon strobes in accordance with NFPA 72 and the Americans with Disabilities Act.

4.) The fire alarm systems will interface to the HVAC System in order to conduct the required control functions via programmable control module outputs.

5.) The buildings fire alarm systems will operate in conjunction with the building fire protection system(s) in accordance with all-applicable codes and standards including NFPA 13, 72, 90A and the 9th Edition of the Massachusetts State Building Code, and Town of Lexington.

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6.) The building shall be equipped with a bi-directional amplifier radio repeater system for fire fighter's communication within the building during an emergency. The radio repeater amplifier cabinet will require a 2-hour rated space on the Second Floor, along with a 2-hour rated enclosure extending down to the First Floor ceiling space and up to the Roof.

7.) Smoke detection with remote LED indicator outside the room shall be installed in all Electrical Rooms, Tel/Data Rooms, Elevator Machine Rooms, Elevator Lobbies, and at the top of each stairwell. Heat detection with remote LED indicator outside the room shall be installed in the Chemical Storage Rooms.

END OF REPORT

CODE RED CONSULTANTS

August 5, 2020
Project #: 202538

1. Introduction

This document describes the general code compliance approach for potential renovations to the Boston Public Library – West End Branch located at 151 Cambridge Street in Boston, MA.

The scope of this project is to both evaluate the existing conditions of the building and to outline potential code triggers associated with planned renovations to the existing, approximately 7,000 sf, one (1) story with basement library building. The existing library building mostly contains both high and low collections areas with associated reading areas, a staff work room, and back of house storage/mechanical spaces. The figure below illustrates an existing layout of the building. Note that part of the storage room on the first floor was converted to an accessible single-user restroom.

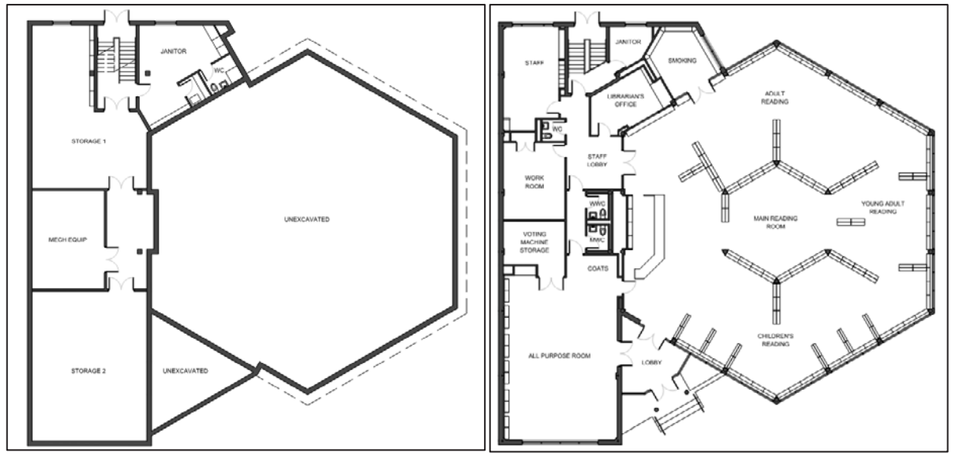

Figure 1: Existing Layout of Library

The primary intent of this document is to (1) coordinate the fire protection and life safety approach between all design disciplines, (2) demonstrate building, fire and life safety code compliance to the Authorities Having Jurisdiction per Section 101.5.4.0 of the Massachusetts Existing Building Code, and (3) serve as a record document for the building owner. Details of compliance are left to the construction documents and the contractors. This report is intended to address code requirements as enforced by Authorities Having Jurisdiction only. It is the responsibility of the design team to ensure that any owner or insurance carrier requirements, which may exceed the provisions of the applicable codes and standards, are met.

The observations outlined herein are based on a site survey performed by Jason Hopkins, P.E. and Lea Dighello of Code Red Consultants on July, 10, 2020. No destructive inspection or functional testing of building systems were performed as part of this evaluation.

CODE RED CONSULTANTS

August 5, 2020
Project #: 202538

2. Applicable codes

Building	780 CMR - Massachusetts State Building Code 9th Edition, which is an amended version of the 2015 International Building Code (IBC).
Fire	527 CMR - Massachusetts Comprehensive Fire Safety Code, which is an amended version of the 2015 Edition of NFPA 1, Fire Code. The 2015 International Fire Code (IFC) is applicable for fire code references in 780 CMR not addressed by 527 CMR.
Accessibility	521 CMR - Architectural Access Board (AAB) Rules and Regulations 2010 ADA Standards for Accessible Design
Electrical	527 CMR 12.00 - Massachusetts Electrical Code, which is an amended version of the 2020 Edition of NFPA 70, National Electrical Code
Mechanical	2015 International Mechanical Code (IMC) as amended by 780 CMR 28.00.
Plumbing	248 CMR 10.00 – Uniform State Plumbing Code
Energy	2018 Edition of the International Energy Conservation Code (IECC) as amended by the State of Massachusetts.[1]
Elevator	524 CMR – Massachusetts Board of Elevator Regulations, which is an amended version of the 2004 ANSI A17.1, Safety Code for Elevators and Escalators
Other	National Fire Protection Association (NFPA) Standards, as referenced by the above codes

[1] The City of Boston adopts Appendix AA of 780 CMR, the Stretch Energy Code. The 2018 Edition of the IECC is scheduled to be enforced as of January, 1, 2021.

3. Existing building code scoping requirements

3.1 General requirements

Portions of an existing building undergoing repair, alteration, addition, or a change of occupancy are subject to the requirements of the MEBC. In general, existing materials and conditions can remain provided they were installed in accordance with the code at the time of original installation and are not deemed a hazardous condition by an authority having jurisdiction (AHJ). All new work in existing buildings is required to comply with the materials and methods in accordance with 780 CMR, or the applicable code for new construction unless otherwise specified by the MEBC (MEBC 702.6). Alterations to an existing building or portion thereof are not permitted to reduce the level of safety currently provided within the building unless a portion altered complies with the requirements of 780 CMR for new construction (MEBC 701.2).

Where compliance with the requirements of the code for new construction is impractical due to construction difficulties or regulatory conflicts, compliance alternatives may be approved by the building official (MEBC 101.5.0). Any compliance alternatives being sought are required to be identified on the submittal documents (MEBC 101.5.0.1).

3.2 Compliance method & classification of work

The MEBC has 3 different compliance methods that can be used to evaluate a renovation project:

- Prescriptive Method (MEBC Chapter 4)
- Work Area Method (MEBC Chapters 6-13)
- Performance Method (MEBC Chapter 14)

The **Work Area Method** has been selected for use on this project (MEBC 301.1). It is assumed that the proposed project will minimally include the interior, non-structural demolition and renovations throughout the building.

While the overall scope of the proposed project has not been determined, a goal of this study is to understand the feasibility of creating a new library space that incorporates more meeting space for the community as well potentially creating a mixed use development that includes residential apartments. A proposed scheme includes keeping a one-story library with the addition multiple residential floors above. It is assumed that the vertical addition will not be such that classifies the building as a high-rise. Should the existing building be salvaged and residential units not be pursued, it is assumed that the scope of the project would minimally include a Level 3 alteration with a vertical and/or horizontal addition to include the required square footage necessary for the programming goals of the client.

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Level 3 Alteration – Includes the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment in more than 50% of the aggregate building area (MEBC 505.1).

Areas undergoing a **Level 3 Alteration** are subject to compliance with MEBC Chapters 7, 8 & 9.

Change of Occupancy – includes a change of use in the building or portion of the building (MEBC 506.1).

Areas undergoing a **change of occupancy** care subject to compliance with MEBC Chapter 10.

Addition – includes the extensions or increase in floor area, number of stories, or height of a building or structure (MEBC 507.1).

Areas undergoing an **Addition** are subject to compliance with MEBC Chapter 11.

4. Existing hazardous conditions

The occupancy of any structure existing on the date or adoption of the current code is permitted to continue without change, except as covered in 780 CMR 102.6. This section of the report focuses on the requirements that apply to the building regardless of work performed. Requirements from the MEBC triggered by the proposed scope of work are covered in Chapter 5 of this report.

4.1 Means of egress, lighting and ventilation

Regardless of the scope of work performed, the building official may cite any of the following conditions as hazardous, and require them to be mitigated or made safe (780 CMR 102.6.4):

- Inadequate number of means of egress: The number of exits serving every space and/or story must comply with 780 CMR 10.00.
- Egress components with insufficient width or so arranged to be inadequate, including signage and lighting: Means of egress components must be of sufficient width to provide adequate exit capacity.
- Inadequate lighting and ventilation. Lighting levels and ventilation are to be provided for egress systems such that they are maintained as usable.
- Means of egress components that have not be maintained in a safe, operable, and sanitary condition. Means of egress are to be configured such they are safe and adequate in accordance with 780 CMR 10.00.

Means of egress components that have not been maintained in a safe, operable, and sanitary condition are to be configured such they are safe and adequate in accordance with 780 CMR 10.00. **It is our understanding that there are no conditions within the existing building that have been cited as hazardous by the City of Boston. See below for observed deficient means of egress components which could be considered hazardous by the building official and require correction. These items will require further discussion at a future meeting.**

- Within the lobby, a table blocks the door from the all-purpose room. Within the all-purpose room, an exit sign directs occupants through this blocked exit. In addition, it is our understanding that this room requires two remote exits, which would require this exit to be free and unobstructed. The table within the lobby should be removed to prevent blocking the required exit.

- The door leaf between the main reading room and the staff lobby was noted to be 31.5”. Under new construction, the clear width of each door opening is required to be at least 32-inches with at least one of the two door leaves providing 32-inches clear (780 CMR 1010.1.1). The minimum clear width of doors is not specified by the MEBC, however may pose a hazard as the main entrance of an assembly building with a significant occupant load.
- Combustible storage was observed within the rear stair at both First Floor, Basement Level and mid-level landing. 527 CMR Section 10.03(13)(b) prohibits combustible materials to be placed, stored, or kept in any portion of an exit, stairway, fire escape, or other means of egress. The combustible storage is required to be removed from within the exit enclosures.
- The janitor’s room on the First Floor and the basement open directly into the stair enclosure. Non-occupied rooms are not permitted to be open to the stair (780 CMR 1023.4). While this is permitted to remain as is unless it is part of the future work area, it should be noted that excessive storage of combustible materials in these locations create a hazard.

5. Building / Fire Protection / Life Safety Code Approach

The following section has been prepared to illustrate compliance with the requirements of the MEBC based on the compliance method and classifications of work identified above. In general, new work is required to comply with the new construction requirements of 780 CMR unless otherwise stated herein (MEBC 702.6 & 801.3).

5.1 Use and Occupancy Classifications

5.1.1 Occupancy Classifications

The building contains Library spaces (**Group A-3**), Office (**Group B)** space, and Storage/Mechanical rooms (**Group S-2**). The scope of the proposed project is expected to maintain the existing occupancies and may add Residential (**Group R-2**) space.

Based on the size and layout of the building as a result of future work, the Storage occupancy may be classified as an accessory occupancy if the overall area does not exceed 10% of the area of the floor.

5.2 Construction type and height and area

5.2.1 Existing Construction Classification

The existing building appears to be constructed of concrete framing with brick exterior, most closely resembling Type IB Construction.

5.2.2 Fire-Resistance Rating of Building Elements

Table 1 indicates the minimum fire-resistance ratings required for the building elements (780 CMR 601).

Building Element	Type IB
Primary structural frame	1 Hour
Exterior bearing walls	1 Hour
Interior bearing walls	1 Hour
Nonbearing exterior walls	See Section 5.2.5.
Floor construction and secondary members	1 Hour
Roof construction and secondary members	1 Hour

Table 1: Fire-Resistance Ratings

5.2.3 Materials of Construction

As Type I construction, building elements are required to be of noncombustible materials except as permitted by 780 CMR Section 603 and elsewhere in the code (780 CMR 602.2).

5.2.4 Height & Area Limitations

The existing building is one-story above grade with a basement. The footprint area totals to approximately 7,000 square feet. The existing building appears to be constructed of concrete framing with brick exterior, most closely resembling Type IB Construction.

Should the existing use and footprint of the building remain, compliance with new construction height and area limitations is not required (MEBC 1012.5 & 1102).

Should the scope of the project include either a new building or an addition, compliance with new construction height and area limitations is required (MEBC 1102).

Based on the existing use and construction type of the building, the maximum height permitted for the existing building is 180 feet, 12-stories, and an allowable area of 237,000 square feet (as limited by the Occupancy Group S-2) (780 CMR 504.3, 504.4, & 506.2). This allowable area may be increased should the scope of the project include the installation of an automatic sprinkler system.

5.2.5 New Construction Provisions

Should the scope of the project include the construction of a new building in order to accommodate residential units, the following table illustrates the maximum allowable number of stories above grade plane each occupancy group may inhabit assuming sprinkler protection is provided.

Occupancy	Type of Construction						
	Type IA	Type IB	Type IIA	Type IIB	Type IIIA	Type IIIB	Type IV
Group A-3	UL	12	4	3	4	3	4
Group R-2	UL	12	5	5	5	5	5
Group B	UL	12	6	4	6	4	6
Group S-2	UL	12	6	4	5	4	5

Table 2: Allowable Number of Stories above grade plane

Note that Cross Laminated Timber (CLT) is currently only permitted within Type IV buildings. Incorporating CLT construction within a Type II or III building would require a state building code variance.

Separately, 780 CMR Section 509.2 allows a 3-hour fire-rated horizontal assembly to create separate buildings. Buildings constructed using this option are typically referred to as 'podium' or 'platform' buildings. The structures built above and below the 3-hour fire-rated horizontal assembly are considered distinct buildings. As distinct buildings, they are individually evaluated with respect to allowable building area, the number of stories and type of construction although the maximum building height in feet may not exceed the limits set forth in 780 CMR 504.3.

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5.2.6 Existing Exterior Walls

The existing West wall is shared with the adjacent building. This shared wall is believed to be a party wall assuming that the wall sits on the lot line (780 CMR 706.1.1).

Existing exterior walls, including openings, that are unaltered are permitted to remain.

New exterior walls and openings are required to comply with 780 CMR 705.8. The rating and opening limitations for new or altered nonbearing exterior walls are based on the fire separation distance for each wall. Fire separation distance is defined as the distance measured from the building face to the closest interior lot line, the centerline of a street, alley, or public way, or to an imaginary lot line between two building (780 CMR 202). The distance is required to be measured at right angles from the face of the wall. **Error! Reference source not found.** indicates the fire-resistance ratings and opening limitations required for the exterior walls based on fire separation distance for a Type IB Building (780 CMR 602 & 705.8).

Fire Separation Distance	Fire Resistance Rating	Allowable area[2]
0 to less than 3 feet	1 Hour	Not Permitted
3 feet to less than 5 feet	1 Hour	15%
5 feet to less than 10 feet	1 Hour	25%
10 feet to less than 15 feet	1 Hour	45%
15 feet to less than 20 feet	1 Hour	75%
20 feet to less than 30 feet	1 Hour	No Limit
30 feet or greater	0 Hours	No Limit

Table 3: Fire-Resistance Ratings and Opening Limitations for Exterior Walls

While the extent of any addition is unknown, the party wall will be required to be maintained and any extension along this wall will require construction as a fire wall in accordance with 780 CMR 706 and no openings would be permitted.

1.1.1 MCM Panels

The use of metal composite materials (MCM) on the exterior of the building are required to comply with 780 CMR 1407. Where MCM Panels are used on exterior walls required to be rated, evidence must be provided to demonstrate that the fire-resistance rating is maintained (780 CMR 1407.8). The MCM panels must also comply with the following:

- Have a flame spread index not more than 25 and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 (780 CMR 1407.10.1);
- Be separated from the interior of the building by an approved thermal barrier consisting of ½-inch gypsum wallboard or equivalent (780 CMR 1407.10.2);

[2] Based on building being fully sprinkler protected and unprotected openings.

- Have the exterior wall assembly tested in accordance with NFPA 285 based on the actual end use configuration otherwise permitted by 780 CMR 1407.11.1 or 1407.11.2 based on the installation height and fire separation distance (780 CMR 1407.10.4).

5.3 Interior Walls and Partitions

5.3.1 Fire/Smoke Resistive Assemblies

Table 4 identifies the interior walls and partitions which are required to be composed of fire/smoke resistive assemblies.

Fire/Smoke Resistive Assemblies		
Type of Assembly	**Construction**	**Code Reference**
Corridors		
Residential	½ hour fire partition	780 CMR Table 1020.1
Groups A, B, & S-2	No fire rating required	780 CMR Table 1020.1
Between Occupancy Types	No fire rating required	780 CMR 508.3
Special Rooms/Incidental Uses		
Nonsprinklered Electrical Room	2-hour fire barrier	NFPA 13, 8.15.10.3
Dry type transformer room > 35,000 V	3-hour fire barrier	NFPA 70, 450.42
Dry Type Transformer Room > 112.5 kVA	1-hour fire barrier	NFPA 70, 450.21(B)
Emergency generator room[3]	2-hour fire barrier	NFPA 110, 7.2.1.1
Electrical rooms containing emergency power feed circuits	2-hour fire barrier	NFPA 70, 700.10
Boiler room where the largest piece of equipment is > 15 psi and 10 horsepower	Wall capable of resisting the passage of smoke	780 CMR Table 508.2.5
Elevator machine Room/controls room	2-hour fire barrier	780 CMR 3005.4
Shafts		
Shafts connecting less than four stories	1-hour fire barrier	780 CMR 713.4
Shafts connecting four or more stories	2-hour fire barrier	780 CMR 713.4

Table 4: Fire/Smoke Resistive Assemblies

[3] Fuel line supplying a generator inside the building are required to be separated from areas of the building, other than the generator room, by an approved assembly having a fire-resistance rating not less than 1-hour (780 CMR 403.4.8.2).

Wall Type	Construction
Fire Barrier (780 CMR 707.5)	Wall construction is required to extend from the floor or foundation below to the underside of the floor or roof sheathing, slab or deck above. They are required to be continuous through concealed spaces, such as those above ceiling.
Smoke Tight (780 CMR 509.4.2)	Walls are capable of resisting the passage of smoke and extend from the underside of the floor below to the deck above or at ceiling that is part of fire resistance rated floor or roof assembly. Doors are required to be self or automatic closing upon detection of smoke and without air transfer openings. HVAC air transfer openings are only permitted if protected with smoke dampers.

Table 5: Wall Construction Requirement Table by Wall Type

- The existing stair appeared to have a 60-minute fire protection rated doors at the top and bottom of the stair enclosure and the penetrations into the enclosure were not firestopped. It is assumed that this stair was originally designed to contain a 1-hour enclosure and should be maintained as such.
- The mechanical equipment room in the basement had doors with a 90-minute fire protection rating and penetrations between this room and the "Storage 2" room were firestopped. It is unknown whether the original design intent was for the mechanical equipment room to be a rated room.

5.3.2 Required Special Inspections

High rise buildings or those in Risk Category III and IV are required to have all fire resistant joint and penetrations be inspected by a 3rd party firestop inspector in accordance with ASMT E2174 and ASEM E2393.

The occupant load of the building may be greater than 300 depending on the proposed layouts and the building has a primary occupancy of public assembly and therefore firestop special inspections may be required.

5.4 Interior Finishes

5.4.1 Wall and Ceiling Finishes

Interior wall and ceiling finish ratings are classified in accordance with ASTM E 84 or UL 723 (780 CMR 803.1.1). The flame-spread and smoke-developed indexes must not be greater than that specified in Table 6 based on the occupancy classifications (780 CMR Table 803.11).

Minimum Interior Wall & Ceiling Finish Requirements[4]			
Occupancy Classification	**Exit Enclosures and Exit Passageways**	**Corridors**	**Rooms and Enclosed Spaces**
A-3	Class A or B	Class A or B	Class A, B or C
B	Class A or B	Class A, B or C	Class A, B or C
S-2 & R-2	Class A, B or C	Class A, B or C	Class A, B or C

Table 6: Interior Wall & Ceiling Finish Requirements

5.4.2 Interior Floor Finish

Existing floor finishes are permitted to remain. New floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers are permitted throughout (780 CMR 804.1 Exception). Other interior floor covering materials are required to comply with the requirements of the DOC FF-1 "pill test" (CPSC 16 CFR Part 1630) (780 CMR 804.4.1 & 804.4.2 Exception).

5.5 Fire Protection Systems

5.5.1 Automatic Sprinkler Systems

The existing building is not fully protected by an automatic sprinkler system. While the first floor does not contain sprinklers, the basement is fully sprinklered. MEBC Section 804.2.2 requires an automatic sprinkler system be installed throughout the work area where the following conditions are met:

- Work area contains exits or corridors shared by more than one tenant or have exits or corridors serving an occupant load greater than 30;
- Work area is required to be provided with automatic sprinkler protection in accordance with the MSBC;
- Work area exceeds 50% of the floor area; and
- Building has sufficient water supply for the design of a sprinkler system without the installation of a fire pump

As the thresholds of MSBC Table 903.2 are exceeded (i.e. the assembly occupancy is greater than 5,000 sf in aggregate area), the installation of a sprinkler system is required by MEBC Section 804.2.2.

In addition to the requirements of the MEBC, Massachusetts General Law Ch. 148 Sec. 26G requires every building or structure, including major alterations thereto, which

[4] Interior finishes are grouped in the following classes: Class A – flame spread index 0-25, Class B – flame spread index 26-75, Class C – flame spread index 76-200. All classes must have a smoke-developed index that does not exceed 450.

totals more than 7,500 gross square feet to be protected throughout with an automatic sprinkler system.

Note that the 7,500 sf threshold includes "the sum total of the combined floor areas for all levels, basements, sub-basements, and additions, in aggregate, measured from the outside walls, irrespective of the existence of interior fire resistive walls, floors and ceilings".

An advisory document published by the Sprinkler Appeals Board in 2009 expands upon the application of this MGL to existing buildings. An existing building is required to be protected with sprinklers where **all** of the following four conditions are satisfied:

1. Building gross square footage is more than 7,500 sf
2. Sufficient water and water pressure exist to serve the system.
3. The nature of work to the building is considered as "major", including **any one** or more of the following:
   a. The demolition or reconstruction of existing ceilings or installation of suspended ceilings;
   b. The removal and/or installation of sub flooring, not merely the installation or replacement of carpeting or finished flooring;
   c. The demolition and/or reconstruction or repositioning of walls or stairways or doors; or
   d. The demolition and/or reconstruction or repositioning of walls or stairways or doors; or
   e. The removal or relocation of a significant portion of the building's HVAC, plumbing, or electrical systems involving the penetration of walls, floors, or ceilings.
4. The scope of work is proportional to the cost/benefit of sprinkler installation. To evaluate whether this is satisfied, the advisory document lists **either** of the following as thresholds for requiring sprinkler protection:
   a. Work affects 33% or more of the total gross square footage; or
   b. Total cost of the work (excluding cost to install a sprinkler system) is equal to or greater than 33% of the assessed value of the building, as of the date of permit application.

It is the conclusion of the advisory document that if the nature of the work described in item (3) meets at least one of the conditions in item (4) then it is reasonable to conclude that the alterations and modifications are considered as "major", thus requiring sprinkler protection. However, ultimately it is the determination of the local fire code official to determine whether the renovation is considered as "major" or not.

Note that if there is a series of modifications being conducted over a reasonably short period (approximately 5 years or less per the advisory document), it is reasonable to conclude that such work is cumulatively considered as a "major alteration" if it collectively satisfies the above conditions.

Based on the proposed scope of work of the project it is assumed that the total cost of work will be greater than 33% of the assessed value and that the work will be considered major and therefore requires the installation of a sprinkler system throughout the building.

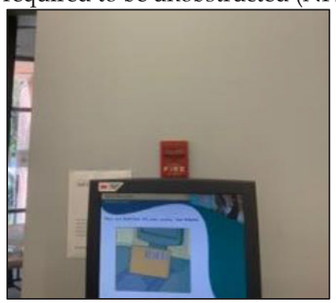
It should be noted that if the building were to be demolished and built new that a sprinkler system would be required to be installed throughout the building.

5.6 Emergency Systems

5.6.1 Fire Alarm and Detection Systems

The building is provided with an existing, previously approved fire alarm system which is permitted to remain (MEBC 804.4.1 Exception 1). The existing system consists of manual pull stations, notification appliances, and varied smoke and heat detection throughout. The fire alarm control unit (FACU) and master box is within the Basement room labeled "Storage 2". The capabilities of the existing fire alarm system in respect to supporting additional notification appliances or ADA compliant strobes is unknown. The following observations were noted during the building survey:

- Strobes were noted to not be in any of the employee-only areas. While a private office would not require the notification appliance, workrooms and lounges serving more than one employee should be equipped with notification appliances in accordance with NFPA 72.
- The pull station by the front entrance is currently blocked by the self-checkout station. Pull stations are required to be unobstructed (NFPA 72 17.14.8.2).



- The storage room within the all-purpose room appeared to be missing a smoke detector.
- The design intent of the smoke detection on the First Floor should be confirmed. The First Floor is fully protected either by smoke detector or heat detector.

5.6.2 Fire Extinguishers

Fire extinguishers were observed to be provided within the building and are required to be provided throughout the building (780 CMR 906.1).

The servicing of the extinguishers was due the month of the survey.

5.6.3 Standby/Emergency Power Systems

The existing building is not provided with a generator. All emergency devices rely on battery backup.

5.7 Means of Egress

5.7.1 Occupant Load

The number of occupants is computed at the rate of one occupant per unit of area as prescribed in Table 7 (780 CMR 1004.1.1). The occupant load is permitted to be increased from the occupant load established for the given use where all other requirements of 780 CMR are met and the occupant load factor does not exceed one occupant per 7 square feet (780 CMR 1004.2).

Occupant Load Factors	
Function of Space	**Occupant Load Factor (sf/occupant)**
Assembly – Unconcentrated (tables and chairs)	15 net
Library – Reading Rooms	50 net
Library – Stacks	100 gross
Offices	100 gross
Residential Spaces	200 gross
Support Storage, Building Service Areas	300 gross

Table 7: Occupant Load Factors

5.7.2 Egress Width Factors

The required egress capacity for any means of egress component is based on the following capacity factors (780 CMR 1005.1):

Egress Width Factors	
Stairways (inches of width per person)	**All Other Components (inches of width per person)**
0.3	0.2

Table 8: Egress Width Factors

5.7.3 Number of Exits

The number of exits required from every story cannot be less than that specified in Table 9 (780 CMR Table 1006.3.1).

Minimum Number of Exits Required	
Occupant Load	**Number of Exits Required**
1 – 500	2
501 – 1,000	3
> 1,000	4

Table 9: Minimum Number of Exits Required

The occupant load of the existing First Floor is less than 500 and therefore two (2) exits from the building are required.

5.7.4 Exit Access

Two exits or exit access doorways are also required to be provided from any space where the occupant load or common path of travel distances in the following table are exceeded (780 CMR 1006.3.2(2) & 1006.2.1):

Spaces with One Exit or Exit Access Doorway				
	Without Sprinkler System		With Sprinkler System	
Occupancy	**Maximum Occupant Load**	**Maximum Common Path of Travel Distance**	**Maximum Occupant Load**	**Maximum Common Path of Travel Distance**
A	49	75 feet	49	75 feet
B	49	75 feet	49	100 feet
R-2	10	Not Permitted	10	125 feet
S	29	75 feet	29	125 feet

Table 10: Spaces with One Exit or Exit Access Doorway

Where two exits or exit access doorways are required from any portion of the exit access as outlined above, the exit doors or exit access doorways are required to be placed a distance apart equal to not less than 1/2 of the length of the maximum overall diagonal dimension of the building or area served [1/3 where sprinkler system provided] (780 CMR 1007.1.1 Exception 2).

The occupant load of the existing First Floor is less than 500 and therefore two (2) exits from the building are required and the based on the maximum travel distance, the Basement is permitted to be provided with a single means of egress via the rear stair.

5.7.5 Exit Discharge

The existing exit discharge configurations are permitted to be maintained. The rear stair and the other exit from the First Floor both discharge directly to grade.

5.7.6 Accessible Means of Egress

Accessible means of egress are not required in alterations to existing buildings; however, accessible means of egress must be provided from any addition in accordance with 780 CMR 1009 (780 CMR 1009.1).

5.7.7 Exit Arrangement

Means of egress are required to be arranged in accordance with the maximum values specified in Table 11**Error! Reference source not found.** and Table 12 (780 CMR 1006.2.1, 1017.2, 1020.4).

Means of Egress Exit Arrangement (Non-Sprinklered)			
Occupancy	**Maximum Exit Access Travel Distance**	**Maximum Common Path of Egress Travel**	**Maximum Dead-End Corridor Length**
A	200 feet	75 feet	20 feet
B	300 feet	75 feet	20 feet
R-2	200 feet	Not Permitted	20 feet
S	300 feet	75 feet	20 feet

Table 11: Exit Access Travel Distances

Means of Egress Exit Arrangement (Non-Sprinklered)			
Occupancy	**Maximum Exit Access Travel Distance**	**Maximum Common Path of Egress Travel**	**Maximum Dead-End Corridor Length**
A	250 feet	75 feet	20 feet
B	300 feet	100 feet	50 feet
R-2	250 feet	125 feet	50 feet
S	400 feet	100 feet	50 feet

Table 12: Exit Access Travel Distances

5.7.8 Exit Signage

The existing building is provided throughout with exit signage (780 CMR 102.6.4; MEBC 905.3). The exit signage is provided with emergency power via battery backup.

The work area including any addition is required to be provided throughout with exit signs complying with 780 CMR 1013 for new construction.

The path of egress travel to exits and within exits must be marked by readily visible exit signs to clearly indicate the direction of egress travel where the exit or path of travel is not immediately visible. Exit signs within corridors and exit passageways are required to be placed such that no point is more than 100 feet or the listed viewing distance for the sign, whichever is less, from the nearest visible exit sign. Exit signs are not required in the following locations:

- In rooms or areas that require only one exit or exit access.

- Main exterior exit doors that are obviously and clearly identifiable as exits where approved by the building official.

5.7.9 Egress Illumination

The existing building is provided with emergency lighting served by battery backup (780 CMR 102.6.4; MEBC 705.7.1). New emergency lighting is required throughout the work area including any addition.

The illumination level must not be less than 1 foot-candle at the walking surface (780 CMR 1006.2).

In the event of power supply failure in rooms or spaces that require two or more means of egress, an emergency electrical system automatically illuminates all of the following areas (780 CMR 1006.3):

- Aisles and unenclosed egress stairways
- Corridors, exit enclosures, and exit passageways
- Egress components other than their levels of exit discharge until discharged is accomplished
- Exterior landings

5.8 Energy Conservation

Alterations to existing buildings are permitted without requiring the entire building or structure to comply with the energy requirements of the IECC. Any alterations to the building are required to comply with the requirements of the IECC as they relate to new construction only (MEBC 908).

5.9 Plumbing Fixture Analysis

248 CMR 10.00, *Uniform State Plumbing Code*, regulates the minimum number of plumbing fixtures. The requirements set forth in 248 CMR 10.10(18) *Table 1: Minimum Facilities for Building Occupancy*.

The existing plumbing fixture count needs to be evaluated when one of the following exists:

- Increase to the program occupant load (more than 20%)
- Change of occupancy (per 248 CMR 10.10)
- Decrease to the quantity or accessibility of the existing plumbing fixtures
- Project includes work to the existing toilet facilities.

Should any of these be occurring, an evaluation will be necessary by the design team to ensure compliance is maintained.

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5.10 Accessibility

The requirements of 521 CMR are limited to buildings or portions thereof that are open to the public. Employee-only spaces are exempt from these requirements.

521 CMR Section 3.3 contains the following scoping requirements for projects in existing buildings. The costs referred to in the scoping requirements below are cumulative for all projects to the building within a rolling 36-month period:

- If the work is less than $100,000, then only the work being performed is required to comply with 521 CMR.

- If the work costs more than $100,000 but is less than 30%of the full and fair cash value of the building then in addition to the working being performed, the following accessible features are also required to be provided in the building:
  a. Accessible entrance
  b. Accessible toilet room
  c. Accessible drinking fountain
  d. Accessible public telephone (if provided)

- If the work costs more than 30% of the full and fair cash value of the building, then all public portions of the building are subject to the requirements of 521 CMR.

For this analysis, the entire building is assumed to be public. The City of Boston Assessment Office assessed the building at $1,352,200.00 for 2019. The equalized assessment ratio for Boston for commercial spaces is 0.91. As such, the equalized full and fair cash value of this portion of the building is $1,485,934. Therefore, the 30% threshold for the building is **$445,780.22**.

The total cost of all projects in a 36-month period should be evaluated for the 30% cost threshold. If this 30% value is exceeded, the tenant space, including any existing components to remain, are required to comply with the new construction requirements of 521 CMR, including common areas, but not other tenants.

All new work will comply with 521 CMR including the following:

- Accessible entrance;
- Accessible toilet room;
- Accessible drinking fountain;
- Public telephones, if provided.

It is assumed that the proposed renovation project will exceed the 30% threshold for compliance with 521 CMR.

Additionally, although not enforced by any authority having jurisdiction on the project, the requirements of ADA are also applicable and enforced through civil litigation only.

The Americans with Disabilities Act Accessibility Guidelines (ADAAG) requires that altered portions of an existing building must be readily accessible to and usable by individuals with disabilities to the maximum extent feasible (ADAAG 36.402(a)(1)). Further, alterations to primary function areas should be made such that the level of accessibility, including the path of travel to the space, is made accessible to the maximum extent feasible. When determining if the upgrade is feasible, the ADAAG requirements state that the upgrade to the path of travel is disproportionate to the project when the cost to perform the work exceeds 20% of the cost of the alteration to the primary function area.

In choosing which accessible elements to provide if the cost is disproportionate, priority should be given to those elements that will provide the greatest access, in the following order:

1. An accessible entrance
2. An accessible route to the altered area
3. At least one accessible restroom for each sex or a single unisex restroom
4. Accessible drinking fountains
5. Accessible telephones

When possible, additional accessible elements such as parking, storage, and alarms should be addressed if within the disproportionality criteria.

The following is a list of 521 CMR accessibility deficiencies noted during the survey:

General

- Permanent spaces do not have signage, or such signage is mounted higher than 60″ to the centerline of the sign. Signs designating permanent rooms are required to be provided (521 CMR 41.1) and is required to comply with 521 CMR 41.2, 41.5, and 41.6 (521 CMR 41.1.1).
- Much of the building is provided with doorknobs that require twisting to operate. Door hardware is not permitted to require grasping, pinching, or twisting of the wrist to operate (521 CMR 26.11.1).

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Accessible Restroom

- The single user toilet room measured 71″ x 86″. The water closet is required to be a minimum of 72″ x 90″ (521 CMR 30.7.1).
- The toilet is located 19.5″ from the interior wall. The toilet is required to be 18″ from the interior wall (521 CMR 30.7.1).
- The rear grab bar is 7″ from the interior corner and the side grab bar is 12.5″ from the interior corner. The rear grab bar is required to be a maximum of 6″ from the interior corner and the side grab bar is required to be a maximum of 12″ from the interior corner (521 CMR 30.8.1).
- The sink measured a depth of 6 ¾″. The sink depth is not permitted to exceed 6 ½″ (521 CMR 30.9.4).
- The knee space under the sink measures 23.5″ off the floor. The knee space is required to be at least 27″ (521 CMR 30.9.3).

- The changing table creates a pull side door maneuvering clearance obstruction. There are 7.5″ of pull side clearance adjacent to the latch side of the door. The door requires a minimum of 18″ adjacent to the latch side of the door for a front approach (521 CMR 26.6.3).
- The accessible restroom signage is on the restroom door. The signage is required to be mounted on the latch side of the door (521 CMR 41.2).

- The strobe within the restroom was mounted at 78" above the floor, measured to the lens of the device. Strobes are required to be mounted between 80" – 96" above the floor, measured to the lens of the device (NFPA 72 18.5.4.1).
- Note: This is the only accessible restroom provided; the two single stalls and the staff restroom are not accessible.

Staff Restroom

- The staff restroom was not accessible and is required to comply with ADA 603.

Stairs

- The stair nosings are abrupt. The stairs are not permitted to have abrupt nosings (521 CMR 27.3).
- The inner handrail is mounted 32" above the stair nosing and the outer handrail is mounted 33" above the stair nosing. The handrails are required to be mounted between 34" and 38" above the stair nosing (521 CMR 27.4.2).
- The handrails did not contain extensions. The handrails are required to provide extensions at the top and bottom. The top extensions is required to be 12" beyond the top riser and the bottom is required to be 12" plus the width of one tread depth past the bottom riser (521 CMR 27.4.3).

- The inner handrail is not graspable and continuous. The handrails are required to be either round or oval in cross-section and be continuous such that a hand can move from end to end without interruption (521 CMR 27.4.5 & 27.4.6).

Staff Lounge

- The staff lounge contains a kitchenette which is fully inaccessible per ADA. It is recommended that it be confirmed that this space is never open to the public, even during events. If it is ever accessible to the public, the kitchenette is required to be compliant with 521 CMR 32.00 Kitchens.

Workroom

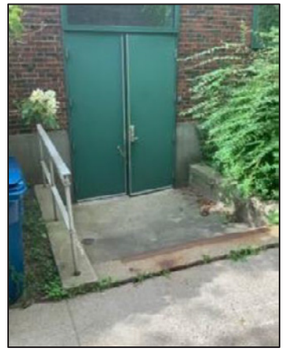
- The workroom contains a counter with a sink which has no knee clearance which is not compliant with ADA. It is recommended that if be confirmed that this space is never open to the public during events or any other reason. If the space is ever open to the public, the counter is required to comply with 521 CMR 35.00.

Parking

- No accessible parking spaces are provided. Accessible parking is required in accordance with 521 CMR 23.00.

Rear Exit

- There are two steps outside of the stair which exits to the exterior. There are no handrails provided at the steps. Handrails are required on both sides of all stairs (521 CMR 27.4.1).



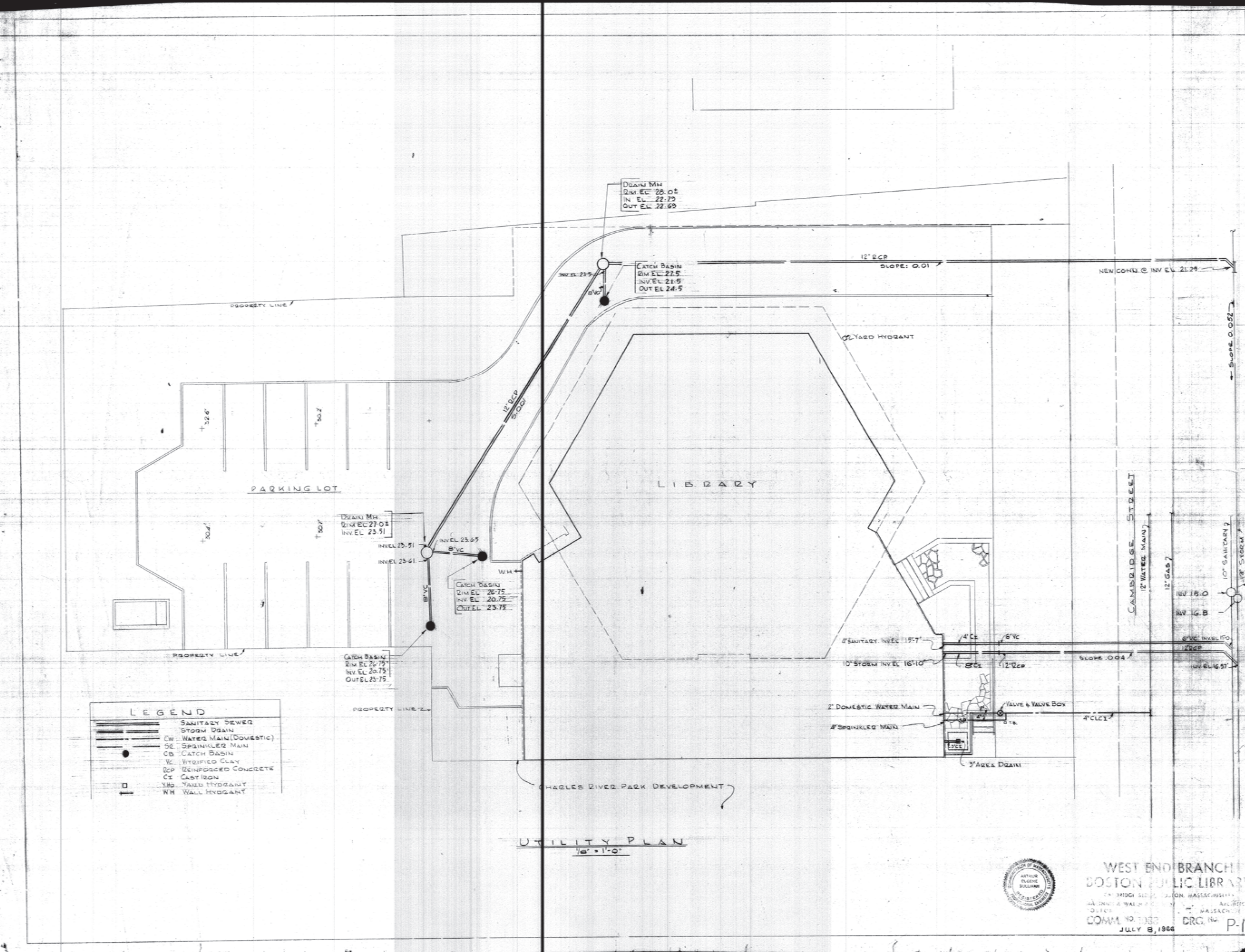
- There is a sloped walkway from the building's exit to the parking lot. The maximum slope of the walkway measured 7.5%. Slopes greater than 5% are designated as ramps and are required to be constructed in accordance with 521 CMR 24.00, including the installation of handrails.
- At the top of the ramp adjacent to the parking lot, there is a 6.5" step. The step is not provided with handrails. Handrails are required on both sides of all stairs or the slope can be adjusted such that the step is not required (521 CMR 27.4.1).

Front Entrance

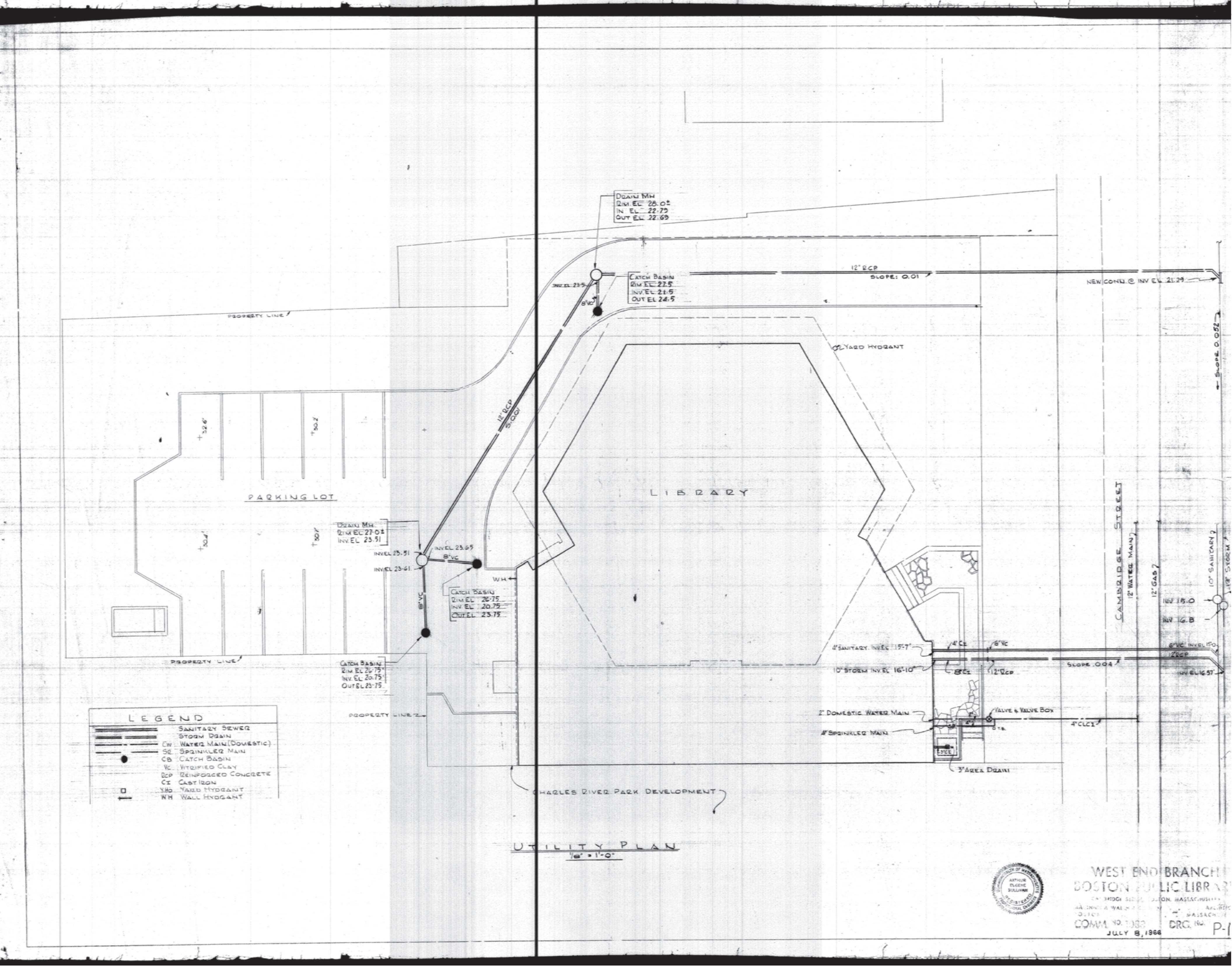
- The ramp measures a maximum slope of 9.9%. The maximum slope permitted for a ramp is 8.3% (521 CMR 24.2.1).
- The ramp is not provided with an adequate landing due to the turn of the curb. The landing's length varies from 21" to 41". The ramps landing is required to be a minimum of 60" (521 CMR 24.4.3).

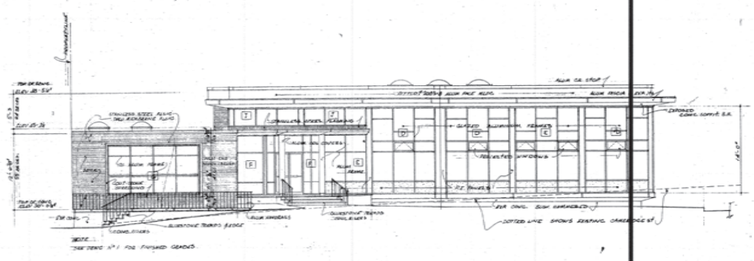
- The sloped walkway beyond the ramp has a maximum slope of 6.1%. Slopes greater than 5% are designated as ramps and are required to be constructed in accordance with 521 CMR 24.00, including the installation of handrails. It may be worth considering reconfiguring this ramp and walkway to be one ramp, provided it does not exceed 30 feet, with adequate landings at the top and bottom.

APPENDIX G:
Existing Building Drawings

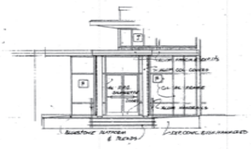


WEST END BRANCH
BOSTON PUBLIC LIBRARY
COMM. NO. 1033
DRG. NO. P-1
JULY 8, 1966
UTILITY PLAN
1/8" = 1'-0"
LEGEND
SANITARY SEWER
STORM DRAIN
CW WATER MAIN (DOMESTIC)
SE SPRINKLER MAIN
CB CATCH BASIN
VC VITRIFIED CLAY
RCP REINFORCED CONCRETE
CI CAST IRON
YHD YARD HYDRANT
WH WALL HYDRANT
LIBRARY
PARKING LOT
CAMBRIDGE STREET
CHARLES RIVER PARK DEVELOPMENT
PROPERTY LINE
12" RCP
SLOPE: 0.01
NEW CONN. @ INV EL 21.29
YARD HYDRANT
DRAIN MH
RIM EL 28.0±
IN EL 22.75
OUT EL 22.69
CATCH BASIN
RIM EL 22.5
INV EL 21.5
OUT EL 24.5
DRAIN MH
RIM EL 27.0±
INV EL 23.51
INV EL 23.65
CATCH BASIN
RIM EL 26.75
INV EL 20.75
OUT EL 23.75
8" VC
W.H.
SANITARY INV EL 15.7
10" STORM INV EL 16.10
DOMESTIC WATER MAIN
SPRINKLER MAIN
VALVE & VALVE BOX
AREA DRAIN
12" WATER MAIN
12" GAS
10" SANITARY
SLOPE 0.04
SLOPE 0.052
INV 15.0
INV 16.8
4" CLCI

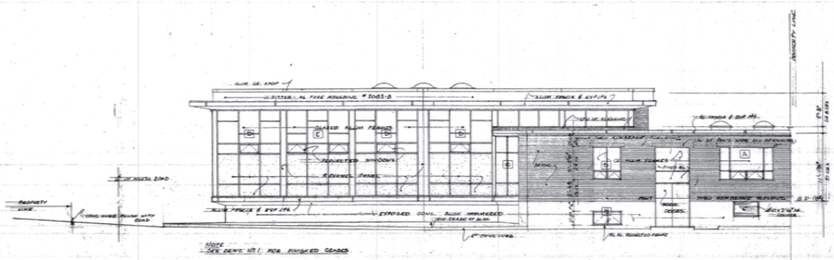




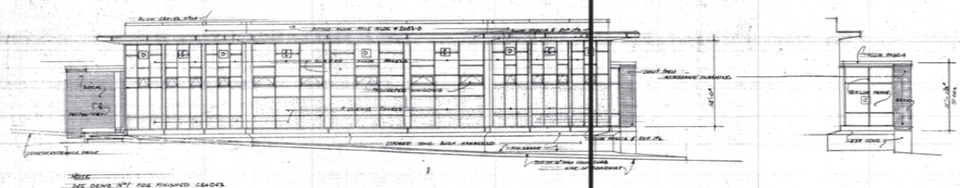
ELEVATION FROM CAMBRIDGE ST.
(SCALE 1/8" TO 1'-0")



MAIN ENTRANCE (DIRECT ELEVATION)
(SCALE 1/8" TO 1'-0")



ELEVATION FROM THE NORTH
(SCALE 1/8" TO 1'-0")



ELEVATION FROM THE EAST
(SCALE 1/8" TO 1'-0")

SMOKING ROOM (DIRECT)
(SCALE 1/8" TO 1'-0")

ELEVATIONS
SCALE 1/8 INCH

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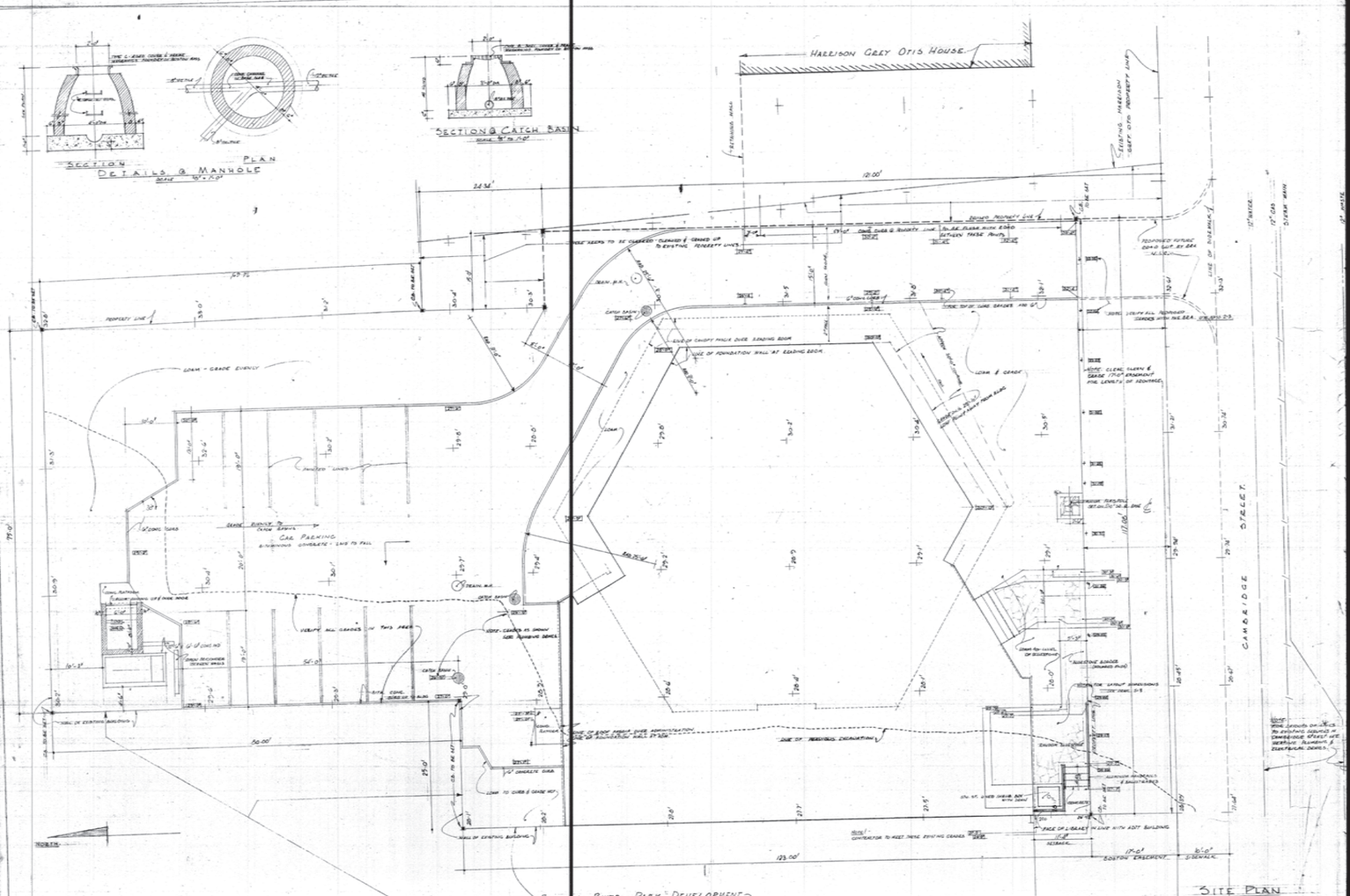
SECTION DETAILS & MANHOLE
SCALE 1/2" = 1'-0"

SECTION @ CATCH BASIN
SCALE 1/2" TO 1'-0"



NOTE: UNIT OF CONTENT TO FOLLOW PROPERTY LINES, EXCEPT AS NOTED. OFFICIAL SEA GRANTS WILL BE REQUIRED TO SUCCESSFUL BIDDERS.

LEGEND
EXISTING GRADES SHOWN +20.5
PROPOSED GRADES SHOWN 20.5
CITY OF BOSTON BASE

SITE PLAN
SCALE 1/16 INCH

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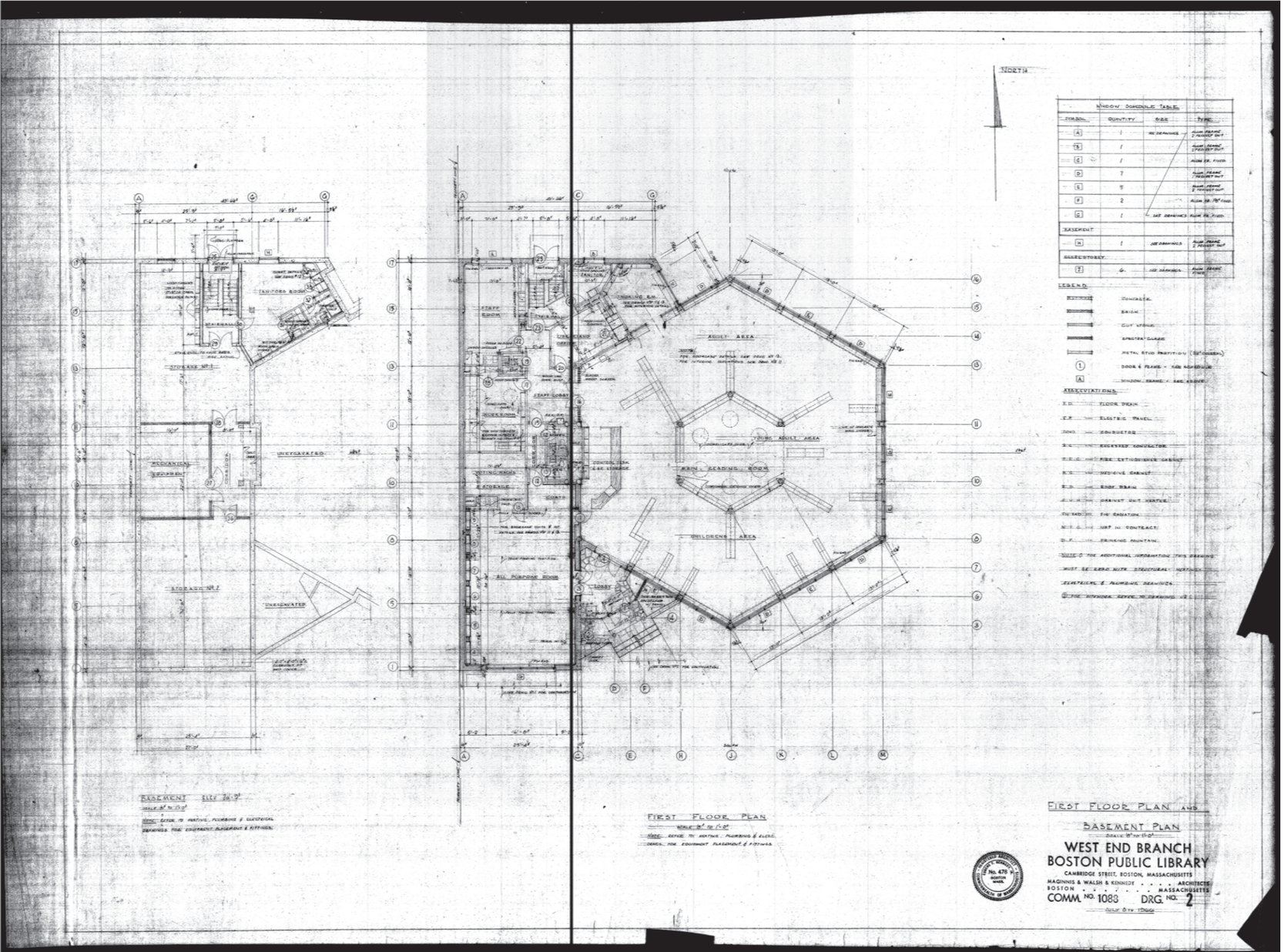

FIRST FLOOR PLAN AND BASEMENT PLAN

SCALE 1/8" = 1'-0"

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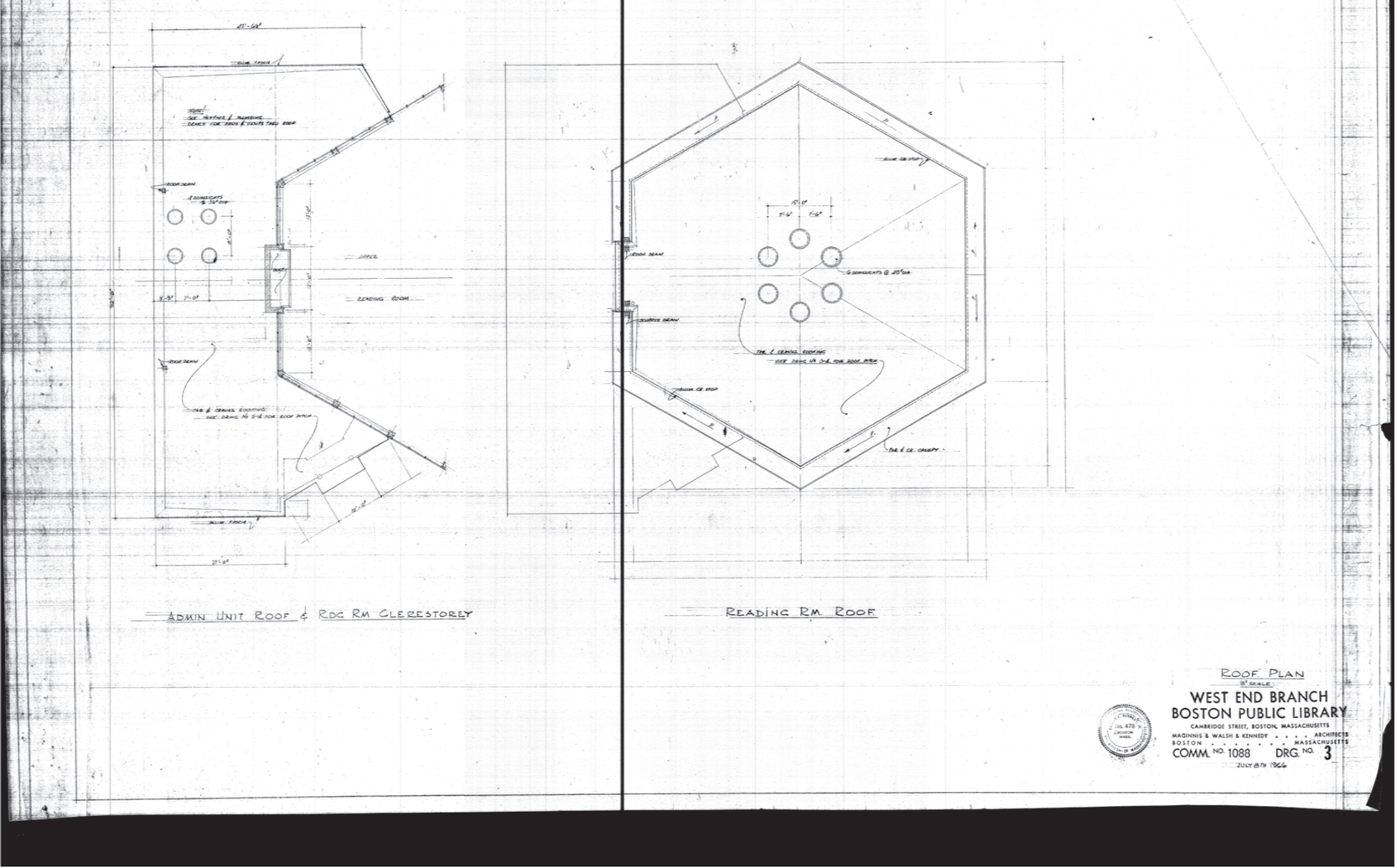

ROOF PLAN

1/8" SCALE

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ELEVATIONS

Scale 1/8"

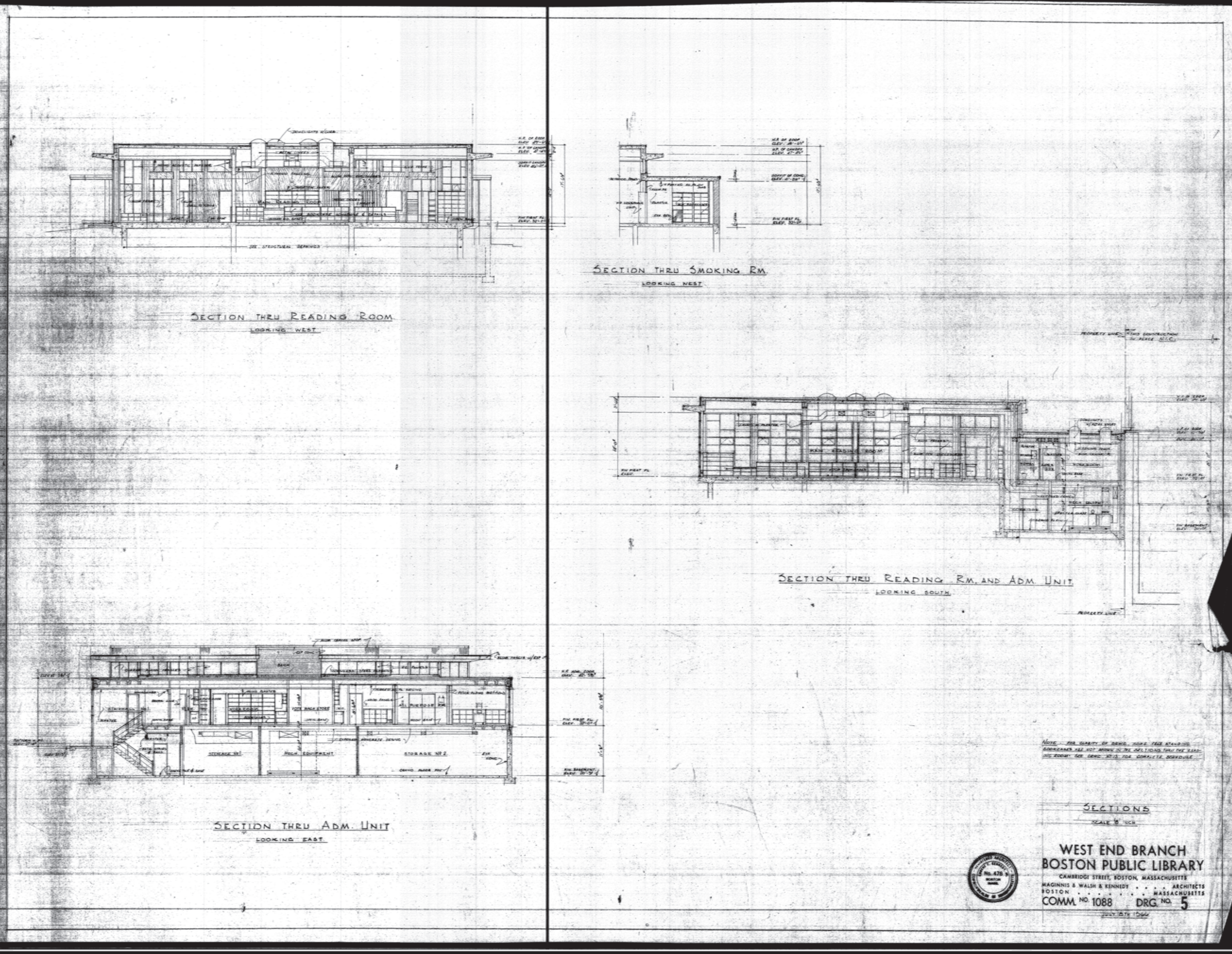
MAIN ENTRANCE (DIRECT ELEVATION)
(SCALE 1/8" TO 1'-0")

ELEVATION FROM THE NORTH
(SCALE 1/8" TO 1'-0")

SMOKING ROOM (DIRECT)
(SCALE 1/8" TO 1'-0")

ELEVATION FROM CAMBRIDGE ST.
(SCALE 1/8" TO 1'-0")

ELEVATION FROM THE EAST
(SCALE 1/8" TO 1'-0")


SECTION THRU READING ROOM
LOOKING WEST
SECTION THRU SMOKING RM
LOOKING WEST
SECTION THRU READING RM. AND ADM. UNIT
LOOKING SOUTH
SECTION THRU ADM. UNIT
LOOKING EAST
SECTIONS
WEST END BRANCH
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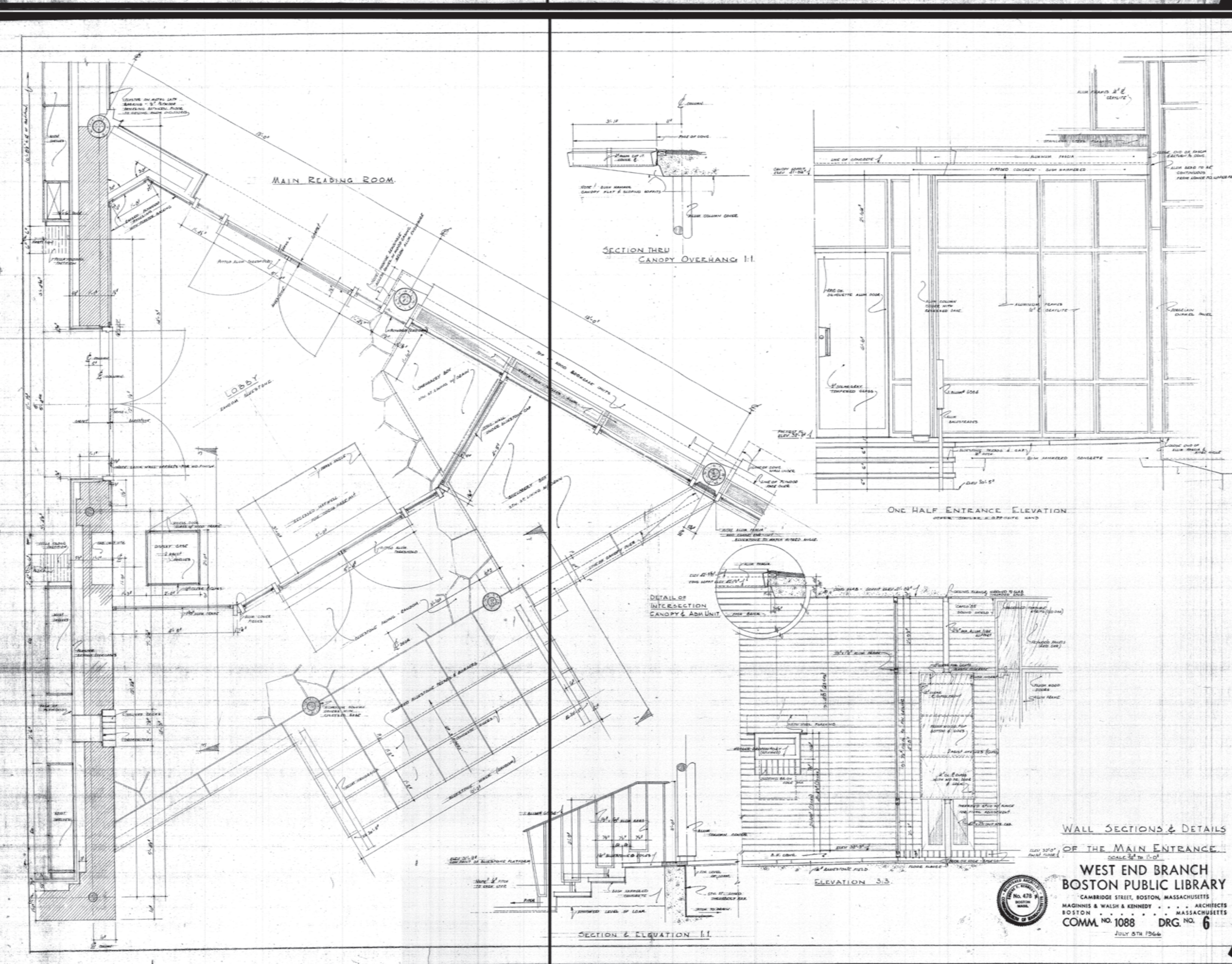
COMM. NO. 1088 DRG. NO. 5


MAIN READING ROOM
LOBBY
SECTION THRU
CANOPY OVERHANG 1:1
ONE HALF ENTRANCE ELEVATION
DETAIL OF
INTERSECTION
CANOPY & ADM UNIT
ELEVATION 3.3
SECTION & ELEVATION 1.1
WALL SECTIONS & DETAILS
OF THE MAIN ENTRANCE
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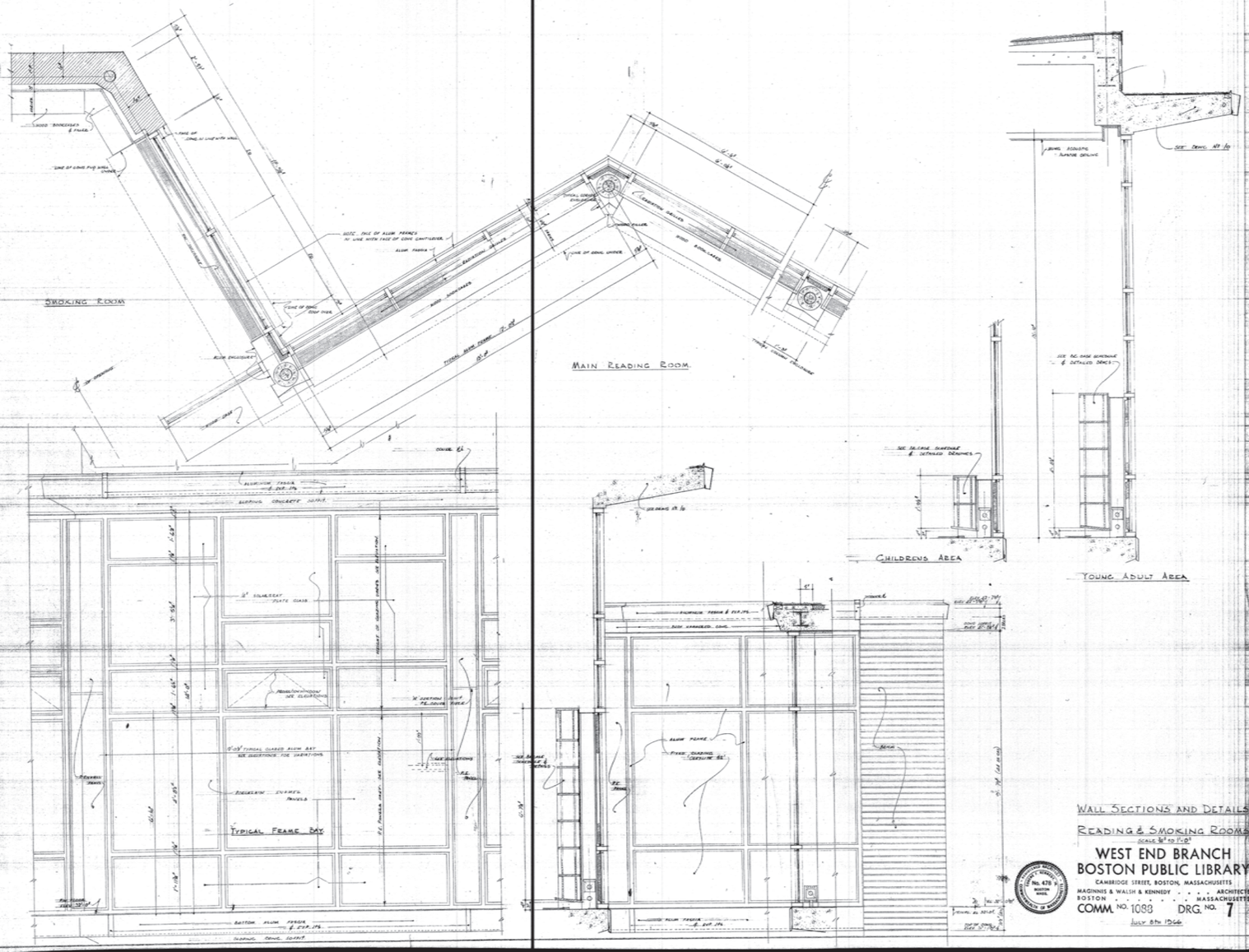
BOSTON . . . . MASSACHUSETTS
COMM. NO. 1088 DRG. NO. 6
JULY 5TH 1966



WALL SECTIONS AND DETAILS
READING & SMOKING ROOMS
SCALE 3/4" = 1'-0"

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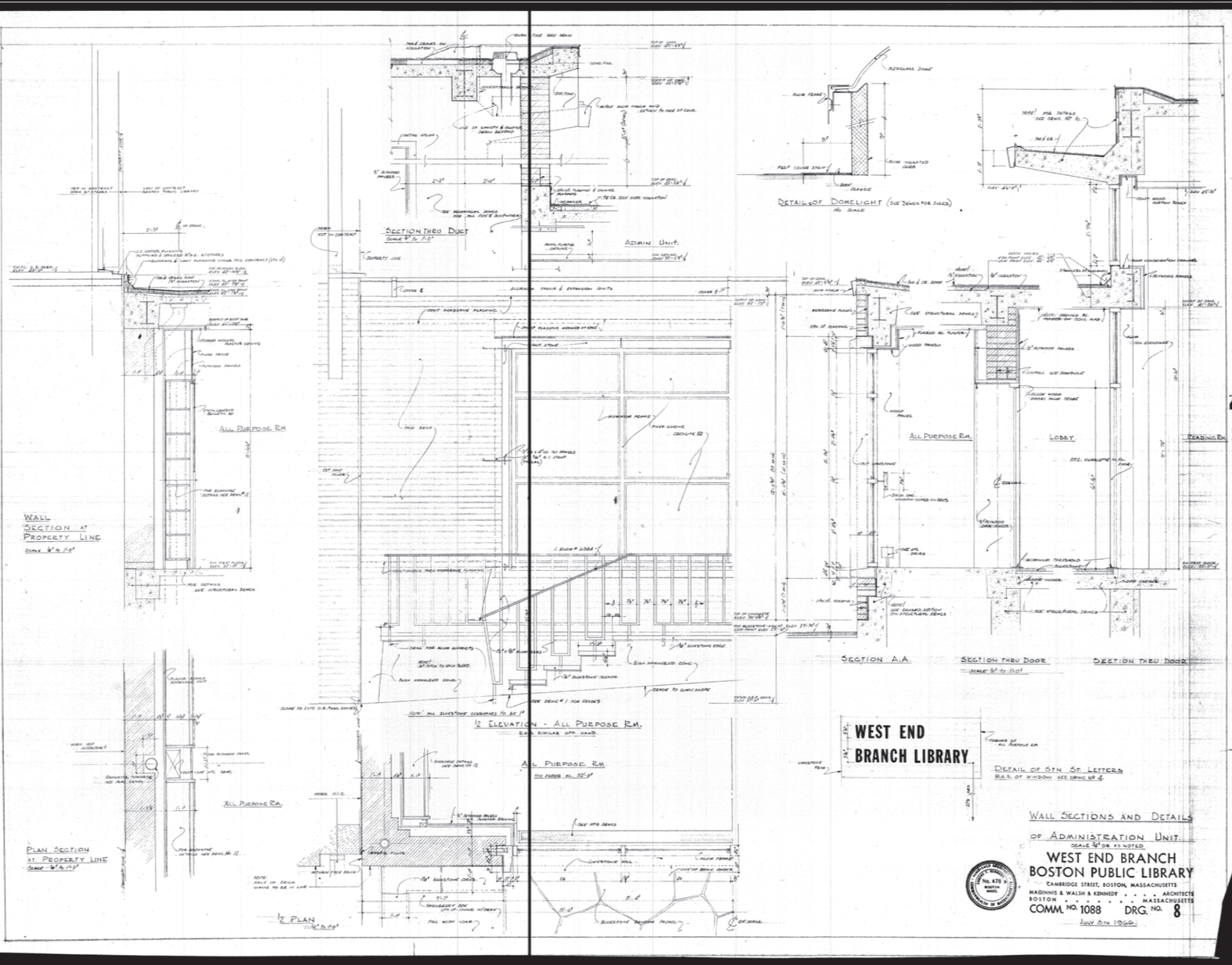
COMM. NO. 1088 DRG. NO. 7
JULY 8TH 1946



WALL SECTIONS AND DETAILS
OF ADMINISTRATION UNIT
SCALE 3/4" OR AS NOTED

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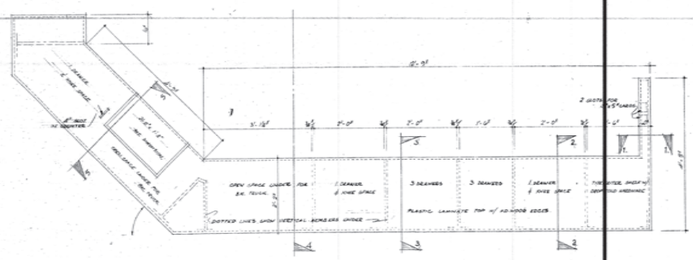
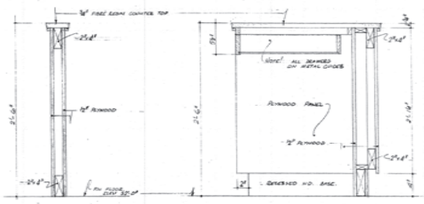
JULY 8TH 1946



PLAN

SCALE 1/8" TO 1'-0"

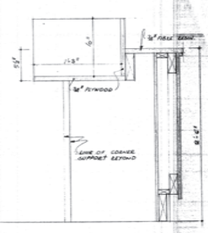


SECTION 1:1

SCALE 1/2" TO 1'-0"

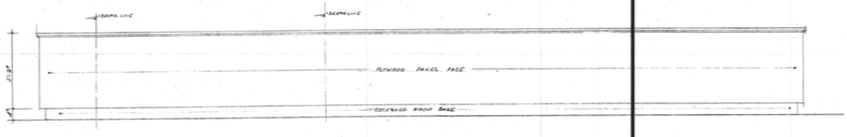
SECTION 2:2

SCALE 1/2" TO 1'-0"



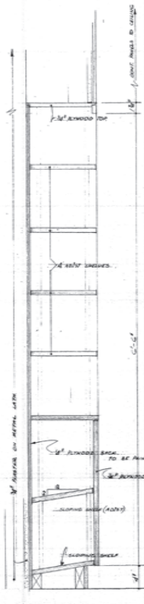
SECTION 5:5

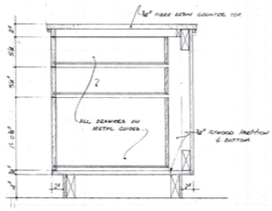
SCALE 1/2" TO 1'-0"



FRONT ELEVATION (EXTENDED)

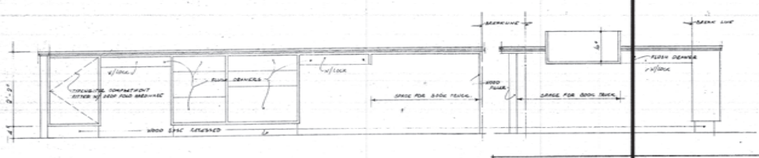
SCALE 1/2" TO 1'-0"





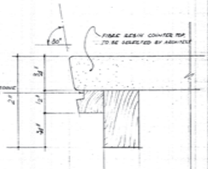
SECTION 3:3

SCALE 1/2" TO 1'-0"

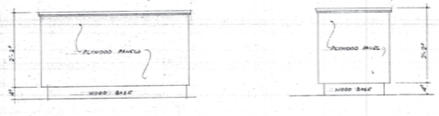


REAR ELEVATION (EXTENDED)

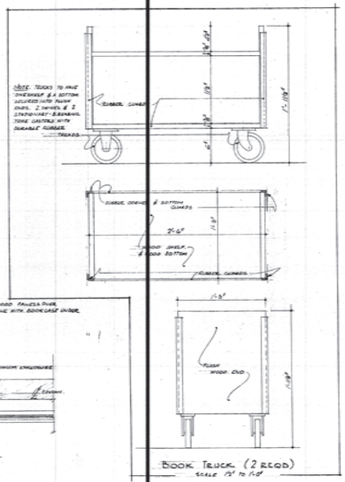
SCALE 1/2" TO 1'-0"



FULL SIZE DETAIL OF EDGE MOULD

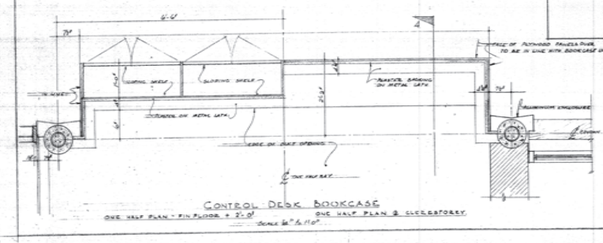


END ELEVATIONS SCALE 1/2" TO 1'-0"



BOOK TRUCK (2 REQD)

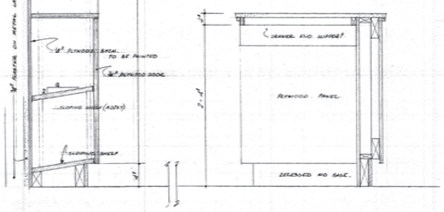
SCALE 1/2" TO 1'-0"



CONTROL DESK BOOKCASE

ONE HALF PLAN - 9TH FLOOR + 2'-0"

SCALE 1/2" TO 1'-0"



SECTION 4:4

SCALE 1/2" TO 1'-0"

CONTROL DESK DETAILS AND BOOKCASE DETAILS

SCALE AS NOTED

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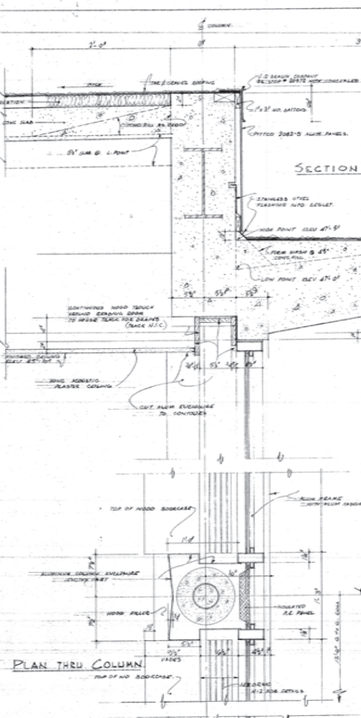
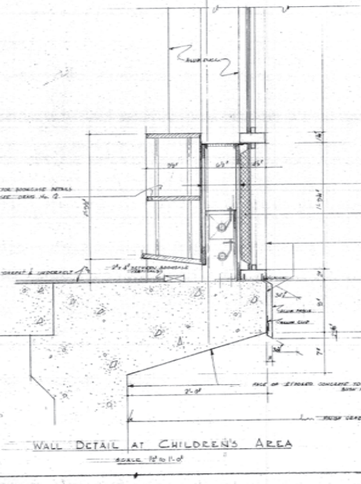
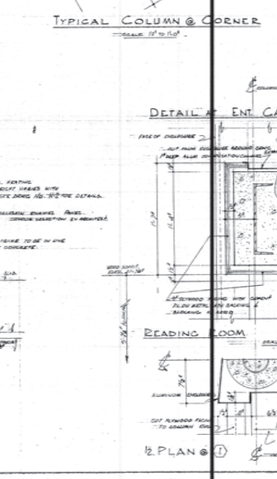


SECTION THRU CANOPY

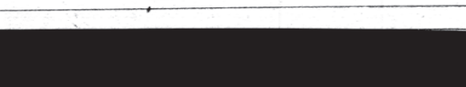


PLAN THRU COLUMN



TYPICAL COLUMN @ CORNER

SCALE 1" TO 1'-0"



WALL DETAIL AT CHILDREN'S AREA

SCALE 1" TO 1'-0"

DETAIL AT ENT. CANOPY BEAM

READING ROOM LOBBY

SCALE 1" TO 1'-0"

½ PLAN @ (1)

NOTE: DOOR HEIGHTS ARE GIVEN AS A NOMINAL DIMENSION - THESE DIMENSIONS WILL VARY SLIGHTLY ALLOWING TO THOSE FINISHES - ALLOWANCE MUST BE MADE FOR SUFFICIENT CLEARANCE.
FINAL THICKNESS OF DOORS SEE MACHINES IRONWORK SECTION NO.
FOR PLACEMENT SEE DRAWING No. 2.

DOOR SCHEDULE.

NO	TYPE	SIZE		FINISH	FRAME	REMARKS
1	A	3'-0"	6'-10"	ALUM.	ALUMINUM	CENTRE BRUSH ASTRAGAL
2	A	3'-6"	x "	ALUM.	ALUMINUM	CENTRE BRUSH ASTRAGAL
3	E	3'-6"	x "	NATURAL	E	
4	F	2'-6"	x "		WOOD	
5	F	2'-0"	x "			
6	F	2'-6"	x "			
7	F	2'-0"	x "			
8	F	2'-0"	x "		WOOD	
9	F	2'-0"	x "		WOOD	
10	B	3'-0"	x "		C	
11	G	2'-8"	x "		C	
12	C	3'-0"	x "	NATURAL	B	CORRIDOR SIDE PAINTED
13	C	3'-0"	x "	PAINTED	A	'MEN' (RAISED LETTERS)
14	C	3'-0"	x "	PAINTED	A	'WOMEN' (" ")
15	C	3'-0"	x "	PAINTED	A	
16	E	3'-6"	x "	NATURAL	F	
17	G	2'-0"	x "	PAINTED	A	'PRIVATE' (PLEXIGLASS LTS)
18	B	3'-0"	x "		A	
19	C	2'-0"	x "		A	'PRIVATE' (PLEXIGLASS LTS)
20	G	2'-0"	x "	PAINTED	A	'LIBRARIAN'S OFFICE' (PLEX LTS)
21	C	2'-8 1/2"	x "	NATURAL	WOOD	SEE ITEMS #2 - 'F'
22	C	2'-8"	x "	PAINTED	A	'PRIVATE' (PLEXIGLASS LTS)
23	C	3'-0"	x "		A	'B' LABEL
24	C	2'-8"	x "		A	'B' LABEL
25	B	3'-0"	x "		ALUMINUM	EXTERIOR GRADE
26	B	3'-0"	x "		D	
27	D	3'-0"	x "		D	'B' LABEL
28	B	3'-0"	x "		D	
29	D	3'-0"	x "		A	'B' LABEL
30	G	2'-0"	x "		A	'B' LABEL
31	G	2'-0"	x "		A	
32	G	2'-0"	x "		A	
33	B	2'-0"	x "		WOOD	SEE ITEMS #12 - 'F'
34	G	2'-0"	x "	PAINTED	WOOD	SEE ITEMS #12 - 'F'

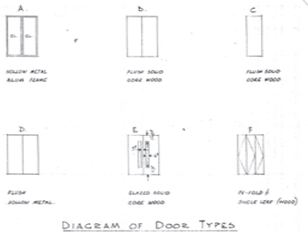
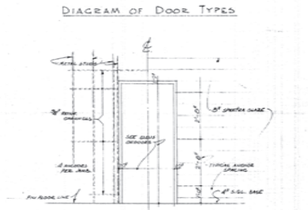
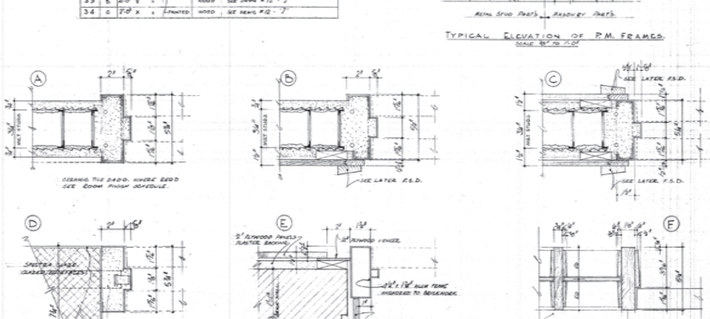


DIAGRAM OF DOOR TYPES



TYPICAL ELEVATION OF P.M. FRAMES

SCALE 1/2" TO 1'-0"



DETAILS OF DOORFRAMES

SCALE 3" TO 1'-0"

DOOR SCHEDULE AND WALL DETAILS - DOORFRAMES ETC

SCALE AS NOTED

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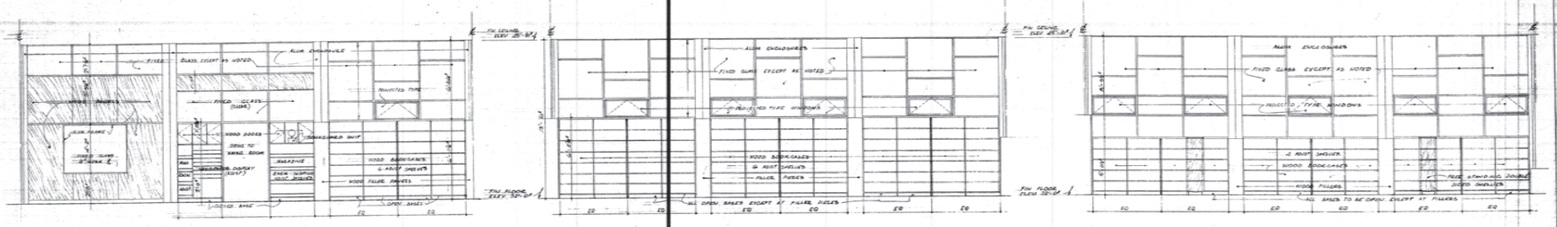
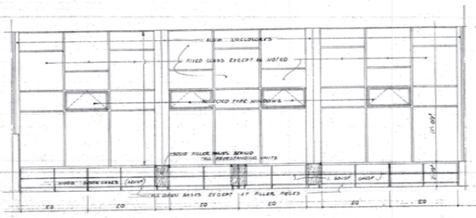


ELEVATION No. 1

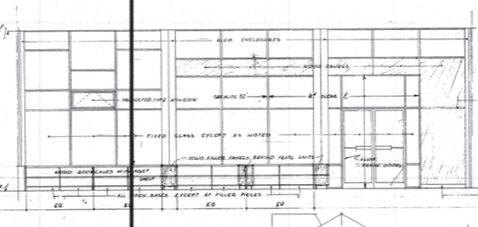
ELEVATION No. 2

NOTE: ALL PROJECTED SHELVING TO HAVE REMOVABLE KEY TYPE PARTITIONS

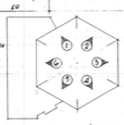
ELEVATION No. 3



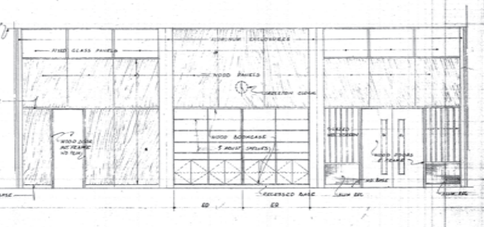
ELEVATION No. 4



ELEVATION No. 5

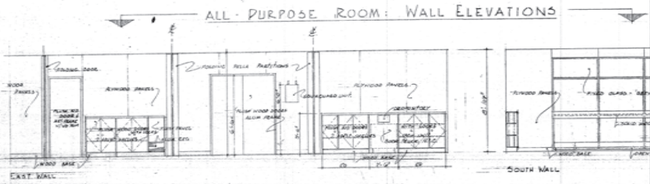


KEY DIAGRAM
READING ROOM ELEVATIONS

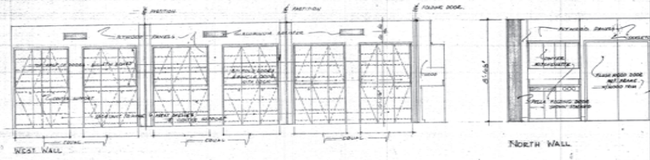


ELEVATION No. 6.

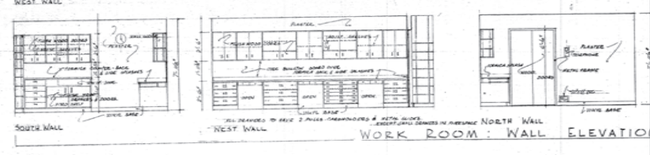
ALL-PURPOSE ROOM: WALL ELEVATIONS



EAST WALL — SOUTH WALL



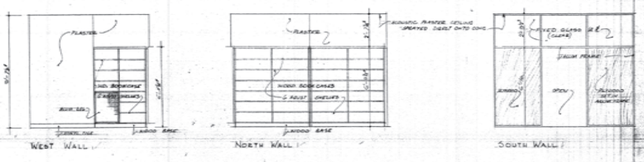
WEST WALL — NORTH WALL



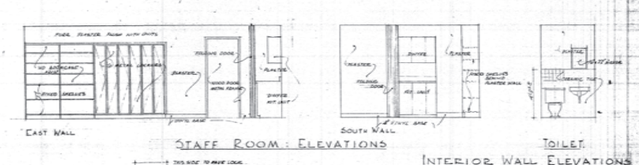
SOUTH WALL — WEST WALL — NORTH WALL

WORK ROOM: WALL ELEVATIONS

SMOKING ROOM ELEVATIONS



WEST WALL — NORTH WALL — SOUTH WALL



EAST WALL — SOUTH WALL — TOILET

STAFF ROOM: ELEVATIONS

EAST WALL — EAST WALL — LIBRARIAN.

INTERIOR WALL ELEVATIONS

READING RM AND ADM UNIT

SCALE: 1/4" TO 1'-0"

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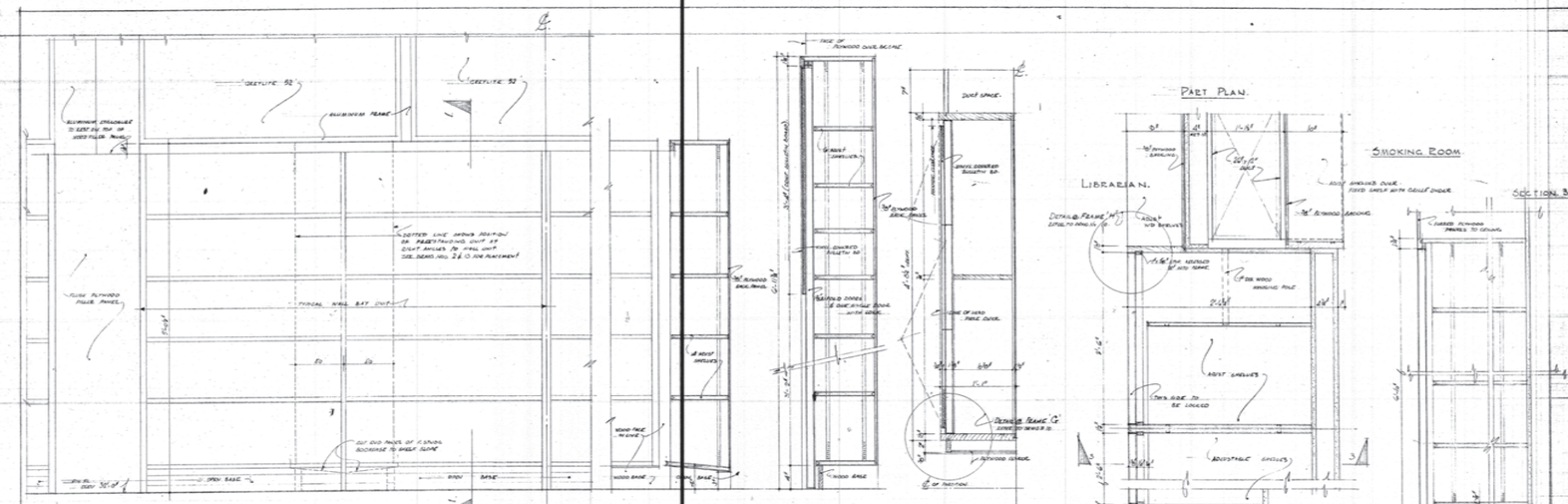


ELEVATION OF LH WALL UNIT. (R.H UNIT - OPP HAND)
SCALE 1/2" TO 1'-0"

SECTION 1:1

ALL PURPOSE RM BOOKCASE UNIT SECTION
SCALE 1/2" TO 1'-0"

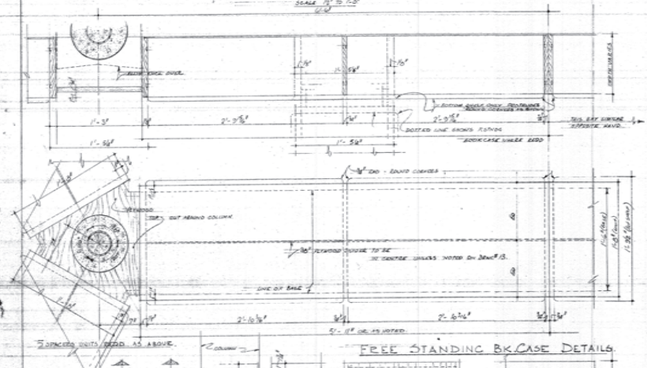
PART PLAN.

LIBRARIAN.

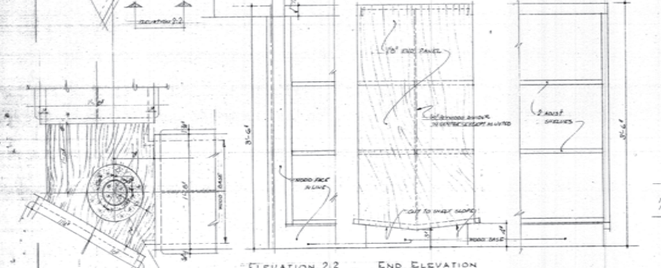
SMOKING ROOM.

SECTION 33

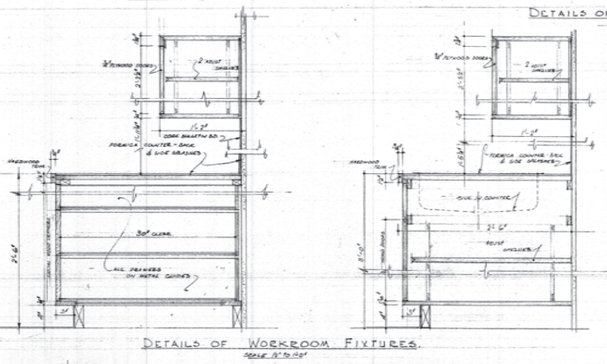
DETAILS OF LIBRARIANS CLOSET.
SCALE 1/2" TO 1'-0"



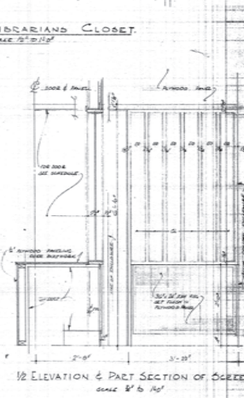
FREE STANDING BK CASE DETAILS



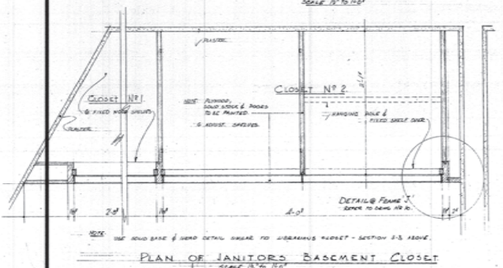
SPACER UNIT SIMILAR AS ABOVE. — ELEVATION 2:2 — END ELEVATION



DETAILS OF WORKROOM FIXTURES.
SCALE 1/2" TO 1'-0"



1/2 ELEVATION & PART SECTION OF SCREEN
SCALE 1/2" TO 1'-0"



PLAN OF JANITORS BASEMENT CLOSET
SCALE 1/2" TO 1'-0"

NOTE! EXCEPT AS NOTED FOR PAINTING. SOLID STOCK & GRILLES SHALL BE 'OAK' SEE SPECIFICATIONS.
ALL 'M' PLYWOOD SHELVING & DIVIDERS ON ALL BOOKCASES TO BE PAINTED

MISCELLANEOUS DETAILS
BOOKCASES AND CLOSETS ETC.
SCALE 1/2" TO 1'-0"

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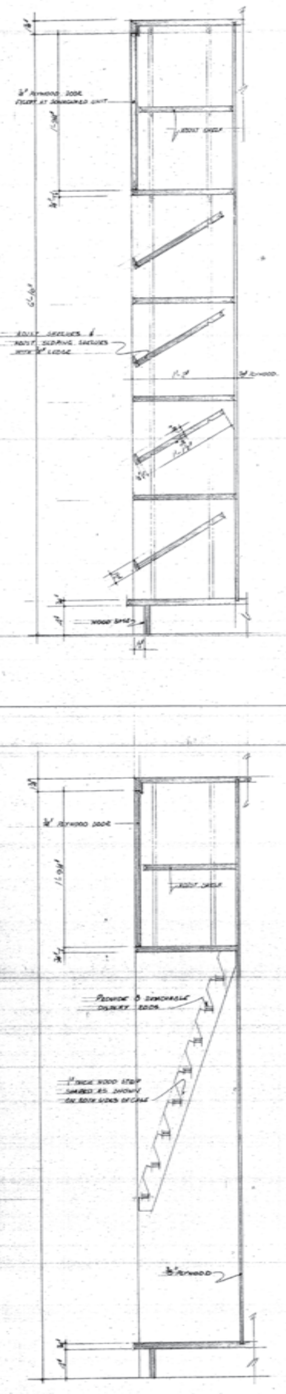

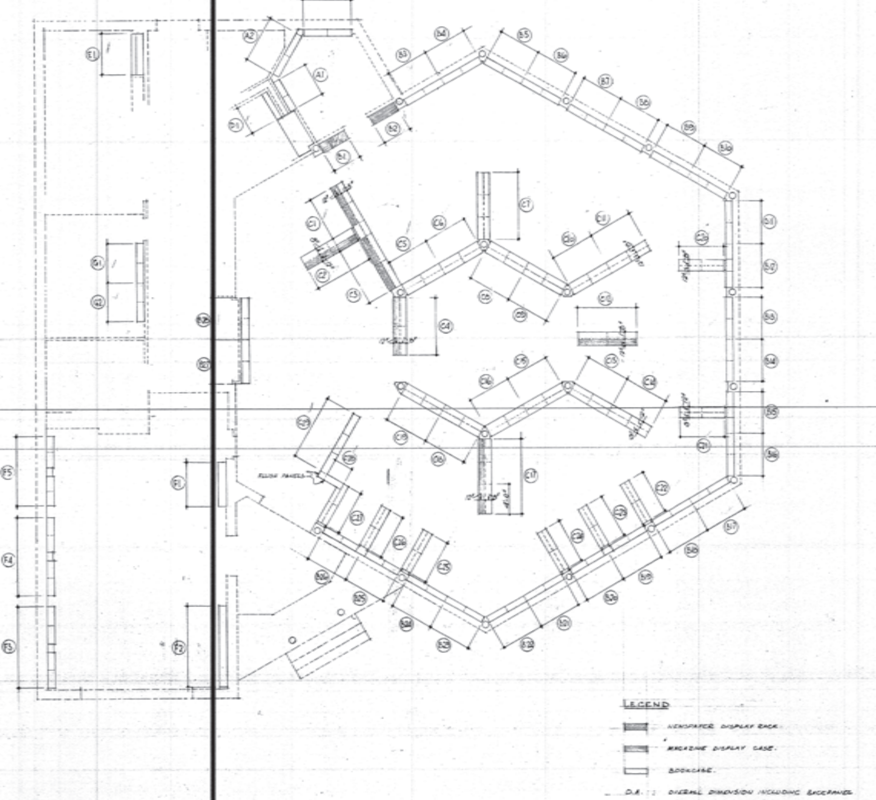

Number	Type	Single Double	Depth	Height	Length	Base	Remarks
A1	BK	S	10" OA	6'-11⅞"	4'-9" ±	CL	Exhaust register
A2	BK	S	10" OA	6'-11⅞"	6'-4" ±	CL	
A3	BK	S	10" OA	6'-11⅞"	6'-4" ±	CL	
B1	MAG	S	1'-4½"	6'-11⅞"	3'-10½" ±	CL	1'-2" to backboard
B2	MAG	S	1'-4½"	6'-11⅞"	3'-10½" ±	CL	1'-2" " "
B3	BK	S	10" OA	6'-11⅞"	5'-10½"	OR	
B4	BK	S	10" OA	6'-11⅞"	5'-10½"	OR	
B5	BK	S	10" OA	6'-11⅞"	5'-10½"	OR	
B6	BK	S	10" OA	6'-11⅞"	5'-10½"	OR	
B7	BK	S	10" OA	6'-11⅞"	5'-10½"	OR	
B8	BK	S	10" OA	6'-11⅞"	5'-10½"	OR	
B9	BK	S	10" OA	6'-11⅞"	5'-10½"	OR	
B10	BK	S	10" OA	6'-11⅞"	5'-10½"	OR	
B11	BK	S	10" OA	5'-0½"	5'-10½"	OR	
B12	BK	S	10" OA	5'-0½"	5'-10½"	OR	Filler panel
B13	BK	S	10" OA	5'-0½"	5'-10½"	OR	
B14	BK	S	10" OA	5'-0½"	5'-10½"	OR	
B15	BK	S	10" OA	5'-0½"	5'-10½"	OR	Filler panel
B16	BK	S	10" OA	5'-0½"	5'-10½"	OR	
B17	BK	S	10" OA	2'-1½"	5'-10½"	OR	
B18	BK	S	10" OA	2'-1½"	5'-10½"	OR	
B19	BK	S	10" OA	2'-1½"	5'-10½"	OR	Filler panel (B19, B20)
B20	BK	S	10" OA	2'-1½"	5'-10½"	OR	
B21	BK	S	10" OA	2'-1½"	5'-10½"	OR	
B22	BK	S	10" OA	2'-1½"	5'-10½"	OR	
B23	BK	S	10" OA	2'-1½"	5'-10½"	OR	
B24	BK	S	10" OA	2'-1½"	5'-10½"	OR	
B25	BK	S	10" OA	2'-1½"	5'-10½"	OR	Filler panel (B25, B26)
B26	BK	S	10" OA	2'-1½"	5'-10½"	OR	
B27	BK	S	12" OA	6'-11⅞"	5'-10½"	CL	W/ cored doors
B28	BK	S	12" OA	6'-11⅞"	5'-10½"	CL	W/ cored doors
C1	MAG-BK	D	20" OA	3'-6"	6'-0"	CL	12" mag / 8" bk
C2	MAG-BK	D	20" OA	3'-6"	8'-0"	CL	12" mag / 8" bk
C3	MAG-BK	D	20" OA	3'-6"	8'-0"	CL	12" mag / 8" bk
C4	MAG-BK	D	20" OA	3'-6"	8'-0"	CL	12" mag / 8" bk
C5	BK	D	20" OA	3'-6"	5'-10½"	CL	
C6	BK	D	20" OA	3'-6"	5'-10½"	CL	
C7	BK	D	20" OA	3'-6"	9'-0"	CL	
C8	BK	D	20" OA	3'-6"	5'-10½"	CL	
C9	BK	D	20" OA	3'-6"	5'-10½"	CL	
C10	BK	D	20" OA	3'-6"	6'-0"	CL	12" & 8"
C11	BK	D	20" OA	3'-6"	6'-0"	CL	12" & 8"
C12	MAG-BK	D	20" OA	3'-6"	8'-0"	CL	12" mag / 8" bk
C13	BK	D	20" OA	3'-6"	6'-0"	CL	12" & 8"
C14	BK	D	20" OA	3'-6"	6'-0"	CL	12" & 8"
C15	BK	D	20" OA	3'-6"	5'-10½"	CL	
C16	BK	D	20" OA	3'-6"	5'-10½"	CL	
C17	MAG-BK	D	20" OA	3'-6"	10'-0"	CL	12" mag / 8" bk
C18	BK	D	20" OA	3'-6"	5'-10½"	CL	
C19	BK	D	20" OA	3'-6"	5'-10½"	CL	
C20	BK	D	20" OA	5'-0½"	6'-0"	CL	12" & 8"
C21	BK	D	20" OA	5'-0½"	6'-0"	CL	12" & 8"
C22	BK	D	20" OA	2'-1½"	6'-0"	CL	
C23	BK	D	20" OA	2'-1½"	6'-0"	CL	
C24	BK	D	20" OA	2'-1½"	6'-0"	CL	
C25	BK	D	20" OA	2'-1½"	6'-0"	CL	
C26	BK	D	20" OA	2'-1½"	6'-0"	CL	
C27	BK	D	20" OA	2'-1½"	6'-0"	CL	
C28	BK	S	10" OA	2'-1½"	2'-6"	CL	Oak veneer back panels (C28, C29)
C29	BK	S	12" OA	2'-1½"	5'-0"	CL	
D1	BK	S	9" OA	6'-11⅞"	4'-0" ±	CL	Exhaust register
E1	BK	S	10" OA	6'-11⅞"	6'-0" ±	CL	
F1	BK	S	1'-7" OA	3'-6"	7'-0" ±	CL	W/ grille
F2	BK	S	1'-7" OA	3'-6"	8'-0" ±	CL	Depository
F3	BK	S	1'-7" OA	6'-11⅞"	8'-0" ±	CL	Doors w/ bulletin bd
F4	BK	S	1'-7" OA	6'-11⅞"	11'-0" ±	CL	" " "
F5	BK	S	1'-7" OA	6'-11⅞"	10'-0" ±	CL	" " "
G1	BK	S	10" OA	6'-11⅞"	5'-6" ±	CL	
G2	BK	S	10" OA	6'-11⅞"	5'-6" ±	CL	

Note! All dimensions to be verified before fabrication.

Bookcase Schedule & Misc. Details of Units

Scale ½" & 1½"

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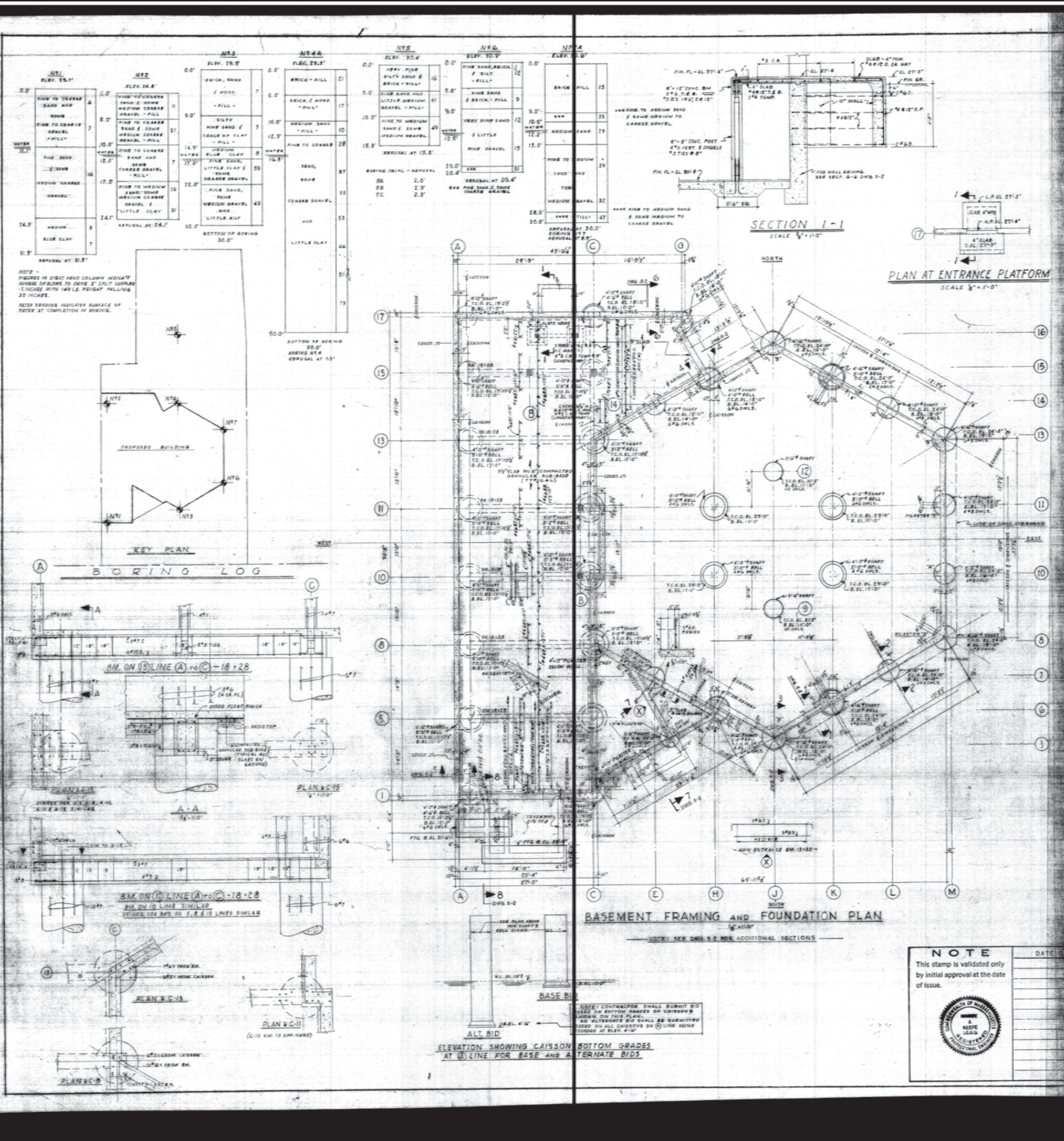
July 8th 1966



GENERAL NOTES

1. In addition to the codes specified under "Concrete" and "Structural Steel" notes, all structural work shall conform to the requirements of the latest edition of the City of Boston Building Code.
2. Conditions encountered in the field not covered by the drawings or specifications shall be brought to the attention of the Architect before proceeding with the work.
3. Structural drawings shall be used in conjunction with Architectural, Heating & Ventilating, Plumbing, Electrical and Mechanical drawings and Specifications, and these drawings shall be referred to for size and location of openings, vents, pipes, inserts, boxes, hangers etc.
4. Shop drawings for structural steel and concrete reinforcing shall be submitted for approval in accordance with the specifications.

CAISSON NOTES

1. All caissons shall be carried to firm undisturbed bearing soil having a capacity of at least 4 tons per sq.ft. It is anticipated that this soil will be encountered at the elevations shown on the drawings.
2. Concrete for caissons shall have an ultimate compressive strength of at least 2500 psi at 28 days.
3. Steel for caisson dowels shall conform to A.S.T.M. Spec. A-432 with deformations conforming to A.S.T.M. Spec. A-305.
4. Concrete for caissons shall not be placed until bottom of excavation has been inspected and approved by the Architect.
5. See Note under foundation plan with reference to Alternate bid for caissons on (A) line.

CONCRETE NOTES

1. Unless otherwise noted on the Structural Drawings all concrete work shall be in accordance with the provisions of the "ACI Standard Building Code Requirements for Reinforced Concrete" (ACI - 318-63). Detailing of Shop drawings shall be in accordance with the Manual of Standard Practice for Detailing Reinforced Concrete Structures, (ACI - 315-65).
2. Reinforcing steel shop drawing shall include complete information on accessories. Type, size, finish and precise locations of all accessories shall be clearly shown on all shop drawings.
3. Materials:
   Concrete - All reinforced concrete shall be subject to tests made in accordance with the specifications. Minimum concrete strenghts shall be as follows:
   f'c = 3000 psi at 28 days.
   Plain concrete shall not be tested but shall be proportioned to obtain a strength, f'c = 2500 psi at 28 days.

   Metal Reinforcement
   Reinforcing bars shall conform to "Specifications for Deformed Billet Steel Bars for Concrete Reinforcement with 60,000 psi Minimum Yield Strength" (ASTM A-432). Deformations shall conform to specifications (ASTM A-305).

   Reinforcement Accessories
   All slab reinforcing shall be supported by metal accessories as called for in the Specs. Div. 2.03-C.
4. Minimum concrete cover for reinforcing bars shall be as follows:
   Footing, slabs and beams deposited against the ground -- 3"
   Bottom steel of slabs deposited on "Moistop" vapor barrier - - - - - 1½"
   Formed beams, columns and walls - - - - - 2"
   Bottom steel of joist construction - - - - - 1½"
   Column ties and beam stirrups - - - - - 1½"
   Bottom steel of formed one way slabs - - - - - 1"
   Top steel of one way and ribbed slabs - - - - - 3/4"
5. Inserts, sleeves, boxes and conduits shall not interfere with proper placing of reinforcing steel.
6. All dowels shall be properly set and spaced and due care shall be exercised for their protection against bending, displacement etc. Bent dowels shall not be straightened by heating or cold bending but shall be burned off 6" from the face of the concrete in which they are embedded and a bar of correct size and length shall be butt welded to the stub to provide the original dowel as indicated.
7. Pipes, conduits, and sleeves embedded in concrete shall not be larger in outside diameter than one-third the thickness of the slab, wall or beam in which they are embedded, nor shall they be placed closer than three diameters on centers, nor shall they be so located as to impair the strength of the concrete.
8. For exposed exterior concrete soffits, formwork shall consist of plastic coated plywood thoroughly cleated and tied together and taped at joints, all to be as approved by the Arch., Eng; all joints and seams shall be spackled with "Caspro Bond Quick Set". Fins and projections shall be removed and the concrete surface affected thereby shall be rubbed smooth.
9. Reinforcement for shrinkage and temperature stresses shall be provided in one way slabs equal to 0.002 times the gross concrete area. This reinforcing shall be placed in the top layer of bottom steel and bottom layer of top steel.
10. The contractor shall notify the Arch. Eng. at least 24 hours in advance when work will be ready for inspection.
11. Prior to requesting inspection and approval of form work and reinforcing the contractor shall have completed all the necessary work, including the work of other trades, the erection of construction joint dams and the thorough cleaning of all forms in the area involved.
12. Work found to be deficient shall be corrected as directed by the Arch. Eng. and shall be subject to reinspection and approval in accordance with the requirements above.
13. No concrete shall be ordered for any portion of the work involved in this inspection until the Arch. Eng's. approval is obtained.
14. Material for backfilling against foundation walls and under slabs on the ground shall be subject to the approval of the Arch. Eng. Backfilling shall not be placed against foundation walls until supporting floor slabs are in place or the walls are properly shored and braced.
15. Concrete Slabs On The Ground:
   Base for concrete slabs shall be leveled, well tamped and free of all projecting objects. "Moistop" as mfr'd by the Sisalkraft Div. of St. Regis Paper Co. shall be applied in the widest practicable width. All joints shall be lapped not less than 6 inches.
16. All exposed exterior concrete shall be bush hammered.

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Basement Framing and Foundation Plan

Scale ⅛" = 1'-0"

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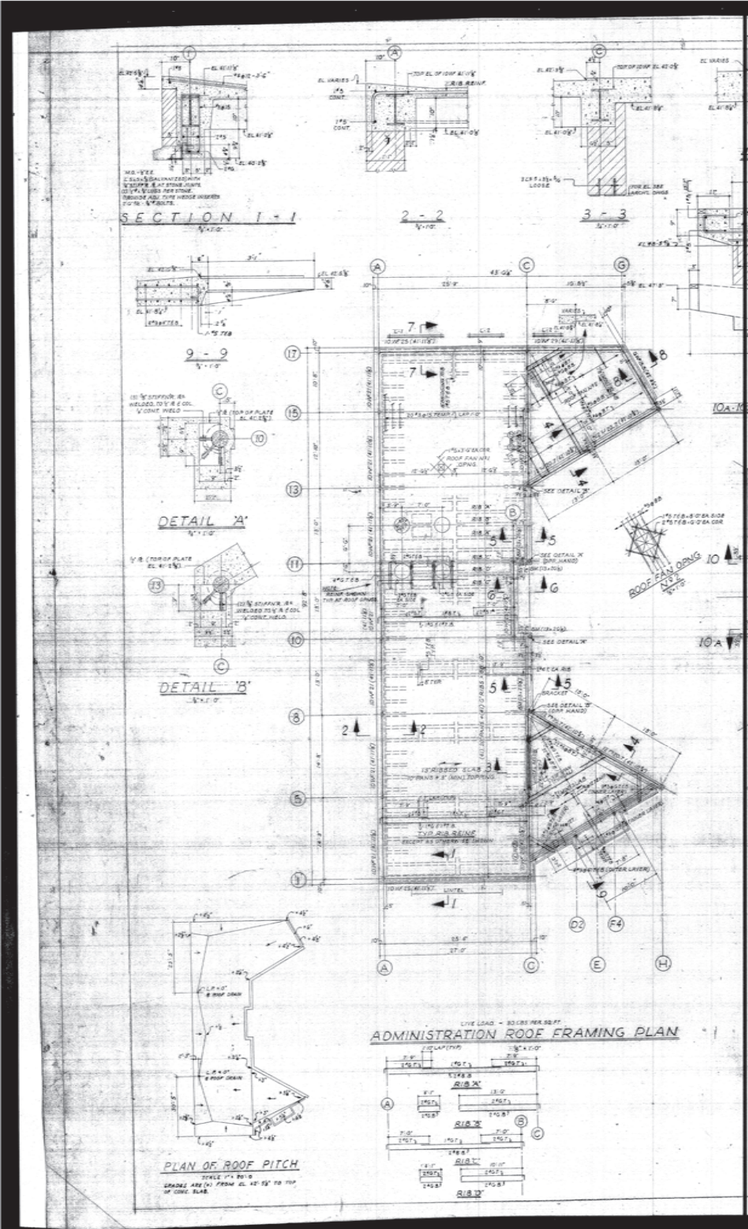

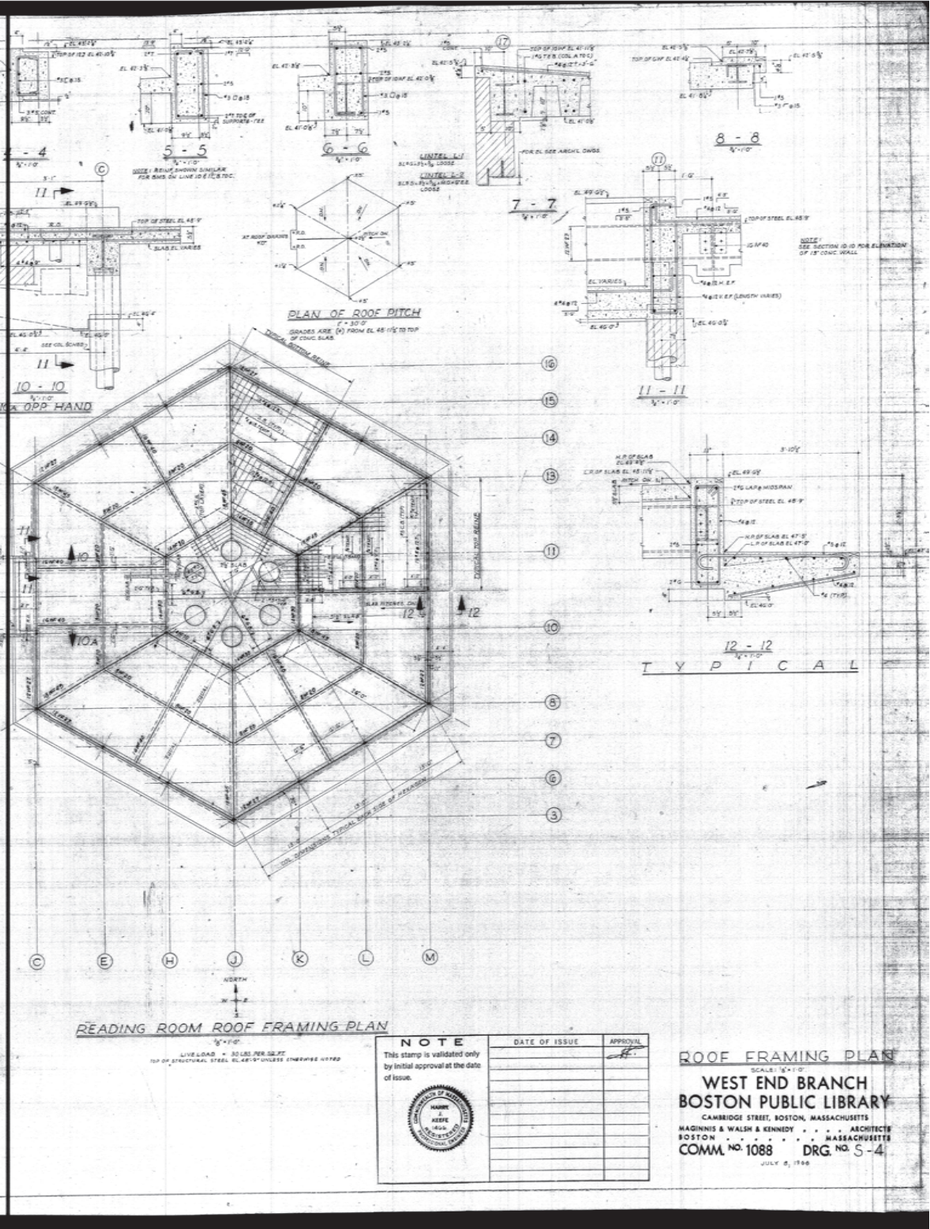

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ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"

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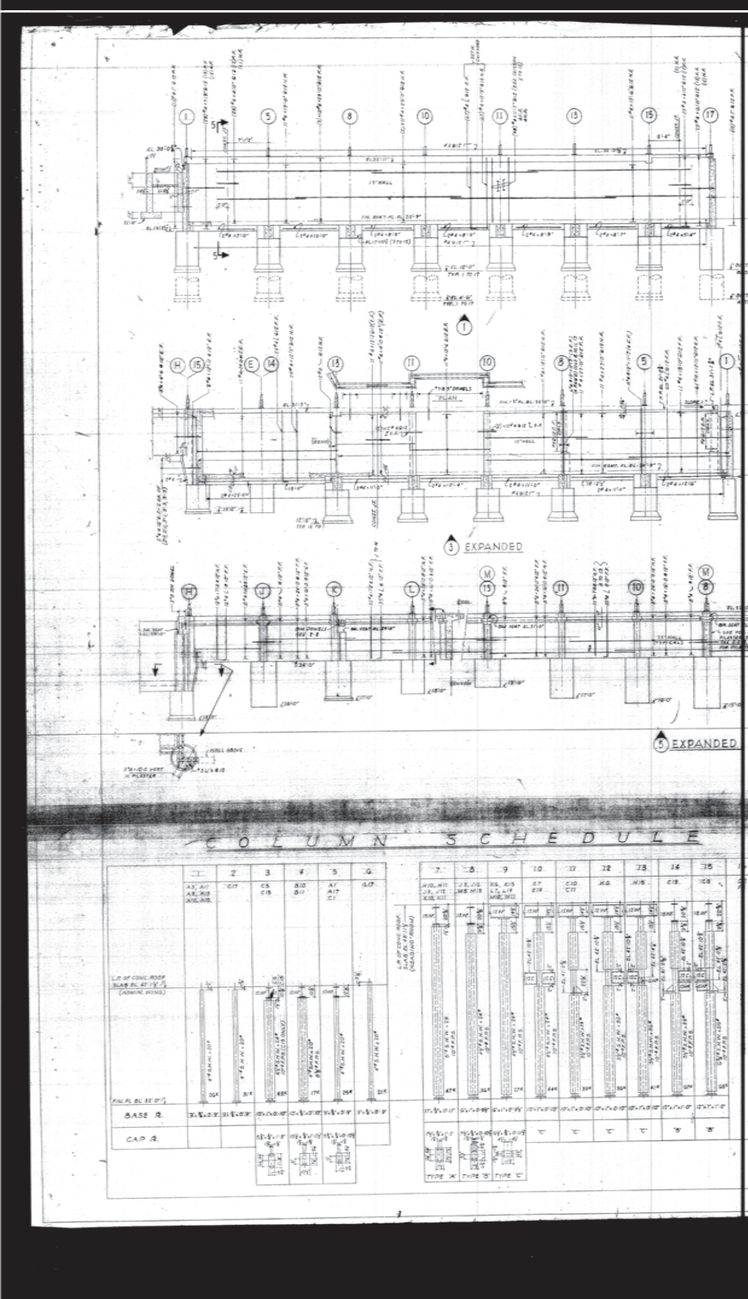

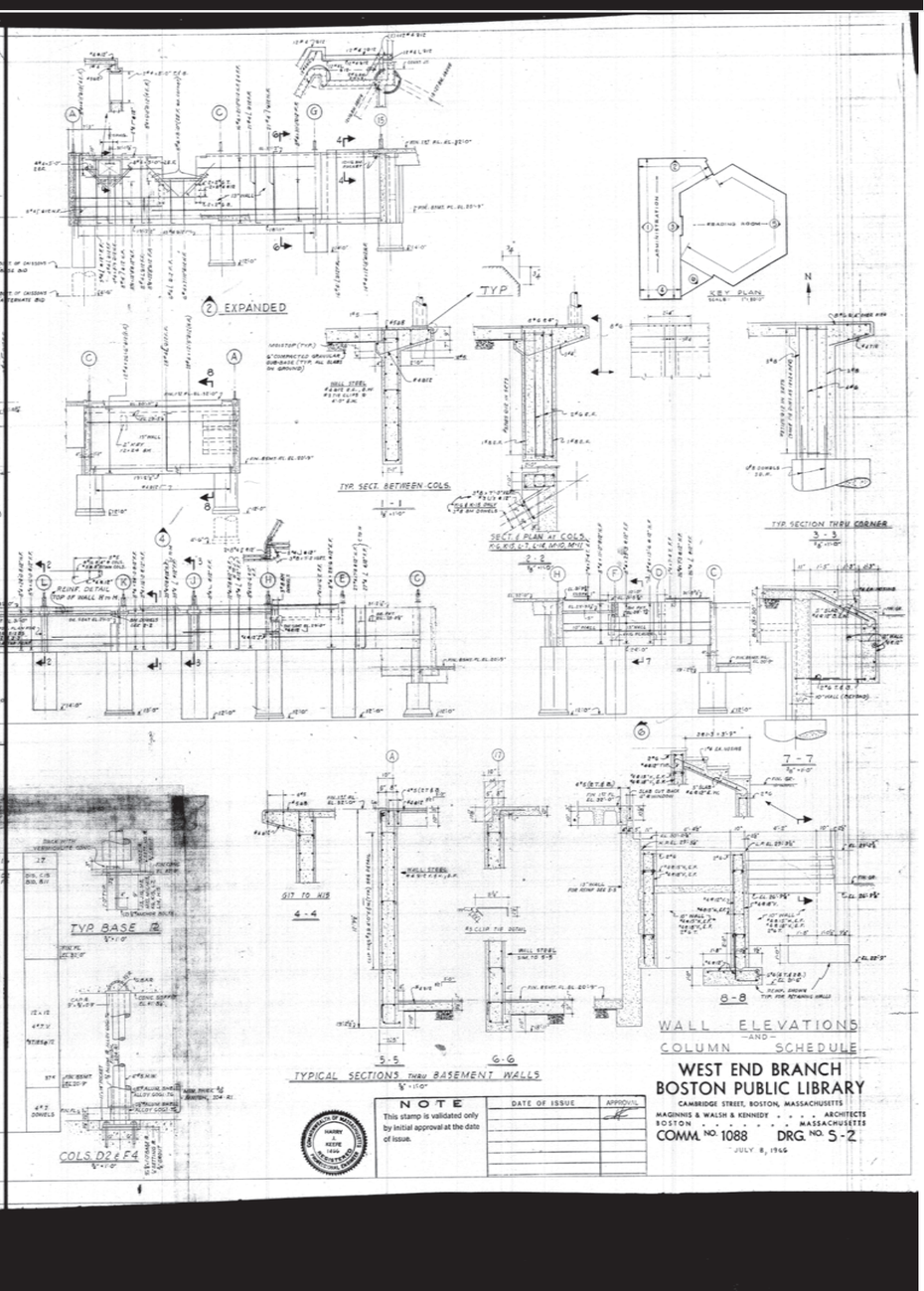

COLUMN SCHEDULE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TOP OF CONC. ROOF SLAB EL. 61'-5" (ADMIN. WING)																
FIN. FL. EL. 51'-0"																
BASE B																
CAP B																

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WALL ELEVATIONS
-AND-
COLUMN SCHEDULE

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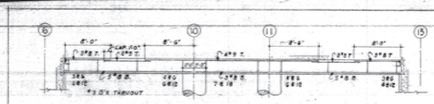

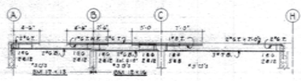

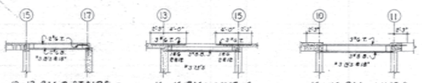

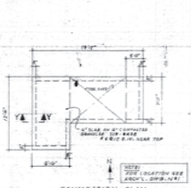

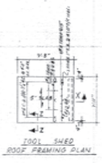

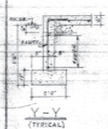

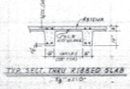

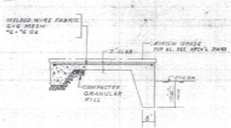

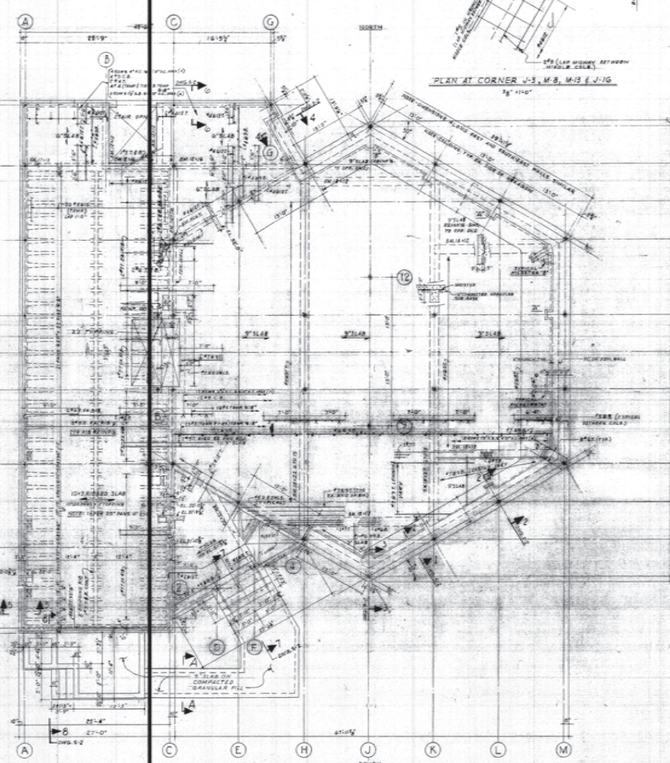

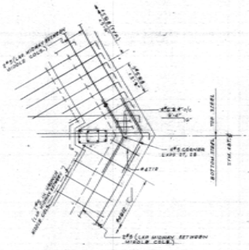

STRUCTURAL STEEL NOTES

1. Unless otherwise noted on the structural drawings all structural steel work shall be in accordance with the provisions of the A.I.S.C. Specification for the Design, Fabrication and Erection of Structural Steel for Buildings, as adopted Apr. 1963.
2. Materials shall conform to the following specifications, latest edition:
   Structural Steel, ASTM A-36
   High Strength Bolts, ASTM A-325
   Welding Electrodes, ASTM A-233
   Concrete Filled Steel Columns, Grade B, ASTM A-53
3. Shop drawings shall give complete information necessary for the fabrication of the structure, including location, type and size of all rivets, bolts and welds. Where high strength bolts are indicated for field connections, details shall indicate on the shop drawings the necessary values for calibrating impact wrenches and the readings to be obtained on torque wrenches in order to properly make up the high strength bolt connection.
4. Steel angle lintels in pairs shall be welded every 12". Lintels shall have a minimum bearing of 6" on masonry, but not less than 1" of bearing for each foot of opening. Unless otherwise shown, provide lintels over all interior and exterior masonry openings as follows, one angle for each 4" of wall thickness:

   L 4X3X5/16 for spans less than 5'-0"
   L 5X3X5/16 for spans from 5'-0" to 7'-0"
   L 6X3X5/16 for spans from 7'-0" to 9'-0"

   Lintels exposed to the weather shall be galvanized.
5. All steel except galvanized and that encased in concrete shall have one shop coat of red lead primer. Steel encased in concrete shall not be painted.
6. Steel beams encased in concrete shall be wrapped with wire mesh, 44-1010 mesh unless otherwise noted.
7. Connections:
   Shop - Riveted or welded
   Field- Unless otherwise noted:

3/4" High Strength Bolts	3/4" Ordinary Bolts or Welded
Column to Column	All seated conns., web conn's.
All WF Beam web connections	for light beam sections and
Cement Conns. Top & Butt flgs.	6" and under channel sections.
Web conns. for all 8" and over channel sections.	

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FIRST FLOOR FRAMING PLAN
3/8" = 1'-0"

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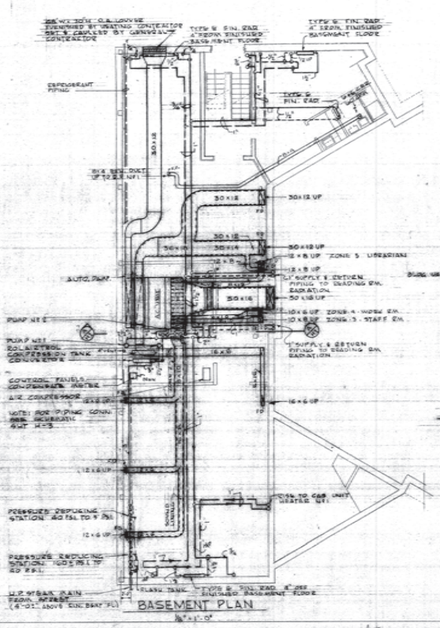

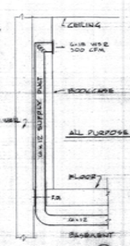

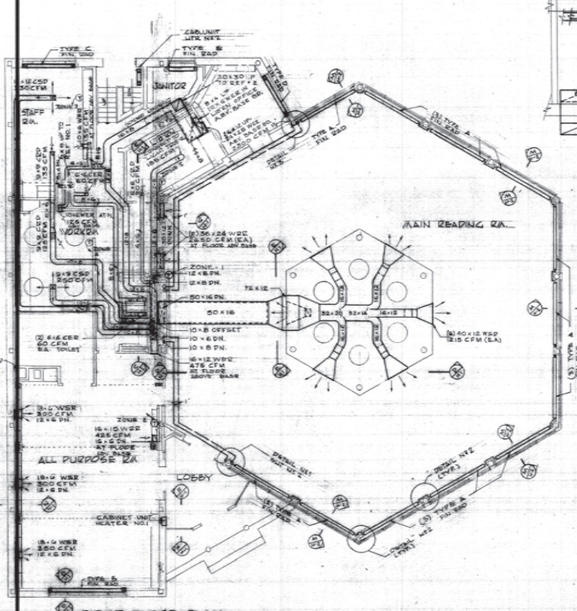

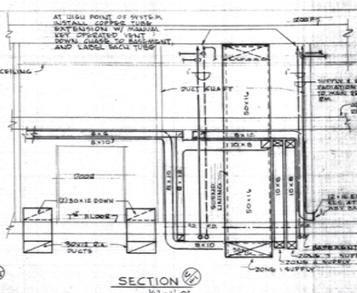

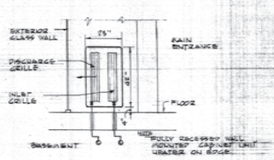

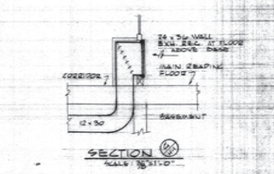

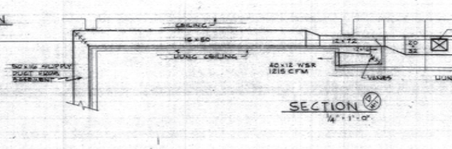

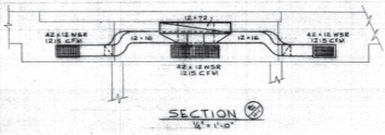

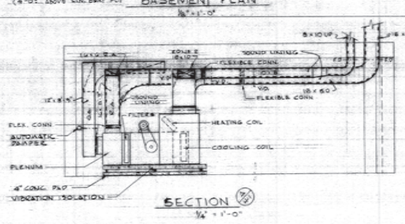

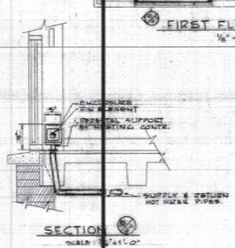

NOTE: NO INSULATION IN SLEEVE

NOTE: THIS PORTION OF SYSTEM SHALL BE BALANCED PRIOR TO THE INSTALLATION OF THE CEILING.
ADJUSTING & TURNING VANES SHALL BE SECURELY FASTENED AFTER COMPLETION OF BALANCING.

Ⓣ THERMOSTAT LOCATION TO BE VERIFIED IN FIELD BY ARCHITECT.

HEATING & AIR CONDITIONING
FIRST FLOOR & BASEMENT PLANS

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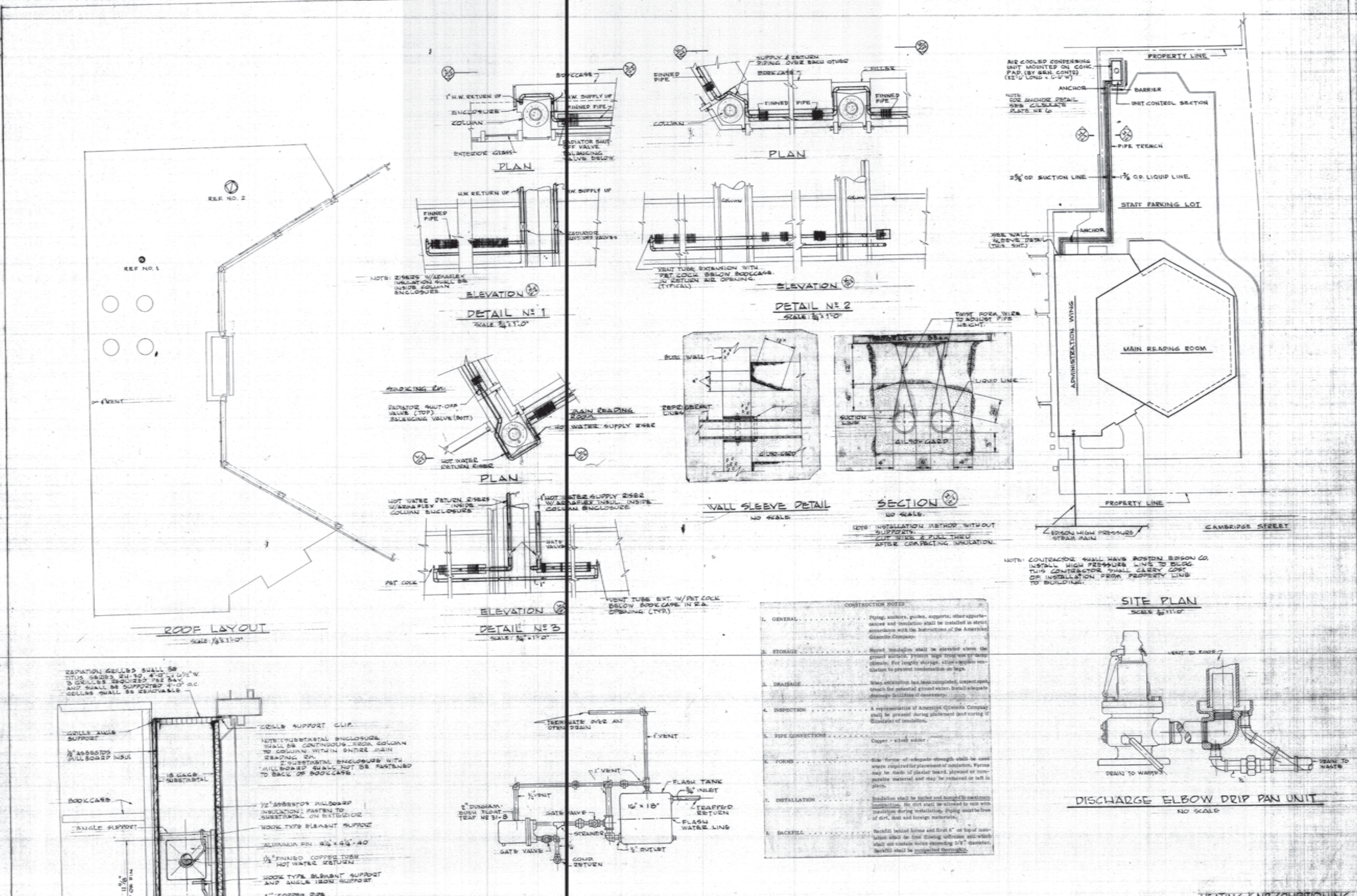

HEATING & AIR CONDITIONING
ROOF PLAN & DETAILS

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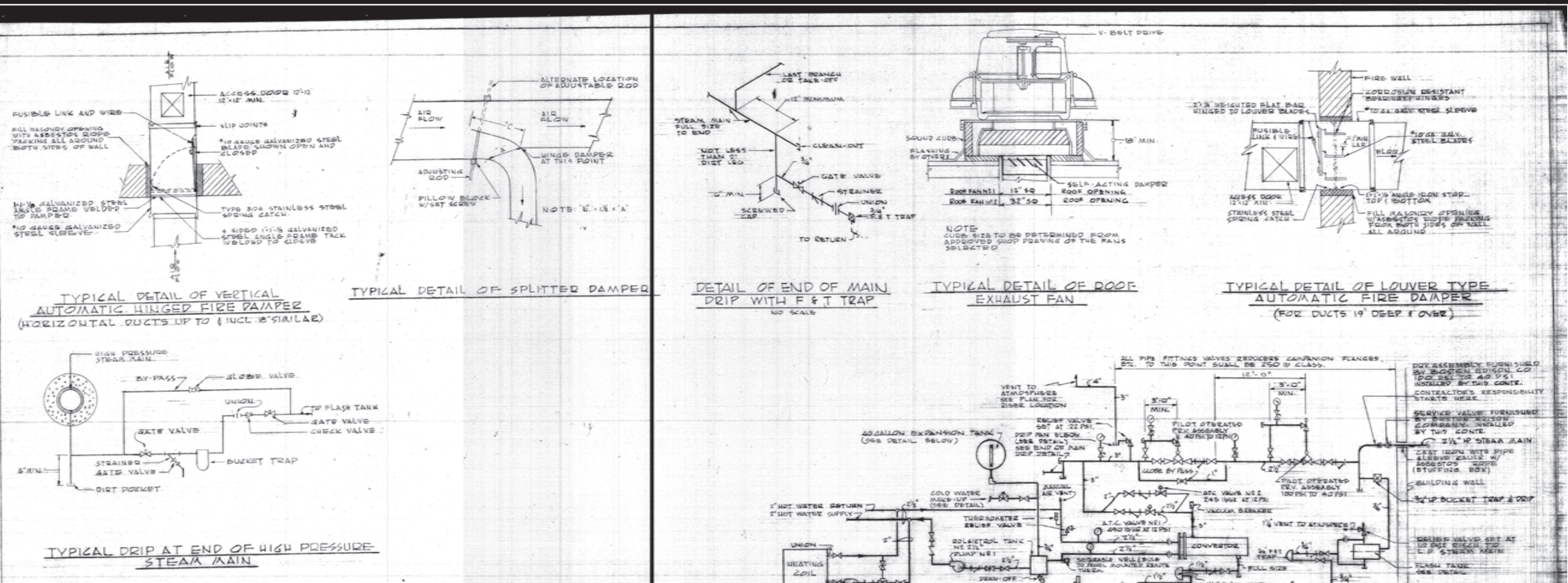


A.C. UNIT SCHEDULE

UNIT NO	SERVICE	LOCATION	MFG NO	TOTAL CFM	OUTSIDE AIR CFM	OUTLET VELOCITY FPM	FACE VELOCITY FPM	HEATING COIL AIR TEMP EAT	HEATING COIL AIR TEMP LVG	HEATING COIL WATER GPM	HEATING COIL WATER MBH	EXTER S.P. H_2O	MOTOR HP	CURRENT VOLT	CURRENT PHASE	CURRENT CYC	STARTER DESIG
AC-1	ZONES 1, 2, 3, 4, 5	BMT	NO 21	9005	2825	1340	440	48°	84°	35	350	1½	7½	208	3	60	

1. SELECTION BASED ON TRANE CO.
2. COIL DESIGNED FOR 170° AVG WATER & 20° DROP
3. ZONE 1 1,200, ZONE 2 1,950, ZONE 3 370, ZONE 4 1,250, ZONE 5 1,185

COOLING COIL SCHEDULE

UNIT NO	TOTAL CFM	TOTAL LOAD MBH	AIR TEMP ENTERING DB	AIR TEMP ENTERING WB	AIR TEMP LEAVING DB	AIR TEMP LEAVING WB	RFG TEMP	
AC-1	9005	345	48°	67°	58°	56°	42°	

CONDENSING UNIT SCHEDULE

MODEL NO	MBH CAP	FAN CFM	FAN HP	REMARKS
RA 250	307	20,250	3HP	

SELECTION BASED ON TRANE CO

ROOF EXHAUST SCHEDULE

FAN NO	MODEL NO	SERVICE	CFM	EXT S.P.	HP	DRIVE	SOUND CURB	CURRENT VOLT	CURRENT PHASE	CURRENT CYC	STARTER
RF-1	70 CR	TOILETS	240	¼"	1/25	DIRECT	SCD-20	120	1	60	
RF-2	243 BX2	ZONES 1-5	3125	3/8"	½	BELT	SCB-30	208	3	60	

SELECTION BASED ON JENN-AIR

UNIT HEATER SCHEDULE

UNIT NO	MFG NO	TYPE	CFM 70	MBH	GPM	ΔP H_2O	HP	FAN RPM	CURRENT VOLT	CURRENT PHASE	CURRENT CYC	REMARKS
CAB 1	M175K	RECESSED CEILING	430	39.2	4.8	.09	1/20	1050	120	1	60	ELEC Ⓣ CONTROL
CAB 2	M100K	RECESSED WALL	253	22.2	2.7	4.3	1/20	1050	120	1	60	ELEC Ⓣ CONTROL

SELECTION BASED ON DUNHAM-BUSH CO

WATER PUMP SCHEDULE

PUMP NO	SERVICE	LOCATION	MFG NO	HEAD FT H_2O	GPM	CURRENT VOLT	CURRENT PHASE	CURRENT CYC	HP
P-1	RADIATION	BSMT	60-3T	25.3	35	208	3	60	½
P-2	HTG COIL	BSMT	60-LT	11.9	35	208	3	60	1/6

SELECTION BASED ON BELL & GOSSETT

FIN RADIATION SCHEDULE

TYPE	FIN LENGTH	FIN SIZE	ENCLOSURE	MBH	RUNOUTS SUP	RUNOUTS RET	REMARKS
A	10'-0"	ALUM 4¼×1¼×40	NONE	11.9	¾"	¾"	COPPER TUBE/ALUM FIN SEE DETAIL FOR GRILLE COVERS
B	14'-0"	ALUM 4¼×1¼×40	PTC	14.9	¾"	¾"	TYPE A PEDASTAL/HOOK
C	8'-0"	ALUM 4¼×1¼×40	PTC	8.56	¾"	¾"	TYPE A PEDASTAL/HOOK
D	7'-0"	ALUM 4¼×1¼×40	PTC	7.49	½"	½"	TYPE A PEDASTAL/HOOK
E	4'-0"	ALUM 4¼×1¼×40	MCC	5.04	½"	½"	SLOPING TOP

SELECTION BASED ON DUNHAM-BUSH CO
WALL TO WALL ENCLOSURES W/ END CAPS

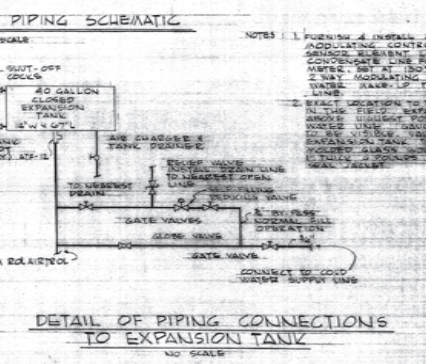
CONVERTOR SCHEDULE

MODEL NO	LBS. STM PER HR	STEAM PRESS.	TEMP. RANGE	PASSES	MAX. P.D. FT. H_2O	GPM	SERVICE
SU-84	735	10"	170°-190°	2	1.7	73.5	RADIATION

SELECTION BASED ON BELL & GOSSETT

REGISTER AND DIFFUSER SCHEDULE

DESIGNATION	SERVICE	MFG	MFG NO	FINISH	REMARKS
CSD	CEIL. SUPPLY DIFF	AIR DEVICES	RC	PRIMCOAT	FULL FLO-DMPS/FLEXITROLS
CRD	CEIL RET DIFF	"	RC		FULL FLO-DMPS/FLEXITROLS
CED	CEIL. EXH DIFF	"	RCMR		W/OPPOSED BLADE DAMP.
WER	WALL EXH REG	BARBER COL	GHR		
WRR	WALL RET REG	BARBER COL	GHR		
WSR	WALL SUP REG	BARBER COL	GHA		15° UPWARD-WIDE SPREAD W/ ADJUSTABLE DEFLEC. WITH OPPOSED BLADE VOL. CONTROL
CER	CEIL. EXH. REG	TITUS	24-60	PRIMCOAT	W/OPPOSED BLADE DAMP.



HEATING & AIR CONDITIONING
SCHEDULES

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LEGEND

	SANITARY SEWER
	STORM DRAIN
CW	WATER MAIN (DOMESTIC)
SR	SPRINKLER MAIN
CB	CATCH BASIN
VC	VITRIFIED CLAY
RCP	REINFORCED CONCRETE
CI	CAST IRON
YH	YARD HYDRANT
WH	WALL HYDRANT

UTILITY PLAN
1/16" = 1'-0"

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JULY 8, 1966

ARTHUR EUGENE SULLIVAN

DETAIL OF ELECTRIC HOTWATER HEATER (NO SCALE)

PLUMBING LEGEND

S or W	SOIL OR WASTE
	SOIL OR WASTE BURIED
COND	CONDUCTOR
	CONDUCTOR BURIED
V	VENT
	VENT BURIED
CW	COLD WATER
HW	HOT WATER
RD	ROOF DRAIN
FD	FLOOR DRAIN
SD	SCUPPER DRAIN
FCO	FLUSH CLEANOUT
CO	END CLEANOUT
GV	GATE VALVE
CWV	CHECK VALVE
W&T	WASTE & TRAP
CI	CAST IRON
SS	SOIL STACK
VS	VENT STACK
WH	WALL HYDRANT
YH	YARD HYDRANT
INV.EL	INVERT ELEVATION
T.B	THRUST BLOCK

FIXTURE LIST

P-1	WATER CLOSET (WALL MOUNTED)
P-1A	WATER CLOSET (FLOOR MOUNTED)
P-2	LAVATORY
P-3	JANITOR SINK
P-4	SHOWER
P-5	DRINKING FOUNTAIN
P-6	JANITOR SINK

BASEMENT PLAN
SCALE 1/8" = 1'-0"
FINISH FLR. ELEVATION: 20'-8"

FLOOR PLAN
SCALE 1/8" = 1'-0"
FINISH FLR. ELEVATION: 32'-0"

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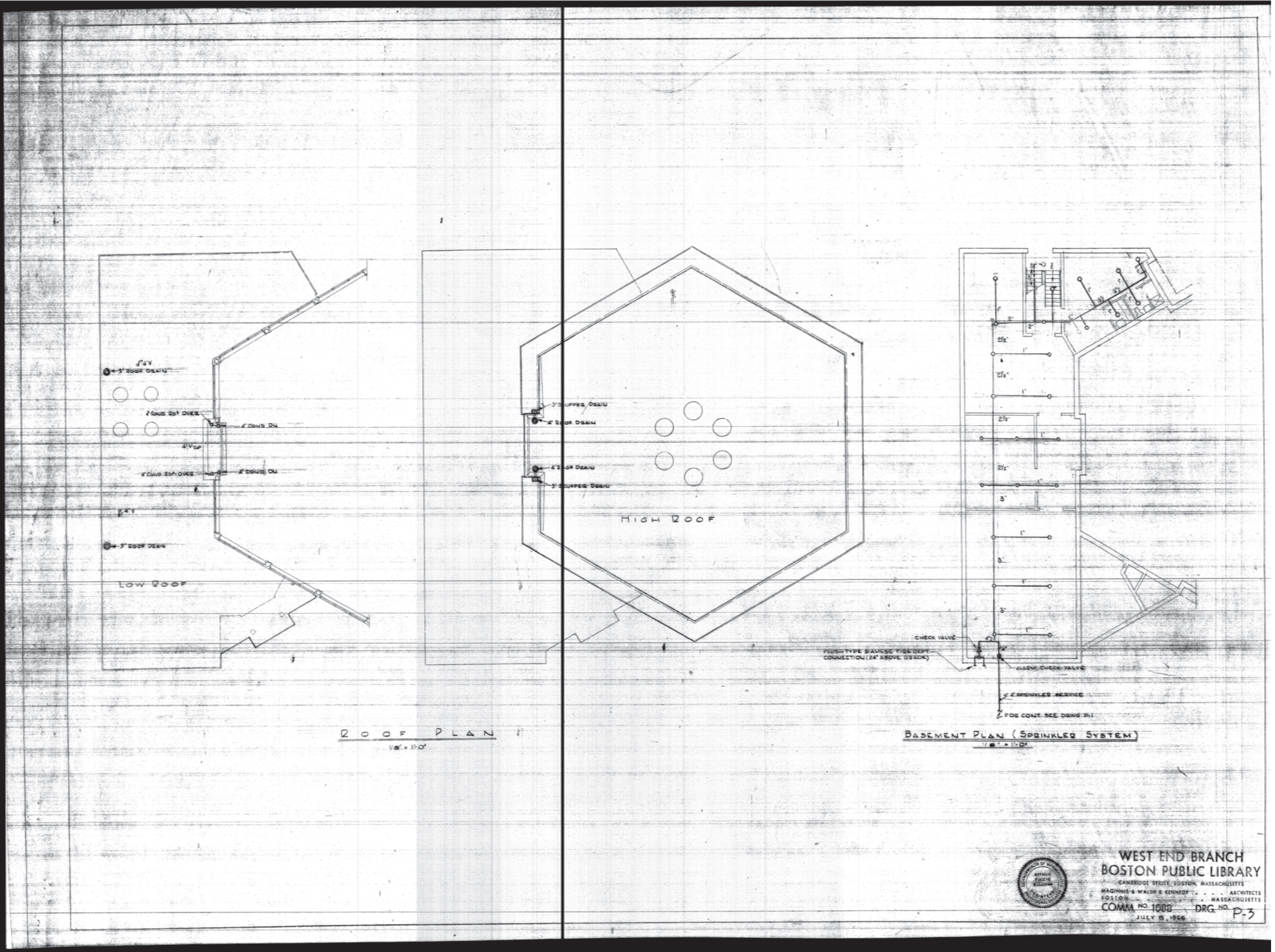
JULY 8, 1966

ARTHUR EUGENE SULLIVAN


LOW ROOF
HIGH ROOF
ROOF PLAN
1/8" = 1'-0"
BASEMENT PLAN (SPRINKLER SYSTEM)
1/8" = 1'-0"
CHECK VALVE
FOR CONT. SEE DRWG. P-1
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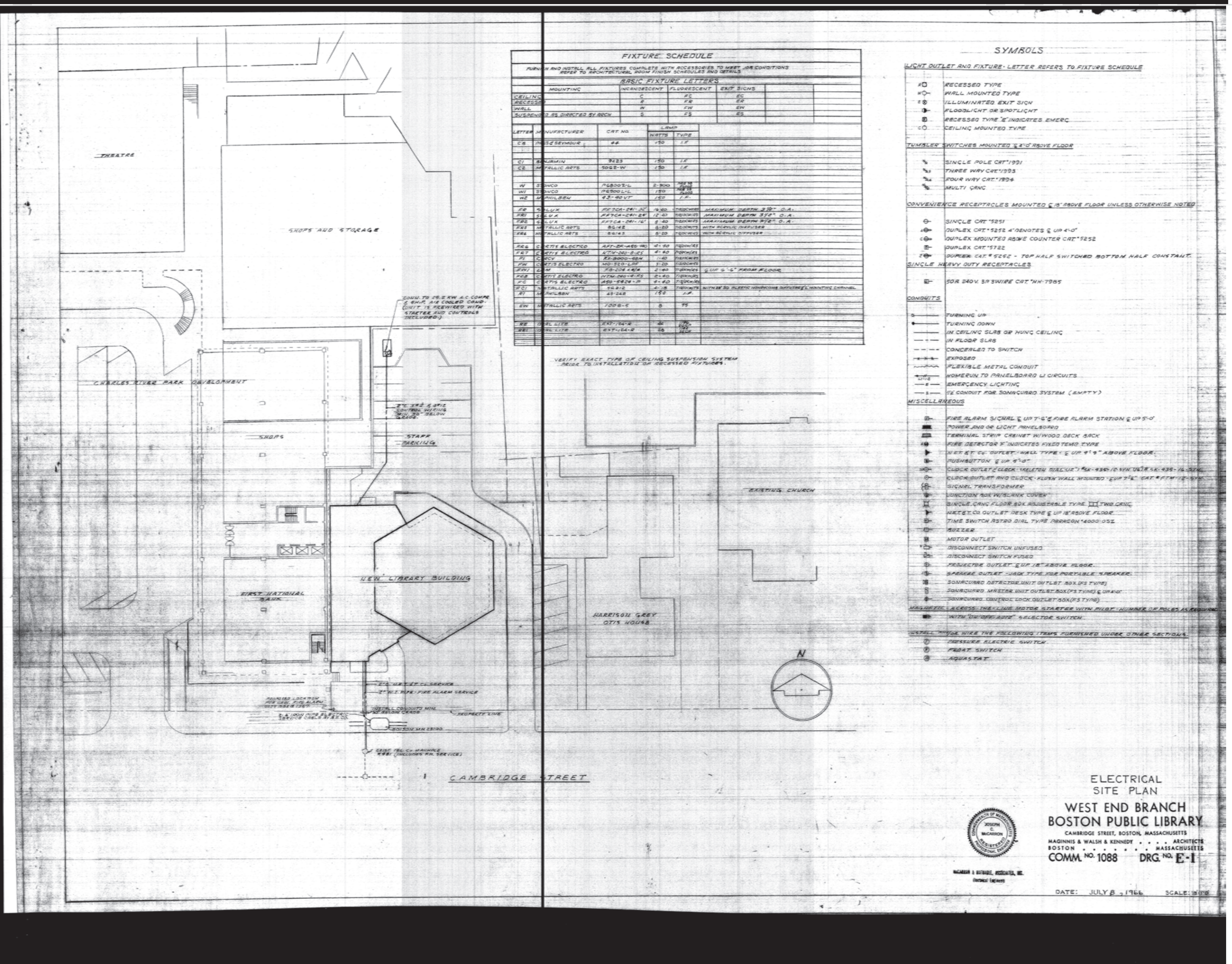
COMM. NO. 1088 DRG. NO. P-3
JULY 8, 1966


FIXTURE SCHEDULE
BASIC FIXTURE LETTERS
VERIFY EXACT TYPE OF CEILING SUSPENSION SYSTEM PRIOR TO INSTALLATION OF RECESSED FIXTURES
THEATRE
SHOPS AND STORAGE
CHARLES RIVER PARK DEVELOPMENT
SHOPS
FIRST NATIONAL BANK
NEW LIBRARY BUILDING
HARRISON GRAY OTIS HOUSE
EXISTING CHURCH
CAMBRIDGE STREET
N
SYMBOLS
LIGHT OUTLET AND FIXTURE - LETTER REFERS TO FIXTURE SCHEDULE
RECESSED TYPE
WALL MOUNTED TYPE
ILLUMINATED EXIT SIGN
FLOODLIGHT OR SPOTLIGHT
RECESSED TYPE 'E' INDICATES EMERG.
CEILING MOUNTED TYPE
TUMBLER SWITCHES MOUNTED ℄ 4'-0" ABOVE FLOOR
SINGLE POLE CAT. #1991
THREE WAY CAT. #1993
FOUR WAY CAT. #1994
MULTI GANG
CONVENIENCE RECEPTACLES MOUNTED ℄ 18" ABOVE FLOOR UNLESS OTHERWISE NOTED
SINGLE CAT. #5251
DUPLEX CAT. #5252 4" DENOTES ℄ UP 4'-0"
DUPLEX MOUNTED ABOVE COUNTER CAT. #5252
DUPLEX CAT. #5722
DUPLEX CAT. #5252 - TOP HALF SWITCHED BOTTOM HALF CONSTANT
SINGLE HEAVY DUTY RECEPTACLES
50A. 240V. 3P 3WIRE CAT. #HH-7985
CONDUITS
TURNING UP
TURNING DOWN
IN CEILING SLAB OR HUNG CEILING
IN FLOOR SLAB
CONCEALED TO SWITCH
EXPOSED
FLEXIBLE METAL CONDUIT
HOMERUN TO PANELBOARD LI CIRCUITS
EMERGENCY LIGHTING
1/2" CONDUIT FOR SONAGUARD SYSTEM (EMPTY)
MISCELLANEOUS
FIRE ALARM SIGNAL ℄ UP 7'-6" & FIRE ALARM STATION ℄ UP 5'-0"
POWER AND OR LIGHT PANELBOARD
TERMINAL STRIP CABINET W/WOOD BACK BACK
FIRE DETECTOR 'F' INDICATES FIXED TEMP. TYPE
N.E.T. & T. Co. OUTLET - WALL TYPE - ℄ UP 4'-9" ABOVE FLOOR
PUSHBUTTON ℄ UP 5'-0"
SIGNAL TRANSFORMER
JUNCTION BOX W/BLANK COVER
N.E.T. & T. Co. OUTLET DESK TYPE ℄ UP 18" ABOVE FLOOR
BUZZER
MOTOR OUTLET
DISCONNECT SWITCH UNFUSED
DISCONNECT SWITCH FUSED
PROJECTOR OUTLET ℄ UP 18" ABOVE FLOOR
SPEAKER OUTLET - JACK TYPE FOR PORTABLE SPEAKER
INSTALL AND/OR WIRE THE FOLLOWING ITEMS FURNISHED UNDER OTHER SECTIONS
PRESSURE ELECTRIC SWITCH
FLOAT SWITCH
AQUASTAT
ELECTRICAL
SITE PLAN
WEST END BRANCH
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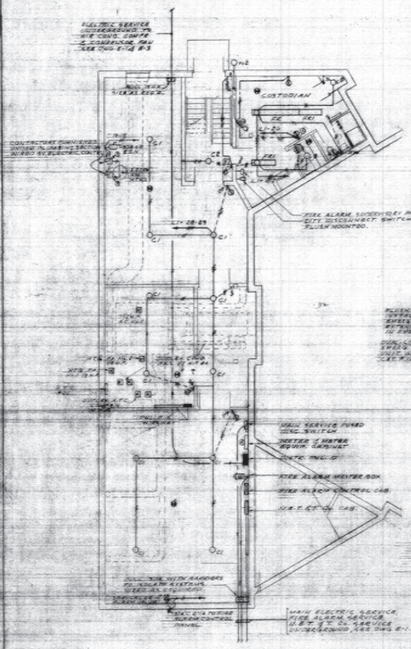
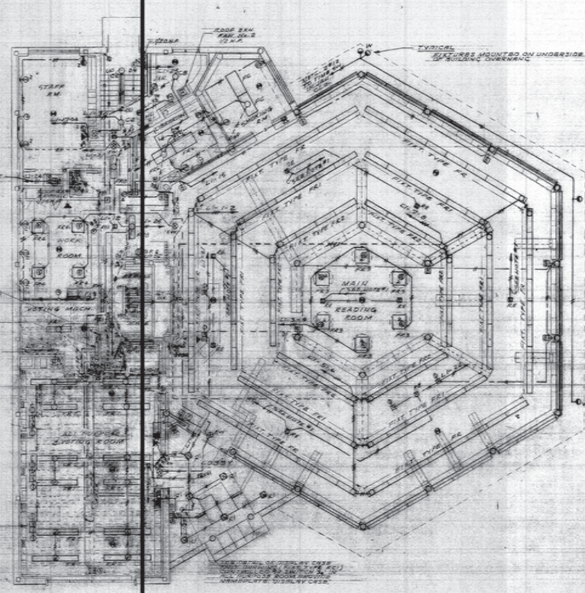
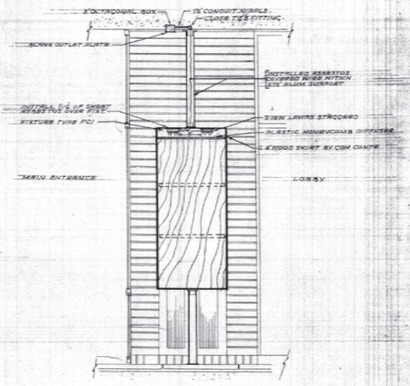
DATE: JULY 8, 1966



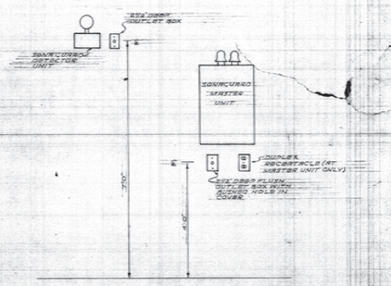
BASEMENT PLAN



FIRST FLOOR PLAN



DETAIL OF DISPLAY CASE



TYPICAL INSTALLATION DETAIL FOR SONAGUARD BURGLAR ALARM SYSTEM UNITS

ELECTRICAL
BASEMENT & FIRST FLOOR PLANS

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MAGINNIS & WALSH, ASSOCIATES, INC.
Consulting Engineers

DATE: JULY 8, 1966 SCALE: 1/8"-0"

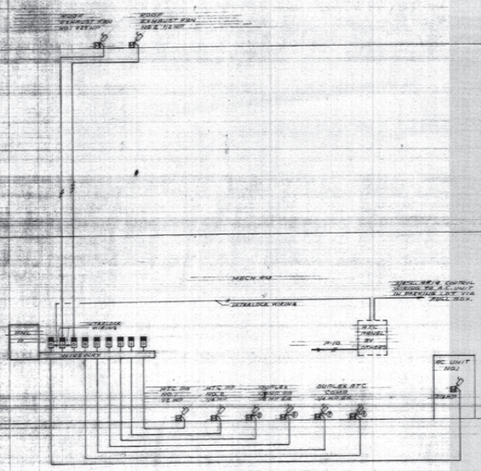
LIGHTING & POWER PANELBOARD SCHEDULE

CIRCUIT SCHEDULE

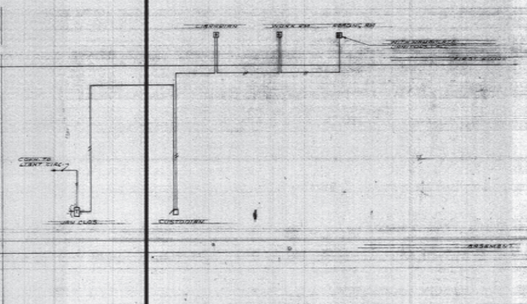
DISTRIBUTION PANEL D

CIRCUIT SCHEDULE

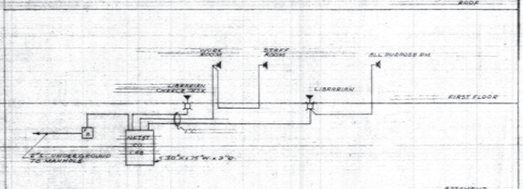
PANEL P



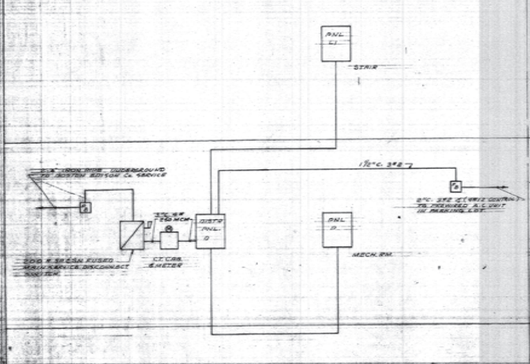
MOTOR RISER DIAGRAM



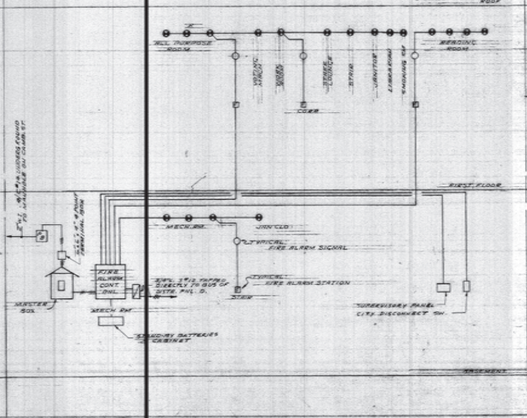
JANITORS CALL SYSTEM



N.E.T.&T. CO. SYSTEM



POWER & LIGHT RISER DIAGRAM



FIRE ALARM SYSTEM

ELECTRICAL
RISER DIAGRAMS

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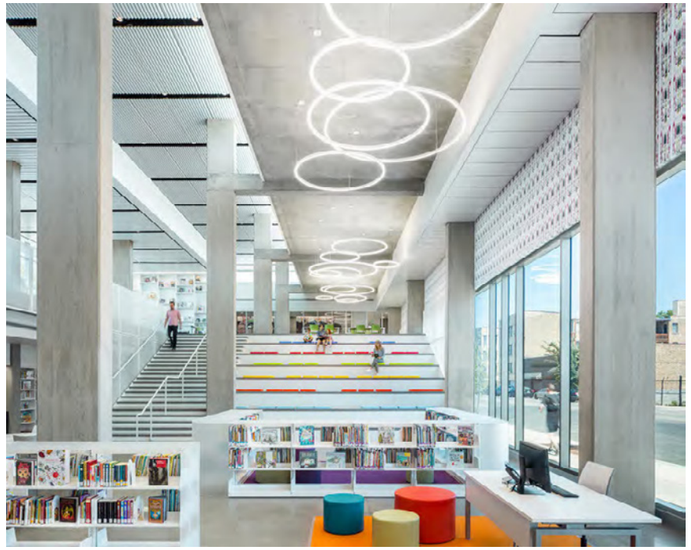
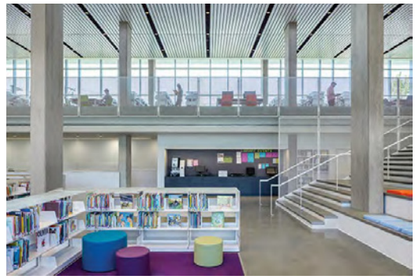
MAGINNIS & WALSH, ASSOCIATES, INC.
Consulting Engineers

DATE: JULY 8, 1966

APPENDIX H:
Precedent Projects





INDEPENDENCE LIBRARY & APARTMENTS
CHICAGO, IL

16,000 SF LIBRARY
44 SENIOR APARTMENTS, 30 RESERVED FOR CHA RESIDENTS, WITH THE REMAINING 14 SERVING HOUSEHOLDS MEETING AGE AND INCOME ELIGIBILITY REQUIREMENTS

NORTHTOWN BRANCH LIBRARY & APARTMENTS
CHICAGO, IL

NORTHTOWN BRANCH LIBRARY & APARTMENTS
CHICAGO, IL

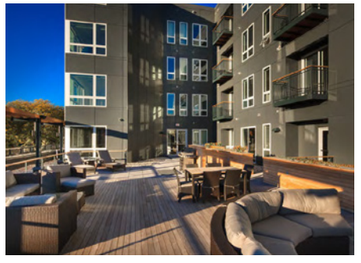
14,500 SF LIBRARY
73 APARTMENTS, INCLUDING 37 CHA UNITS, 29 AFFORDABLE UNITS, AND SEVEN MARKET RATE UNITS

TAYLOR STREET APARTMENTS & LITTLE ITALY BRANCH LIBRARY
CHICAGO, IL

TAYLOR STREET APARTMENTS & LITTLE ITALY BRANCH LIBRARY
CHICAGO, IL

17,000 SF LIBRARY
99 MARKET RATE APARTMENTS
3000 SF RETAIL
UNDERGROUND PARKING

MILWAUKEE PUBLIC LIBRARY EAST BRANCH / THE STANDARD APARTMENTS
MILWAUKEE, WI



MILWAUKEE PUBLIC LIBRARY EAST BRANCH / THE STANDARD APARTMENTS
MILWAUKEE, WI

APPENDIX I:
Trash and Bike Parking Memos

BOEHM
ARCHITECTURE

www.boehmarchitecture.com
561 Windsor St A402
Somerville, MA 02143
617.521.9082

February 16, 2021

Egleston Square/ West End- Trash Memo

Trash:
For a 40-unit apartment project, we specified a Marathon Mini-Mac compactor. A chute is installed connecting a Trash Room on each Residential level to the Compactor Room located in the basement. The Compactor pairs with wheeled, heavy-duty 2 cu. yard compaction containers. When full, these containers are wheeled out of the building to be emptied by a waste hauling company. The 2 cu. yd. containers are heavy and can be cumbersome to move around, so the Compactor Room should be located in close proximity to where they will be emptied into the truck. The route from the Compactor Room will need to be sized to accommodate the dimensions and weight of the containers. The containers are either front or side loaded (depends on waste hauler) to empty into the truck. See attachment for sample trash truck pickup clearance requirements.

Recycling:
Most waste processors do not collect compacted recycling. And it is not recommended to collect recycling via a trash chute. The multi-story drop into the dumpster breaks glass, creating a hazard for facilities staff. Two recent projects opted to place 64 gallon toters in each trash room (on each residential level), and bring to the compactor room to add to 2 cu. yard roll-off containers. As with trash, these containers are rolled out of the building for pickup by a waste hauling company.

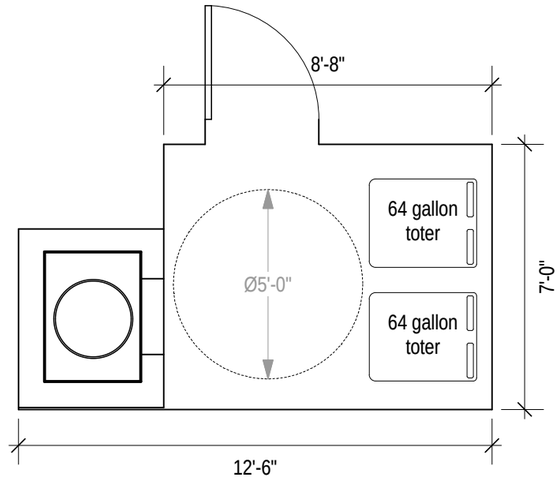
Accessibility:
All elements of the residential level Trash/ Recycling room must be accessible- including doors, clearances, chute doors (height and operation) and collection barrels.

Attachments:

-sample Trash Room layout (on residential levels)
-Trash chute section for 24” diameter chutes
-sample Compactor Room layout
-Marathon Mini-Mac compactor brochure - Compactor Room size
-sample trash pickup clearances

BOEHM
ARCHITECTURE

www.boehmarchitecture.com
561 Windsor St A402
Somerville, MA 02143
617.521.9082



Sample Trash Room Layout
scale: 1/4" = 1' - 0"

BOEHM
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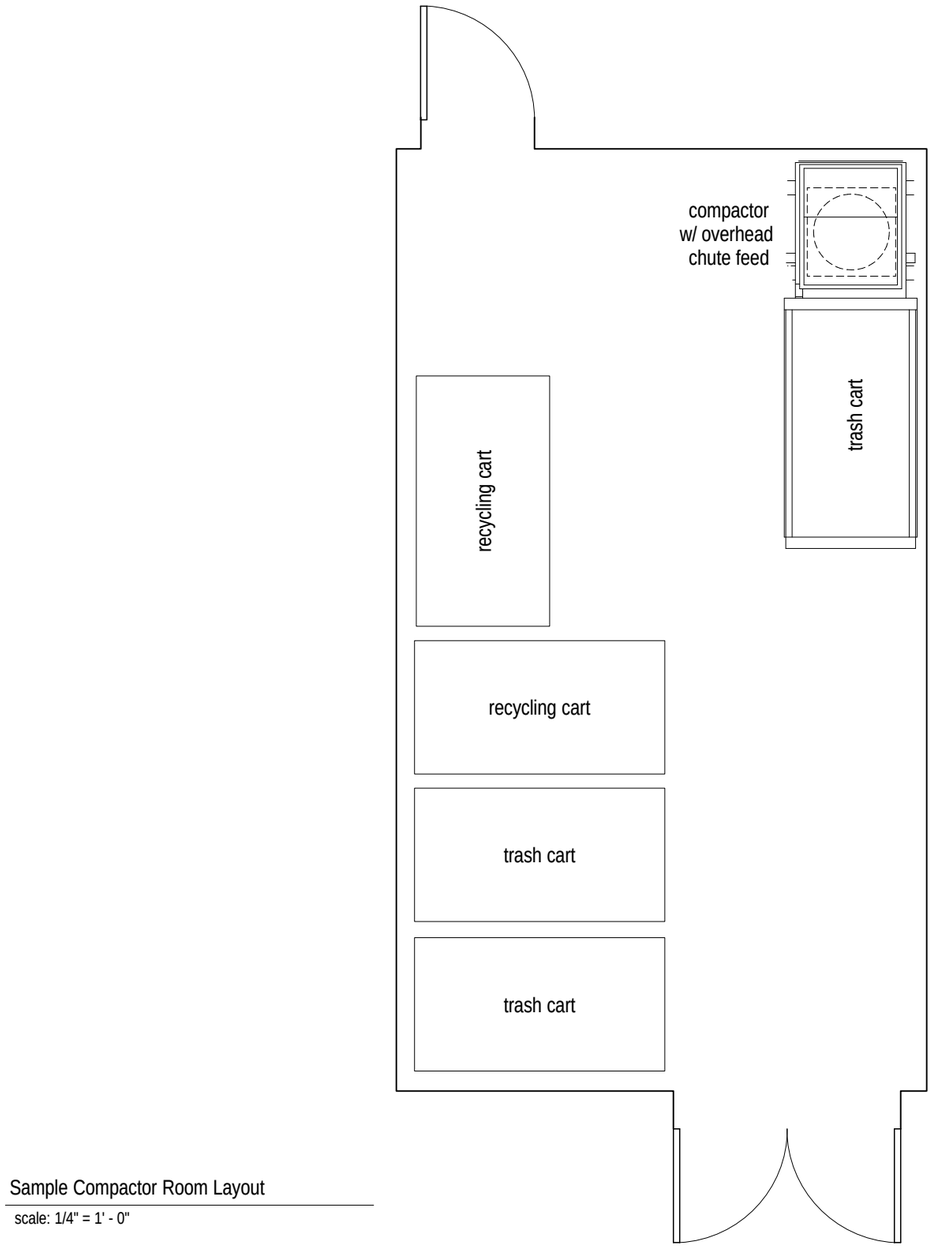
www.boehmarchitecture.com
561 Windsor St A402
Somerville, MA 02143
617.521.9082



Sample Compactor Room Layout

scale: 1/4" = 1' - 0"

BOEHM
ARCHITECTURE
www.boehmarchitecture.com
561 Windsor St A402
Somerville, MA 02143
617.521.9082

February 16, 2021

Egleston Square/ West End - Bike Memo

Guidelines: City Of Boston 'Bike Parking Guidelines' January 2020 Version2.0
Required in all projects subject to Article 80 Large Project Review

Required: Project proponents must provide a Bike Parking Plan- addressing quantities, locations, and layouts for bike parking (visitor, resident/ employee), bikeshare stations, showers and changing facilities

Summary

Minimum Rates

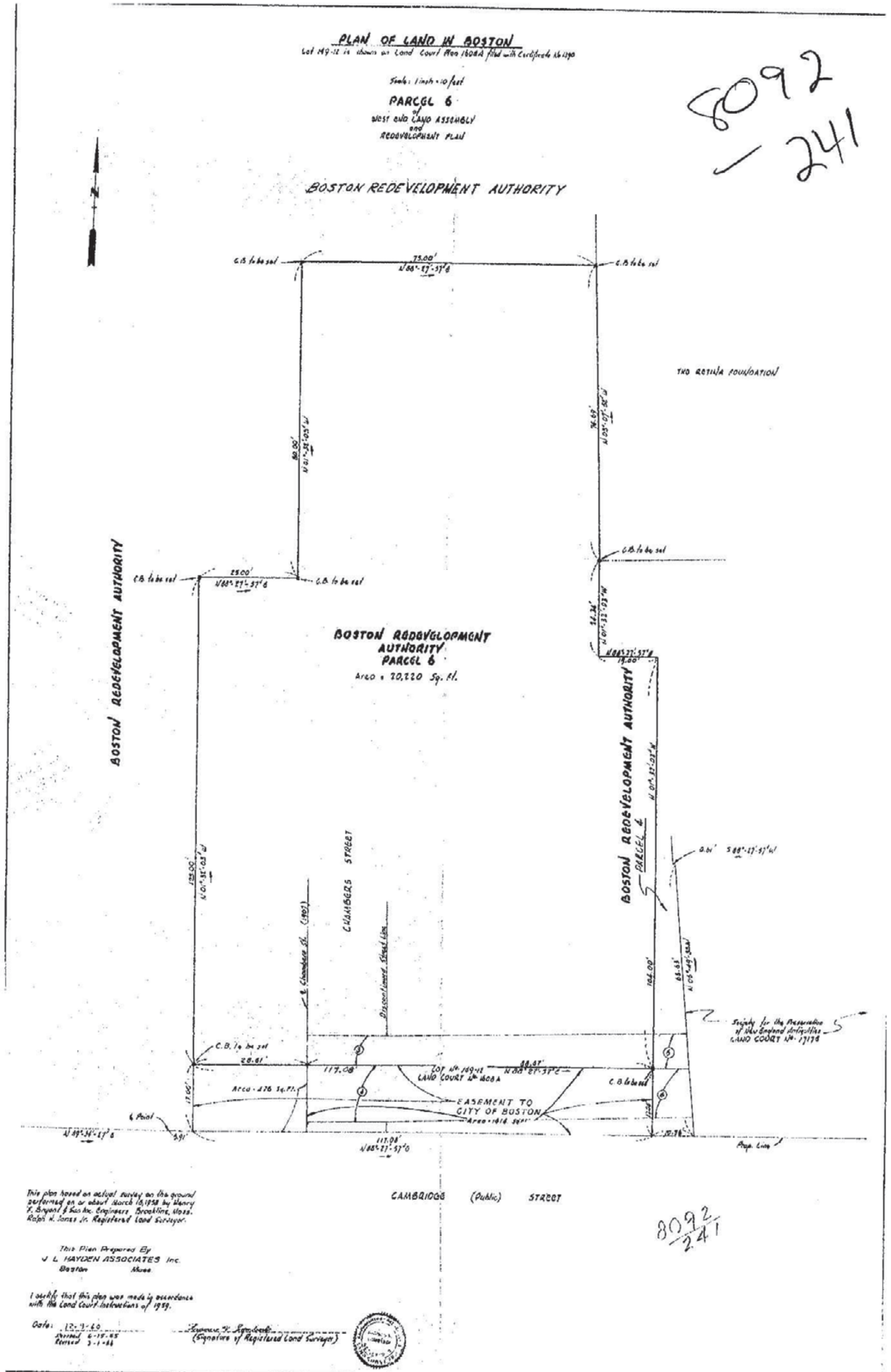
	vistor spaces (short-term)	employee/ resident (long-term)	showers	lockers	Bikeshare stations	Bikeshare contribution
Housing (based on 40 units)	8 spaces (1 per 5 units)	40 min. (1 per unit)	N/A	N/A	Space for a 15-19 dock station	$275 per unit (or $49K min.)
Library (based on 16,000 sf)	7 spaces (1 per 2,500 sf)	7 spaces (1 per 2,500 sf)	1 (1 per 20,000 sf or 1 min)	1 (1 per 20,000 sf or 1 min)	Space for a 15-dock station	$0.42 per sf (or $49K min.)

Visitor Parking	Location:	visible + accessible from right of way close to major building entrance (ideally within 25', not more than 50')
	Rack Type:	city approved post-and-ring rack
	Clearances:	see Guidelines p. 11-12
Employee/ Resident Parking	Location:	As or more convenient than car parking, ideally within same building. Adjacent to and at-grade with public right-of-way. Exceptions see 5.1
	Access Route:	Route is free of obstructions, at least 5' wide, no more than 2 doors or other constriction points, accessible self-opening doors along route, and no stairs, step ramps or small elevators. See 5.1 Table 7.
	Rack Type:	Use post-and-ring or inverted U racks. Two-tier racks with lift assist may be used in space constrained situations. Provide 5% extra-wide spaces. Required proportions or rack types, see 5.II Figure 7. Should be able to accommodate a variety of bicycle styles.
	Clearances:	Aisles must be at least 6' wide, racks to be properly spaced from walls and each other. See 5.II Figure 8 for a sample layout.
	Other:	Provide security and signage as prescribed in 5.IV and 5.V. Provide 120v outlets to accommodate electric bike parking. Parking to be provided at no cost to employees/ residents.
Shower and Changing Facilities	Location:	convenient to bike parking, follow accessibility requirements (521 CMR)

Bikeshare	Configuration:	3 typical station configurations shown in 7. Figure 10
	Location:	Off-street, can be in public right-of-way, or in visible location on private property
	Clearances:	at least 6’ clearance for peds in public right-of-way. See 7. Table 8 and Figures 9 + 10 for clearance diagrams

Attachments:
-City of Boston/ BTD ‘Bike Parking Guidelines” January 2020 Version 2.0

APPENDIX I:
Urban Renewal and Title Information



8092-241

KNOW ALL MEN BY THESE PRESENTS 8092 241

THAT BOSTON REDEVELOPMENT AUTHORITY, a public body, politic and corporate, created pursuant to the General Laws of the Commonwealth of Massachusetts, Chapter 121, with an usual and principal place of business in Boston, County of Suffolk, Commonwealth of Massachusetts, in consideration of the payment of Thirty thousand, three hundred thirty and 00/100 Dollars, ($30,330.00) GRANTS to the CITY OF BOSTON, a municipal corporation, for library purposes, the following-described land:

A parcel of land situated in Boston, Suffolk County, Commonwealth of Massachusetts, shown as Parcel 6, on a Plan of Land in Boston, Parcel 6, West End Land Assembly and Redevelopment Plan signed by Francis V. Lombardi, Registered Land Surveyor, dated December 9, 1960, revised June 15, 1965, March 1, 1966, April 6, 1966, to be recorded herewith, bounded and described as follows:

SOUTHERLY	by parcel marked "Easement to City of Boston", one hundred seventeen and 08/100 feet (117.08 ft.)
WESTERLY	by land of the Boston Redevelopment Authority, one hundred and twenty-three feet (123.00 ft.)
NORTHERLY	by land of said Authority, twenty-five feet (25.00 ft.)
WESTERLY	by land of said Authority, eighty feet (80.00 ft.)
NORTHERLY	by land of said Authority, seventy-five feet (75.00 ft.)
EASTERLY	by land of the Retina Foundation, seventy-four and 69/100 feet (74.69 ft.) and by land of the Boston Redevelopment Authority twenty-four and 34/100 feet (24.34 ft.)
NORTHERLY	by land of the Boston Redevelopment Authority fifteen feet (15.00 ft.)
EASTERLY	by land of the said Authority, one hundred and four feet (104.00 ft.)

containing 20,220 square feet of land.

A portion of said premises is registered land described in the following certificate of title issued by the Suffolk Registry District of the Land Court: a part of the land described in Certificate of Title No. 64278 and shown as Parcel 3 on Land Court Plan No. 1608C.

ALSO Doc 281846 LOT 344 cert 76263

COMMONWEALTH OF MASSACHUSETTS DEEDS EXCISE
REGISTERED LAND.

939305

CANCELLED

Also another parcel of land shown on said plan as "Easement to City of Boston" bounded and described as follows:

SOUTHERLY by Cambridge Street, one hundred seventeen and 08/100 feet (117.08 ft.)

WESTERLY by land of the Boston Redevelopment Authority, seventeen feet (17.00 ft.)

NORTHERLY by Parcel 6, on said plan, one hundred seventeen and 08/100 feet (117.08 ft.)

EASTERLY by land of the Boston Redevelopment Authority, seventeen feet (17.00 ft.)

containing 1,990 square feet of land.

A portion of said premises is registered land described in the following certificate of title issued by the Suffolk Registry District of the Land Court: a part of the land described in Certificate of Title No. 64278 and shown as Parcel 4 on Land Court Plan No. 16088.

This parcel marked "Easement to City of Boston" is to be used by the City of Boston as a public improvement in the layout of Cambridge Street.

The granted premises shall be subject to the following covenants:

1) The Grantee, for itself, and its successors and assigns, agrees that it will include the following provisions of this Section in every contract or purchase order which may hereafter be entered into between the Grantee and any party (hereinafter in this Section called "Contractor") for or in connection with the construction of the Improvements, or any part thereof, provided for in the Agreement:

"____. Equal Employment Opportunity. During the performance of this contract, the Contractor agrees with the Grantee as follows:

"(a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin.

Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Grantor setting forth the provisions of this nondiscrimination clause.

"(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color or national origin.

"(c) The Contractor will send to each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the Grantor, advising the said labor union or workers' representative of the Contracotr's commitments under this Section, and shall post copies of the notices in conspicuous places available to employees and applicants for employment.

"(d) The Contractor will comply with all provisions of Executive Order 10925 of March 6, 1961, as amended by Executive Order 11114 of June 22, 1963, and of the rules, regulations and relevant orders of the President's Committee on Equal Employment Opportunity created thereby.

"(e) The Contractor will furnish all information and reports required by Executive Order 10925 of March 6, 1961, as amended by Executive Order 11114 of June 22, 1963, and by the rules, regulations, and orders of the said Committee or of the Housing and Home Finance Agency pursuant thereto, and will permit access to the Contractor's books, records, and accounts by the Grantor, the Housing and Home Finance Agency, and the Committee for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

"(f) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further contracts in accordance with procedures authorized in Executive Order 10925 of March 6, 1961, as amended by Executive Order 11114 of June 22, 1963, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order or by rule, regulation, or order of the President's Committee on Equal Employment Opportunity, or as otherwise provided by law.

"(g) The Contractor will include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the President's Committee on Equal Employment Opportunity issued pursuant to Section 303 of Executive Order 10925 of March 6, 1961, as amended by Executive Order 11114 of June 22, 1963, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any construction contract, subcontract, or purchase order as the Grantor may direct as a means of enforcing such provisons, including sanctions for noncompliance: Provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Grantor, the Contractor may request the United States to enter into such litigation to protect the interests of the United States."

2) The Grantee, its successors and assigns and lessees, shall not discriminate upon the basis of race, color, creed or national origin in the sale, lease or rental or in the use and occupancy of the property or any improvements erected or to be erected thereon. This Covenant shall run in favor of the United States of America and as such the United States of America is the beneficiary of the covenant and is entitled to enforce it.

3) The Grantee, its successors and assigns and lessees, shall devote the granted premises to uses specified in Section 26LL of Chapter 121 of the Massachusetts General Laws and in the West End Land Assembly and Redevelopment Plan, recorded in Suffolk Deeds, March 15, 1960, and recorded in Book 7464, Page 321. Specifically, said premises shall be used for municipal library purposes.

This covenant shall run with the land for a period of fifty (50) years from July 22, 1957 and shall be automatically extended for successive ten (10) year periods unless terminated by a vote of a majority of the owners of land within the West End Project Area as defined in said West End Redevelopment Plan, with the approval of the Boston City Council.

4) The Grantee, its successors and assigns and lessees shall begin construction of the improvements on the premises within seven months from the date hereof, and shall complete such construction within one year thereafter, provided that such construction of improvements shall be in accordance with construction plans approved by the Boston Redevelopment Authority.

5) Prior to completion of the improvements as certified by the Authority (as hereinafter provided) the grantee, its successors and assigns shall not without the consent of the Authority make or create any total or partial sale, assignment, conveyance or lease, or any trust or power, or transfer in any other mode or form with respect to the premises, or any part thereof or interest therein.

6) Prior to completion of the improvements as certified by the Authority (as hereinafter provided) the grantee, its successors and assigns shall permit access to the property to representatives of the Authority and the United States of America whenever and to the extent necessary to determine that the construction of improvements is being carried out in accordance with said approved construction plans and the said Land Assembly and Redevelopment Plan.

7) Promptly upon completion of the improvements in accordance with said approved construction plans, the Authority will furnish the grantee with a Certificate of Completion, which Certificate shall be conclusive determination and termination of the covenant set forth in (3) above with respect to

8092 246

construction of the improvements and the dates for the beginning and completion thereof. Upon issuance of said Certificate, the covenants in (4) and (5) above shall also terminate.

All the above covenants shall run in favor of the Boston Redevelopment Authority, for the entire period during which such covenants shall remain in force and effect, without regard to whether the Boston Redevelopment Authority has at any time been, remains, or is an owner of any land or interest in the West End Project Area as defined in said West End Redevelopment Plan to, or in favor of, which such covenants relate. The Authority shall have the right in the event of any breach of said covenants, to exercise all the rights and remedies, and to maintain any actions at law or suits in equity or other proper proceedings to enforce the curing of such breach, including the right to obtain specific performance of the covenants to which such breach relates.

WITNESS the execution hereof under seal this 13th day of January, 1967, executed in duplicate.

BOSTON REDEVELOPMENT AUTHORITY
By: Kane Simonian
Title: Executive Director

THE CITY OF BOSTON
By the Trustees of the Public Library of the City of Boston
By: Jonathan O'Connell
Title: President

COMMONWEALTH OF MASSACHUSETTS

SUFFOLK, SS. Boston, January 13 1967

Then personally appeared the above-named Kane Simonian and acknowledged the foregoing instrument to be the free act and deed of the Boston Redevelopment Authority, before me

Araxi M. Hagopian
Notary Public
My commission expires: August 24, 1973

COMMONWEALTH OF MASSACHUSETTS

SUFFOLK, SS Boston, JAN 13 1967

Then personally appeared the above-named LEVIATHAN O'CONNELL and acknowledged the foregoing instrument to be the free act and deed of the City of Boston, before me

Kirk S. Clifton
Notary Public
My commission expires: OCT. 6, 1967

Approved as to Form:
General Counsel
Boston Redevelopment Authority

Approved as to Form:
Corporation Counsel
City of Boston

Jan. 16, 1967. At 3 o'clock & 19 mins. P.M. Rec'd. Ent'd. & Exam'd. -100

Form LCP-S3. 4M-11-61-931709

76263

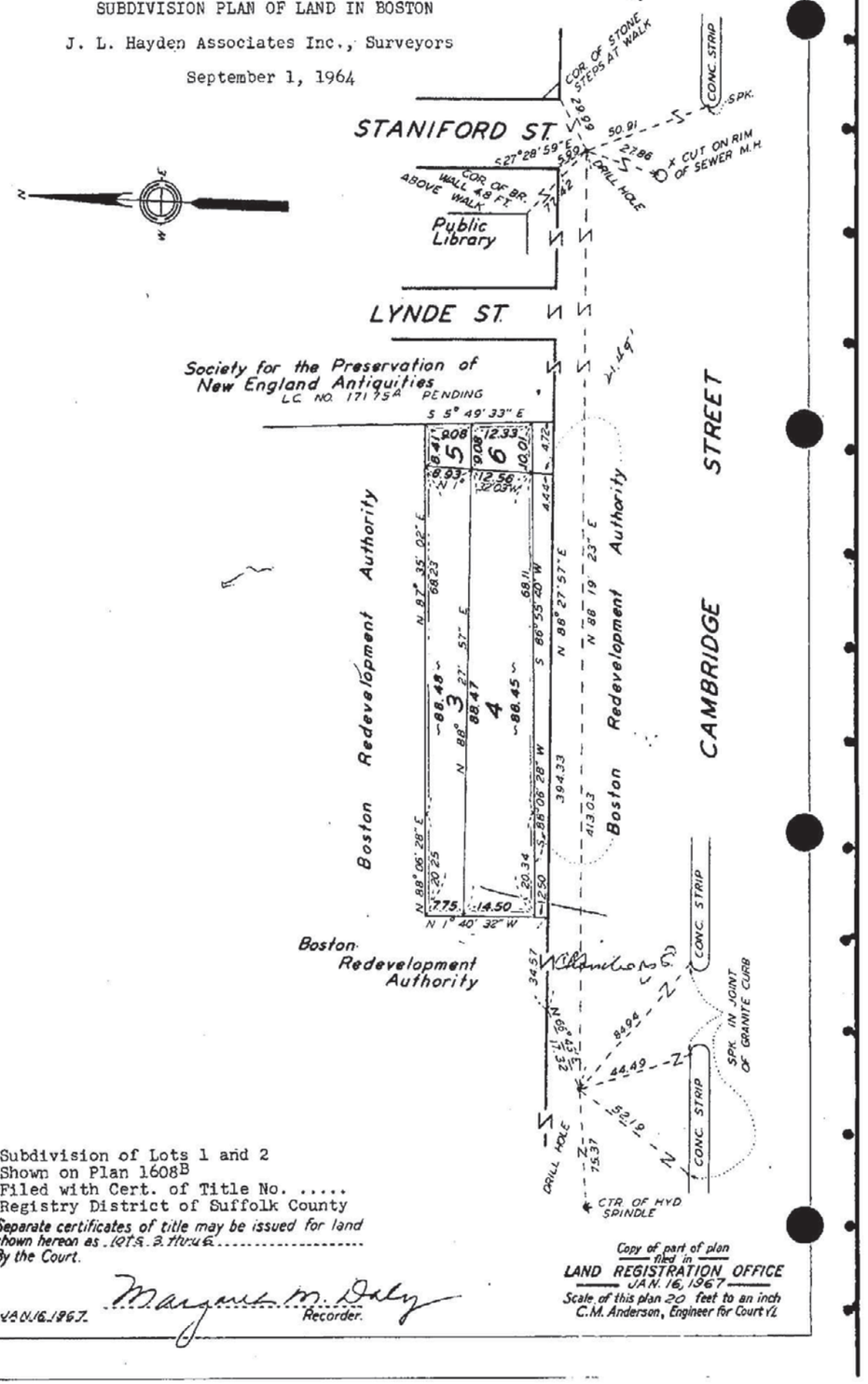
Planned 5/24/61

1608C

SUBDIVISION PLAN OF LAND IN BOSTON

J. L. Hayden Associates Inc., Surveyors

September 1, 1964



Subdivision of Lots 1 and 2
Shown on Plan 1608B
Filed with Cert. of Title No. .....
Registry District of Suffolk County

Separate certificates of title may be issued for land shown hereon as Lots 3 thru 6
By the Court.

JAN 16 1967
Margaret M. Daly
Recorder.

Copy of part of plan filed in LAND REGISTRATION OFFICE JAN. 16, 1967
Scale of this plan 20 feet to an inch
C.M. Anderson, Engineer for Court

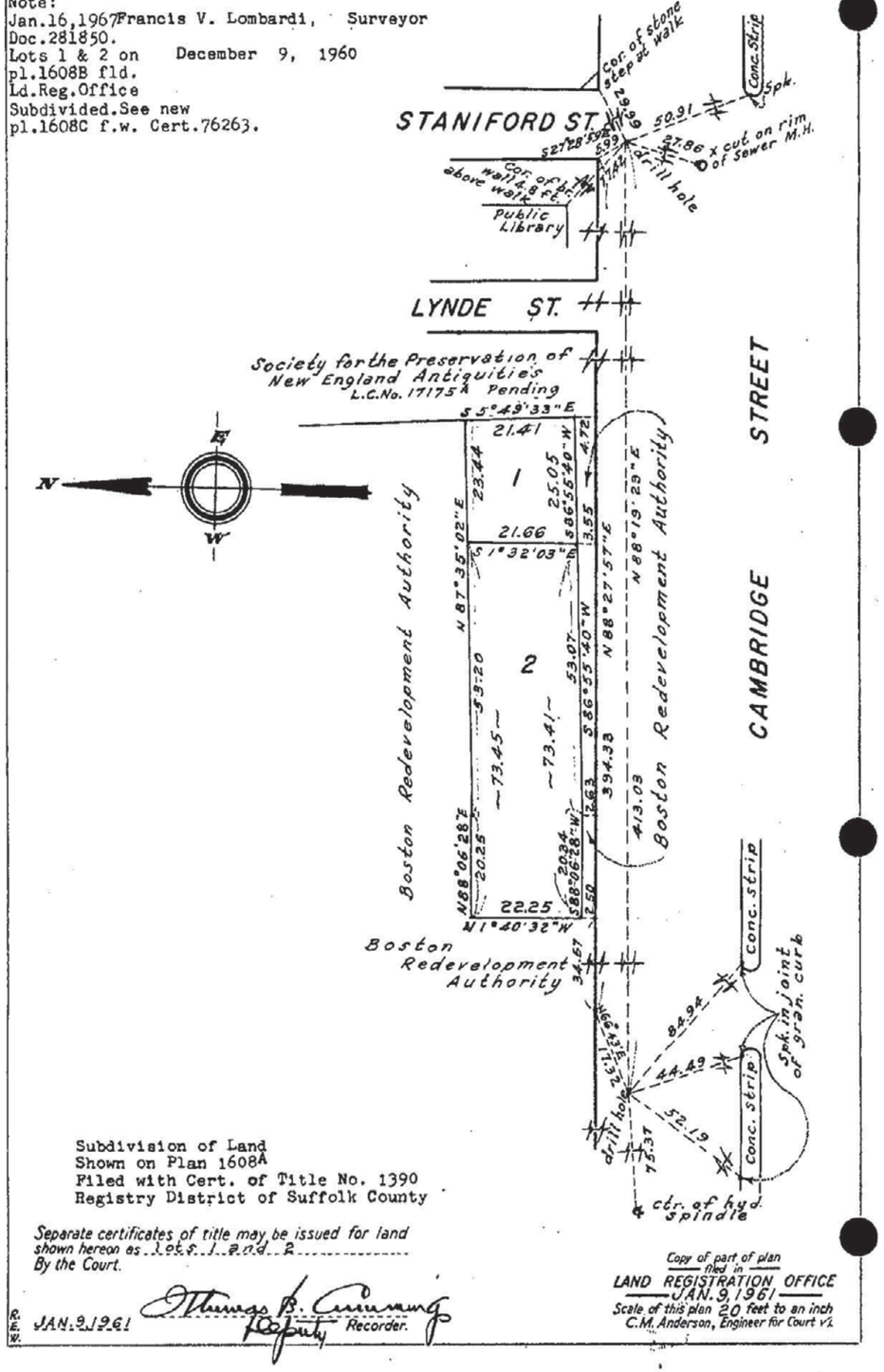
Form LCE-S-3. 481-11-58-023979

76263

1608B

SUBDIVISION PLAN OF LAND IN BOSTON

Note:
Jan.16,1967 Francis V. Lombardi, Surveyor
Doc.281850.
Lots 1 & 2 on December 9, 1960
pl.1608B fld.
Ld.Reg.Office
Subdivided.See new
pl.1608C f.w. Cert.76263.



Subdivision of Land
Shown on Plan 1608A
Filed with Cert. of Title No. 1390
Registry District of Suffolk County

Separate certificates of title may be issued for land shown hereon as Lots 1 and 2 By the Court.

JAN.9 1961 Thomas B. Cummings Deputy Recorder.

Copy of part of plan filed in LAND REGISTRATION OFFICE JAN.9,1961
Scale of this plan 20 feet to an inch
C.M. Anderson, Engineer for Court

63

PARTIAL **Transfer Certificate of Title** No. 76263

From Certificate No. 64278, Originally Registered October 2, 1958

in Registration Book 317 Page 78 for the Registry District of Suffolk County.

This is to Certify that CITY OF BOSTON, a Municipal corporation, located

of in the County of Suffolk and Commonwealth of Massachusetts,

married

is the owner

in fee simple

of that certain parcel of land situated in Boston

in the County of Suffolk and Commonwealth of Massachusetts, bounded and described as follows:

Southerly, eighty-eight and 45/100 (88.45) feet,
Westerly, twenty-two and 25/100 (22.25) feet, and
Northerly, eighty-eight and 48/100 (88.48) feet, all by land now or formerly of Boston Redevelopment Authority; and
Easterly by lots 5 and 6 as shown on plan hereinafter mentioned, twenty-one and 49/100 (21.49) feet.

Said land is shown as lots 3 and 4 on a subdivision plan drawn by J.L. Hayden Associates Inc., Surveyors, dated September 1,1964, as approved by the Court, filed in the Land Registration Office as plan No.1608-C, a copy of a portion of which is filed with Certificate of Title No.76263.

The above described land shall have the benefit of taking registered as Document No.233030.

The above described land is subject to the rights, easements and conditions set forth in deed from the Boston Redevelopment Authority to the City of Boston, filed and registered as Document No.281846.

Address of owner: Boston, Mass.

And it is further certified that said land is under the operation and provisions of Chapter 185 of the General Laws, and that the title of said

CITY OF BOSTON

to said land is registered under said Chapter, subject, however, to any of the encumbrances mentioned in section forty-six of said Chapter, which may be subsisting, and subject also as aforesaid.

ELWOOD H. HETTRICK,

WITNESS, ~~JOHN K. KELLEY~~, Esquire, Judge of the Land Court, at Boston, in said County of Suffolk, the sixteenth day of January in the year nineteen hundred and sixty-seven at 3 o'clock and 19 minutes in the after noon.

Attest, with the Seal of said Court,

Edward V. Foley
Acting Assistant Recorder.

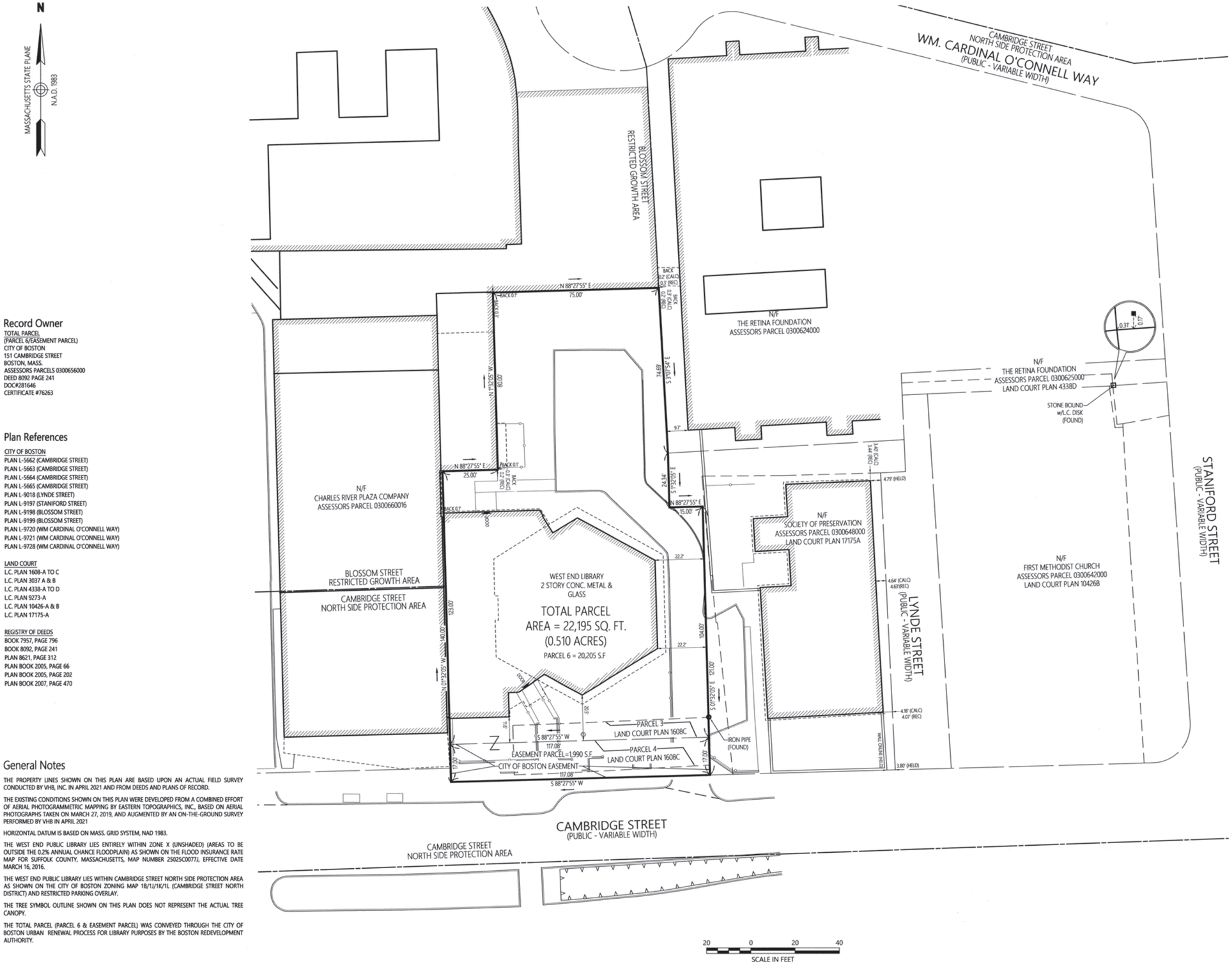
12

MEMORANDA OF ENCUMBRANCES ON THE LAND DESCRIBED IN THIS CERTIFICATE

Document Number	Kind	Running in Favor of	Terms	Date of Instrument	Date of Registration					Signature of Assistant Recorder	Discharge	
					Year & Month	D.	H.	M.	A.M. or P.M.			

(SEE OVER)

APPENDIX K:
Site Survey



Record Owner

TOTAL PARCEL
(PARCEL 6/EASEMENT PARCEL)
CITY OF BOSTON
151 CAMBRIDGE STREET
BOSTON, MASS.
ASSESSORS PARCELS 0300656000
DEED 8092 PAGE 241
DOC#281646
CERTIFICATE #76263

Plan References

CITY OF BOSTON
PLAN L-5662 (CAMBRIDGE STREET)
PLAN L-5663 (CAMBRIDGE STREET)
PLAN L-5664 (CAMBRIDGE STREET)
PLAN L-5665 (CAMBRIDGE STREET)
PLAN L-9018 (LYNDE STREET)
PLAN L-9197 (STANIFORD STREET)
PLAN L-9198 (BLOSSOM STREET)
PLAN L-9199 (BLOSSOM STREET)
PLAN L-9720 (WM CARDINAL O'CONNELL WAY)
PLAN L-9721 (WM CARDINAL O'CONNELL WAY)
PLAN L-9728 (WM CARDINAL O'CONNELL WAY)

LAND COURT
L.C. PLAN 1608-A TO C
L.C. PLAN 3037 A & B
L.C. PLAN 4338-A TO D
L.C. PLAN 9273-A
L.C. PLAN 10426-A & B
L.C. PLAN 17175-A

REGISTRY OF DEEDS
BOOK 7957, PAGE 796
BOOK 8092, PAGE 241
PLAN 8621, PAGE 312
PLAN BOOK 2005, PAGE 66
PLAN BOOK 2005, PAGE 202
PLAN BOOK 2007, PAGE 470

General Notes

1) THE PROPERTY LINES SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL FIELD SURVEY CONDUCTED BY VHB, INC. IN APRIL 2021 AND FROM DEEDS AND PLANS OF RECORD.
2) THE EXISTING CONDITIONS SHOWN ON THIS PLAN WERE DEVELOPED FROM A COMBINED EFFORT OF AERIAL PHOTOGRAMMETRIC MAPPING BY EASTERN TOPOGRAPHICS, INC., BASED ON AERIAL PHOTOGRAPHS TAKEN ON MARCH 27, 2019, AND AUGMENTED BY AN ON-THE-GROUND SURVEY PERFORMED BY VHB IN APRIL 2021
3) HORIZONTAL DATUM IS BASED ON MASS. GRID SYSTEM, NAD 1983.
4) THE WEST END PUBLIC LIBRARY LIES ENTIRELY WITHIN ZONE X (UNSHADED) (AREAS TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR SUFFOLK COUNTY, MASSACHUSETTS, MAP NUMBER 25025C0077J, EFFECTIVE DATE MARCH 16, 2016.
5) THE WEST END PUBLIC LIBRARY LIES WITHIN CAMBRIDGE STREET NORTH SIDE PROTECTION AREA AS SHOWN ON THE CITY OF BOSTON ZONING MAP 1B/1I/1K/1L (CAMBRIDGE STREET NORTH DISTRICT) AND RESTRICTED PARKING OVERLAY.
6) THE TREE SYMBOL OUTLINE SHOWN ON THIS PLAN DOES NOT REPRESENT THE ACTUAL TREE CANOPY.
7) THE TOTAL PARCEL (PARCEL 6 & EASEMENT PARCEL) WAS CONVEYED THROUGH THE CITY OF BOSTON URBAN RENEWAL PROCESS FOR LIBRARY PURPOSES BY THE BOSTON REDEVELOPMENT AUTHORITY.

vhb.com
vhb
101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

West End Library

151 Cambridget Street
Boston, Massachusetts

No.	Revision	Date	Appvd.

Designed by | Checked by
Issued for | Date

August 31, 2021

Drawing Title
Plan of Land

Drawing Number
Sv-1

Sheet 1 of 1

Project Number
15000.01

COMMONWEALTH OF MASSACHUSETTS
RUSSELL J. BOUSQUET
NO. 39388
REGISTERED PROFESSIONAL LAND SURVEYOR
9/30/2021