

THE PARADE COMPANY

Brodhead Armory Historic District Commission Application



1.618

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Cover Letter



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THE PARADE COMPANY | BROADHEAD ARMORY HISTORIC DISTRICT COMMISSION APPLICATION

COVER LETTER

July 18, 2022
City of Detroit
Historic District Commission
Coleman A. Young Municipal Center
2 Woodward Avenue
Detroit, MI 48226

RE: 7650 E. Jefferson Avenue, Detroit MI (R. Thornton Brodhead Naval Armory)

Dear Commissioners:

Kraemer Design Group (KDG) is writing to the Historic District Commission (HDC) on behalf of the City of Detroit, the Detroit Economic Growth Corporation (DEGC), and The Parade Company regarding the building located at 7650 E. Jefferson, commonly known as the R. Thornton Brodhead Armory. As the Commission is undoubtedly aware, the City of Detroit, the DEGC, and The Parade Company are seeking approval from the Historic District Commission to move forward with redevelopment plans for the building. There have been several prior HDC applications, communications, and reports between the HDC and The Parade Company, so a brief summary of that prior history is included here. Additionally, the present application outlines a brief historic overview; a history of the redevelopment efforts; The Parade Company's vision for the property; the current conditions and detailed scope of work for the property; along with detailed drawings, plans, specifications, and reports from experts including Blackberry Window and Door Systems, RAM Construction, and Historic Surfaces, among others.

To briefly summarize, The Parade Company's proposed plan for the property involves rehabilitating the northern portion of the existing building while at the same time moving and rehabilitating the historic artworks from the southern building into the northern building. Once the removal of the

art has been accomplished it is proposed that the southern building be demolished so that the Parade Company can rebuild a facility that will accommodate their core mission as a nonprofit: to serve the people of Detroit by planning, executing, and staffing educational, charitable, and civic events including America's Thanksgiving Day Parade and the Ford Fireworks. The rehabbed northern block and the newly built southern block will also provide for community/educational event spaces and, in honor of the military history intrinsically linked with the Brodhead Armory site, a designated office and meeting area for use by organizations that support veteran-focused activities.

The items found in the ensuing package provide a detail account of the history, intentions, and proposed scope of work for the site and the rehabilitation of the building and artwork. Please contact me if you have further questions.

Sincerely,
Kraemer Design Group, LLC



Brian Rebain
Principal



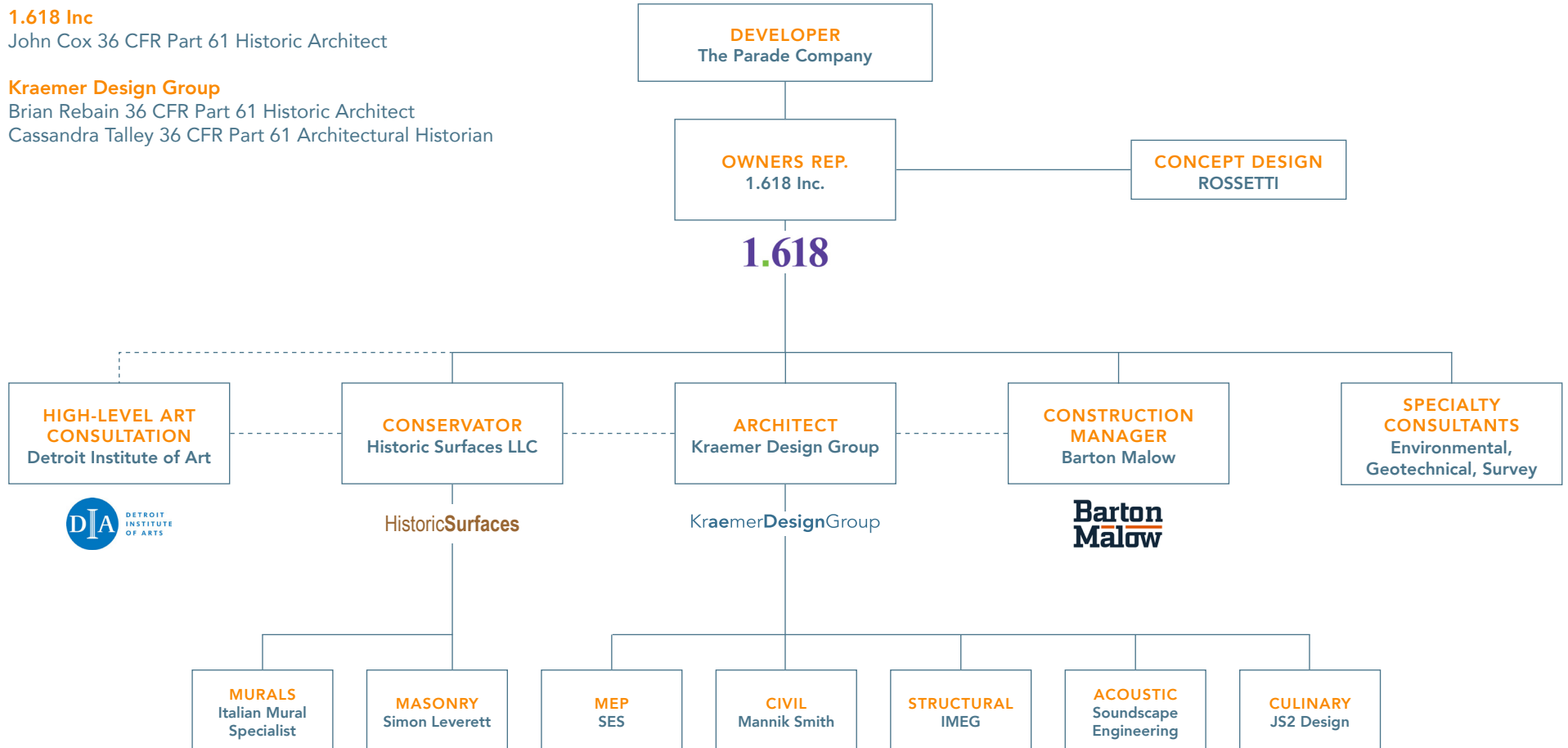
ORGANIZATION CHART



THE PARADE COMPANY

1.618 Inc
John Cox 36 CFR Part 61 Historic Architect

Kraemer Design Group
Brian Rebin 36 CFR Part 61 Historic Architect
Cassandra Talley 36 CFR Part 61 Architectural Historian



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Purpose and Vision



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PURPOSE AND VISION

The Parade Company has been evaluating sites for a new home for the past nine years. Our dream is to build a Parade Studio which not only houses all of the creativity and production seen in everything we do, but also opens up new opportunities for the community: tours, events, education, internships, and jobs. **We envision a new home that partners with the Detroit community in a way that sets the gold standard for opportunity, inclusion, creativity, and fun.** We see a new home that is a beacon of light to all, a sanctuary of culture similar to the Detroit Institute of Arts and Campus Martius. Our vision creates a collaborative partnership that opens its doors to our immediate neighbors: the Detroit RiverFront Conservancy, Jefferson East Inc., Rivertown Detroit Association, and all Detroiters to elevate the Parade Company mission to another level in a well thought-out, economic, and effective manner.



INITIATIVES

The Parade Company currently runs The Ford Fireworks, America’s Thanksgiving Parade, Hob Nobble Gobble, and the Strategic Staffing Solutions Turkey Trot. Assisted by over 2,500 volunteers, each year we host thousands of children and families as they tour our studio. In addition, we help facilitate events such as River Days and build animated props such as the bobble heads that appeared Downtown in Spring 2018.

The Parade, now in its 93rd year, has been a one-of-a-kind spectacle of fantasy, holiday spirit, and community enthusiasm. Over the past nine years, the organization has created a business model that provides sustainable growth, financial stability, and success for Detroit.



AMERICA'S THANKSGIVING PARADE DETROIT



FORD FIREWORKS DETROIT



HOBBLE NOBBLE GOBBLE



STRATEGIC STAFFING SOLUTIONS TURKEY TROT



CURRENT HOME

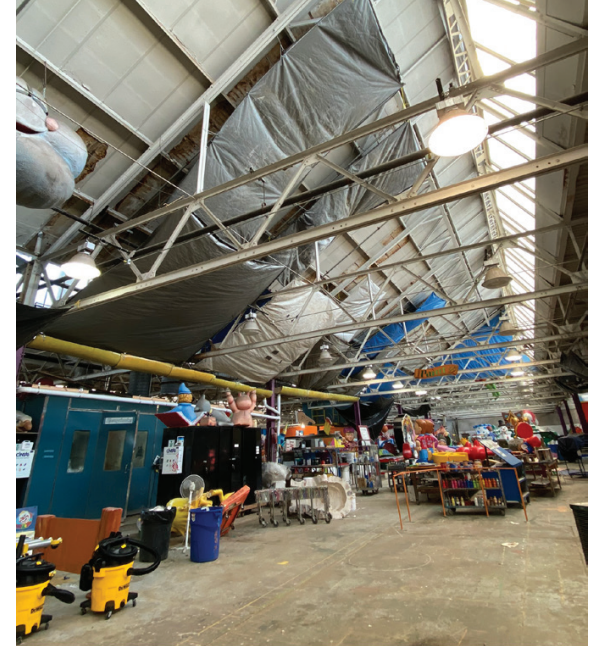
All of the floats and costumes are created and constructed in the Detroit Parade Studios. The Parade Company employs local artists to skillfully build all the floats and costumes for America's Thanksgiving Parade.

Our current home is located on Mt. Elliott Street north of I-94 in a district that is becoming a transportation logistics hub with heavy semi-truck traffic. Our studio is a portion of a former automotive plant. The Albert Kahn designed facility is in need of major work; in particular the saw-toothed roof system leaks like a sieve.

Being located in an industrial area has been a deterrent to attracting school tours. It is not the optimal location for the family friendly, community oriented activities we host today and intend to increase to be daily.



PARADE COMPANY MT. ELLIOTT STREET LOCATION



FUTURE NEEDS

To satisfy the Parade Company's current operations and future vision, the new home will need to provide 130,000 square feet of high-bay area for the production and storage of floats, big heads, and costumes, and an additional 30,000 square feet for offices and events.

The Parade Company envisions expanding our family oriented offerings. We are planning for an increase in tours, particularly elementary and middle school tours; educational workshops and internships; corporate events; family and community celebrations such as weddings, graduation parties and bar mitzvahs.

Given the Brodhead's military heritage, the Parade Company is in conversations with local veteran organizations to collaborate on Memorial Day celebrations and gatherings.



ROMULUS MIDDLE SCHOOL TOUR OF THE PARADE COMPANY



PARADE STUDIO TOURS



VOLUNTEERS AT PARADE COMPANY HEADQUARTERS



PROP PRODUCTION

R. THORNTON BRODHEAD ARMORY

The City of Detroit Historic Designation Advisory Board notes that the Richard Thornton Brodhead Armory stands as a reminder of **Detroit's sea service heritage** since 1930. In the late 1920s Lieutenant Commander R. Thornton Brodhead, the head of the Michigan State Naval brigade, led a drive to establish a new armory. The City of Detroit provided the land and a portion of the funding. Brodhead Armory has served the Navy, Marine Corps, Coast Guard, and their reserve and militia components.

Its historic significance is founded in its associations with influential members of Detroit's Naval Militia community and in its art deco design by Detroit's preeminent architect of the times — William Buck Stratton of Stratton & Hyde.

During the Great Depression, artists were engaged on projects at the armory in 1939 and 1941. Projects included painted murals by David Fredenthal and Edgar Yaeger, a carved mural by Gustav Hildebrand, wooden doors and banisters carved by John Tabacanuk, and a reclaimed steel bulkhead from a mothballed ship.



Students at the Brodhead Armory, 1930s. Source: Detroit Historical Society



Front facade and lawn, c. 1970s. Source: G. Garner

TWO DETROIT LEGACIES UNITED

Detroit has a rich cultural heritage. It is our gift from past generations, and it is our responsibility to pass on to future generations.

Visually the greatest evidence of our cultural heritage (besides the Detroit River itself) is the abundance of historically significant architectural structures. Each day we are reminded of the artistic investments in brick-and-mortar created by those who came before us. The Brodhead Armory is a legacy that anchors the eastern side of the MacArthur Bridge along East Jefferson Avenue.

As we live and experience Detroit, some of our most memorable cultural traditions are produced by the Parade Company. Several times a year the Parade Company brings the city to life with events such as the America's Thanksgiving Parade, Ford Fireworks, Strategic Staffing Solutions Turkey Trot, Pancake Breakfast and Hob Nobble gobble presented by Ford. The Parade Company is a legacy that defines our holiday and community celebrations.

This proposal brings together the legacies of the Brodhead Armory with the Parade Company, so together, they can both survive and continue to serve Detroit.



BRODHEAD ARMORY, C. 2019

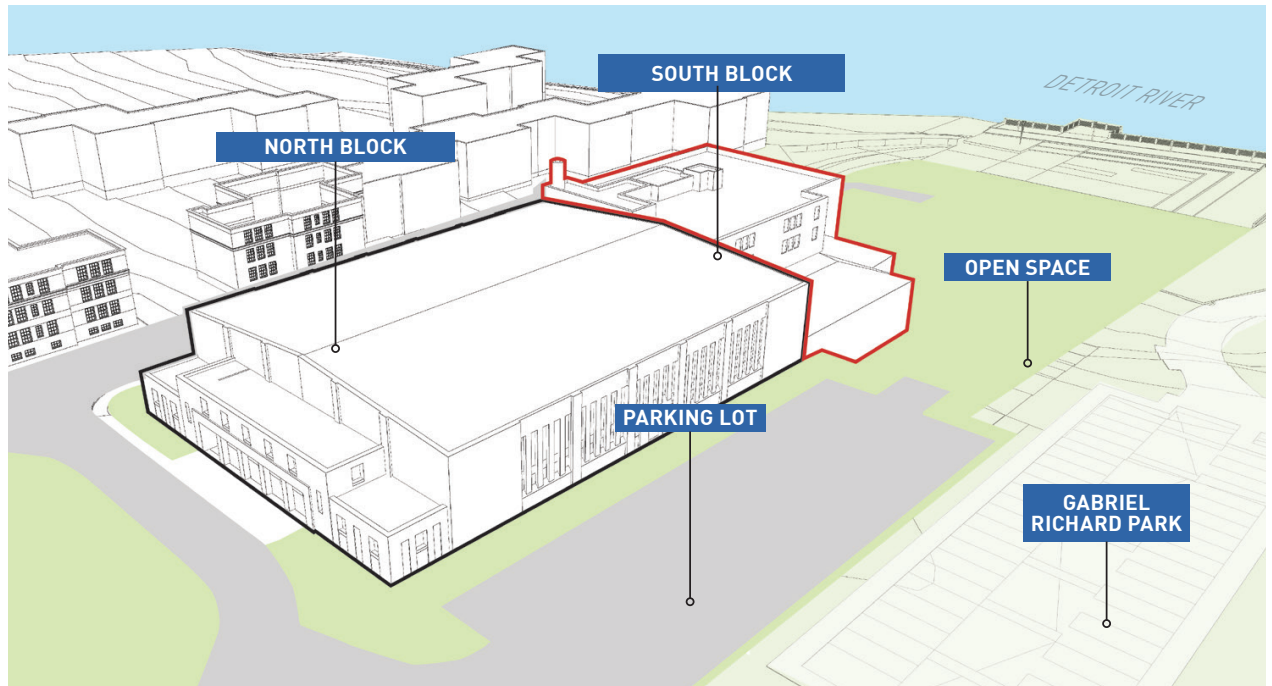


PROPOSED PARADE STUDIO/BRODHEAD ARMORY (RENDERING)

TWO BUILDINGS, SEPARATE USE

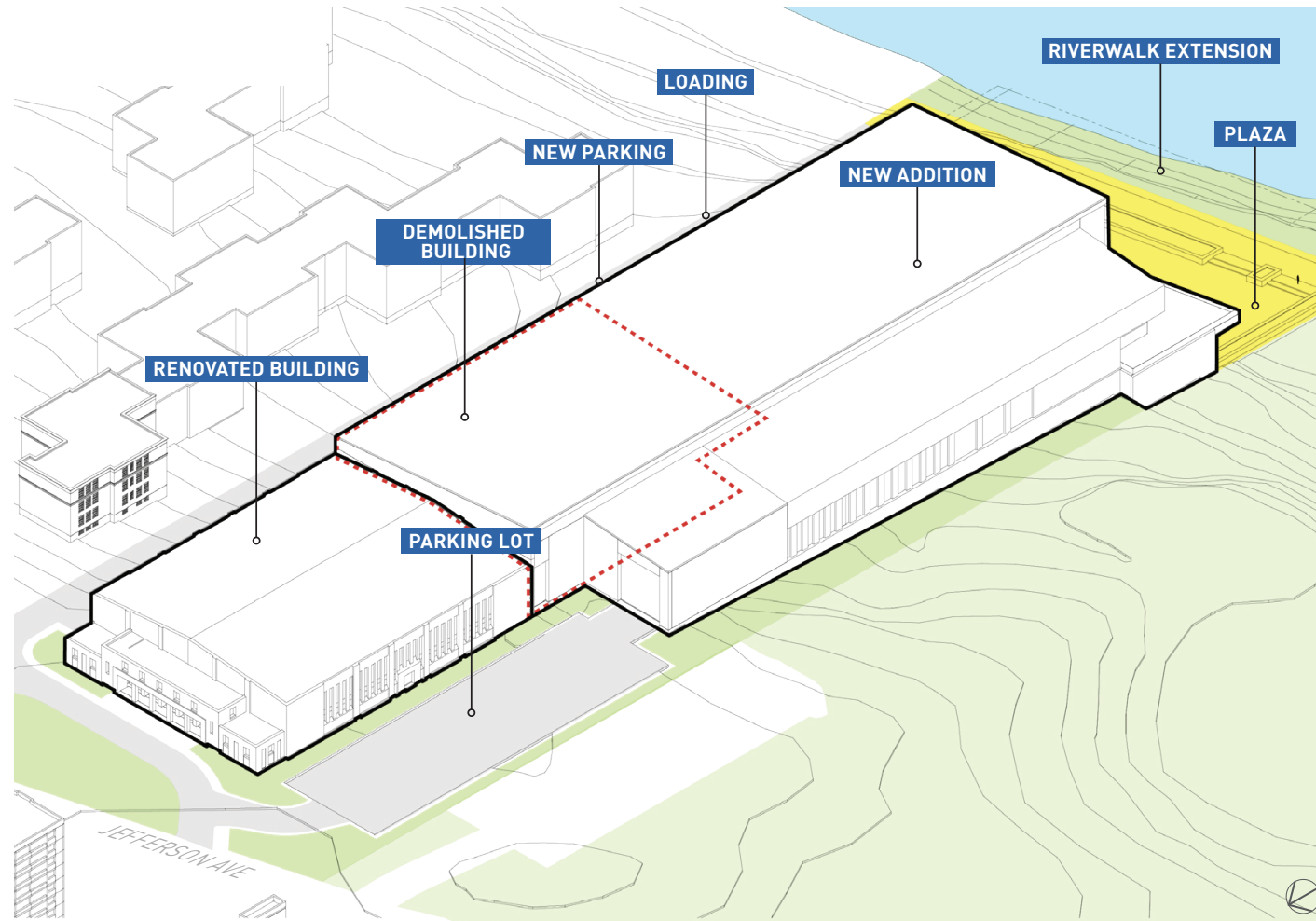
Built in 1930, the Brodhead Armory was designed and constructed to serve as a training center and barracks for the state's military reserves. The accommodation of these different needs resulted in the complexity of the existing floor plan layouts. The more public areas - open, double height spaces intended for large groups of people - were finished with more durable materials and located in the northern half of the building along Jefferson Ave, while the southern half of the Brodhead Armory comprises compartmentalized floor plans with much smaller rooms, smaller circulation corridors, higher quality of finish materials, and lower floor to ceiling heights. In essence, the +/-106,932 SF of the Brodhead Armory is actually comprised of two separate buildings connected by one vertical circulation core. These physical constraints would

either require a singular tenant who desires the same range in spatial requirements or multiple tenants to fully lease the range of spaces within the Brodhead Armory.



PROPOSED DEVELOPMENT

To satisfy the Parade Company's current operations and future vision, the new home has a need for 130,000 square feet of high-bay area for the production and storage of floats, big heads, and costumes, and an additional 30,000 square feet for offices and events. The proposed design features the Jefferson Avenue block (north portion) of the Brodhead Armory as the focal point of the new Parade Studio, and utilizes the sloping topography of the site to reduce the perceived height of the two-story building addition along the river.



Site

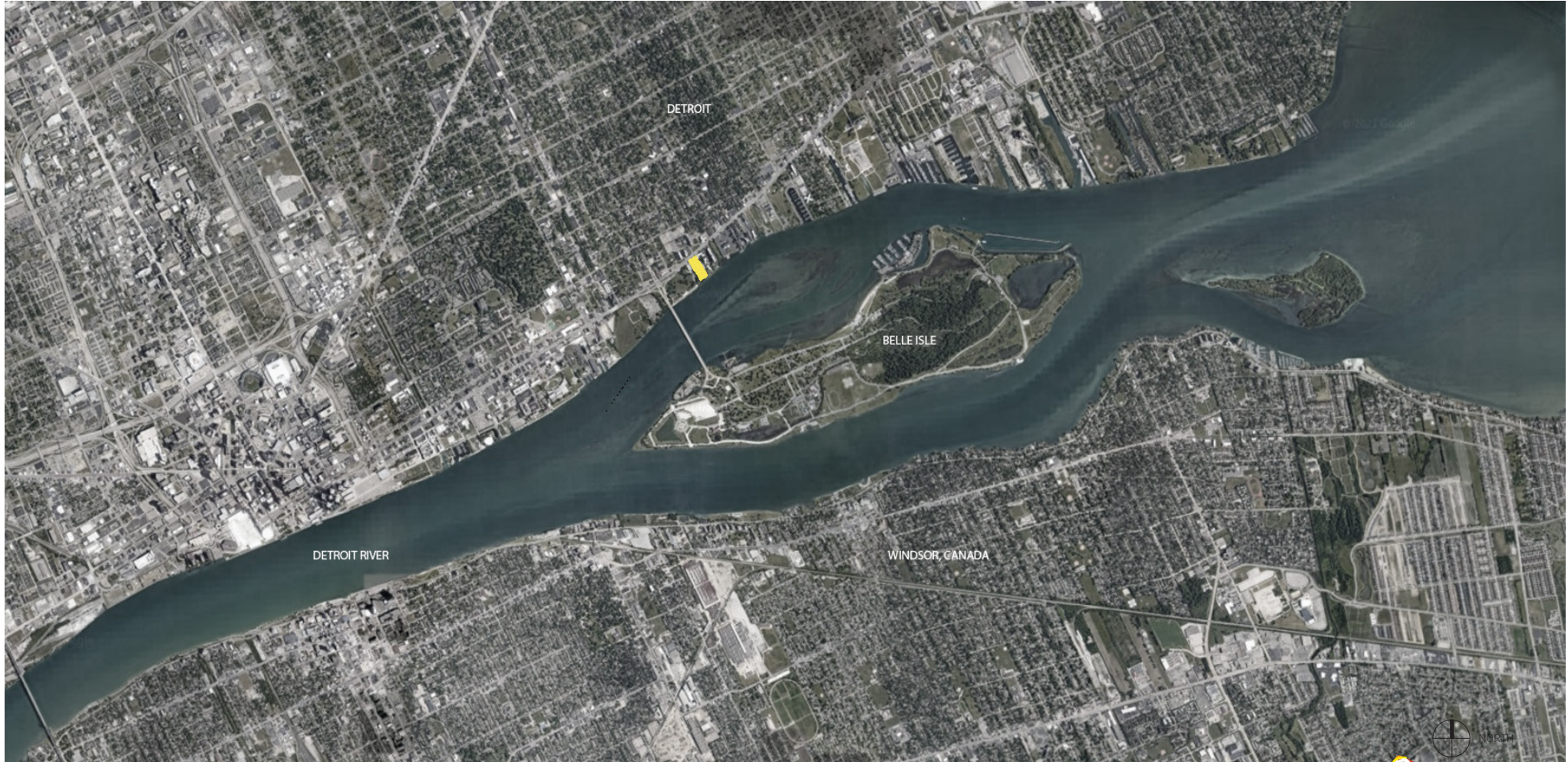


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SITE MACRO



SITE MICRO



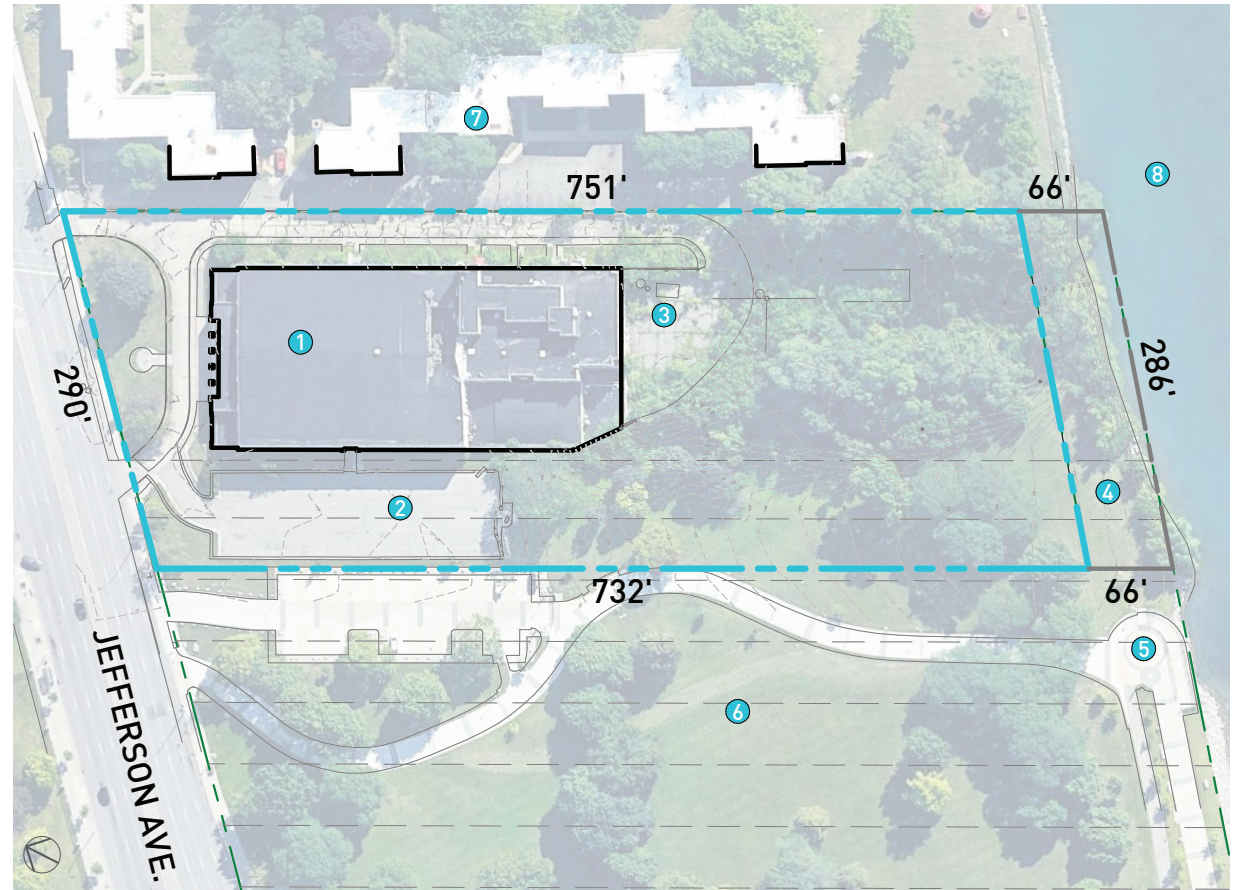
SITE CONTEXT

Site Summary

Lease Boundary	208,510 sf (4.79 acres)
Street Frontage	290.5 lf
Zoning Designation	SD-4 (Special Dev't, Riverfront Mixed-Use)
Historic Designation	Local historic district (interior and exterior)
Bldg. Area, Above Grade	+/- 87,000 sf
Bldg. Area, Basement	+/- 20,000 sf
Total Exist. Building Area	+/- 106,932 sf

Existing Conditions Site Plan

1. Existing Building
2. Existing Parking Lot, ~46 spaces
3. Existing Loading Area
4. Riverfront Easement
5. Existing Riverwalk
6. Gabriel Richard Park (16.6 acres)
7. River Terrace Apartments



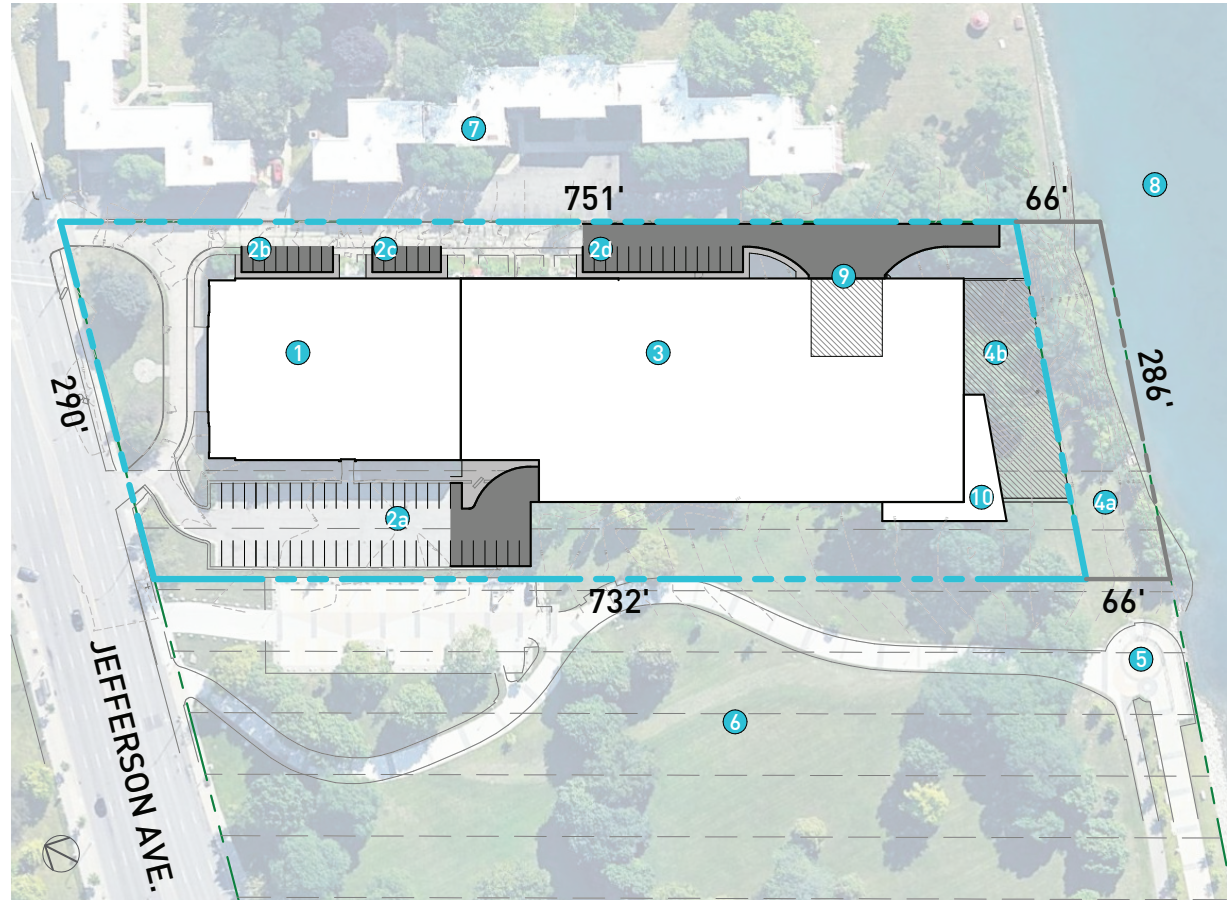
PROPOSED SITE PLAN

Site Summary

Bldg. Area, Rehabilitated Jefferson Block	+/- 30,600 GSF
Bldg. Area, Addition	+/- 130,300 GSF
Total Prop. Building Area	+/- 160,900 GSF
Outdoor Terrace	+/- 2,700 sf
Riverwalk Plaza	+/- 11,800 sf
Parking Spaces	80+ spaces

Proposed Conditions Site Plan

1. Renovated Brodhead Armory
- 2a. Renovated Parking Lot, 52 spaces
- 2b. New Parking, 8 spaces
- 2c. New Parking, 6 spaces
- 2d. New Parking, 14 spaces
3. Proposed Building Addition
- 4a. Riverfront Easement
- 4b. Proposed Riverfront Plaza
5. Existing Riverwalk
6. Gabriel Richard Park
7. River Terrace Apartments
8. Detroit River
9. Proposed Recessed Loading Dock
10. Proposed Outdoor Terrace



Plans



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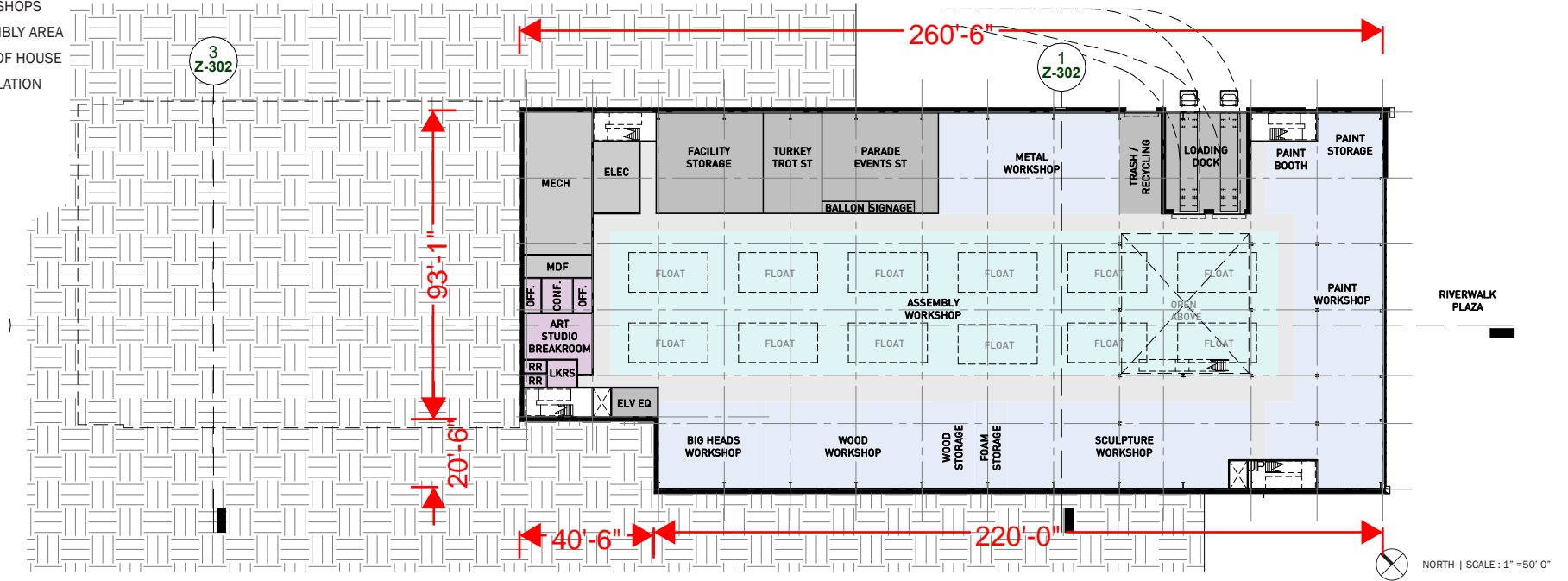
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PLANS | LEVEL - 00 // BASEMENT LEVEL

Legend

- ENTRY
- PUBLIC SPACE
- ADMIN OFFICE
- RESTROOMS
- RENTAL EVENTS
- SHOWROOM
- WORKSHOPS
- ASSEMBLY AREA
- BACK OF HOUSE
- CIRCULATION



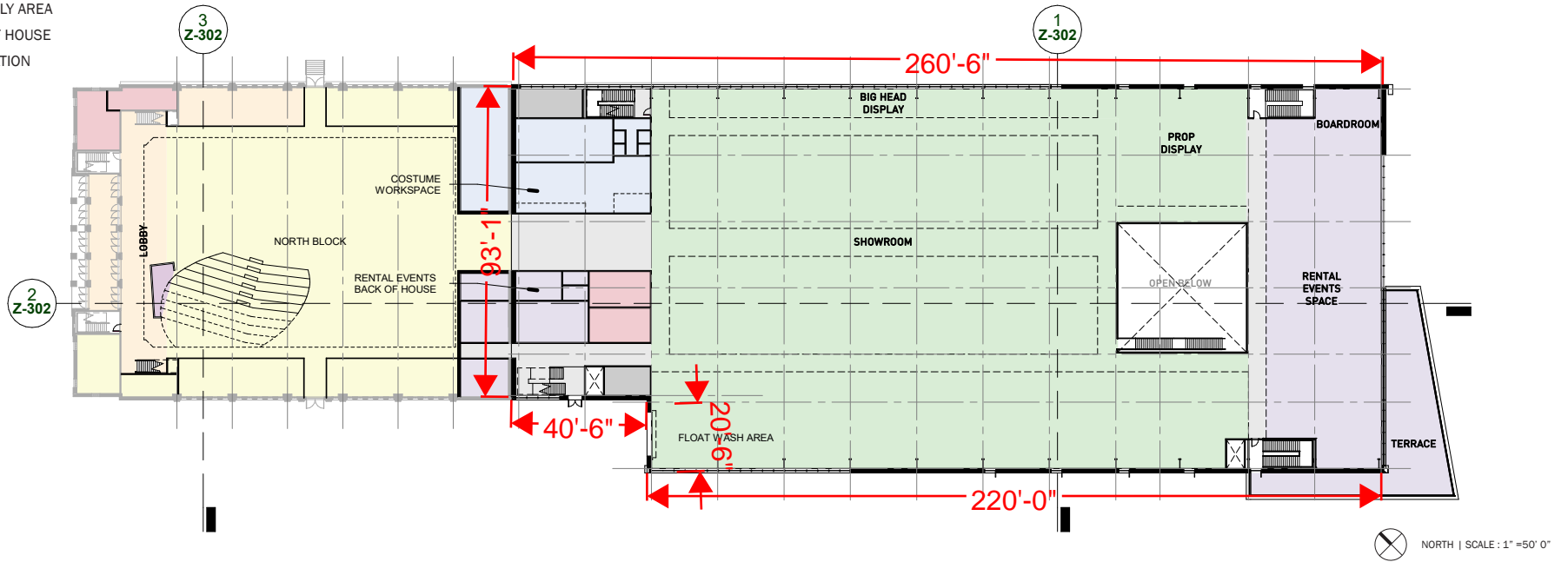
NORTH | SCALE : 1" = 50' 0"



PLANS | LEVEL - 01 // MAIN LEVEL

Legend

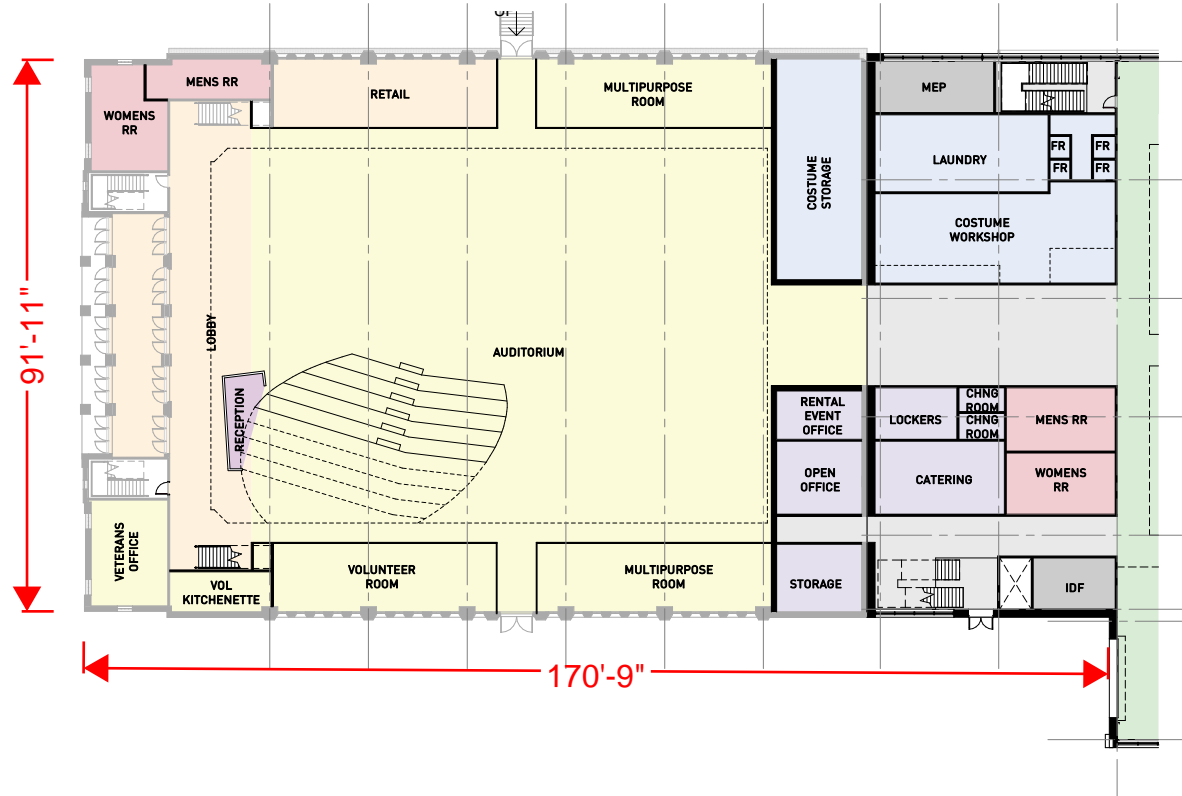
- ENTRY
- PUBLIC SPACE
- ADMIN OFFICE
- RESTROOMS
- RENTAL EVENTS
- SHOWROOM
- WORKSHOPS
- ASSEMBLY AREA
- BACK OF HOUSE
- CIRCULATION



PLANS | LEVEL - 01 // MAIN LEVEL // ENLARGED NORTH BLOCK

Legend

- ENTRY
- PUBLIC SPACE
- ADMIN OFFICE
- RESTROOMS
- RENTAL EVENTS
- SHOWROOM
- WORKSHOPS
- ASSEMBLY AREA
- BACK OF HOUSE
- CIRCULATION



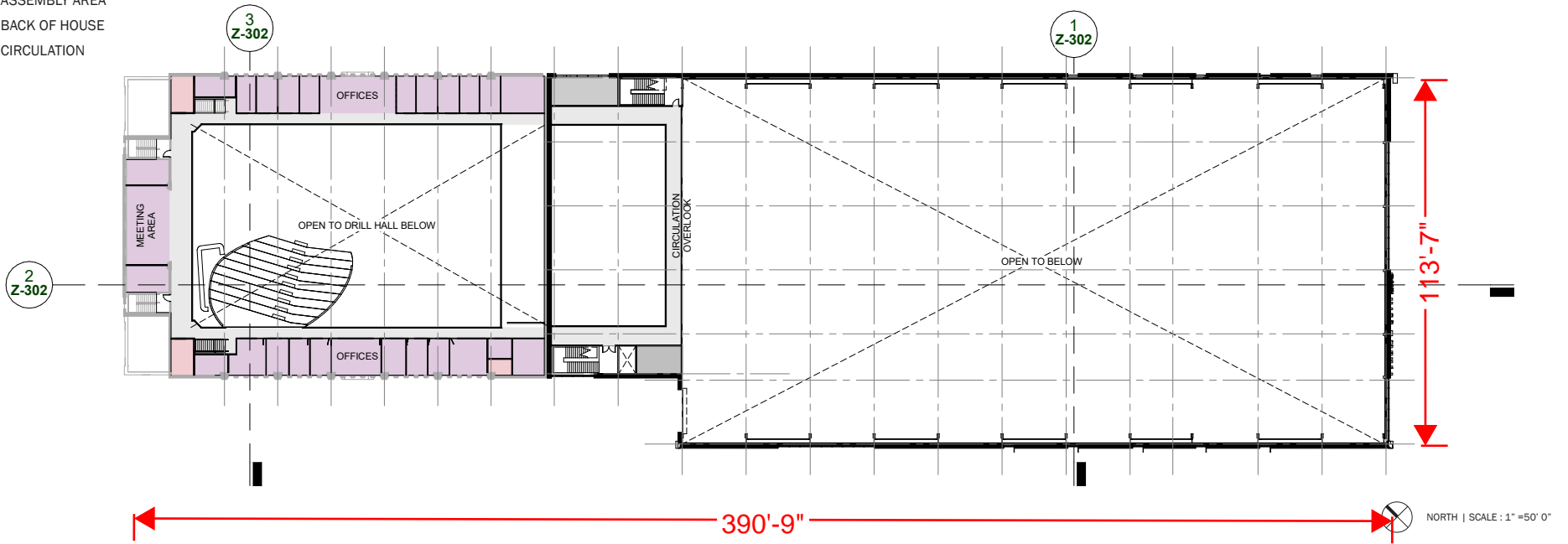
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PLANS | MEZZANINE // MEZZANINE LEVEL

Legend

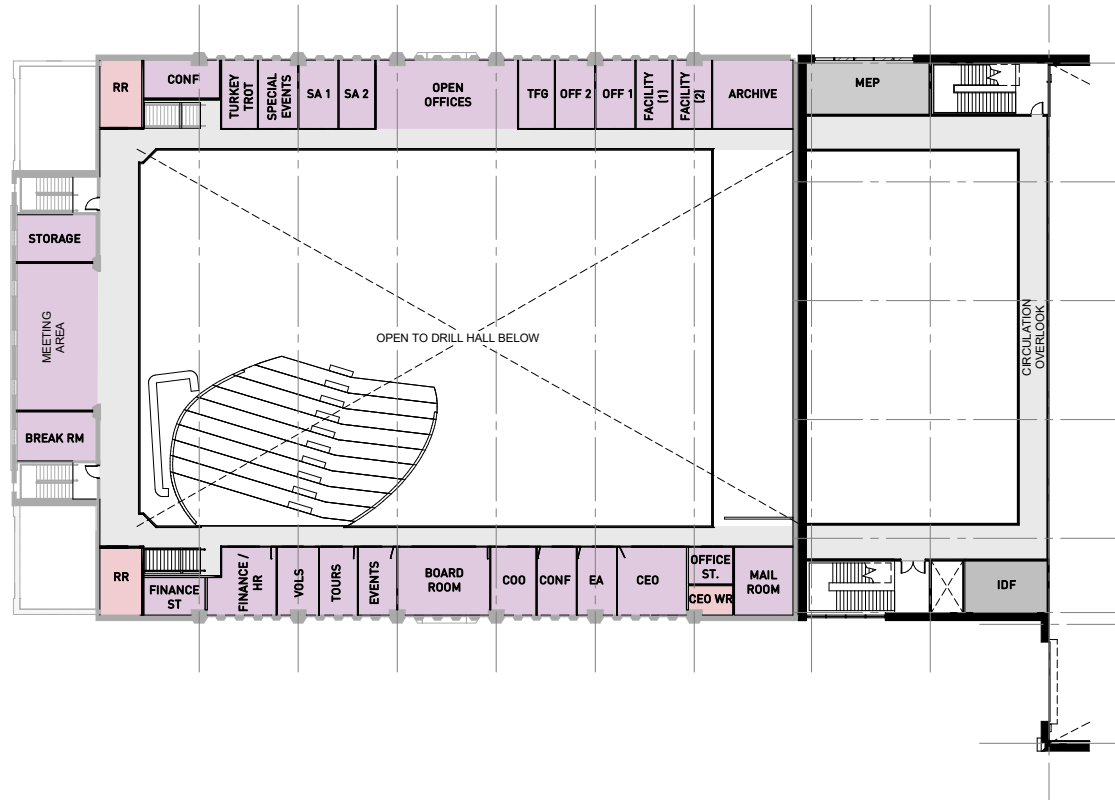
- ENTRY
- PUBLIC SPACE
- ADMIN OFFICE
- RESTROOMS
- RENTAL EVENTS
- SHOWROOM
- WORKSHOPS
- ASSEMBLY AREA
- BACK OF HOUSE
- CIRCULATION



PLANS | MEZZANINE // MEZZANINE LEVEL // ENLARGED NORTH BLOCK

Legend

- ENTRY
- PUBLIC SPACE
- ADMIN OFFICE
- RESTROOMS
- RENTAL EVENTS
- SHOWROOM
- WORKSHOPS
- ASSEMBLY AREA
- BACK OF HOUSE
- CIRCULATION



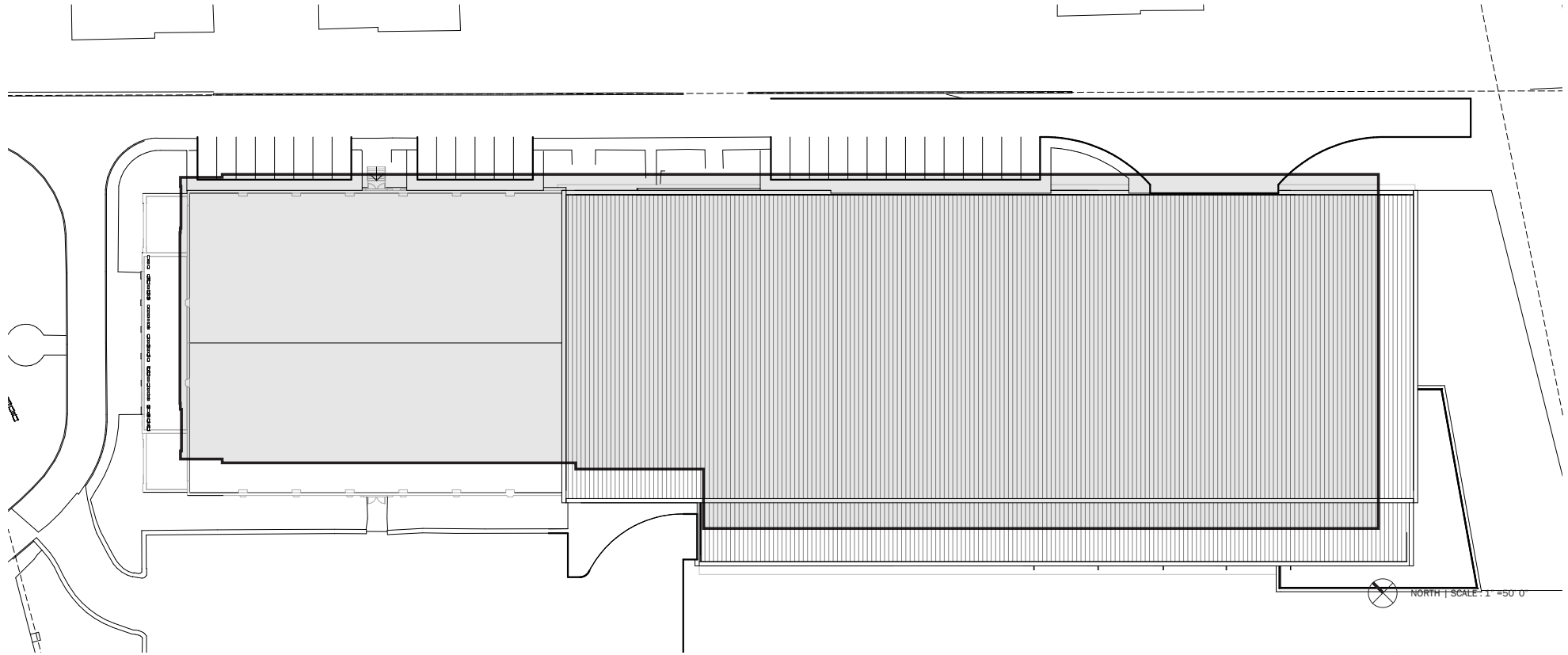
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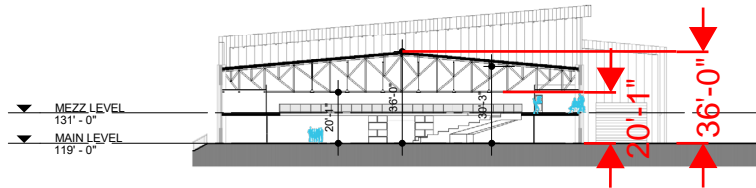
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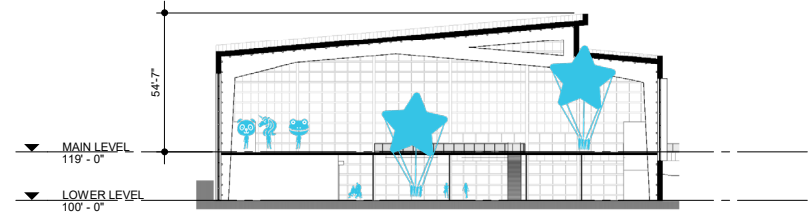
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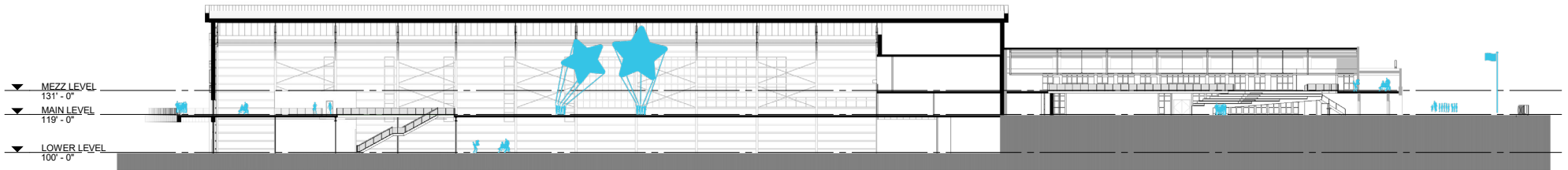
SECTIONS



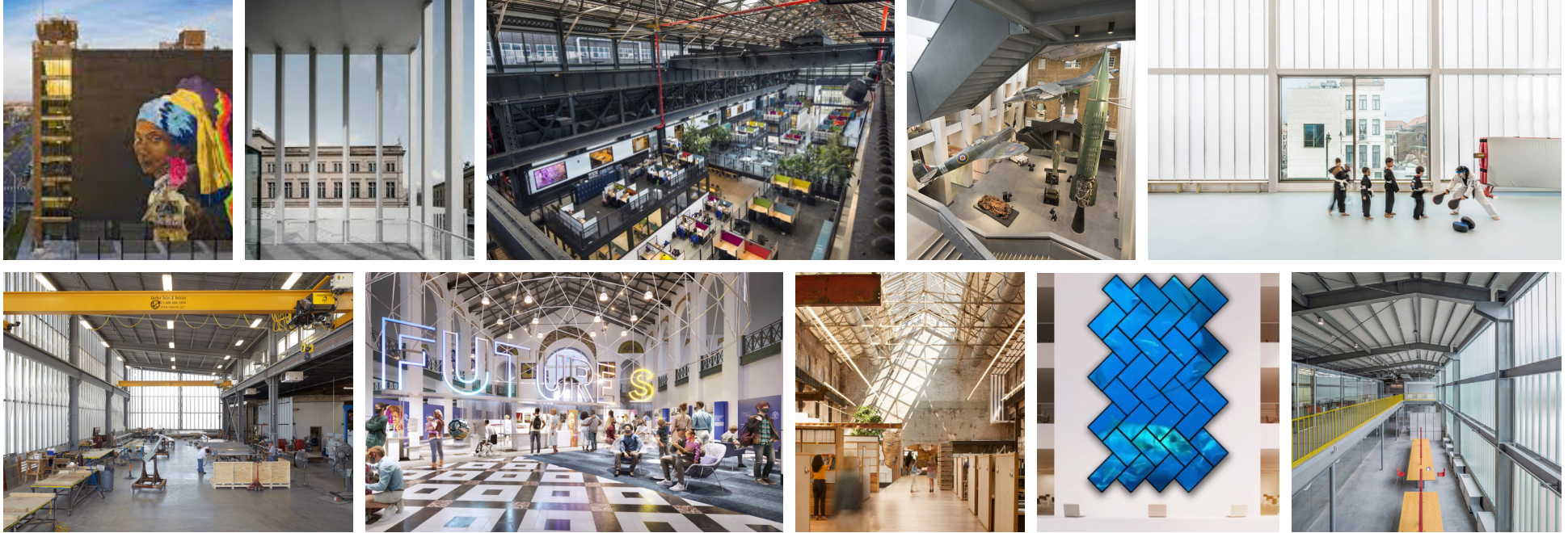
EAST/WEST SECTION (LOOKING SOUTH)



EAST/WEST SECTION (LOOKING NORTH)



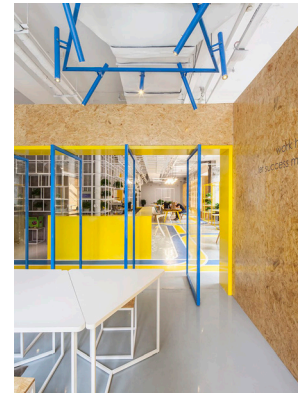
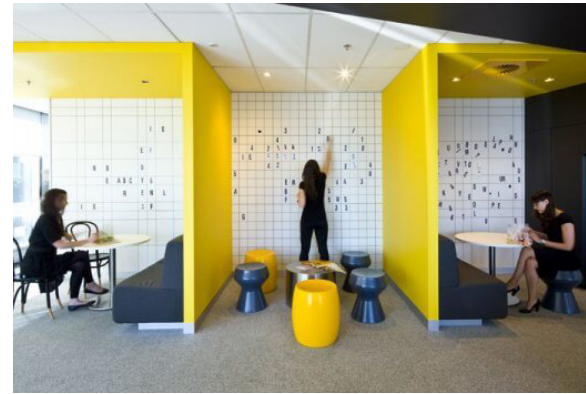
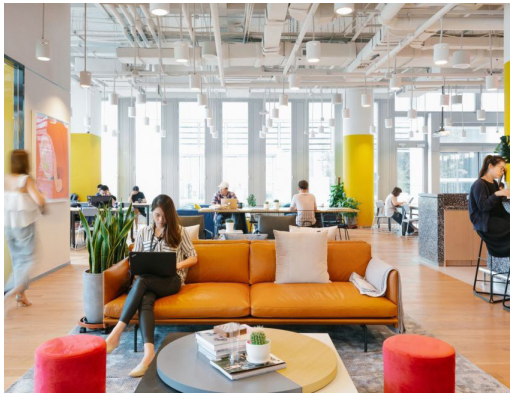
NORTH/ SOUTH SECTION (LOOKING WEST)



AESTHETIC

INTERIOR: TALL CEILINGS; NATURAL LIGHT; LARGE OPEN FLOOR PLAN FOR CONSTRUCTION, DESIGN, AND STORAGE; EMPLOYEE LOUNGE AND LOCKERS; GATHERING SPACES FOR EMPLOYEES AND TOURING VISITORS

VIBRANT | SIMPLE | IMAGINATIVE | SOLID | ENVIRONMENTALISM | EXHIBIT | PLAYFUL | CULTURAL



OFFICE

COLORFUL | BRIGHT | OPEN YET PRIVATE | FLEXIBLE | MULTIPURPOSE | EFFICIENT | INSPIRING



CIRCULATION SPACES

COLORFUL | FLEXIBLE | MULTIPURPOSE | INSPIRING

VIEW FROM ENTRY



VIEW FROM FLOAT SHOWROOM



Elevations



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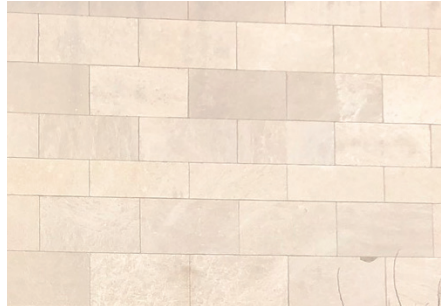
MATERIAL PALETTE

HISTORIC WINDOW REPLACEMENT



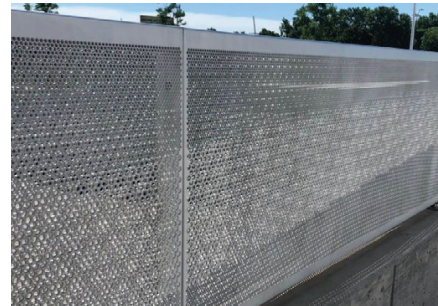
ALUMINUM FRAMED GLASS IG UNITS
CUSTOM PAINT TO MATCH HISTORIC COLOR

SALVAGED LIMESTONE



LIMESTONE PANELS FROM SOUTH BUILDING

GUARDRAIL



PERFORATED ALUMINUM GUARDRAIL

OVERHEAD DOORS



CUSTOM PAINTED STEEL DOORS

ACCENT EXTERIOR CLADDING



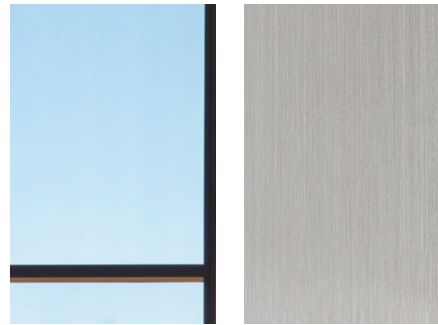
POLYCARBONATE

PRIMARY EXTERIOR CLADDING



VERTICAL METAL PANEL

WINDOW FRAME & GLAZING



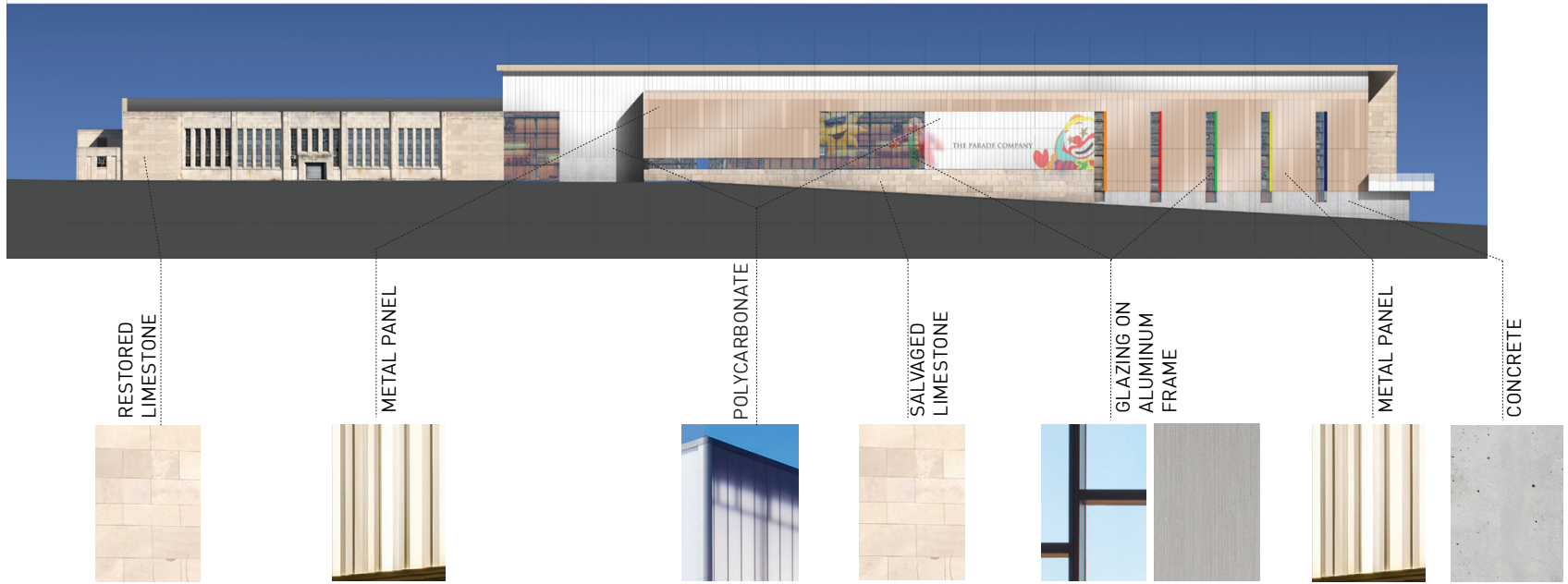
ANODIZED ALUMINUM WINDOW FRAMES
W/ CLEAR GLASS

EXPOSED FOUNDATION & SITE WALLS

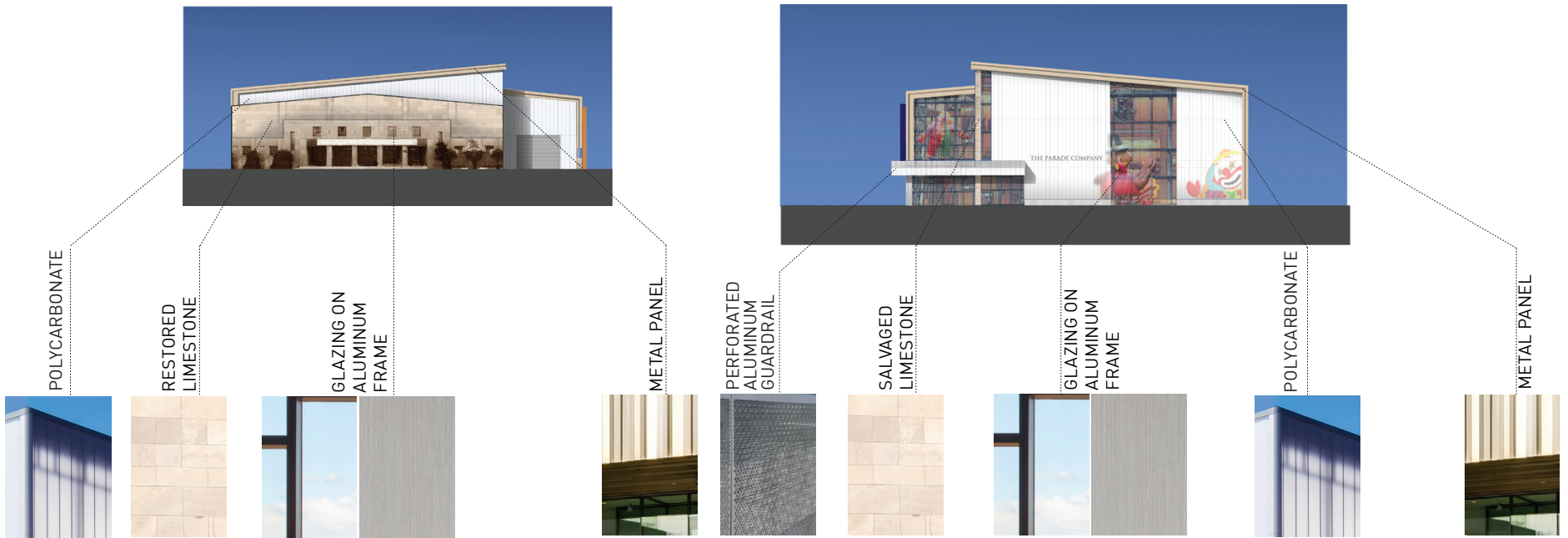


CAST-IN-PLACE ARCHITECTURAL
CONCRETE FOUNDATION WALLS

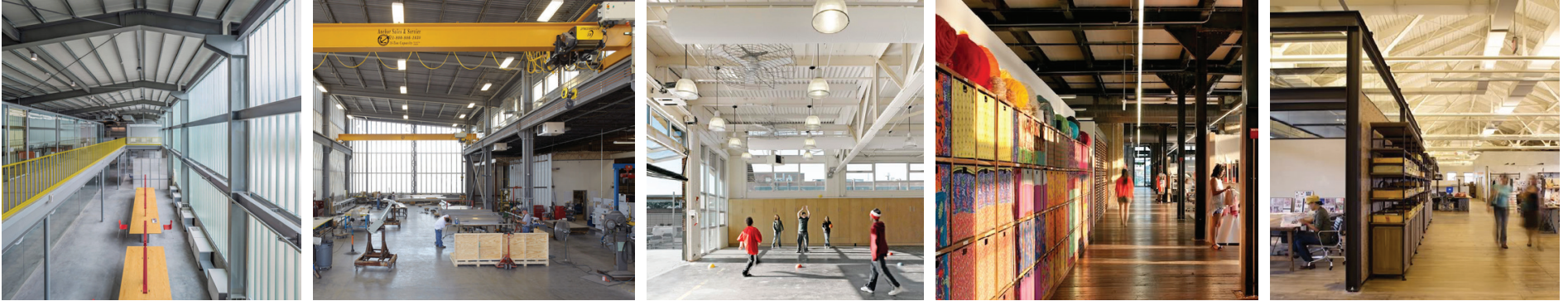
BUILDING ELEVATIONS







BUILDING ADDITION "LOOK & FEEL"



Interior: tall ceilings; natural light; large open floor plan for construction, design, and storage; employee lounge and lockers; gathering spaces for employees and touring visitors



Exterior: differentiated from the historic building through materiality and color; compatible with the historic building in massing, size, scale, and architectural features; relates to the Detroit River, Riverwalk, adjacent park; human-scale elements



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Preservation



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RETENTION OF SOUTH BLOCK HISTORY

This proposal seeks to **retain a meaningful amount of the historical interior elements** while removing the South Block to make room for the addition of two new levels of high-bay space south of the rehabilitated Jefferson Avenue Block.

This proposal seeks to retain historic elements of the South Block through:

- » Educational exhibits and displays through the rehabilitated and new structure
- » Redeployment of historic elements to City of Detroit facilities as well as Detroit area museums, schools, and community organizations for display and use in their facilities
- » Salvage through commercial historic restoration venues



David Fredenthal mural in South Block



Reclaimed steel bulkhead from a mothballed ship

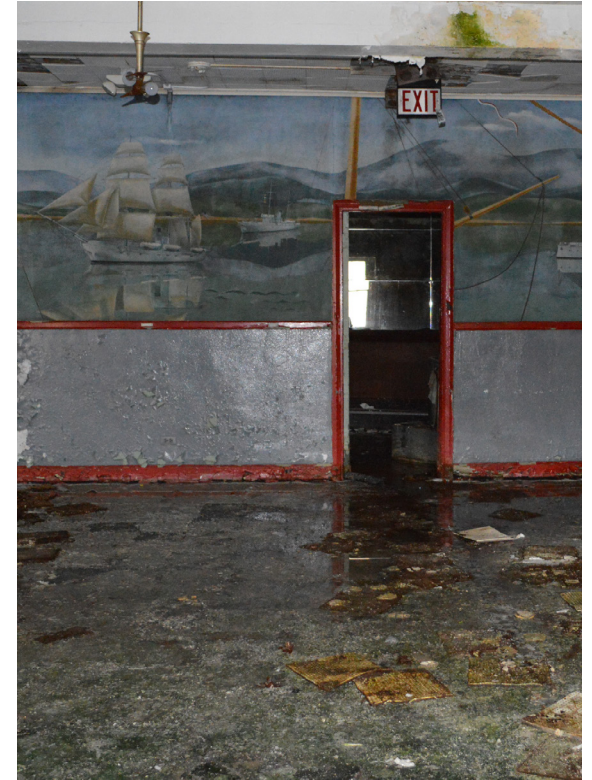
RETENTION OF SOUTH BLOCK HISTORY

Weather and time have not been kind to the interior of the woodwork and murals in the South Block. In the four years since the 2015 Due Diligence Report, the continued deterioration is visibly measurable when compared to 2018 photographs. Soon there may be virtually nothing remaining to retain without intervention.

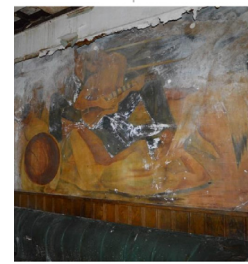
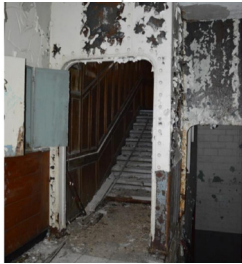
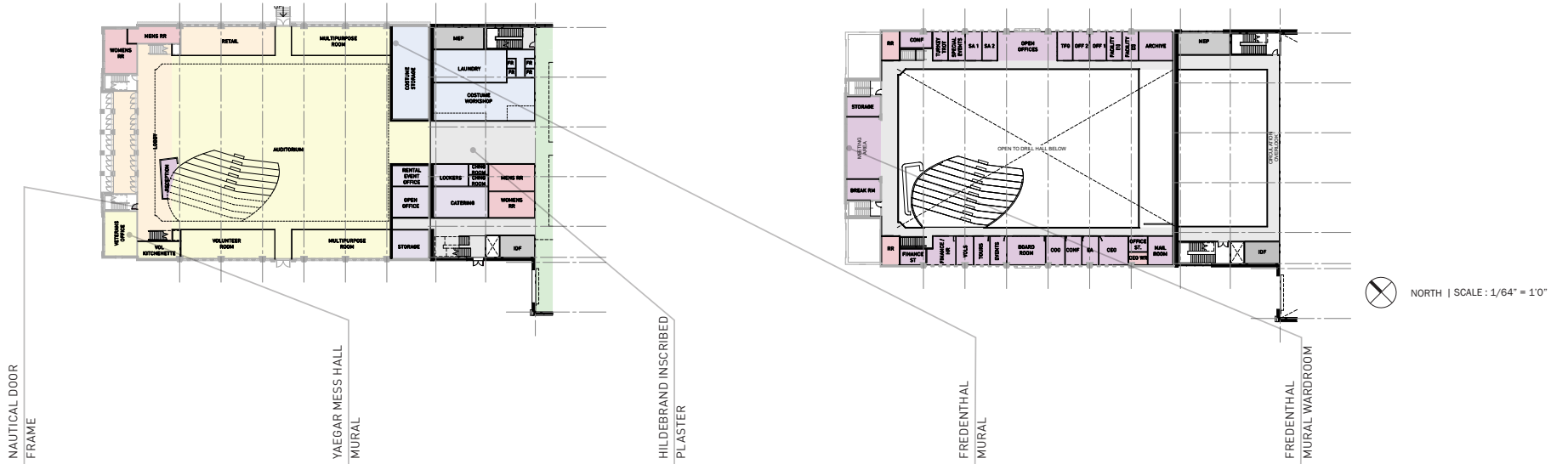
The Parade Company has included a substantial allowance for Interior Historic Restoration in the construction budget solely for safely removing and relocating historic elements in the South Block.



Fredenthal mural and wood door trim in bar area



Yaeger murals in dining room



Appendix



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1.0 INTRODUCTION

1.1 General Project Information

This Conceptual Design Study provides a preliminary layout for the civil site plan, see attachment A. With the addition of a 127,400 sf. two level building addition extending towards the river, the site will require additional parking, new water services, new sanitary service, new stormwater management system with a proposed outlet to the Detroit River and security fencing.

There is a significant drop in elevation (16 feet +/-) from East Jefferson Ave, elevation 118', to the property line at the Detroit River, elevation 102'. This change of elevation can allow the stormwater to be collected and discharged directly to the Detroit River. This will eliminate the need to connect and discharge into DWSD's combined sewer infrastructure. A special joint discharge permit will need to be secured from EGLE and the US Army Corp of Engineers for the approval of the discharge as well as an NPDES permit.

The existing building has a finished floor elevation (FFE) of 119' and the new addition will have a proposed lower level elevation of 104' with the upper level matching the existing building FFE.

The site will require cutting and filling for the construction of the new addition to the building and the construction of the parking lots and drive areas.

2.0 CIVIL AND LANDSCAPE NARRATIVE

2.1 Building Elevation and Grading

Based on the existing building elevation of 119', the upper level of the expansion area will need to match the FFE. The lower level needs to be positioned in order to function with the existing riverfront area. We will also want to set the lower level floor elevation to minimize the cut and fill operation. There is a large variation of the existing ground in the proposed footprint of the building ranging from 118' to 102'. In addition, we need to consider the 100-year flood plain elevation of the Detroit River and the grading of the remaining site area outside of the building. Therefore, we are estimating the lower level to be at 104'.

The parking lot on the west side will need to maintain access into the new addition at elevation 119'; therefore, there will need to be some filling of the area close the building entrance. On the east side, the parking lots and drives can gradually follow the existing topography and meet entry door elevations as needed. We will work the new grades to provide positive drainage from Jefferson down to the river for the re-constructed drives on the north side. All storm water will drain to the river. On the south side the site will be leveled out to match the existing shoreline and future river walk plans.

Based on concept evaluation, the site will need to cut 3,300 CYDs and fill 1000 CYDs. Based on soil conditions the cut material may be usable for the fill material. No review of soil borings has been performed by the civil team to date for geotechnical or geo-environmental.

2.2 Utility Connections

With the installation of a new 127,400 sf building expansion, all utilities will need to be upgrades and installed new.

- The sanitary sewer will need to be sized and installed back to a DWSD sewer in Jefferson.
- A new 4" domestic water service will need to be connected to the 6" main in Jefferson.
- The existing survey provided shows a 6" water main and a 42" & 48" water main in Jefferson. The MEP report states a 6" fire service will be needed. Normally DWSD will not allow an equal size line to be tapped into their main; therefore, the fire service may have to be connected to the 42" main. These are usually transmission mains



and DWSD will not allow a service line to tap a transmission main. In addition a flow test may demonstrate the 6" DWSD main, due to age and internal corrosion does not provide adequate flow for a the fire protection requirements for this size building. **ADDITIONAL DISCUSSION IS NEEDED WITH DWSD.**

- The City of Detroit may require another fire hydrant located closer to the river due to the overall length of the building. **ADDITIONAL DISCUSSION IS NEEDED WITH DETROIT FIRE DEPARTMENT.**
- The stormwater system is planned to discharge water to the Detroit River. There will need to be pretreatment of all stormwater prior to discharge. We have included a mechanical forebay system in our Exhibit A near the discharge point. There is a preliminary concept layout for the storm sewer system including collection from the building roof drains. We basically collect the stormwater on both sides of the building, connect them on the south side, and treat the water before discharge to the river. The treatment structure location must allow for access to perform maintenance and cleaning from a vacuum truck.
- We anticipate new gas and electrical services are requires as the size of the building is increasing more than 3 times.

2.3 Pavements

Parking Lots and Internal Drives

The proposed pavements will be flexible pavements, normally 4.5" of bituminous pavement over 9" stone base. Based on existing soil conditions this may vary slightly. If there will be trucks going into the building, a heavy duty bituminous section can be designed in truck access areas.

Internal Walks

Walkways will be normal concrete sidewalks of 4" concrete on a sand base.

Circulation.

Due to the steep drop in the elevations from the north to the south, there should be discussions for pedestrian movements outside of the building. If it determined a walk is needed outside for pedestrian access, we will need to review the grades and determine if steps will be required in any areas due to the steep grades. Sidewalks will need to be ADA compliant.

2.4 Pedestrian Amenity Spaces

Site design of amenity spaces will balance the needs for views, access, safety, security, stormwater and building architecture. Vehicle access, utilities, stormwater and grading are covered in the civil portion of this report.

Irrigation

All plantings and lawn areas will be irrigated. Power and water will be obtained from the building services.

Demolition

Unhealthy, overgrown and damaged plant material will be removed. Plants in the way of construction will be removed.

North

The north open space, along East Jefferson Avenue will highlight the historic structure and main entrance to the Parade Company. Plantings will be elegant and understated, taking advantage of native plant species when possible. Concrete sidewalks from parking and East Jefferson Ave will provide pedestrian access to the building. Bicycle parking will be provided adjacent to the main entrance.





West

The parking lot in the northwest corner of the site will be screened with a low hedge. The hedge, along with a swale, will help discourage direct access to the Parade Company property from Gabriele Richard Park.

The southwest corner of the site will remain as green space with canopy trees and mowed turf.

South

The south open space is directly adjacent to the Detroit International Riverwalk and the Detroit River. It contains the elevated terrace and the plaza. Direct access to and from the Riverwalk is also possible in this area.

The Riverwalk is a sixty-six foot easement, directly adjacent to the Detroit River. The Riverwalk is open to the public for nonmotorized travel, with special events throughout the year. Gabriel Richard Park, west of the Parade Company, provides bicycle and pedestrian access to the Riverwalk, as well as parking. The sixty-six foot easement runs from property line to property line, and will be developed by the Detroit Riverfront Conservancy, as a separate project.

The elevated terrace is accessed from the main floor of the Parade Company and will have stunning views to the River. Opportunity exists to introduce seasonal color through the use of containers of annuals. Rotations can be made for every season, keeping the plantings fresh and colorful.

The Riverfront Plaza is at the grade of the Riverwalk and the basement level of the Parade Company, providing ready access to and from the public Riverwalk. The Plaza will host a variety of spaces for employees, volunteers and guests to take advantage of, including gardens; dining spaces with tables, chairs and umbrellas for shade; and an opportunity for a donor to place a significant piece of art.

A series of walled planting beds will help define the plaza while capturing the grade as it slopes towards the river. The elevated planting beds will define the plaza on three sides and help discourage access from public users of Gabriel Richard Park and the Riverwalk. Discussion is required to define the exact level of security of the Plaza and the division between the Plaza and the Riverwalk. All beds will be irrigated and drained to the site storm system.

Site lighting will illuminate the space for safety and security needs, as well as evening events. Opportunity exists to highlight the south building façade from this system, and select landscape areas.

Paved surfaces will be a combination of natural and colored concrete, exposed aggregate and possibly unit pavers.

East

The east side of the site is primarily parking and loading area. It is the service side of the building, with very little green space. Non-vehicular areas will be grass or concrete. Canopy and evergreen trees will be planted as space allows.

3.0 NEEDS RELATED TO DEMOLITION AND CONSTRUCTION

3.1 Existing 15" Sewer of Record

There is an existing 15" sewer shown on the survey as recorded. Not field verified. We anticipate based on the lack of detailed information as to depth and structures, this sewer is not viable to be utilized for any storm conveyance. Therefore, it will need to be removed or abandoned in place by grouting with a flowable fill within the limits of the property. The survey shows it goes to the neighboring property to the east without any easement shown. This condition is not recommended for any planning of discharging this sites stormwater.



3.2 Existing Utility Tunnels

There are existing utility tunnels on the east and west sides of the building, assuming to extend to the right-of-way for steam, condensate, water and gas. If all utility services are to be replaced, it is our recommendation to further investigate to determine if the tunnels need to be repaired or abandoned in place by grouting.

3.3 Existing Retaining Wall on East Property Line

There are existing concrete retaining wall on the east property line of the property that cannot be validated by visual inspection only. It is our recommendation to further investigate the design and lateral loading to determine if it need to be repaired or replaced.

4.0 GENERAL QUANTIFICATIONS OF SITE UTILITY ELEMENTS; RECOMMENDATIONS OF COST AND SHORLINE REQUIREMENTS/DETROIT RIVERWALK INTERFACE

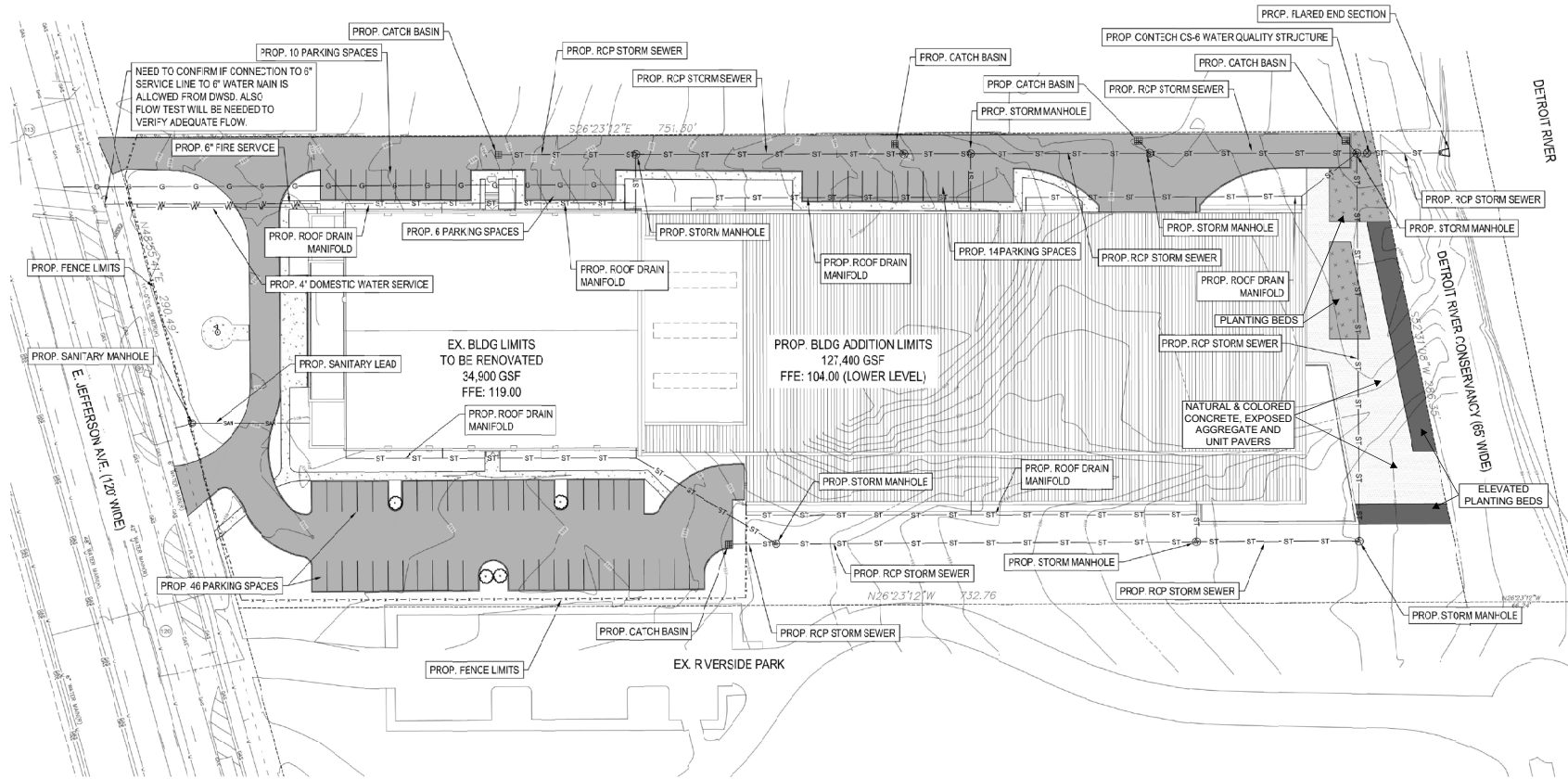
4.1 Storm Sewer Discharge to the Detroit River

The proposed outlet for the stormwater management system will need to go to the Detroit River. This will require an easement from the Detroit Riverfront Conservancy. Construction will need to have access under a construction agreement or easement. The outlet to the river will need to be constructed under a special Joint Direct Discharge Permit from EGLE and the US Army Corp of Engineers. Access to the south area of the site will need to be coordinated with the construction of the building due to the steep grades. A construction sequence plan will need to be developed for the overall constructability of the various sections of the project. The stormwater discharge may need to be coordinated with the future RiverWalk design concept.

4.2 Sanitary Flows from Lower Level of Expanded Section of the Building

Due to the low elevation of the lower level floor, sanitary removal may need to incorporate a lift station to discharge with flows from the first floor of the existing building. It is assumed that this sanitary lift station will be part of the plumbing design scope.





LEGEND

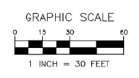
- PROPOSED ASPHALT - 1627 SYD
- PROPOSED CONCRETE SIDEWALK - 26 SYD
- PROPOSED NATURAL AND COLORED CONCRETE EXPOSED AGGREGATE ADJUNT PAVERS - 787 SYD
- PROPOSED PLANTING BED - 268 SYD
- PROPOSED ELEVATED PLANTING REC. - 268 SYD
- PROPOSED TREE - 46A

- C — PROPOSED GAS LINE - 350 LF
- ST — PROPOSED STORM SEWER - 2,370 LF
- W — PROPOSED WATER - 14 LF
- SAN — PROPOSED SANITARY - 81 LF
- F — PROPOSED FENCE - 641 LF
- PROPOSED CATCH BASIN - 5 EA
- ⊕ PROPOSED STORM MANHOLE - 8 EA
- ⊙ PROPOSED CASCADE CS-6 WATER QUALITY STRUCTURE - 1 EA
- ⊗ PROPOSED SANITARY MANHOLE - 1 EA

CUT AND FILL VOLUMES

- CUT - 3339 CYCS
- FILL - 1001 CYCS

PRELIMINARY PLAN



PROJECT NO: 1770201 DATE: 12/20/21 DRAWN BY: BSW CHECKED BY: MJD	807 SHELBY ST. SUITE 300 DETROIT, MI 48226 TEL: 313.961.8800 PROJECT SITE: BRODHEAD ARMORY PRODUCT NO: 4827R DRAWN BY: BSW CHECKED BY: MJD
TECHNICAL DRAFTING www.manniksmithgroup.com	
PREPARED FOR: ROSSETTI ARCHITECTS 160 W FORT ST STE 100 DETROIT, MI 48226	
BRODHEAD ARMORY 7600 E. JEFFERSON AVE DETROIT, MI 48214	
CONCEPT SITE PLAN	





SD Structural Narrative for Parade Company/Brodhead Armory
7600 E. Jefferson, Detroit, MI

- A. Introduction
 - 1. Purpose
 - a. The primary purpose of this report is to describe and provide a permanent record of the building systems for the Parade company Brodhead Armory building project. In addition to describing the systems, the fundamental assumptions used for the design are outlined. These include occupancy and related live loads, gravity and lateral load resistance, vibration criteria, future expansion needs and fire rating.
 - 2. Project Description
 - a. The parade company broadhead project consists of the renovation of existing and design/construction of new addition with a building area of +/-87,000sf above grade and +/-20,000sf of basement area (+/-106,932sf of total).
- B. General Building Design Criteria and Assumptions
 - 1. Codes
 - a. 2015 Michigan building Code, 2015 International Building Code.
 - b. 2015 International Existing Building Code and 2015 Michigan Rehabilitation Code.
 - c. ASCE-7-10/SEI American Society of Civil Engineers/ Structural Engineering Institute.
 - d. ASTM: American Society of Testing Materials.
 - e. ACI-318-14: American Concrete Institute.
 - f. AISC-360-10: American Institute of Steel Construction.
 - g. AISI S100-12: American Iron and Steel Institute.
 - h. AWS: American Welding Society.
 - i. NCMA: National Concrete Masonry Association.
 - j. TMS: The Masonry Society
 - k. WRI: Wire Reinforcement Institute Inc.
 - l. 2015 International Fire Code, NFPA 13D (2013) National Fire Protection Association.
 - m. PCI MNL-Precast Prestressed Concrete Institute.
 - 2. Seismic Design Conditions:
 - a. Seismic Design Category: B

- b. Risk Category: III
- C. Structural Design Requirements
 - 1. Building Code and Occupancy Category
 - a. The project design will follow ASCE7-10.
 - 2. Performance Requirements
 - a. Live Load
 - 1) Building live loads used in the design will be as follows:

New Building	
a) Typical floors	100 psf (non-reducible)
b) Public Tours/showroom and auditoriums:	200 psf (non-reducible)
c) Light Mechanical rooms:	125 psf (non-reducible)
d) Heavy Mechanical rooms:	150 psf (non-reducible)
e) Compact storage:	400 psf (non-reducible)
f) Roof	25 psf (non-reducible)
Existing Building	
g) First floor (slab-on-grade)	100psf
h) Mezzanine	50psf
i) Roof	20psf
 - b. Snow, Wind and Seismic Loads
 - 1) Snow load is based on ASCE7 Chapter 7 as follows:

a) Ground snow load:	20 psf
b) Exposure factor, Ce:	1.0
c) Thermal factor, Ct:	1.0
d) Importance factor:	1.10
e) Flat roof snow load:	22 psf
f) Rain-on-snow surcharge:	5 psf
g) Design load:	25 psf (Not including drifting effect)
 - 2) Wind load is based on ASCE7-10

a) Design wind speed:	120 mph
b) Importance factor:	1.0
c) Exposure class:	C
d) Internal Pressure Coefficient	+/-0.18
 - 3) Seismic load is based on

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- a) Seismic Importance Factor 1.25
 - b) Ss 0.096
 - c) S1 0.047
 - d) Soil Site Class D
 - e) SDs 0.102
 - f) SD1 0.075
 - g) Seismic Design Category B
 - h) Seismic Force Resisting System Steel System Not Specifically Detailed for Seismic Resistance
 - i) Response Modification Factor R=3
 - j) Analysis Procedure Equivalent Lateral Force
- c. Floor Flatness/Floor Levelness Criteria
- 1) Based on the intended use of the slab on grade and/or elevated slab, floors shall be constructed with composite flatness and levelness as below:
The slab on grade: FF=35 and FL=25
Suspended slab: FF= 30 and FL=20
- d. Vibration Requirements
- 1) Areas shall be designed per industry standards with no special requirements or areas where special vibration requirements have been requested by the Owner or the Architect, IMEG recommends designing by AISC Design Guide 11 - Floor Vibrations due to Human Activity/shopping mall floor type use.
- e. Future Expansion: No future expansion identified.
- f. Fire Resistance
- 1) Refer to Architectural Narrative
3. Sub-Structure System
- a. Foundation System
 - 1) Geotechnical report No by TEC is incomplete. The below suggested foundation type alternatives are based on the preliminary geotechnical investigation findings of TEC dated 11/10/2021.
 - 2) Alternative-1: Proposed Foundation Type
 - a) Column foundations are anticipated to be shallow spread footings bearing on geopier or stone columns. The geopier or stone columns should extend to depth of +/-40ft. Foundation to be designed based on net allowable bearing capacity of 3,000psf.

- b) Foundation frost walls will be cast-in-place concrete grade beams or concrete walls supported on geopiers or stone columns.
 - c) 4,000 psi concrete will be used for footings and grade beams.
 - d) Polystyrene insulation will be provided at the building perimeter per the architectural narrative.
- 3) Alternative-2: Proposed Foundation System
- a) Column foundations are anticipated to be drilled piers or driven piles bearing into hardpan. Soil conditions are currently being investigated for recommended foundation design, allowable bearing values, and drilled pier bearing elevations.
 - b) Foundation frost walls will be cast-in-place concrete grade beams and concrete walls supported on drilled piers or driven piles.
 - c) 4,000 psi concrete will be used for footings. Walls and grade beams/5000 psi concrete will be used for concrete drilled piers.
 - d) Polystyrene insulation will be provided at the building perimeter per the architectural narrative.
- 4) Basement Construction
- a) Foundation walls will be +/-16" thick reinforced cast-in-place concrete walls.
 - b) Waterproofing system and perimeter drain tile system placed at the base of the wall as detailed in the architectural narrative.
 - c) Backfill along the wall will be a clean compacted granular fill material.
- 5) Special Foundations Requirements
- a) Dewatering may be required, depending on the soils report recommendations.
 - b) Site has variable depth of fill extending to quite deep depth and trace of petroleum contamination.
 - c) Geotechnical testing and inspection will be required during construction to verify the actual on-site soil conditions prior to concrete placement.
 - d) The basement system will be designed as drained system.
- b. Slab-on-grade Construction
- 1) Typical slab on grade thickness and reinforcing type
 - a) The typical slab-on-grade will be 6", 4,000 psi concrete reinforced with welded wire fabric (typically). Thickened reinforced concrete slabs will be provided at highly loaded areas below CMU interior partitions, and at locations with depressed slab locations.



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- b) Slab depressions will be provided, as required, for flooring, equipment, etc.
 - c) A 15 mil polyethylene vapor retarder will be provided below the slab. *OR* Membrane-type vapor barriers will be provided below the slab.
 - 2) The slab on grade could be constructed on the existing soils with proper subgrade preparation in accordance with the recommendation of the geotechnical report.
4. Superstructure System
- a. Floor Construction
 - 1) Floor Construction - Two-Way Slab with Beams - Re: SK-1
 - a) A cast-in-place two-way slab with concrete beam framing system will be used for the floor construction. The slab will be 12" thick and the typical beams will be 36"x30" spanning between the columns.
 - b) 5,000 psi concrete will be used.
 - c) Two-hour fire rating is required.
 - d) Final Concrete floor slab thickness and reinforcing will be selected during the Design Development phase to meet the fire rating requirements and to provide an economical design.
 - b. Roof Construction
 - 1) **Alternate 1** - Roof Construction – Pre-engineered steel framing, Z purlins and 3" NIA insulated metal deck roof- Re: SK-2.
 - a) Pre-engineered framing spaced at 30'-0" on center and purlins spaced at 5'-0" will support a standing seam metal roof decking. The structure will be sloped 1/4" per foot to provide positive roof drainage.
 - b) 3" NIA 20-gauge acoustical deck spanning between the Z purlins.
 - c) Fire rating: refer to architectural narrative.
 - 2) **Alternate 2** - Roof Construction – Pre-engineered steel framing, Z purlins and insulated metal deck roof- Re: SK-3.
 - a) Pre-engineered framing spaced at 30'-0" on center and purlins spaced at 5'-0" will support a standing seam metal roof decking. The structure will be sloped 1/4" per foot to provide positive roof drainage.
 - b) 7.5" Deep-Dek Acoustical deck 16 gauge. Or Alternatively, 7.5" Deep-Dek Cellular 18/18 gauge.
 - c) Fire rating: refer to architectural narrative.

- 3) **Alternate 3** - Roof Construction – Pre-engineered steel framing and CrossLam CLT roof panel - Re: SK-4.
 - a) 245 E series CrossLam CLT panel on pre-engineered steel framing spaced at 30'-0" on center. The structure will be sloped 1/4" per foot to provide positive roof drainage.
 - b) Fire rating: refer to architectural narrative.
 - c. Columns and/or Bearing Wall Construction
 - 1) Columns above first floor- Pre-engineered steel framing structure by metal building contractor.
 - a) Fire rating: refer to architectural narrative.
 - 2) Columns in the basement
 - a) Columns will be concrete columns supporting first floor cast-in-place slab and concrete piers supporting pre-engineered framing above.
 - b) Fire rating: refer to architectural narrative.
 - d. Lateral Load Resisting System
 - 1) Lateral Load Resisting System – Pre-engineered metal building frames
 - a) Pre-engineered structural steel wide flange columns and beams will be connected to form ordinary rigid frame elements to provide the lateral support for this structure. Locations and sizes will be determined during the Design Development phase of the project.
 - b) The pre-engineered frames shall be designed for a lateral drift of H/400 due to lateral wind and seismic loads.
 - e. Exterior Enclosure
 - 1) Exterior Walls - metal panel by metal building contractor.
 - f. Structural Expansion Joints
 - 1) Structural expansion joints will be used to separate the new construction from the existing building.
5. Existing building renovation
- 1) First floor slab-
 - a) Remove the existing wood flooring and restore the structural slab as required by structural testing inspection. Allowances shall be included for new floor surface leveling.
 - b) Infill or enclose mechanical penetrations to avoid potentially hazardous conditions to occupants.



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- 2) Mezzanine floor structure
 - a) Evaluate and clean/reinforce members experiencing intragranular delamination type corrosion.
 - b) Perform chain drag, concrete core compressive test and carbonation evaluation at selected mezzanine floor slab location to determine soundness and capacity of the structural floor slab.
 - c) Allowances shall be included to restore delaminated areas.
- 3) Roof Trusses
 - a) The two south most trusses require removal and replacement due to an extensive amount of damage. Bottom chord bridging and horizontal x-bracings shall be re-installed matching the existing members locations.
 - b) Re-design, fabricate and install the two trusses matching the existing shape and profile, using current steel sections and grades following the current applicable building codes.
- 4) Roof purlins
 - a) Roof purlins in the collapsed roof area that are twisted and distorted will be replaced.
- 5) Roof Decking
 - a) The existing roof decking structure is deteriorated throughout and requires complete replacement.
- 6) Stair stringers
 - a) Clean and restore/repair stair stringer members and connections experiencing pack rust.
- 7) Guardrails at overhang and stairs
 - a) Install missing guardrails. Existing guardrails shall be restored to meet current building code standards/Alternatively all guardrails shall be replaced.
- 8) Masonry bearing walls
 - a) Portion of the existing wall near roof collapse region will be repaired or rebuilt.
- 9) Existing building façade
 - a) Limestone cladding, carvings, metal framing windows, and doors will be preserved and/or repaired.
 - b) Repair damaged parapet wall and limestone panels.

APPENDIX A

- A. Applicable Design Codes and Standards
 - 1. Building Codes
 - 2. Other State/Federal Agency Codes
 - 3. Owner Design Requirements
 - 4. Seismic References



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APPENDIX B
STRUCTURAL DESIGN CRITERIA

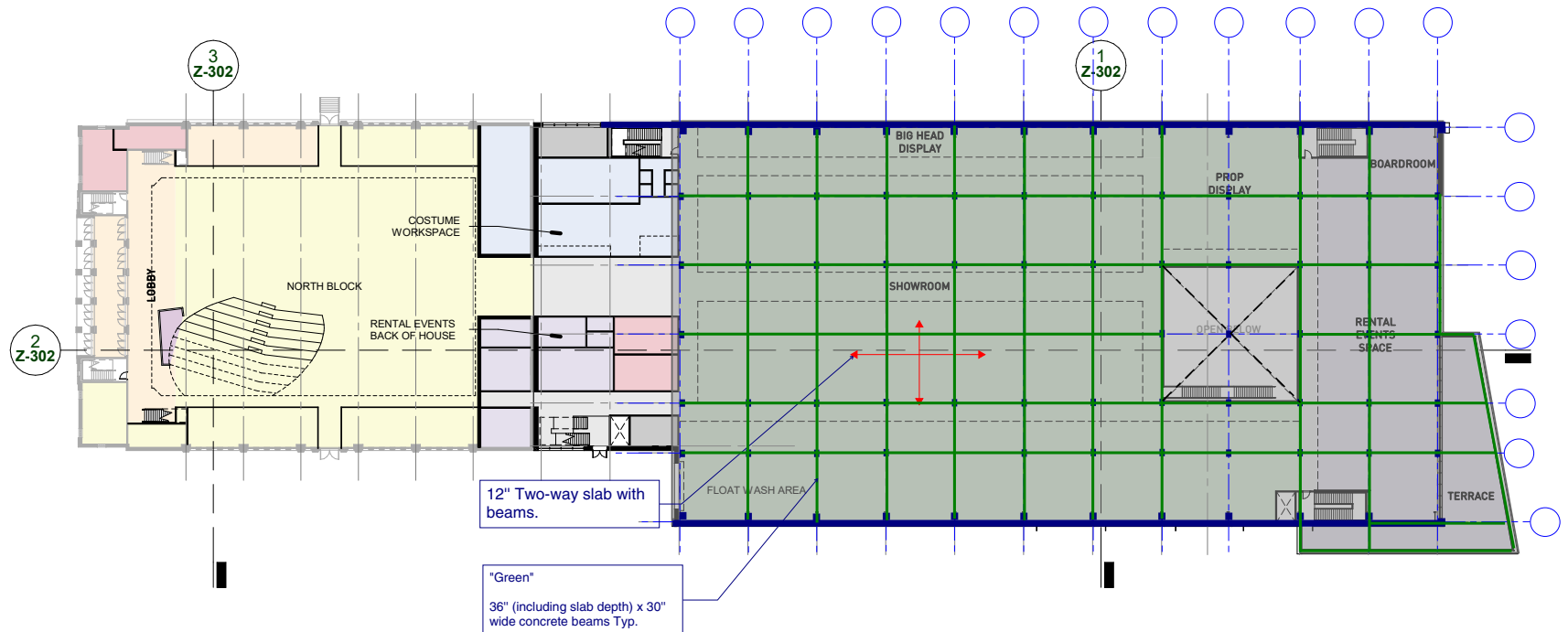
- A. Seismic Load Criteria
 - 1. Site Soil Classification
 - 2. Seismic Use Group
 - 3. Risk Category
 - 4. Seismic Design Category
 - 5. Seismic Force Resisting System
- B. Foundation Criteria
 - 1. Allowable Net Soil Bearing Pressure
- C. Structural Steel Criteria
 - 1. Material Properties
 - a. Wide flange beams ASTM A992 (Gr. 50)
 - b. Wide flange columns ASTM A992 (Gr. 50)
 - c. Other rolled sections ASTM A36
 - d. Hollow structural sections (HSS) ASTM A500, Gr. B
 - e. Pipe steel ASTM A53, Gr. B
 - f. Base plates ASTM A36
 - g. Anchor rods ASTM F1554, Gr 36
- D. Concrete Criteria
 - 1. Material Properties
 - a. Reinforcing steel ASTM A615, Grade 60
 - b. Welded wire fabric ASTM A185
 - c. Fiber reinforcement ASTM C1116
 - 2. Strength Properties
 - a. Drilled piers & footings 5000 psi
 - b. Slab on deck 5000 psi
 - c. Slab on Grade 4000 psi
 - d. Columns & Structural Slabs/Beams 5000 psi
 - e. All other concrete 4000 psi
- E. Masonry Criteria
 - 1. Material properties:
 - a. Concrete masonry units ASTM C90
 - b. Mortar materials ASTM C270, Type S, Type M
 - c. Grout ASTM C476
 - d. Reinforcing steel ASTM A615, Gr 60
 - e. Plate and bent bar anchors ASTM A36
 - f. Wire ties and anchors ASTM A951
 - 2. Strength properties:
 - a. Design assembly strength, f'm 2000 psi
 - b. Individual concrete masonry units 2000 psi

- c. Mortar 1800 psi
- d. Grout 3000 psi
- F. Cold-Formed Criteria
 - 1. Material properties:
 - a. 18 gauge and thinner ASTM A653, Gr 33
 - b. 16 gauge and thicker ASTM A653, Gr 50
 - c. Connection material (> 3/16") ASTM A36
 - d. Anchor rods ASTM F1554, Gr 36
 - e. Bolts ASTM A307
 - f. Electrodes for arc welding AWS 5.1, E60XX
 - 2. Coatings:
 - a. Hot-dipped ASTM A525, Gr 60
 - b. Electro-plate ASTM A591
 - c. Aluminum-zinc ASTM A792, Gr 40

Prepared by: Ephrem K. Zegeye

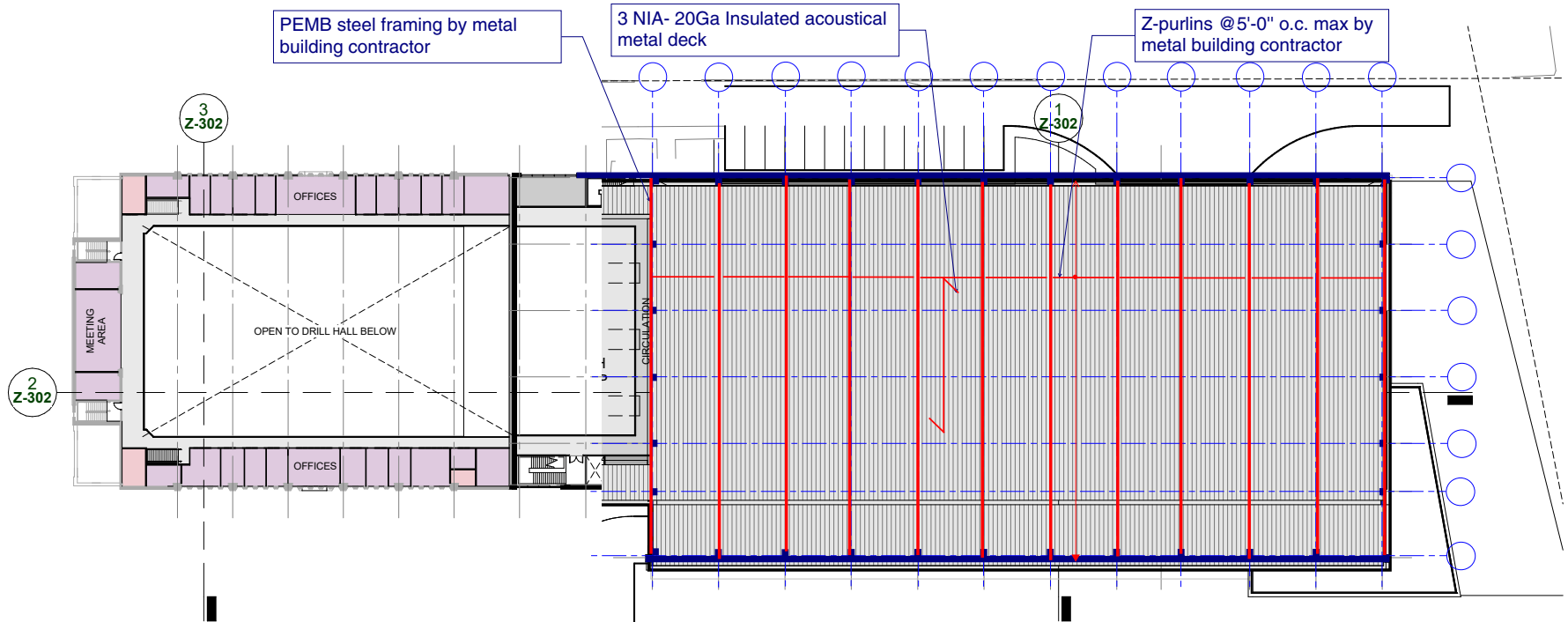
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SK-1
First Floor
Two Way Slab With Beams



SK-2
Roof

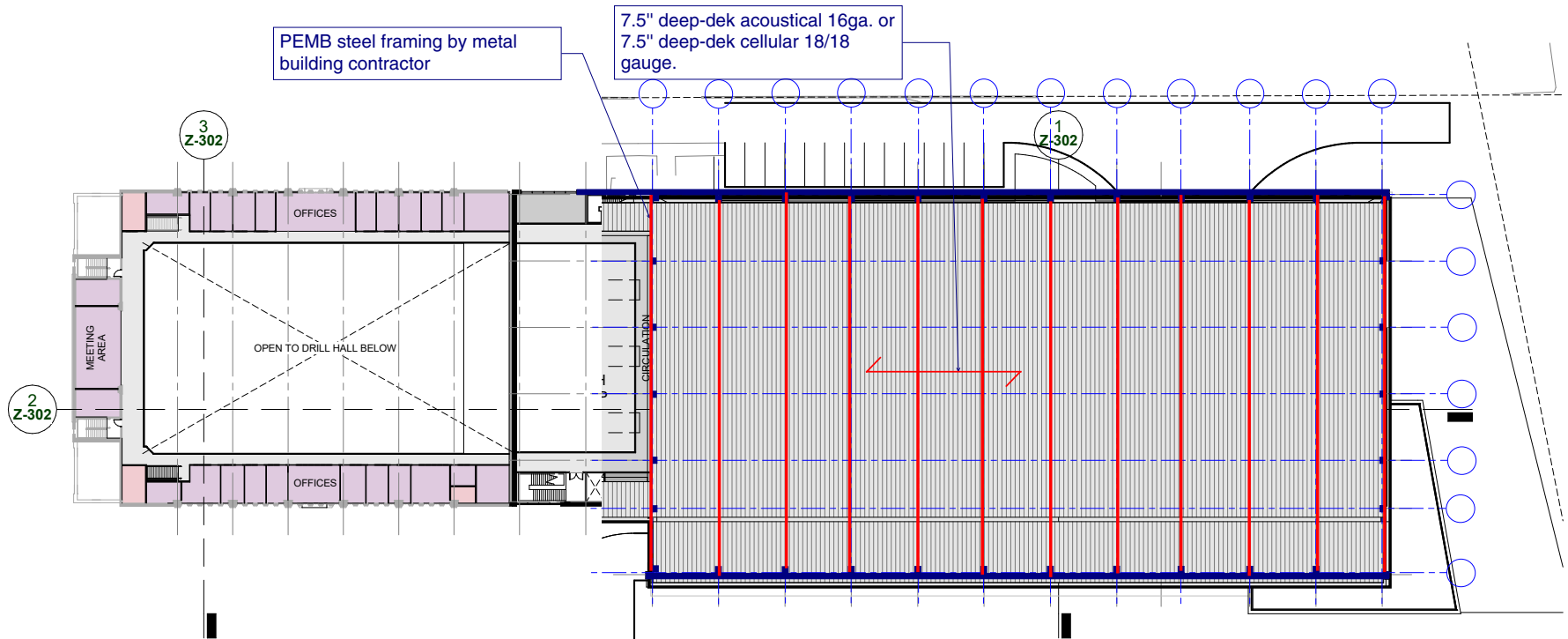
Alternative-1: Pre-engineered Steel Framing, Z purlins and 3" insulated acoustical metal deck



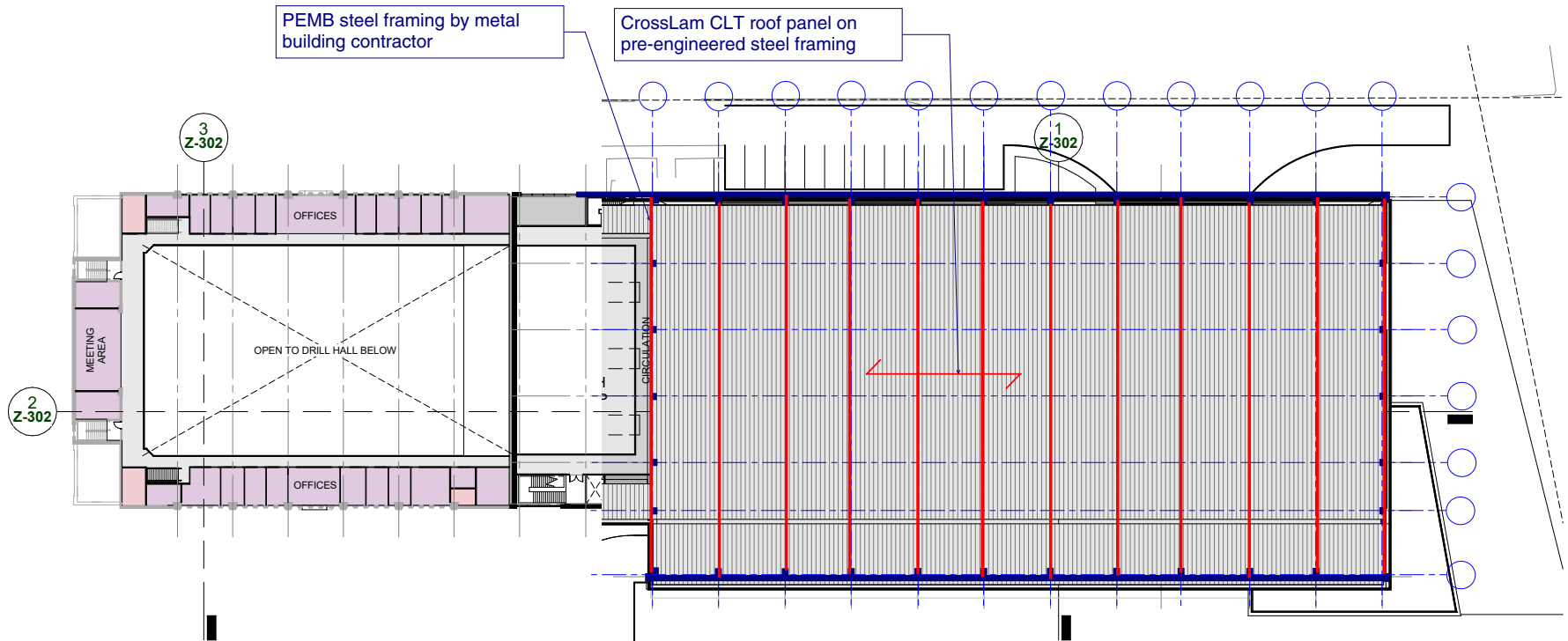
SK-3

Roof

**Alternative-2: Pre-engineered Steel Framing,
7.5" deep-dek acoustical 16ga. or 7.5" deep-dek
cellular 18/18 gauge.**



SK-4
Roof
Alternative-3: Pre-engineered Steel
Framing and CrossLam CLT roof panel.



1.0 INTRODUCTION

This Design Narrative is written to provide an overview of the proposed mechanical, electrical plumbing and fire suppression systems, equipment, materials and associated design criteria for the renovation and new addition at the Brodhead Armory building for The Parade Company. All sizes indicated are preliminary, based on square foot calculations and will be verified/updated as the design progresses through construction documents.

The project will consist of both renovation areas as well as new construction. The building will be approximately 160,000 square feet when complete and broken down into the following areas.

- North Block offices and event space: 35,000 square feet
- Showroom: 36,000 square feet
- New addition event space: 7,500 square feet
- Displays: 6,400 square feet
- Workshops: 49,200 square feet
- MEP spaces, storage, and circulation areas: 25,900 square feet

2.0 MECHANICAL AND PLUMBING SYSTEMS

2.1.0 GENERAL REQUIREMENTS

Codes and Standards

The new mechanical and plumbing systems shall comply with the following codes and standards:

- Michigan Building Code 2015
- Michigan Mechanical Code 2015
- Michigan Plumbing Code 2018
- Michigan Energy Code 2015 (MEC)
- Applicable ASHRAE standards
- Applicable National Fire Protection Association (NFPA) Standards
- Sheet Metal and Air Conditioning National Contractors Association (SMACNA) Standards

Outdoor Design Conditions

The following outdoor design conditions will be used in sizing the mechanical heating, ventilating, and air conditioning systems. The design temperatures are based on 2021 ASHRAE Fundamentals Handbook, using 0.4% cooling design and 99.6% heating design for Detroit, Michigan (Coleman Young International Airport).

Summer Cooling	90.6 °F DB/73.4 °F WB
Winter Heating	5.2°F DB
Summer ambient temperature for air-cooled equipment located on roof	95°F DB

Relative humidity will not be directly controlled in summer cooling or winter heating modes. No provisions are currently planned to add humidity in winter.

Indoor Design Conditions

The following indoor design conditions will be used in sizing the mechanical heating, ventilation, and air conditioning systems.

Summer - air-conditioned spaces:	75 °F DB/50% RH*
Summer – non air-conditioned spaces: (Mechanical room, electrical room, etc.)	within 10 °F DB of ambient
Winter: - occupied spaces	72°F DB/30%RH
Winter – non occupied spaces: (Storage rooms, mechanical room, etc.)	60 °F DB

*Relative humidity will not be directly controlled in summer cooling mode. This is a condition that can be expected under normal operating conditions.

Building Internal Heat Gain Allowances

The building heat gain will be calculated based on Chapter 18 of the 2021 ASHRAE Fundamentals Handbook.

Ventilation Rates

Outside air ventilation rates will be in accordance with the Michigan Mechanical Code. Ventilation rates provide required outdoor ventilation air and make up throughout the full range of the system operation for air that is exhausted out of the building.

All air supply system outdoor air intakes are to be a minimum of 10 feet or as required by all applicable codes and standards from any exhaust fan discharge, plumbing vent, or pollutant source unless the mechanical equipment is designed for adjacent intake and relief.

Preliminary minimum ventilation rates will be in accordance with the Michigan Mechanical Code area rate.

Preliminary minimum ventilation rates will be as follows (unless heating/cooling load or applicable code(s) necessitate higher value):

Occupancy Classification	Ventilation Rate
Toilet Rooms	50 cfm per fixture (continuous) or 70 cfm per fixture (intermittent) exhaust rate
Office/Conference Rooms	5 cfm/person + 0.06 cfm/sqft
Corridor	0.06 cfm/sqft
Prefunction/Lobbies	7.5 cfm/person + 0.06 cfm/sqft
Assembly/Event Space	5 cfm/person + 0.06 cfm/sqft
Warehouse/Occupiable Storage	5 cfm/person + 0.06 cfm/sqft
Breakroom	5 cfm/person + 0.12 cfm/sqft
General Manufacturing	5 cfm/person + 0.18 cfm/sqft
Shipping/Receiving	0.12 cfm/sqft
Sorting/Packing/Light Assembly	7.5 cfm/person + 0.06 cfm/sqft
Retail (Sales)	7.5 cfm/person + 0.12 cfm/sqft



Indoor Noise Criteria and Vibration Criteria

Design sound levels will be based on ASHRAE Application Handbook 2019, Chapter 49, Table 1 "Design Guidelines for HVAC – Related Background Sound in Rooms."

Duct Sizing Criteria

Supply Air Ductwork (Low pressure system)	1,000 fpm maximum velocity 0.10"/100 ft. maximum air pressure drop
Supply Air Ductwork (Medium pressure systems)	1,500 fpm maximum velocity 0.25"/100 ft. maximum air pressure drop
Return Air Ductwork - (In Duct Mains)	1,500 fpm maximum velocity 0.10"/100 ft. maximum air pressure drop
Return Air Ductwork - (In Duct Branches)	1,000 fpm maximum velocity 0.08"/100 ft. maximum air pressure drop
General Exhaust Air Ductwork	1,000 fpm maximum velocity 0.10"/100 ft. maximum air pressure drop

Pipe Sizing Criteria:

Domestic water piping 4" size and smaller
Maximum velocity: 4 fps
Maximum water pressure drop: 4.0 ft. hd./100 ft. equivalent lengths

HVAC piping 2-1/2" size and smaller
Maximum velocity: 4.5 fps
Maximum water pressure drop: 4.0 ft. hd./100 ft. equivalent lengths

2.1.1 PLUMBING

Domestic Cold and Hot Water Systems

- A new 4" domestic water service will be designed to serve both the renovation and new addition areas. The water service will be extended from 5' outside of the building to new service location within the utility tunnel. The service will be provided with a backflow preventer and meter (provided by the local municipality).
- Domestic hot water will be provided by tank type high efficiency gas fired water heater(s).
 - A hot water recirculation pump and piping system will be provided.
- An ASSE 1070 individual-fixture mixing valve will be provided at each hand washing fixture and an ASSW 1016 valve will be provided at each shower.
- Domestic cold, hot, and hot recirculation piping within the building will be type L copper with wrought copper fittings and solder joints. Solder will be lead free, certified the NSF/ANSI Standard 61, Annex G.

Sanitary, Waste, and Vent System

- A new sanitary, waste and vent system will be designed for the renovation and new building area. Sanitary sewer mains will extend to 5' beyond the building for connection to the site sanitary system.
- Water saver trap primers will be used at all drains subject to evaporation.
- Sanitary waste and vent piping below grade shall be PVC-DWV or hubless cast iron. All sanitary and vent piping above grade shall be cast iron with no-hub joints and fittings.

Storm Water System

- The primary storm water system will consist of domed roof drains, rain conductor piping and storm sewer that extends to 5' beyond the building for connection to the site storm water system.
- A secondary roof drainage system will also be provided. Secondary roof drains shall be the same as primary roof drains except with integral standpipe or damming weir extension 2-inches above the waterproofing membrane and located within 5-feet of the primary roof drain. Secondary roof drainage system will discharge as high as possible.
- Storm piping below grade shall be PVC. Storm piping above grade, within the building will be cast iron with no-hub joints and fittings.

Plumbing Fixtures

- The building will utilize new plumbing fixtures. Where required, fixtures will meet ADA requirements. Plumbing fixtures that minimize building water consumption will be specified. Below is a sample of the proposed fixture types.
 - Lavatories: Vitreous china basin, faucets to be wired sensor type with a maximum flow rate of 0.5 GPM.
 - Water Closets: Wall mounted vitreous china bowl, flush valves to be wired sensor type with a maximum flush rate of 1.6 GPF.
 - Urinals: Wall mounted vitreous china, flush valves to be wired sensor type with a maximum flush rate of 1.0 GPF.
 - Breakroom or Workroom Sinks: Single or double compartment as indicated on plans, 18 ga. stainless steel, maximum 1.5 GPM faucet, gooseneck style with wristblade handles.
 - Electric water cooler: stainless steel construction, dual height bubblers, one with bottle filling station.
 - Janitor Closet Sink: Floor mounted service sink with service sink faucet with hose connection, pail hook, hose and hose rack.
- Kitchen/Cafeteria plumbing fixtures will be designed/specified by the food service consultant, with connection by the plumbing contractor.

Natural Gas

- A new natural gas service will be designed to accommodate the equipment load. Natural gas piping will be extended from the utility provided meter to gas fired equipment at grade, on the roof, and within the building.
- Natural gas piping will be schedule 40 black steel with screwed or welded fittings.



2.1.2 FIRE PROTECTION

Fire Protection

- A 6" fire protection water service will be required for the building. The fire protection water service will be extended from 5' outside of the building to the new fire protection service location within the mechanical tunnels. The service will be provided with backflow prevention as required, along with tamper and flow switches and other ancillary devices.
- A new wet pipe sprinkler fire protection system conforming to NFPA 13 shall be installed throughout both the building.
- Fire protection system piping will be schedule 10 and schedule 40 black steel pipe with screwed or mechanical groove joints.

2.1.3 HEATING, VENTILATING AND AIR CONDITIONING (HVAC) SYSTEMS

Hot Water Boiler Plant

- Hot water heating boilers will be sized to provide perimeter heating as well as space heating to the entire building. The hot water heating plant will be located on the mechanical mezzanine and will consist of three (3) 3,000 MBH boilers. The boilers will be piped in a primary/secondary configuration with multiple zoned secondary pumps to reduce operational costs. Constant speed primary pumps will be provided at each boiler.
- Hot water heating piping will be distributed throughout the building to perimeter devices, VAV boxes, and to air handling units with heating requirements.
- Heating hot water piping will be Type L copper from ¾" – 2" and schedule 40 welded black steel for sizes 2-1/2" and above.

Central Cooling Plant

- Two (2) 150 Ton air cooled liquid chillers will be provided for the main cooling plant. The chillers will be located at grade. The chillers will utilize scroll compressors with multiple refrigeration circuits. The system will be arranged in a primary/secondary pumping arrangement.
- Variable speed distribution (secondary) pumps will be utilized to distribute the chilled water to the building's HVAC equipment. Pump speed will be adjusted to meet the demand of the building.
- Distribution pumps will be provided with variable frequency drives for energy savings and capacity control.

Air Distribution

- The building will be served by 13 air handling units. Units will be located primarily on a mezzanine level. If required based on either quantity or physical size, select units would be located on the roof and coordinated with both architectural and structural.
- Exhaust fans will be provided for toilet rooms, janitor's closets, etc. as required by the MMC. Workrooms will have dedicated exhaust systems, and will not be combined with exhaust from other areas. Exhaust fans will be roof mounted centrifugal type.

- Dust collection systems with exterior duct work and large collection containers will be provided. It is possible that multiple dust collectors may be required based on the types of materials utilized of The Parade Company.
- North Block:
 - The north block will be served by four (4) air handling units. One for the mezzanine office spaces, one for the first floor perimeter spaces, and two (2) for the main drill hall/auditorium.
 - The mezzanine unit will be a 3000 CFM, cooling only unit, with 10-15 VAV zone boxes with hot water coils.
 - The first floor perimeter unit will be an 8000 CFM, cooling only unit, with 6-10 VAV zone boxes with hot water coils.
 - The two (2) drill hall/auditorium units will each be 10,000 CFM, single zone VAV heating and cooling, with an energy recovery wheel.
- Addition – Basement:
 - The basement portion of the addition will be served by three (3) 15,000 CFM air handling units. One (1) unit will be single zone VAV with heating and cooling. Two (2) units will be cooling only, with 10-15 VAV zone boxes with hot water coils.
 - Storage areas will be provided with heating only, and minimal exhaust to circulate air through each space.
 - Overhead doors at the loading dock and trash room will be served with air curtains to maintain separation between inside and outside environments.
- Addition – First Floor:
 - The first floor central area, below the mechanical mezzanine will be served by one (1) 8,000 CFM cooling only air handling unit, with six (6) VAV zone boxes with hot water coils.
 - The first floor showroom and display area will be served by four (4) 15,000 CFM single zone VAV heating and cooling air handling units.
 - The first floor rental/events space will be served by one (1) 12,000 CFM, cooling only air handling unit with an energy recover wheel and four-six (4-6) VAV zone boxes with hot water coils.

Building Automation and Controls

- All new HVAC equipment will be provided with Direct Digital Controls (DDC) and will be connected to a main building management system. The system will have a graphical interface for control and monitoring.



3.0 ELECTRICAL SYSTEMS

Codes and Standards

The new and renovated portions of the electrical system shall comply with the following Codes and Standards:

- Michigan Building Code 2015
- National Electrical Code 2017 (NEC)
- NFPA 72 2015
- NFPA 101 Life Safety Code 2013
- Michigan Rehabilitation Code for Existing Buildings 2013
- Michigan Energy Code 2015 (ASHRAE 90.1-2013 adopted by reference)
- Illuminating Engineering Society of North America (IESNA) – Tenth Edition

Typical Building Load Densities

For preliminary design purposes, the following load densities will be used. Note that listed lighting densities are the maximum allowable per ASHRAE 90.1-2013.

- | | |
|--------------------------------------|----------------------------------|
| • General Lighting (Entire Building) | 1.0 watts per square foot |
| • General Power | 2.0 to 3.0 watts per square foot |
| • Mechanical Equipment | 3.0 to 5.0 watts per square foot |
| • Future Loads | 1.0 watt per square foot |

General

- Branch and feeder conductors shall be Type THHN/THWN or XHHW stranded copper in conduit with a minimum size of #12 AWG for power and lighting. The minimum conduit size shall be 3/4". Rigid, galvanized, threaded conduit shall be used in seal penetrations, outdoors, or where subject to physical damage. Electrical Metallic Tubing (EMT) may be used in interior partitions and above suspended ceilings. Underground conduit shall be Schedule 40 PVC, except rigid galvanized steel shall be used for all elbows, vertical sections, exposed sections, and building penetrations.
- All equipment and non-current carrying metal parts of the electrical system shall be grounded in accordance with the NEC. Equipment grounds and neutral conductors shall not be electrically interconnected on the load side of the service ground.
- In general, receptacles shall be 20 ampere, 125 volt, NEMA 5-20R configuration, specification-grade type. A maximum of six receptacles shall be connected per circuit.
- Provide USB/duplex type outlets in select locations.

3.1.1 POWER DISTRIBUTION

- A new secondary electrical service will be provided to the building via DTE Energy. An exterior pad mounted transformer will be set outside of the building near the incoming electrical room on the east side of the building. Note: Design and coordination of a primary power is not included.
- Preliminary sizing of a new incoming service is estimated to be 5000Amps at 480/277V 3-phase, 4-wire service. The 480/277v power will be utilized for larger equipment loads including but not limited to HVAC equipment, shop area equipment and welders and kitchen equipment makeup air units.
- New branch-circuit panelboards will be located throughout the project in both the new addition and renovated spaces.
- Interior dry type transformers will be installed and placed where convenient to serve the electrical loads in the building. The 480/277V panels will be transformed to 208/120V 3-phase, 4-wire panels to serve the receptacle loads.
- An emergency generator located outdoors to the east will be provided. The generator will be a diesel fuel unit and is estimated to be 500kW in size. This generator will back up emergency lighting, generator(s) and optional business operations in the facility inclusive of network servers and select HVAC equipment. Related transfer switches will be located within (or near) in the new Main Electrical Room.
- Power distribution within the Design Studio will be accomplished via a series of busduct suspended from above to allow for flexible power connections of equipment.
- A new dust collector will require an electrical connection at its' location outside of the building. Additional equipment connections will be required upon receipt of an equipment list and layout provided by The Parade Company.

3.1.2 LIGHTING SYSTEMS

- All lighting will be provided by a combination of LED fixtures.
- Outdoor lighting will be comprised of under-canopy downlights, wall mounted fixtures connected to emergency power for exterior egress.
- Lighting in the new addition (see below) shall be LED high bay type with wire guards.
- North Block
 - The Grand Lobby / Event Space will consist of various fixtures including but not limited to cove lighting, recessed downlights and pendant mounted luminaires. High end pendant fixtures will be considered for the space.
 - Office and volunteer spaces may have lay-in ceilings with recessed grid fixtures in individual offices, conference room and commons areas.



- Multi-purpose, Discovery and Gift shop areas will have a combination of grid mount, linear and track fixtures.
- Addition – Basement
 - Lighting in areas such as float assembly and wood, welding and storage will be linear industrial or high bay fixtures.
 - Storage/Large Events will have high bay fixtures for daily storage. Switching and dimming will be configured to allow for flexibility within the space.
 - The kitchen area will have a lay in ceiling and grid mounted fixture suitable for food preparation areas.
- Addition - First Floor
 - Lighting in areas such as design studio and float storage will have high bay fixtures for daily storage. Switching and dimming will be configured to allow for flexibility within the space.
 - Storage/Large Events will have high bay fixtures for daily storage. Switching and dimming will be configured to allow for flexibility within the space.
- Outdoor Terrace and Plaza
 - Lighting will be provided via pedestrian level pole mount and bollard lighting. Festoon lighting will also be a part of the design.
 - Consideration for power to support seasonal lighting will also be required.

Emergency lighting

- Select light fixtures shall be connected to the emergency generator life safety circuit, including common area lights, stumble lighting as required by code, exterior egress wall packs.

3.1.3 FIRE ALARM SYSTEMS

- A new Fire Alarm system shall be provided and installed.
- System components shall be audible/visual type voice type annunciation system including Control Panels, Annunciators and A/V devices.
- Fire alarm rating shall be in conduit allowing for sufficient physical protection.
- Mechanical units shall be tied into Fire Alarm system as required by codes to shut down units during a fire event.

3.1.4 AUXILIARY SYSTEMS

Telecommunications Systems

- Provide three (3) 4" conduits to entry point of new low voltage Main Distribution Frame (MDF) room.
- 2-3 satellite Intermediate Distribution Frame (IDF) rooms are envisioned for this space and shall be interconnected with conduit pathways.
- Communications raceways and associated power shall be provided.
- A/V racks will be provided and specified by others. Power and raceways shall be provided to these units as required.

Security Systems

- Security raceways and associated power shall be provided to device as indicated by others.

Lightning Protection System

- No lightning protection system will be provided as part of this work scope.