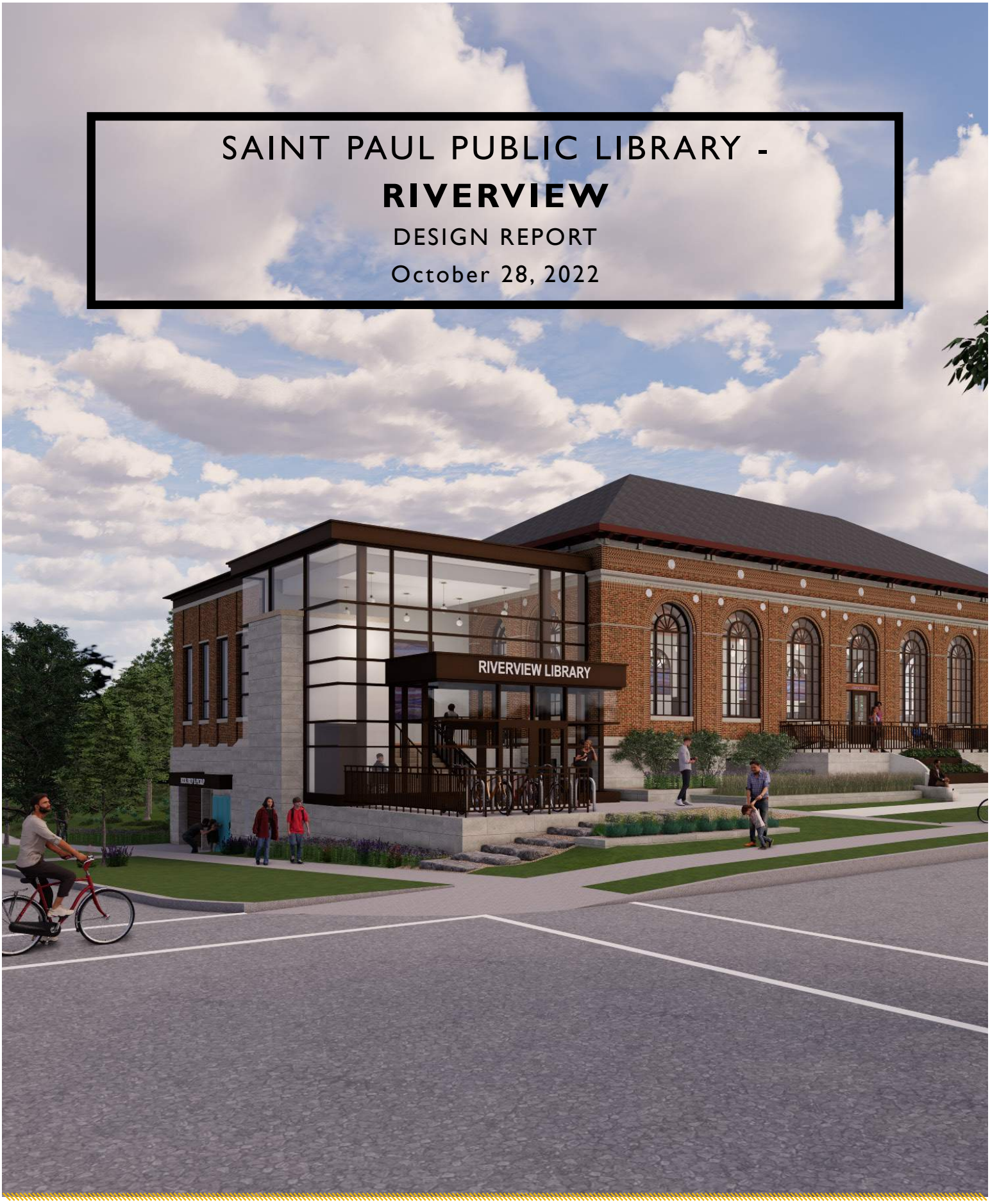
SAINT PAUL PUBLIC LIBRARY -
RIVERVIEW
DESIGN REPORT
October 28, 2022



SAINT PAUL PUBLIC LIBRARY

LSE ARCHITECTS

Design Report

Riverview Library

1 George St East
Saint Paul, Minnesota 55107

Prepared for
Saint Paul Public Library
90 West 4th Street
Saint Paul, Minnesota 55102

Project Number 1004465

Prepared by:
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October 28, 2022

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PROJECT DESCRIPTION

PROJECT OBJECTIVES

Saint Paul Public Library intends to refurbish the existing Riverview Library to update the current library and make it more efficient, welcoming, and user friendly. Riverview Library is located at 1 George Street in Saint Paul, Minnesota.

The renovation of Riverview Library intends to further Saint Paul Public Library's mission to welcome all people to connect, learn, discover, and grow through:

- Safe, inviting, affirming, and comfortable libraries for people of all cultures, abilities, and communities
- Improved accessibility
- Additional spaces and study rooms for communities to gather, work, study, and collaborate
- Separation of quiet and loud spaces
- Enhanced play and learn space
- Technology-rich environments

PROJECT BACKGROUND

Riverview Library is one of three Carnegie libraries in Saint Paul. Built in 1917, the library predates the building, having started in a nearby drug store. Located in a community that has historically had a significant population of English language learners, the library has featured a significant foreign language collection that has shifted as communities change and grow.

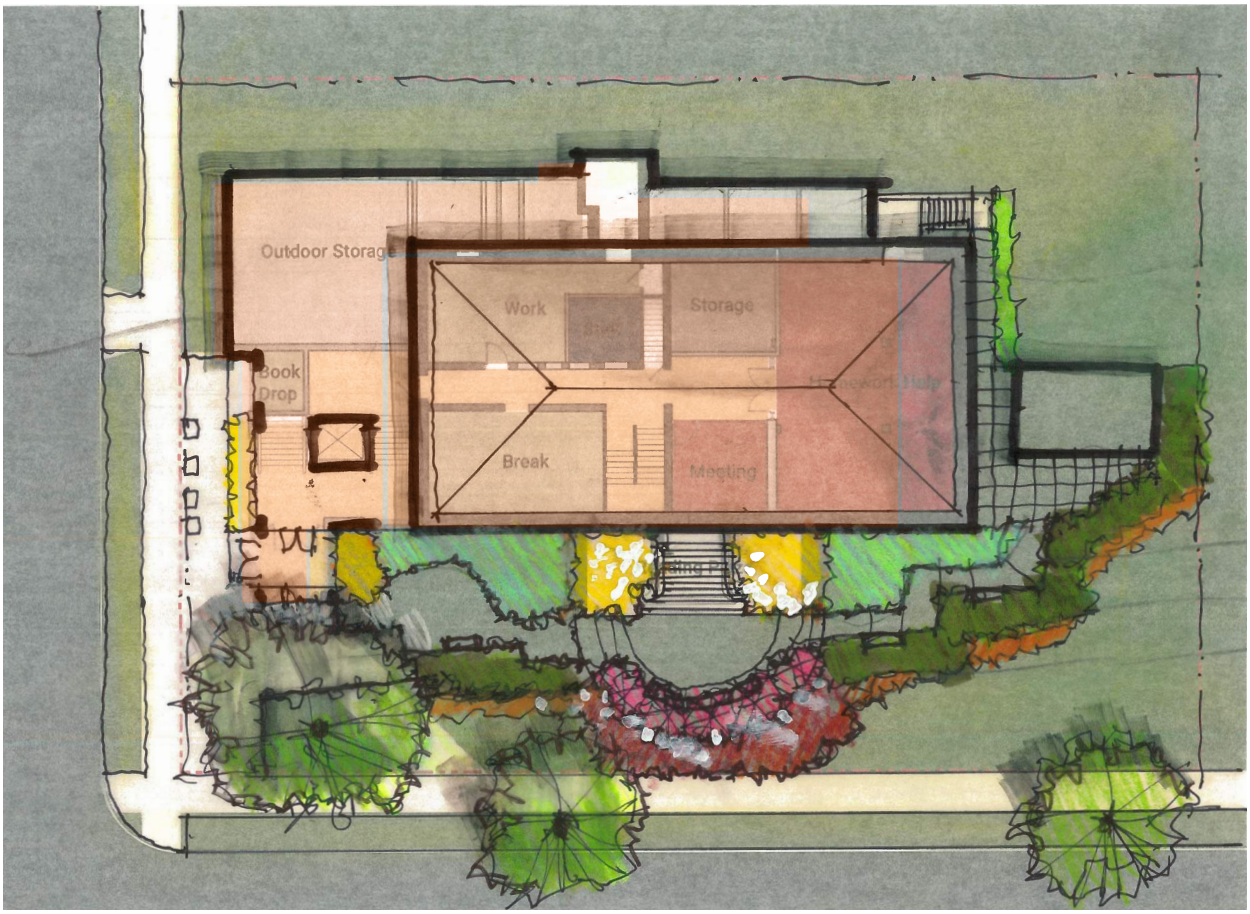
In the 1950s the library underwent an interior renovation that lowered the main reading room's ceiling and removed most of the original interior features. In the late 1980s the library underwent a second renovation that attempted to recreate many original features and provide an accessible entrance and elevator.

The library exterior was placed on the National Register of Historic Places in 1984.

LSE Architects and its team of engineers, artists, and building consultants were selected in October 2021 to provide design, community engagement, and construction services for the Riverview Library. The scope of the project was identified as being a renovation of the existing building with an addition to support the needs of the Saint Paul Public Library.

In spring of 2022 LSE Architects issued a pre-design report with two proposed concepts and with input from the community, Saint Paul Public Library chose Concept B that provides a new grade level entry for a more equitable experience. The expansion is to both the North and West building elevations, both of which have previously been altered from the original 1917 facade design. As in option a, this options moves the public spaces, community room and restrooms to the main level for improved safety and security.

Through Schematic Design, the design of the entry was studied and the newest option reflects a desire to preserve the primary façade of the building and a new simplified addition that compliments the existing building.



Site Plan as presented in pre-design

SPACE AND PROGRAM

OVERALL GROSS SQUARE FOOTAGE

Existing:	8,328 sq. ft.
Final Area:	11,063 sq. ft.
Net Change:	+2,735 sq. ft.

PROGRAM SUMMARY

Children
- Children's Collection
- Early Literature Collection
- Play and Learn Space
- Story Time Area
- Computers
- Comfortable Seating for Families

Teen
- Computers
- Teen Collections
- Teen Collaborative/Study Spaces
- Comfortable Seating

Adult
- Computers
- Collections
- Periodicals
- World Language
- Study/Reading areas
- Comfortable Seating

Gathering
- Meeting Rooms
- Study Spaces for quiet and collaborative use
- Outdoor Reading/Programming Space

Service Space
- Service Desk
- Self Check-Out
- Printer/Copier Space
- Book Return (Interior and Exterior)
- Community Information Area
- Holds Area

Staff
- Staff Workroom
- Staff Restroom
- Material Handling
- Breakroom
- Collaborative Work Area

Building Support
- Toilets
- Mechanical/Utility Room
- Data/Netcom Room
- Janitor's Closet
- Entry Vestibules

SITE AND BUILDING AREA

Site Location: Corner of George Street and Humboldt Avenue in Saint Paul, Minnesota

Site Area: 0.34 acres

Gross Building Areas:

Existing Building Area	8,328 sq. ft.
Final Building Area	11,063 sq. ft.
Net Change	+2,735 sq. ft.

CODE SUMMARY

Applicable Codes

2018 International Building Code
2018 International Mechanical Code
2018 National Electrical Code (NFPA 70-2017)
2020 Minnesota State Building Code
2020 Minnesota State Fire Code
2020 Minnesota State Energy Code
NFPA 13 Installation of Fire Sprinklers (Latest Edition)
2018 International Energy Conservation Code
2020 Minnesota Accessibility Code

Occupancy Classification: Assembly Group A-3, Library

Type of Construction: Type IIIB

Building Area:

Allowable: 8,500 sf (unsprinkled); 25,500 (sprinkled)
Existing: 8,238 sf
New: 11,063 sf

Currently the building is unsprinkled. In the renovation sprinklers will be added.

HISTORIC DESIGNATION

Riverview Library is designated on the National Register of Historic Places and is locally designated.

The design took into account guidelines listed in *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. The project has received an initial review by Saint Paul Heritage Preservation staff and will be reviewed formally by the Saint Paul Heritage Preservation Commission (HPC) at the time of funding. If state funding is allocated to this project it may be required to be reviewed by the Minnesota State Historic Preservation Office (SHPO).

ZONING SUMMARY

Zoning and Local Requirements

The site is zoned RT1 (two family residential district) and there is no need to re-zone the site. There is currently no parking at this library and there is not expected to be parking at the completed library.

Zoning District	Lot Size Minimum		Building Height Maximum		Yard Setback Minimum (feet)		
RT1 two family	Area (Sq ft)	Width (ft)	Stories	Feet	Front	Side	Rear
	3000	25	3	40	25	9	25

Principal use: public library

This use is permitted in this zoning district

Zoning District Actual	Lot Size Actual		Building Height Maximum		Yard Setback Minimum (feet)		
RT1 two family	Area (Sq ft)	Width (ft)	Stories	Feet	Front	Side	Rear
	~14,800	25	3	40	25	9	25

Off-Street Parking Requirements:

Uses	Minimum Parking Spaces (No parking minimums)	Maximum Parking Spaces (1 per 350 SF*)	Existing Parking	Required Bike Parking (1 per 500 SF)
Library, Public	0 Spaces	33 Spaces	0 Spaces	17 Spaces

Bicycle Parking Requirements:

Minimum: 3 (1 space per 5,000 sf of GFA)

SITE WORK

SITE LOCATION AND LAYOUT

The existing Riverview Library site is located on the north side of George Street in Saint Paul and is bounded by Humboldt Avenue to the west, a private residence to the east, and undeveloped land to the north with significant grade change.

There is no parking lot associated with the library, however there is street parking on one side of George Street and both sides of Humboldt Avenue. The existing front entry includes bike racks and benches adjacent to the flag pole. The current ADA access for the building is located at the lower level entrance on the west side of the building and is not immediately evident.

The proposed improvements include a building addition to the north and west sides of the existing structure. In addition, the main entrance will be relocated to the southwest corner of the building near the intersection of George Street and Humboldt Avenue.

REGULATORY/PERMITTING AGENCIES

The following entities have regulatory authority for work associated with site improvements:

- City of Saint Paul
- Lower Mississippi River Watershed Management Organization
- Minnesota Department of Labor and Industry

SANITARY SEWER

Based on as-built maps from the city of Saint Paul, it is anticipated that there is an existing sanitary sewer located in both George Street and Humboldt Avenue. The original 1917 mechanical drawings were not legible and it is undetermined as to the exact size and location of the sanitary service into the building.

Based on available information, the library is still utilizing the original sanitary service from the 1917 construction. It is very likely that this service was constructed of vitreous clay and is now more than 100 years old. The existing sanitary service will be abandoned per city requirements and a new sanitary service will be constructed from the city main to the new addition.

WATER MAIN

There is an existing 12" city watermain located in George Street. The water service for the property aligns approximately with the east side of the front entry stairs based on the record drawings from Saint Paul Regional Water Services. The mechanical drawings from the original 1917 construction were not legible and no verification of water service size or location was able to be completed.

The existing water service should be cut at the main and abandoned per city requirements. A new combined domestic water and fire service will be constructed from the city main to the new building addition.

There is an existing fire hydrant located at the intersection of George Street and Humboldt Avenue. This hydrant serves as the source of fire protection for the library.

STORM SEWER

Based on as-built maps from the city of Saint Paul, there is an existing 18" RCP storm sewer in Humboldt Avenue. Records indicate that an 8' storm sewer service was constructed to the latest addition at the northwest corner of the building.

There are several roof drainage downspouts that discharge to grade on the north side of the building. It is unknown if there are any internal roof drains in addition to these downspouts. If any internal roof drains exist, it appears that the sanitary sewer and storm sewer are combined. Common practice for building renovations is to separate the storm sewer and sanitary sewer as they have very different pollutant types and required treatments. This should be evaluated with the building improvements. A new dedicated storm sewer service should be planned for both the existing structure and the new addition.

TELECOMMUNICATIONS, GAS, AND ELECTRICAL

The local telecommunications provider is Centurylink. They have a telecom line that runs on the west side of Humboldt Avenue.

The local provider for electrical service is Xcel Energy. There are underground electrical lines on the east side of Humboldt Avenue. A 3-wire service is routed to the north side of the building.

The local provider for gas service is Xcel Energy. There is a gas main on the north side of George Street. The existing gas service branches off the main in the general area of the main entry. The mechanical drawings from the original 1917 construction were not legible and no further verification of gas service location was completed.

See the mechanical engineering narrative for further information regarding the adequacy of the existing gas, electric and telecommunication services.

GRADING AND DRAINAGE

A boundary and topographic survey was recently completed for the site. The landscaping and adjacent concrete sidewalk generally appear to have adequate slope away from the building. The new building entry proposed at the southwest corner of the building should be constructed to ensure proper ADA access.

There is notable grade change on the west side of the building. Further evaluation of the proposed addition will be required to determine if any retaining walls will be needed. Likewise, there is an existing concrete retaining wall along the north property line. Further evaluation of the proposed addition will review the grades in this area, but it is anticipated that the existing concrete retaining wall will be removed.

STORMWATER MANAGEMENT

The site is located within the City of Saint Paul and the Lower Mississippi River Watershed Management Organization. Site development/redevelopment projects are required to meet the following standards for the city of Saint Paul:

•Runoff Rate – Proposed runoff shall not exceed 1.64 cubic feet per second per acre of site.

In accordance with the city of Saint Paul requirements, all site improvements that disturb over one-quarter of an acre will have to provide stormwater management. The total library property is approximately 0.35 acres, however it anticipated that the total site improvements will be less than one-quarter acre in disturbed area. Any significant redevelopment of the site, including full building replacement, would be subject to the stormwater management requirements.

Current B3 stormwater management guidelines (Section S.2) are applicable for any projects renovating more than 2,000 sq. ft. of impervious surface. It is likely that the select site improvements will exceed this amount and that the project will need to incorporate a stormwater management system to address the rate control and runoff volume requirements for B3. Two rain gardens are anticipated on the east and west sides of the site along with a connection to the existing adjacent storm sewer infrastructure in the public streets.

PAVEMENT CONDITIONS

There is no dedicated parking lot for the library and most patrons that drive to the location use street parking on George Street and Humboldt Avenue. The proposed site improvements include new sidewalks and access to the new building entry.

LANDSCAPE

Site Description

The Riverview Library is located on an approximately 15,500 sf (.35 acre) property in Saint Paul, Minnesota along George Street E to the south and Humboldt Avenue to the west. The site hosts a 5,000 sf footprint library building that is a multi-story brick building listed on the National Register of Historic Places as a Carnegie library. The building is located in the central portion of the site, surrounded by green space that is largely unprogrammed lawn and plant beds. There are two existing entries to the library building, on the west and north sides of the building. The main building entrance faces south toward George St E and is accessed by a large set of steps. The accessible entrance faces west toward Humboldt Ave, downslope from the main entrance, inherently providing access at this location in the library basement. There is a significant amount of topography on the west side of the property, and the updated site design seeks to improve access with a new main entrance as part of a building expansion on the west side of the site.

Site improvements intend to align aesthetically with the historic style of architecture combined with a modern-style building addition, and take advantage of underutilized outdoor spaces to expand seasonal programming and amenities at the library. The new site design will create easy and safe access to the library for the public who arrive using various transportation methods.

Specific programmatic improvements include an outdoor gathering and garden space approximately 1,000 sf in size that will be added to the northeast portion of the site. This outdoor space will include a 580 sf concrete paver patio with several benches as seating elements to be used as an outdoor learning space, presentation space, or reading room. This space will have an overhead freestanding traditional-style painted steel pergola structure approximately 24'x24' for shade. A stabilized decomposed granite area will fill another 420 sf of this area and feature approximately six (6) large raised garden beds to be used as community/demonstration edible gardens. This outdoor space will be surrounded by an 8' wide min. planting bed featuring large shrubs and perennials. Lighting bollards will be internal to this space.

One other programmatic improvement to the site includes an outdoor reading plaza approximately 580 sf in size that will be located along the south façade of the building. This outdoor space will be surfaced in concrete pavers, laid out in a decorative pattern with a minimum of two colors of pavers. Furnishings within this space will be a series of custom curved wooden benches on the exterior perimeter of the paver patio area. The perimeter of the reading plaza will be densely planted with shrubs and perennials. Lighting bollards will be internal to the reading plaza garden.

Along the east side of the building a fenced in reading garden to accommodate storytime will be constructed. This space will have planting beds along the edge that could be used for community gardens.

Black painted aluminum fencing similar to AmeriStar brand "Montage" style fencing will be installed along the entire site perimeter, with the exception of the southwest corner where new path access is proposed. An 8" wide flush concrete maintenance strip will be installed along the base of the run of the fencing for maintenance ease. Pockets of shrub and perennial beds will be installed on the southern portion of the site between the building and George St E, totaling around 1000 sf

of plant bed. New foundation plantings will be installed along the entire perimeter of the building footprint, including the new addition. The remainder of the green space on the site is relatively limited and will be improved but left predominantly unprogrammed. These spaces will be re-sodded.

CIRCULATION

Pedestrian and bicycle circulation improvements will all occur on this site. There is no parking on the site, therefore no improvements to parking areas will occur.

The overall square footage of concrete sidewalk will increase by a few hundred square feet, and be completely re-configured to accommodate appropriate circulation and access to the new main entrance at the building expansion. The city-owned sidewalks along George St E and Humboldt Ave will be completely replaced to address cracked and failing surfaces.

LANDSCAPE

Landscape improvements throughout the site include the following:

Soil amendments will occur where existing soils are tested and prove to require remediation or amendment to provide optimal growing conditions for trees, shrubs, perennials, and turf grass. This will be especially important at greenspace locations adjacent to hard surfaces that may see salt/sand operations in the winter.

Plant bed replacement and additions will occur as noted above, as well as a new large shrub and columnar tree screening bed along the east property line. Green spaces not captured in this plant bed area will be re-sodded.

Several trees should be accounted for to add vertical interest and shade canopy to the site. Trees will be installed at minimum to meet the city's minimum caliper requirements. Trees will be added at the outdoor gathering space and reading plaza areas for shade, and near the main building entrance.

Hardwood mulching will occur at all tree locations and within all plant beds. Metal edging will occur at the perimeters of all plant beds where not abutted by concrete walk, as well as along the perimeter of any decomposed granite areas.

SITE FURNISHING

All existing site furnishings will be removed. New site furnishings will include benches, planters, bike racks, trash receptacles, artwork, site lighting, book locker, and an enclosed reading garden.

Multiple modern-style wooden benches (potentially ipe or similar hardwood) will be surface-standing near the building main entrance to accommodate those waiting for the bus or other forms of transportation to/from the library. This same style bench will be features throughout the outdoor gathering space at the paver patio beneath the pergola structure, yet the benches at this location will be freestanding.

A custom wood-top and metal-frame curved bench will be installed in the reading plaza. A reader's tall-back adirondack chair will be added to the center of this space.

10 single-hoop embed-mounted bike racks will be installed near the building main entrance.

Various stand-alone planters for perennial plantings will be installed near the building main entrance and within the reading. These will be round concrete planters, approx. 3' in height and 3' in width.

A traditional-style powdercoated steel overhead pergola structure approx. 24'x24' will cover the south outdoor gathering space, and be freestanding in the landscape.

A trash and recycling receptacle pairing will be located in each of the following locations: main entrance, reading plaza, outdoor gathering space.

The project artist will be engaged to install various pieces of artwork throughout the site, including near the main entrance and in the reading plaza. These sculptures will vary in size, but be near human-scale.

LED lighting bollards will be installed approx. every 20' surrounding the perimeter of the northern and southern programmed spaces, as well as along all sidewalks leading toward the main building entrance from both parking lots. Architecture and/or MEP may specify additional lighting packs or safety lighting attached to the building or at the building main entrance, see other's narratives.

IRRIGATION AND STORMWATER

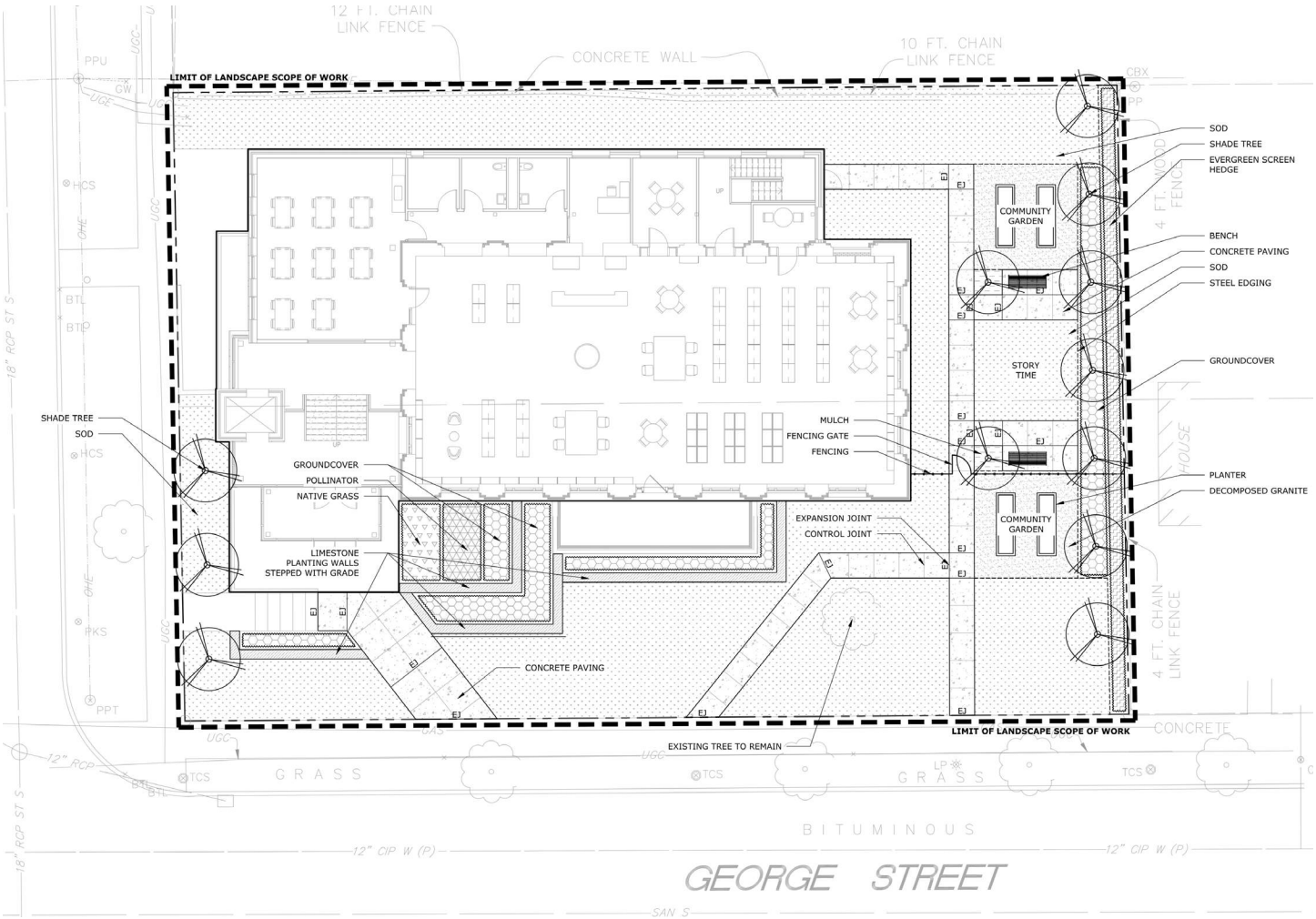
There is an existing irrigation system throughout the site that will be evaluated and updated to accommodate the revised site plan layout, planting type water needs, and modern irrigation technology. Any new plantings will be connected to the irrigation system to maintain plant health and vigor, including bubblers on trees, spray at lawns, and drip-line in plant beds.

Scuppers providing drainage from the roof at the roof-level will be directed into down-spouts and connected to storm drains to decrease runoff on site (see civil for further information on stormwater).

A hose bib will be located near the outdoor community raised garden beds for garden irrigation.

CONCLUSION

The site concept design for Riverview Heights will increase outdoor space usage for activities, storytelling, gardening programming, and general gathering to enjoy the exterior of the site seasonally and from a visual connection to the interior spaces. Improvements to the site will also improve access to the library, improve the visual presence of the library site within the City of Saint Paul, and allow for enhanced and growth in library programming.



Landscaping Site Plan

ARCHITECTURE AND INTERIORS

FORM AND DESIGN

Riverview Library is a historic building with a significant number architectural details on the exterior of the building and an interior that is generally not original but includes a restored ceiling faithful to the original building. The refurbished Riverview Library will keep these historic elements and provide a new accessible entrance and new programming space on the main level of the library, greatly expanding the services provided by this branch.

Relocating the community room, a meeting room, and study room to the main level of the library will allow for access to quiet and assembly spaces during more hours of the library and new toilet rooms adjacent to the service desk will be safer and more accessible. Finally, a new stair will provide a second emergency exit point from the library floor and better access to the library floor by staff. The lower level will be staff only except for limited mediated use in the lower level flex room.

The new addition preserves the historic character of the existing building. With a simple glass addition the existing West façade remains visible from the exterior of the building. Addition is shorter than existing building, sits slightly behind primary facade, and is a simple form making it visually subordinate.

The exterior of the meeting room and rear addition are brick and stone to compliment the existing building with punched openings that align with the punched openings on the interior. The rear addition steps down to allow northern light through the top of the existing windows.

INTERIORS

Flexibility for the collections and library spaces is a main objective for the floor plan. This is achieved through selective demolition of the existing building components that constrict the existing spaces. By introducing a curved form, the floor plan allows for easy re-arrangement of furniture to fit any new programmatic uses.

Ceilings

Two types of acoustical ceiling tile (ACT) will be installed in the main library space and in the meeting room. The use of different ceiling heights will differentiate spaces and help control noise. At the teen and adult areas within the new addition there will be exposed acoustical deck. Toilet rooms will have gypsum board ceilings, and the Mechanical/Electrical Room will remain existing exposed deck.

Floor Finish

Carpet tiles are utilized throughout public and staff workroom areas. Toilet rooms will have porcelain tile floor and base. The utility room will be an existing concrete floor.

Wall Finish

New wall surfaces would primarily have painted gypsum board with the use of wood facing and paneling in select areas. Toilet rooms will have ceramic tile wainscot. Meeting rooms will have glass walls to allow for visibility and sound transmission control. Glass walls facing the interior of the library will have cloaking film to keep presentations from being readable in the main library.

Furnishings

The existing library furniture is heavily used, worn, and near the end of its useful life. New furnishings for public spaces and staff work areas will be durable, easily cleanable and comfortable for a wide range of patrons and uses. Flexible furniture that can be easily reconfigured is important. Electrical outlets will be provided at tables and seating areas for patron use.

ACOUSTICAL TREATMENT

Being under 20,000 square feet, the project is able to meet its acoustic properties using the B3 Small Buildings Method. Most of the Library is classified as Occupancy Group A. The recommended partition Sound Transmission Class (STC) ratings required for B3 are:

Between Occupancy Groups A and B:

- STC 60 between regularly occupied spaces
- STC 55 between regularly occupied space and circulation

Within Occupancy Group A:

- STC 55 between regularly occupied spaces
- STC 50 between regularly occupied space and circulation

Within Occupancy Group B:

- STC 45 between regularly occupied spaces (offices)
- STC 40 between regularly occupied space and circulation (office/circulation)

Sound isolation requirement for mechanical spaces is STC 50.

Mechanical Noise Control

MN B3 Small Building Guidelines does not include requirements for library background noise levels, but the recommended max level is NC 40 (45 dBA). For state funded projects MN B3 and Minnesota Statute §16C.054 require adequate acoustic conditions of gathering spaces and accommodation for hard-of-hearing for all spaces which accommodate and are intended for gatherings of 15 or more people, and where audible communications is integral to the use of the space:

- Include audio-induction loops to provide an electromagnetic signal for hearing aids and cochlear implants if a permanent audio amplification system is present in the space.
- The space must meet the American National Standards Institute Acoustical Performance Criteria, Design Requirements and Guidelines for Schools (public buildings) for:
  - Maximum background
  - Reverberation times

For this size assembly space the maximum background noise level requirement is 35 dBA (NC 30) and RT requirement is 0.7 seconds @ 500, 1k,and 2k Hz.

The above requirement apply to the Community room, and potentially to the flex space.

Room Acoustics

All Regularly Occupied Spaces need to meet the B3 Reverberation Time, or average area weighted NRC-requirements. These include:

- Service/Teen/Children Play
- Study
- Community Room
- Office
- Flex/Partner
- Staff Workroom
- Staff Huddle

Recommended room acoustical treatments for all Regularly Occupied Spaces to meet the B3 Reverberation Time requirements (MN B3 1.6.C.2 path i) include:

- Sound absorptive ceiling treatment rated minimum NRC 0.75. Options include ACT ceiling or clouds, direct attach acoustical panels, acoustical spray-on treatment, and vertical acoustical baffles.
- Acoustical wall treatment in Teen and Children's area. Options include fabric wrapped acoustical wall panels, acoustical felt, and acoustically transparent material with sound absorptive material placed behind. Minimum NRC 0.8.
- Acoustical wall treatment in the Community Room. Minimum NRC 0.8.
- Need for acoustical wall treatment in the Collections/Study/Tech will be determined based on the type of ceiling treatment selected.

SUSTAINABLE DESIGN AND B3

Sustainable Design

Riverview library will be submitted under B3 (Buildings, Benchmarks, and Beyond) and meet the Saint Paul sustainable overlay and SB 2030.

B3 Sustainable Building 2030 (SB 2030) is a program that tailors the Architecture 2030 program to the needs of Minnesota buildings. SB 2030 requires buildings built between 2020 and 2024 to be 80% more energy efficient than a typical baseline equivalent building. Because of this standard, Riverview Library will perform significantly better than its peer buildings at reducing carbon emissions.

Because of the size of Riverview Library, it is eligible for the Small Buildings Method. This path does not reduce the effectiveness of B3 but better caters the guidelines to projects under 20,000 SF where a prescriptive approach can be used to achieve some benchmarks.

SB 2030 will be achieved through:

- Construction of new addition using better than code thermal envelopes
- Replacement of aging mechanical equipment with new high-efficiency equipment
- Replacement of lighting and electrical systems with new lower energy lighting
- Purchase of renewable energy credits
- Research into the use of portfolio solar on other Saint Paul Library buildings

Other sustainable factors include:

- Low flow fixtures
- On site stormwater retention and treatment
- Use of low-water and native plantings
- Preservation of existing building materials when possible
- Construction waste diversion plan
- Use of carbon neutral products when available
- Bird safe glazing

STRUCTURAL SYSTEMS

EXISTING BUILDING INFORMATION

The original building was constructed in 1917. The roof framing is 2x wood rafter members bearing on the exterior masonry bearing walls. The main floor framing is a concrete slab supported on the exterior walls as well as on the interior masonry bearing walls or on an interior concrete beam over the original auditorium space. The concrete beams are supported on steel columns in the original auditorium space. The boiler room framing is a concrete slab supported on interior concrete beams and concrete columns.

The exterior storage building was added in 1990 and was constructed with wood 2x members supported on masonry bearing wall. However, this structure is being demolished for the addition.

REMODELING WITHIN EXISTING BUILDING

On the main level there are no interior bearing walls or columns. It is our understanding the existing exterior walls will remain as-is and any new opening will be location within an existing opening.

On the lower levels the corridor walls are bearing wall so if there are any new openings in the bearing walls new lintels will be required at these locations. As mentioned, the floor structure above the existing auditorium space is supported on interior steel columns. These columns are to remain as is.

ADDITION

The roof framing will be 1 ½ - inch steel deck supported on steel beams and columns. The typical floor framing will be composite concrete steel system. The slab will be 3 ½ - inch of concrete over 2"- 20 ga composite deck for a total thickness of 5 ½ - inch. The composite deck will be supported on steel beams and steel columns. The beams will have ¾ - inch diameter headed studs welded to the steel beams. The exterior walls could be load bearing masonry walls or non-load bearing cold-formed metal studs with exterior steel columns.

We anticipate the slab on grade will be a 4 - inch concrete slab reinforced with microfibers.

The lateral system will have diagonal steel braces or steel moment frames that will require moment connections.

FOUNDATION

The existing drawings indicate the building is on standard spread footing foundations. We have assumed the foundations for the addition can also be spread footings however this should be verified with a geotechnical report.

Due to the sloping grade on site some of the foundation walls will be cantilevered concrete foundation wall to retain the soil and will require a large cantilevered footing.

MECHANICAL SYSTEMS

OBJECTIVES

- Provide an energy efficient HVAC system that is easy to operate and maintain.
- Utilize solar photovoltaic panels (7,000 SF) on the roof for electric generation. It is estimated
- Provide water efficient plumbing fixtures and electric type domestic hot water.
- Incorporate sustainable technologies into the MEP design that comply with Building, Benchmarking and Beyond (B3). These systems may include:

    - Recirculation of domestic hot water pump
    - Carbon dioxide occupancy sensors
    - Chilled beams
    - Displacement ventilation
    - Energy recovery system (total energy wheel)
    - Variable speed drives
    - Provide stepped daylighting controls on lighting systems.
    - Utilize occupancy sensors for both ventilation and lighting controls.
    - Utilize LED lighting throughout.

BUILDING HEATING, VENTILATING, AND AIR CONDITIONING (HVAC) SYSTEMS

Weather conditions: Minneapolis Airport, Minnesota – 2020 Minnesota Energy Code with ASHRAE 90.1-2016, referencing ASHRAE 1% cooling and 99.6% heating data.

Replacement of the existing single zone air handling unit (AHU) with a new dedicated outdoor air handling unit. This unit may be located on the lower level, north side addition. The unit will provide ventilation, heating, and dehumidification to the zone level equipment throughout the renovated spaces and addition. The new unit will be located within the lower-level mechanical room. ASHRAE 90.1 2019 will be utilized for efficiencies and sizing the unit.

- Motors will operate with variable frequency drives.
- Total energy wheel will provide both latent and sensible recovery.
- Intake and exhaust ductwork will be ducted vertically through a shaft, to louvers and hoods.
- Carbon dioxide sensors will monitor levels and modulate ventilation.

Zone equipment for the library will include air valves to modulate ventilation air to the chilled beams. Each zone will contain multiple four-pipe chilled beams for space temperature control. Fin tube radiation will be installed below glazing, utilizing hot water, and space control valves.

Heating and cooling of the building will be provided by the a source heat pump, approximately 30 tons of cooling and 440 MBH heating. One 10' nominal size, deep well heat exchanger will be installed (Darcy Solutions). A water source heat pump (by Water Furnace) will convert the ground source water to building hydronic hot water and chilled water loops. This heat pump has the ability to provide heating and chilled water during any season.

Restrooms will be exhausted through exhaust fans, through the roof. Exhaust heat will be

captured through an energy recovery unit.

The building automation system will be direct digital controls and meet SPPL standards. The following requirements will be included:

- Air side economizer
- Demand control ventilation
- Boiler / chiller system controls
- Supply air temperature reset for multizone

Metering of HVAC loads will meet guidelines listed in B3 2030. Meeting a two-percenter goal for renewable energy will be evaluated and included if found to be cost effective.

- Systems considered are solar photovoltaic

Systems shall be commissioned.

BUILDING PLUMBING SYSTEMS

Storm water will be routed through drains and scuppered to grade. Modifications as required based on the renovation will include rerouting of piping, and new storm for the addition.

The existing residential style natural gas water heater will be removed. A new heat pump style domestic hot water (electric) or electric element tank type water heater shall provide domestic water.

- A domestic hot water pump will provide recirculation.

Water fixtures shall be low flow and meet the following requirements:

- Lavatory faucets less than or equal to 1.5 gallons per minute
- Kitchen and pantry faucets less than or equal to 2.0 gallons per minute

BUILDING AUTOMATION SYSTEM

The Building Automation System (BAS) will be web based with graphics and control points. It will be an extension of or compatible with the existing Johnson Controls Metasys system. Training for operators and staff will be provided to allow enhanced controllability and operating features for manipulation of operating schedules and temperature set points. The air-handling system will include demand-controlled ventilation (DCV) for control of outdoor air ventilation based on occupancy.

Electronic sensors and controls will be provided for heating and cooling equipment. Temperature control of the zones will be accomplished by temperature sensors. Temperature set point control for the rooms themselves will be from the BAS. Setback temperatures will be established for unoccupied periods of time.

BUILDING FIRE PROTECTION SYSTEM

This building would be considered A-3 occupancy, not requiring an automatic sprinkler system if less than 12,000 square feet and less than 300 occupant load. However, consideration of other trade-off costs should be reviewed that financially affect the project (ie insurance, fire alarm and detection requirements).

BUILDING ELECTRICAL POWER DISTRIBUTION SYSTEM

The existing electrical distribution system will be disconnected and removed in its entirety.

Provide a new 120/208 volt, 3 phase, 4 wire, 600 amp Electrical Service. The service will consist of a new 120/208 volt, 3 phase, 4 wire, 600 amp main service entrance distribution board and Four (4) 120/208 volt, 3 phase, 4 wire, 84 circuit, 200 amp branch circuit panelboards.

- Large mechanical loads will be fed from the main panelboard.
- Lighting and small loads will be fed from the four (4) branch circuit panelboards.

New general purpose tamper proof receptacles will be provided throughout the building.

BUILDING LIGHTING SYSTEMS

All existing building lighting will be disconnected and removed.

New LED lighting fixtures will be provided thought out the building.

- The lighting design and light fixture selections will be developed as a joint effort by LSE Architects and KFI Engineers.
- New automatic lighting controls will be provided for all spaces to meet the energy code. Lighting control will consist of:
  - Occupancy control.
  - Dimming control.
  - Daylighting Control.

- Emergency lighting will be provided by battery powered emergency light fixtures.
- New exterior lighting will be provided at building entrances and exits.
- New site lighting will be provided.
  - Exterior and site lighting will be controlled by a photocell for dusk to dawn control and dimmed by 30% on a time of day schedule.

Existing building mounted exterior lighting and accent lighting will be disconnected and removed.

New exterior building mounted LED wall packs and accent lighting will be provided.

FIRE ALARM SYSTEMS AND TECHNOLOGY SYSTEMS

A new Fire Alarm System will be provided. The fire Alarm system will consist of the following:

- Main Fire Alarm Control Panel
- Remote annunciator at the building entrance
- Smoke Detectors
- Annunciation devices (Speakers and Strobes)
- The fire alarm system will be capable of supervised mass notification

New telecommunications systems infrastructure will be provided. The telecommunications system infrastructure will consist of the following:

- New data rack/cabinet
- New voice/data jacks and Cat 6A cabling
- Wireless access points will be installed to provide coverage throughout the building

A new access control system will be provided for the building. Card readers will be provided at entrance doors, and non-public spaces.

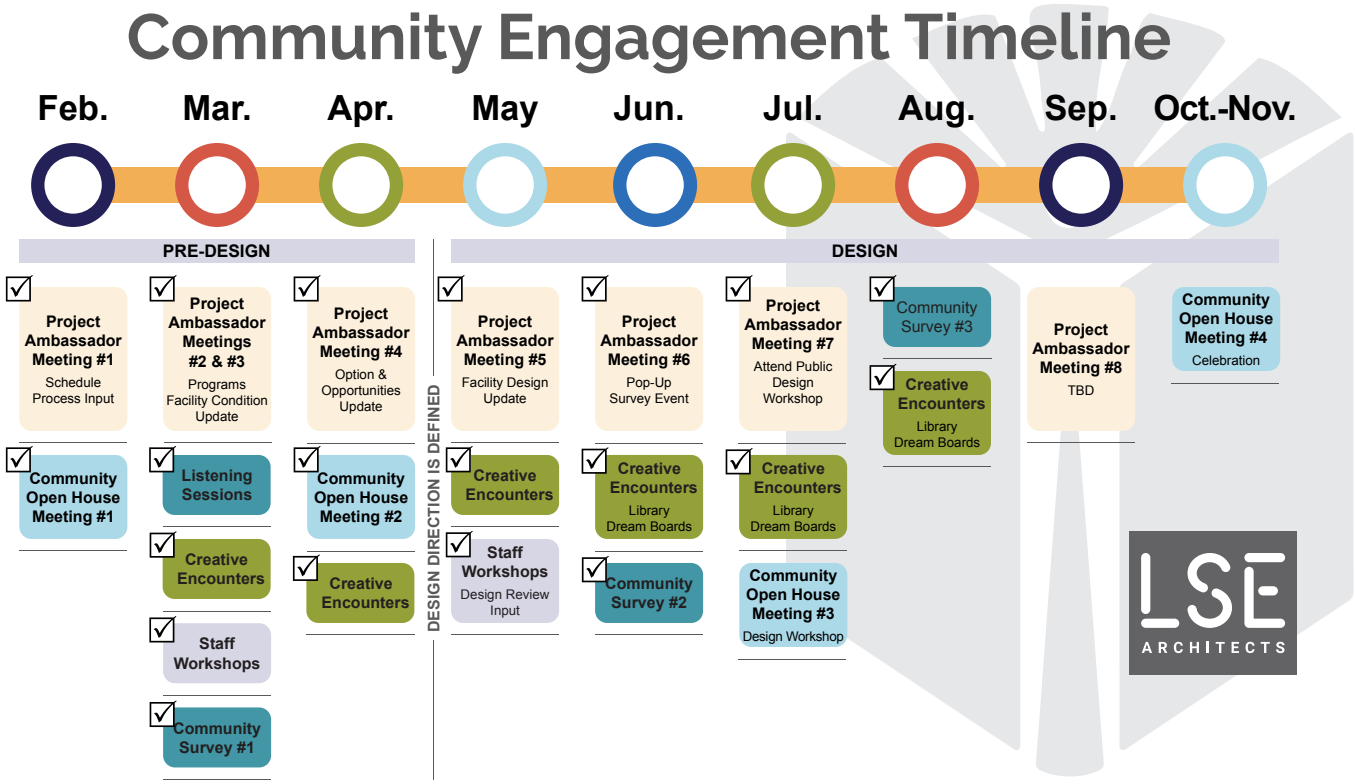
A new security system will be provided, the security system will consist of:

- Motion sensors
- Door contacts
- Security cameras. Cameras will be installed to provide comprehensive coverage.

New audio-visual systems will be provided in all meeting rooms. Audio visual components will include:

- Flat panel displays (projector and projector screen where needed due to size).
- HDMI Inputs where needed
- Network access

PROJECT SCHEDULE



Saint Paul Public Library invested in an extensive, equity-focused community engagement effort starting in 2018 with a Strategic Design process that resulted in 3,000 participants sharing their desire for library spaces that are safe, inviting, affirming, and comfort for people of all cultures, abilities, and communities.

In 2022 LSE joined SPPL's community engagement process leading open houses and listening sessions with a total of 664 attendees. Surveys were developed online and through pop-up events in the community that received 2355 responses. LSE's artist cohort developed informal engagements including in-library Dream Boards. From this outreach there was a common themes across respondents were:

- Improved accessibility
- Adding community meeting and/or program spaces and study rooms
- A space that reflects the cultures in my community

1. Accessibility was indicated in the community surveys to be the number one need, so the plans showcase an addition that includes an equitable new front entrance welcoming everyone into the library through the same front door.
2. Safety is a priority and has been improved with restrooms and meeting space on the main level. Staff input has been critical in developing a plan that has clear sightlines.
3. The addition preserves the existing arched window openings on the west face of the building and uses current windows as doorways.
4. Brick and block are preferred materials for the addition.
5. Intentional space for public art that will reflect the cultural fabric of the neighborhood.
6. Outdoor program and gathering space and a raised patio that connects to the existing entry reflect community's desire for green space.
7. New finishes and furnishing will be warm, welcoming, and complimentary to the history building in response to community input.

DESIGN INFLUENCES

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SAINT PAUL PUBLIC LIBRARY

DESIGN INFLUENCES

RIVERVIEW LIBRARY • DESIGN REPORT

LSE ARCHITECTS

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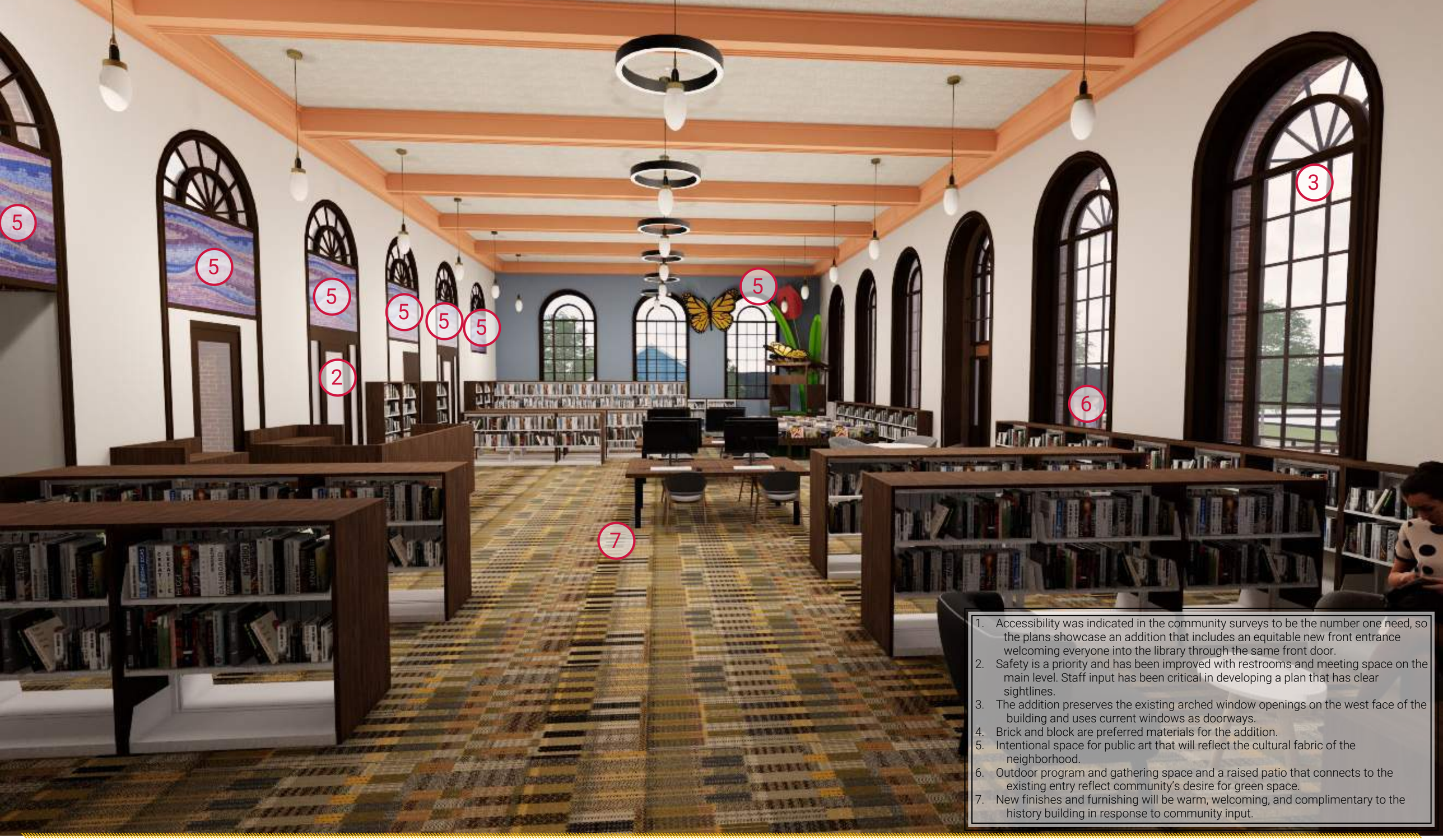

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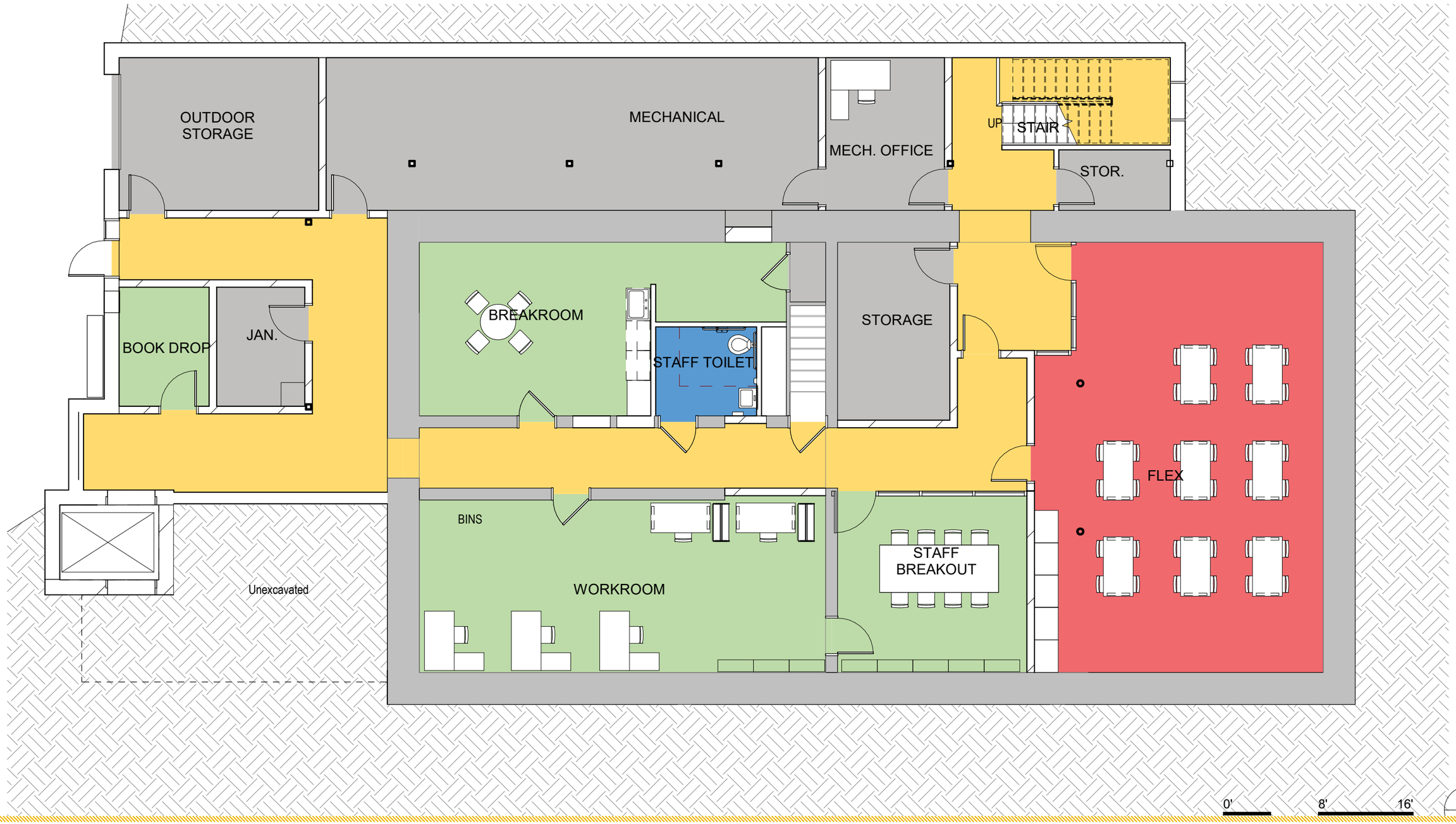
DESIGN DRAWINGS

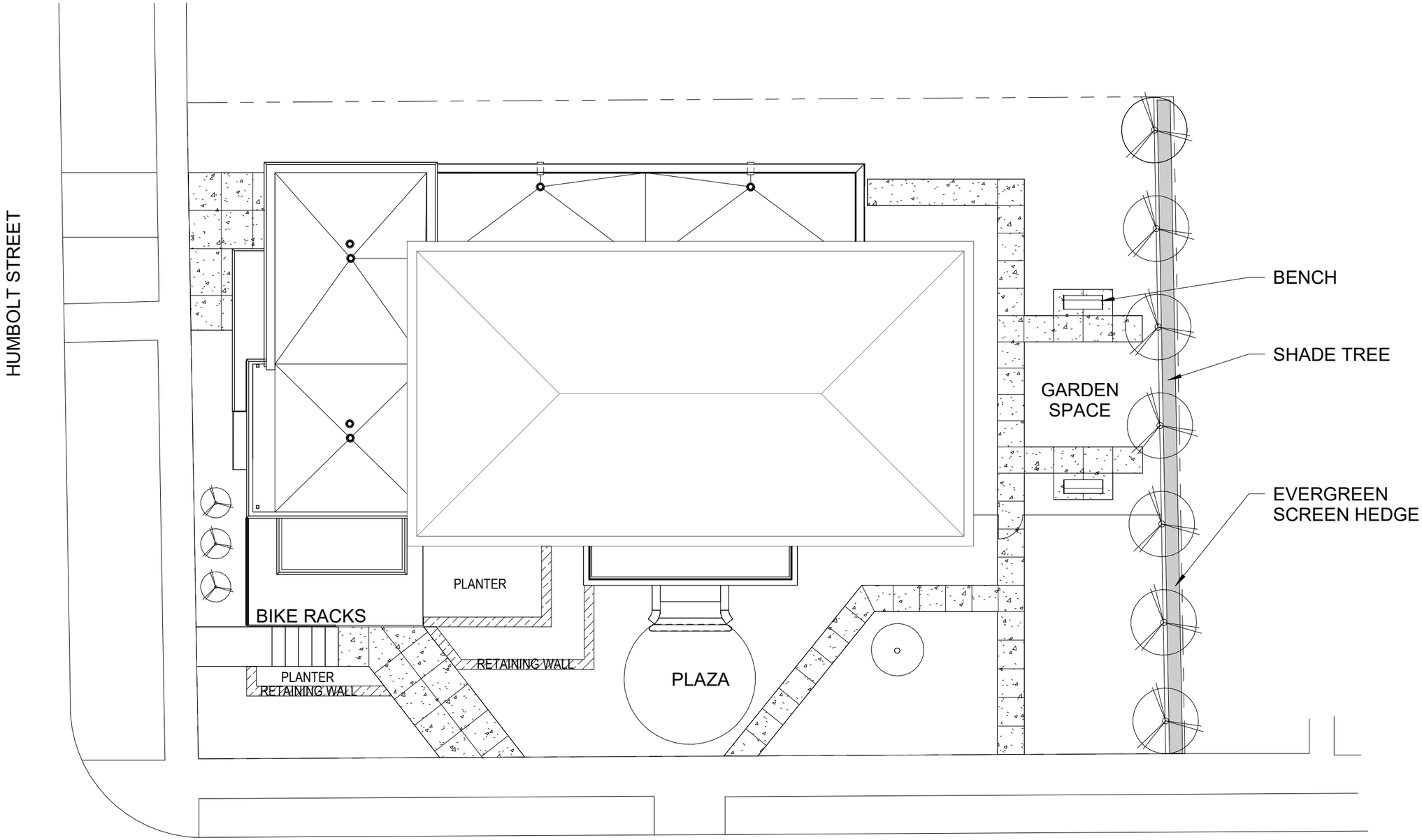


SAINT PAUL PUBLIC LIBRARY

LOWER LEVEL FLOOR PLAN

RIVERVIEW LIBRARY • DESIGN REPORT

LSE ARCHITECTS



SAINT PAUL PUBLIC LIBRARY

ARCHITECTURAL SITE PLAN

RIVERVIEW LIBRARY • DESIGN REPORT

LSE ARCHITECTS

SAINT PAUL PUBLIC LIBRARY

MAIN LEVEL FLOOR PLAN

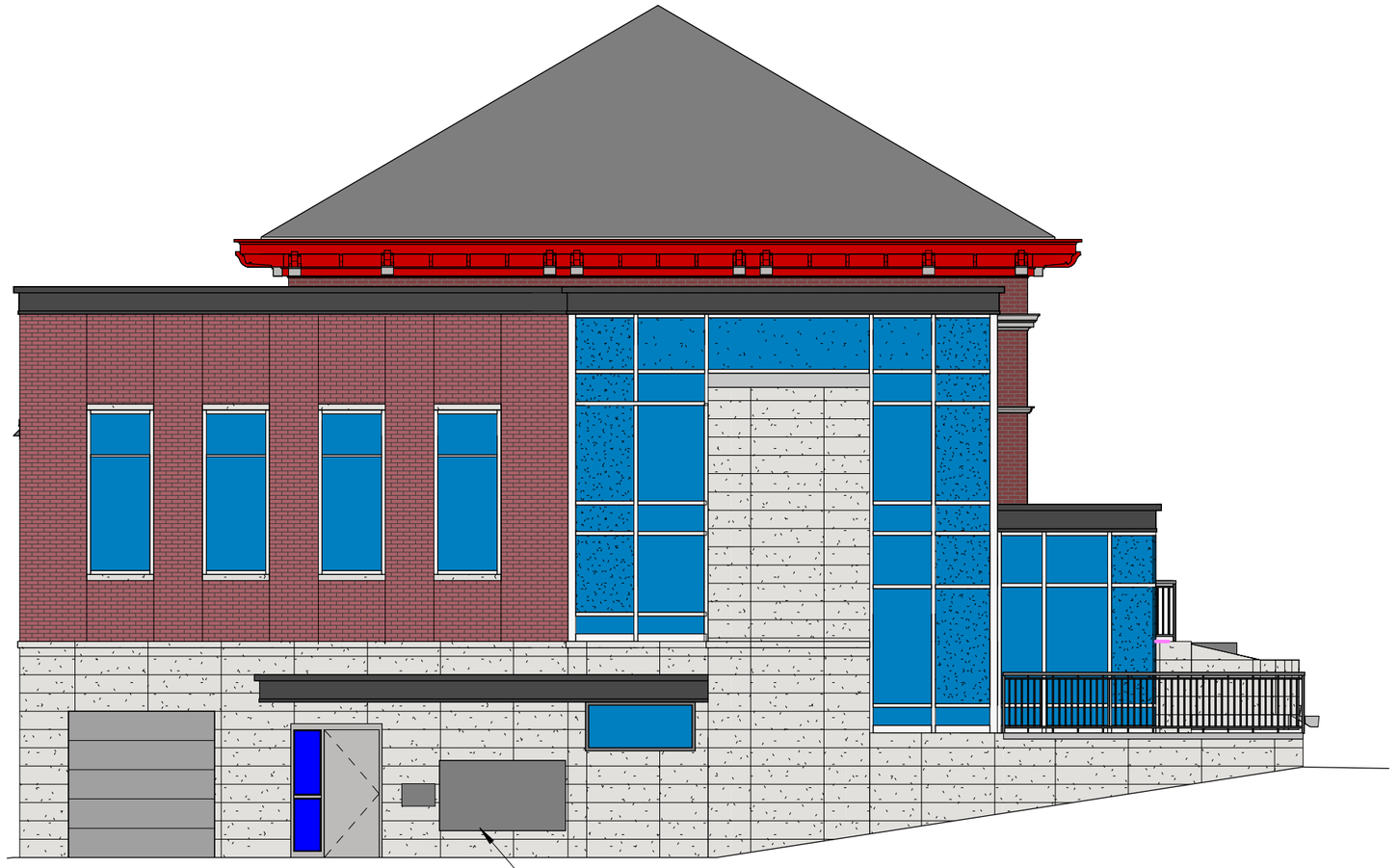
RIVERVIEW LIBRARY • DESIGN REPORT

LSE ARCHITECTS

South Elevation

0' 8' 16'

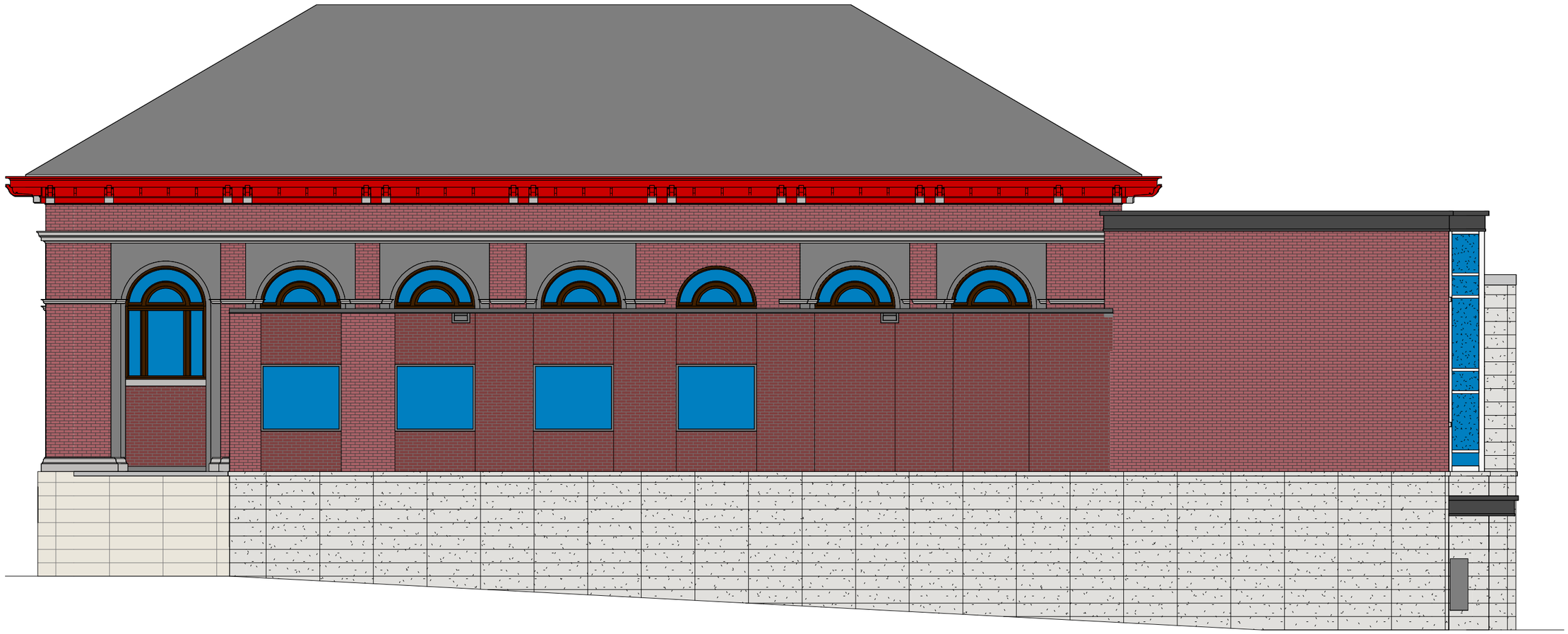
NORTH



West Elevation

0' 8' 16'

NORTH



North Elevation

0' 8' 16'

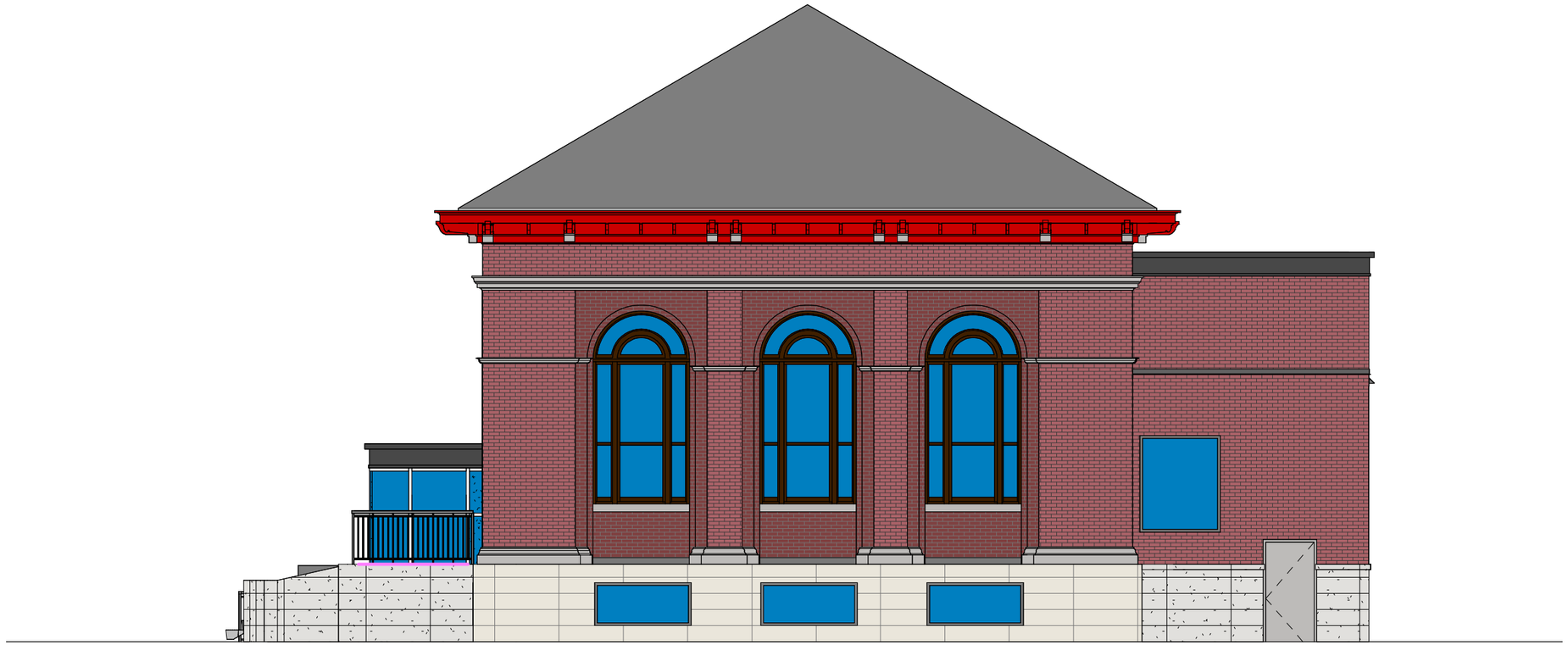
NORTH

SAINT PAUL PUBLIC LIBRARY

ELEVATION

RIVERVIEW LIBRARY • DESIGN REPORT

LSE ARCHITECTS



East Elevation

0' 8' 16'

NORTH

SAINT PAUL PUBLIC LIBRARY

RENDERING - SOUTHEAST

RIVERVIEW LIBRARY • DESIGN REPORT

LSE ARCHITECTS

SAINT PAUL PUBLIC LIBRARY

RENDERING - SOUTHWEST

RIVERVIEW LIBRARY • DESIGN REPORT

LSE ARCHITECTS


BRANCH LIBRARY

SAINT PAUL PUBLIC LIBRARY

RENDERING - INTERIOR

RIVERVIEW LIBRARY • DESIGN REPORT

LSE ARCHITECTS

SAINT PAUL PUBLIC LIBRARY

INTERIOR IMAGERY

RIVERVIEW LIBRARY • DESIGN REPORT

LSE ARCHITECTS

SAINT PAUL
PUBLIC LIBRARY

RENDERING

RIVERVIEW LIBRARY • DESIGN REPORT

LSE
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