Franklin
NEW HAMPSHIRE
The Three Rivers City

FRANKLIN OPERA HOUSE
Arts and Entertainment Center

Conditions Assessment & Feasibility Study

Franklin City Hall & Opera House
Franklin, NH

March 22,2024

ARCOVE ARCHITECTS

THEATRE PROJECTS

DeStefano & Associates, Inc.
PLANNING • DESIGN • CONSTRUCTION

CSI ENGINEERING
HVAC • ELECTRICAL • PLUMBING • FIRE PROTECTION

Structures North
CONSULTING ENGINEERS, INC.

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Part I: Executive Summary/Introduction

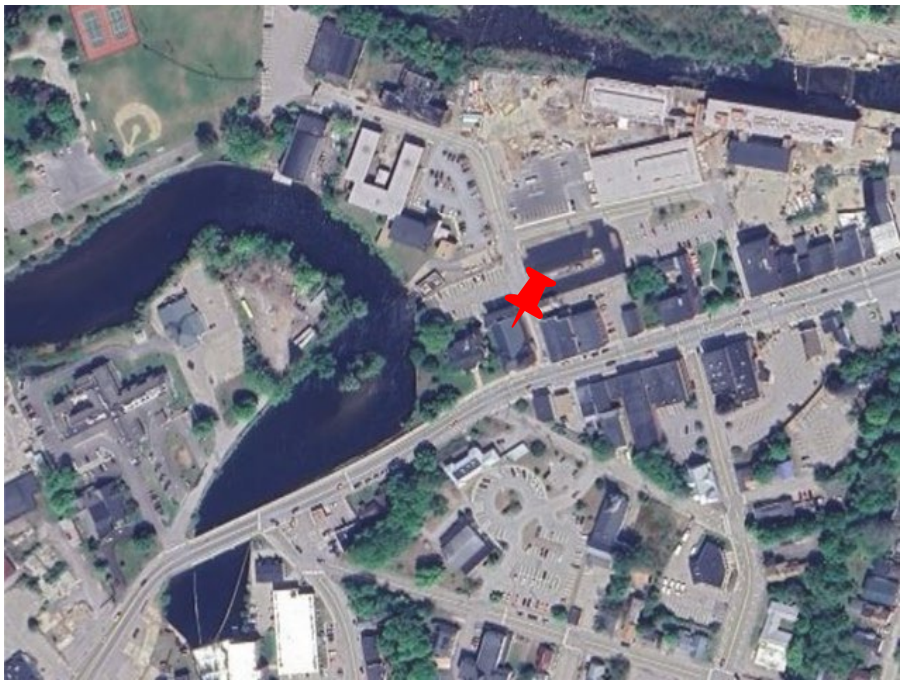


Figure 1: Location of Franklin City Hall & Opera House

Purpose,Findings and Recommendations:

Franklin City Hall & Opera House: Project Purpose and Intent

The purpose and intent of this study is to advise the city of Franklin on potential city department space utilization opportunities for, and renovation of, all of 316 Central St. to include Franklin City Hall and Opera House. It is an evaluation of the suitability of the existing structure to support further active use by City Hall and the Opera House for current and future functions. In accordance with the City Master Plan, the Opera House functions are envisioned to support the well-being and community growth goals.

Further, this report supports recommendations resulting from the "Franklin for a Lifetime" workshop & charrette of 2015. This feasibility study is focused specifically on two recommendations from the 2015 workshop: "Highlight and Leverage Historic Assets" and "Revitalize Downtown as an Economic Driver". The 2015 workshop also recommends exploring ways for the city to become a designated "Sustainable City" in NH. To help further this goal of becoming a "Sustainable City", this report includes an energy analysis comparing sustainable building practices to be considered in the future.

The goals and vision for this feasibility study include addressing building safety standards, including but not limited to, fire safety and accessibility. The historic Franklin City Hall, home to municipal governance functions, and the Opera House performing arts space, must be brought up to current safety standards to remain occupied and operational.

This study is a document of the history, evolution, character-defining features, and existing conditions of the building. The report provides design direction for capital improvements and building maintenance to address the city's programmatic/space needs and those of the community performing arts space. Included in the report is a preliminary budgetary opinions of construction costs and scheduling recommendations.

Franklin City Hall & Opera House: Information Gathering and Design Process

The project team, headed by principal architect Tracy S. Kozak, AIA of Arcove Architects, includes the following team members: CSI Engineering (MEP Engineering), Structures North (Structural Engineer), Theater Projects (Theatrical/Performing Arts Design Consultant), and DeStefano Consultants (Construction Estimating).

At the start of the information gathering process, the existing building was surveyed on site using 3d laser point cloud technology, by Siteline360, an Archimedia Solutions Group Company. Leica TruView software was used to create LGS files of interior spaces and the building exterior, with a 200 level of detail. This data was then translated into a 3d CAD/BIM model in REVIT 2022 format.

The team conducted extensive investigations into the existing conditions of the City Hall & Opera House to assess rehabilitation needs of the architectural envelope, MEP systems, structural system, programmatic goals of the City and theatrical programmatic goals of the Opera House.

The history of the building was researched to document the design & construction evolution of the existing structure as well as to document the role the building has played within the community. Sources consulted for historic documentation include town and county histories, architectural histories, historical society records and online media.

To determine the programmatic needs of City Hall and the Opera House, the team conducted collaborative meetings with stakeholders. This aspect of the design process resulted in a detailed Proposed Program Area schedule that was then used to inform the development of a space utilization plan and schematic design documents.

Franklin City Hall & Opera House: Findings & Recommendations

Over the years, Franklin City Hall has undergone several alterations within the interior to modify space arrangements in response to evolving programmatic needs of the city. There are two exterior alterations (a covered entry to the East and a stair tower to the West) that were added to the building to address circulation and egress requirements. Neither the interior nor exterior alterations are sympathetic to the original character of the architecture. This report makes design recommendations that address egress, accessibility, and programmatic requirements of the City Hall & Opera House in keeping with the historic character of the existing building.

The architectural design proposal captures the vision and goals of the City Hall and Opera House as established through collaborative stakeholder/design team meetings. Programmatic and design recommendations for the Opera House theatrical performing arts spaces (both “Back of House” and “Front of House” spaces) were informed by the professional expertise of team member Theater Projects.

Investigations of existing MEPFP and structural conditions find the building to be generally sound but in need of repair. The MEP (mechanical, electrical & plumbing) system is inefficient, outdated and in need of replacement. The entire building requires improved fire protection and a new sprinkler system. Structurally, there is some deterioration of the exterior brickwork and brownstone masonry as well as interior finishes. Select heavy timber members need reinforcement as do a few areas of brick piers supporting structural timber members. Detailed existing conditions assessment of MEP and structural systems are included in this report.

To briefly summarize MEP recommendations, the engineering team proposes a whole building hot water heating system combined with ventilation and cooling system for the auditorium and a heat pump system for City Hall offices. A new electrical transformer is proposed to be located to the Southwest of building. This new transformer will supply power for an upgraded electrical system. Building fire protection will be improved with a whole building sprinkler system. Report includes schematic level MEPFP design recommendations.

Structural design recommendations address the existing conditions in need of repair as well as the proposed design requirements. A high-level summary of structural recommendations includes the following: new basement level concrete floor, new concrete block shear walls added to the basement level, new beams and posts as needed to accommodate new interior layout, reinforcement of existing timber roof trusses, reinforced elevator hoist way and structure at stair additions. Report includes schematic level structural design recommendations.

Finally, a Preliminary Budgetary Opinion of the construction costs is reflective of established project goals and design team recommendations.

Part II: Historic Significance & Character Defining Features

Historic Narrative:

The historical significance of this property is associated with the history of Franklin itself. The town of Franklin was once Stevenstown then Salisbury. The original town hall in 1838 was erected in collaboration with the Christian church, the church above, and the town hall in the basement below. The city had leased the land to the town for 999 years until the new town hall was built, the basement of the church was still used for voting until a fire destroyed the church in 1917 and the lease was broken. Franklin Town & Memorial Hall was designed by the architect William M. Butterfield of Manchester and built by many talented artisans such as Danforth & Forrest of Concord, Judkins & Lewis, Butler & Stenbery of Boston, and the master mechanic and woodworker of the building Daniel M. Page.

The construction began the summer of 1892 with construction finalized and the dedication ceremony held on September 5th, 1893 with many speeches, performances, and tributes to the veterans of the civil war. G.A.R. Hall was filled with relics and equipment of the Grand Army Post and referred to as the memorial hall in honor of the veterans. The following day the police headquarters was officially established in the front entry to the right with cells below for prisoners. The front room on the left intended for the selectmen and town clerk.

On September 29th the first major performance of the Opera House was held with a performance by Fanny Rice, a famous comedienne, singer, and actress and the sister of Laura Rice who had recited the opening poem at the dedication ceremony. The Opera House had many uses throughout its long history such as hosting balls, conventions, sports events, dances, film showings, musicals, plays, operas, and speeches. Until the 1960's when the city partitioned off various sections of the stage and the auditorium to provide additional space for city services. The layout of the building shifted throughout the years, though have always historically had municipal use of the city. In 1999, when the police department and court moved to their own homes on the other side of Central Street, the Franklin Opera House Restoration Committee was formed and reopened the Opera House two years later.

Event Timeline:

- 1889: $2,000 Raised for Civil War memorial
- 1890: $1,000 Raised for Civil War memorial
- 1891: $1,000 Raised for Civil War memorial

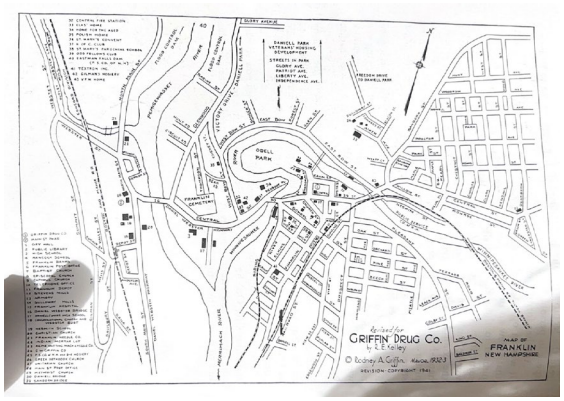


Figure [1]

- 1892: $35,000 Raised for Town & Memorial Hall, the land was purchased & construction started in early summer

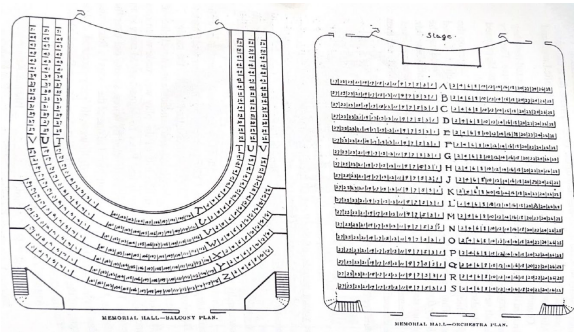


Figure [2]

- September 5th, 1893: $6,000 additional building funds and furnishing for a total cost of a little over $45,000. Construction completed, the building was furnished and the Town of Franklin held a dedication ceremony on this day with many speeches, performances, and tributes to the veterans of the civil war.

[1] *Map of Franklin New Hampshire*
[2] *Historic layout of the Opera House*

- September 6th, 1893: Police headquarters established in front entry with cells below for prisoners. The front room on the left intended for the selectmen and town clerk.

Figure [3]

- September 29th, 1893: First major show by the infamous Fanny Rice, noted actress, opera singer, and performer.

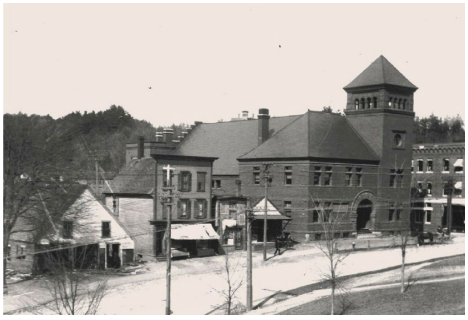


Figure [4]

- March 13th, 1894: Franklin officially became a city, the first city mayor was Frank N. Parsons. Thus, Franklin town & Memorial Hall became Franklin City & Memorial Hall. This was also when the Police Court moved upstairs, and the Council moved downstairs.

- May 25th, 1900: The Lyman H. Howe Moving Pictures were shown.

- 1903: The new heating plant was built to power the Library, City Hall, the old High School, and east side grammar school.

- September 26th, 1906: NH Firemen's convention held.

[3] *Fanny Rice, famed performer from Franklin*
[4] *Franklin City Hall before the library 1893-1906*

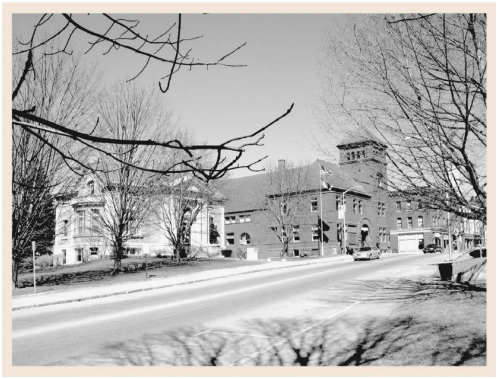


Figure [5]

- 1906-1907: The library was constructed next door.

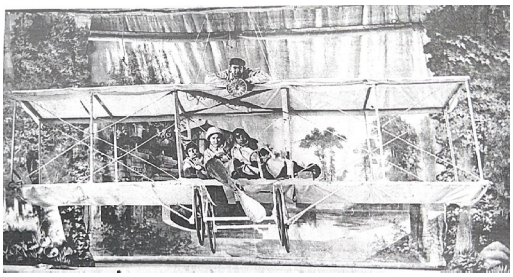


Figure [6]

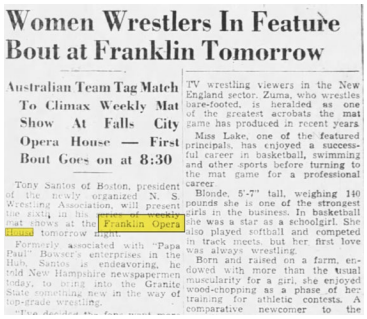
- February 25th, 1911: Loveland musical presented.

Figure [7]

[5] *Franklin City Hall after the library's construction in 1906-1907*
[6] *A photograph from the musical Loveland, in which a airplane was used as a prop*
[7] *Famed opera singer Umberto Sachetti originally from Italy who joined the Boston Opera Company during his tour in America*

- October 21st, 1913: Boston Opera Company performed at the opera house with many star performers visiting at the time, one of which being Umberto Sachetti.

- April 5th, 1916: The World Championship Basketball Team vs Franklin Team



Women Wrestlers In Feature Bout at Franklin Tomorrow

Australian Team Tag Match To Climax Weekly Mat Show At Falls City Opera House — First Bout Goes on at 8:30

Tony Santos of Boston, president of the newly organized N. S. Wrestling Association, will present the sixty-in his [illegible] mat shows at the Franklin Opera House tomorrow night.

Formerly associated with "Papa Paul" Bowers enterprises in the Hub, Santos is endeavoring, he told New Hampshire newspapermen today, to bring into the Granite State something new in the way of top-grade wrestling.

TV wrestling viewers in the New England sector, Zuma, who wrestles bare-footed, is heralded as one of the greatest acrobats the mat game has produced in recent years.

Miss Lake, one of the featured principals, has enjoyed a successful career in basketball, swimming and other sports before turning to the mat game for a professional career.

Blonde, 5'-7" tall, weighing 140 pounds she is one of the strongest girls in the business. In basketball she was a star as a schoolgirl. She also played softball and competed in track meets, but her first love was always wrestling.

Born and raised on a farm, endowed with more than the usual muscularity for a girl, she enjoyed wood-chopping as a phase of her training for athletic contests. A comparative newcomer to the

Figure [8]

- 1919-1920: Opera house boxing and wrestling matches.

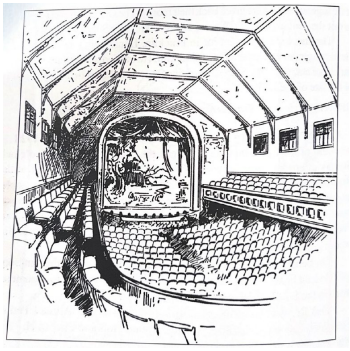


Figure [9]

- April 24th & 25th, 1930: "Pattie" a musical comedy was performed by the Hook & Ladder company.

- 1930-1931: Indoor miniature golf course created by Maxime Gauthier with art painted by Joe Cleary until discontinued.

- February 1933: "Depression Hall" Club room for the unemployed allowed for men who lost their jobs in the depression to play games until it was discontinued in 1934.

- December 31st, 1934: Three dancers injured on the opera house dance floor.

- July 16th-18th, 1937: Encampment for the V.W.F. Convention.

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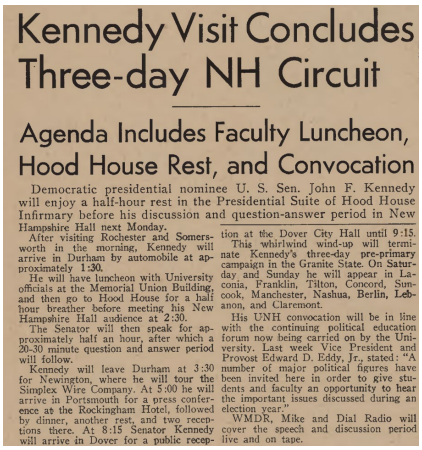
[8] *A news clipping of an Australian tag team wrestling match held in the opera house*
[9] *A sketch of the Opera House*



Kennedy Visit Concludes Three-day NH Circuit

Agenda Includes Faculty Luncheon, Hood House Rest, and Convocation

Democratic presidential nominee U. S. Sen. John F. Kennedy will enjoy a half-hour rest in the Presidential Suite of Hood House Infirmary before his discussion and question-answer period in New Hampshire Hall next Monday.

After visiting Rochester and Somersworth in the morning, Kennedy will arrive in Durham by automobile at approximately 1:30.

He will have luncheon with University officials at the Memorial Union Building, and then go to Hood House for a half hour breather before meeting his New Hampshire Hall audience at 2:30.

The Senator will then speak for approximately half an hour, after which a 20-30 minute question and answer period will follow.

Kennedy will leave Durham at 3:30 for Newington, where he will tour the Simplex Wire Company. At 5:00 he will arrive in Portsmouth for a press conference at the Rockingham Hotel, followed by dinner, another rest, and two receptions there. At 8:15 Senator Kennedy will arrive in Dover for a public reception at the Dover City Hall until 9:15.

This whirlwind wind-up will terminate Kennedy's three-day pre-primary campaign in the Granite State. On Saturday and Sunday he will appear in Laconia, Franklin, Tilton, Concord, Sunbook, Manchester, Nashua, Berlin, Lebanon, and Claremont.

His UNH convocation will be in line with the continuing political education forum now being carried on by the University. Last week Vice President and Provost Edward D. Eddy, Jr., stated: "A number of major political figures have been invited here in order to give students and faculty an opportunity to hear the important issues discussed during an election year."

WMDR, Mike and Dial Radio will cover the speech and discussion period live and on tape.

Figure [10]

- March 6th, 1960: John F. Kennedy visits the City Hall.
- 1965: Roof Repairs made on City Hall.
- 1969: City Hall landing repaired and re-tiled.
- 1969-1971: Interior renovations throughout city hall and the opera house breaking up the stage and the first floor.

Figure [11]

- 1984: The Assessors office moved to GAR Hall and the city manager moved to his old office. The city planner and code officer also moved upstairs. New men's and women's restrooms were installed in the front lobby.
- 1992: City Hall bricks were pressure washed, re-pointed, and sealed with a waterproof sealer.
- 1999: Police department and court moved across the street to central st.

[10] *A news clipping from John F. Kennedy's campaign for presidency in which he visited Franklin*
[11] *Historic Photo from the street*

Figure [12]

- 2001: The Opera house was restored by the Franklin Opera House Restoration Committee.
- June 16th & 17th, 2006: The Franklin Falls Historic District Revitalization Project finalized.
- March 28th, 2018: Franklin Master Plan finalized.

[12] *A more recent photo of the Opera House after it was restored by the Franklin Opera House Restoration Committee*

Character defining features submitted to National Register of Historic Places, 1982:

A. Two story, 3X6 bay, masonry structure supported by a brick foundation.
B. A heavy, horseshoe entry arch supported by piers and constructed of rough-cut voussoirs topped by a molded extrado.
C. Recessed plate glass doors set in metal frames
D. Deep set windows and transoms with brownstone trim, lintels, and sills.
E. The combination hipped-gable roof, sheathed in slate with ornamental flashing caps at the shoulders and crockets at the peaks.
F. The main structural block's square, hipped roof, and four story tower projecting from the east corner of the south facade.
G. Tower windows found in the first and second stories are paired, transomed and have connecting lintels and sills similar in design to the main structural block.
H. Third story walls of the tower are defined by single circular windows set in square molded surrounds.
I. A corbelled brick cornice that divides the third story from the tower's fourth story belfry.
J. Brick piers with rusticated banding are located on the exterior corners of the belfry and support a corbelled brick cornice.
K. Four round arch openings complete the belfry design.
L. Richardsonian Romanesque design

References:

- National Register of Historic Places, 1982 submission
- "The History of Franklin" by Alice M. Shepard
- "The Official History of Franklin, New Hampshire: Volume 1" by Albert Garneau
- "Franklin" by Elizabeth C. Jewell
- News Articles by the Concord Daily Monitor
- News Articles by the Sun Journal
- News Article by UNH
- "The History of Salisbury New Hampshire from date of settlement to the present time" by John J. Dearborn

MEP
451.13 SF
Support
Facilities

CELL
34.65 SF
City
Storage

CELL
33.69 SF
City
Storage

CELL
34.85 SF
City
Storage

CELL
38.01 SF
City
Storage

CORRIDOR
181.89 SF
Support
Circulation

TOILET-MEN
106.45 SF
Support
Facilities

STORAGE
241.81 SF
City
Storage

VAULT
45.29 SF
City
Storage

STAIR 1
474.24 SF
Support
Circulation

STORAGE
116.73 SF
City
Storage

CORRIDOR
137.54 SF
City
Circulation

IT
129.20 SF
Support
Facilities

OPEN
OFFICE
743.17 SF
City
Finance

MEETING
ROOM
922.14 SF
City
Shared

OFFICE
167.44 SF
City
City Manager

COSTUME
307.49 SF
Opera
Back of House

STORAGE
19.16 SF
Opera
Back of House

COSTUME
137.06 SF
Opera
Back of House

COSTUME
184.04 SF
Opera
Back of House

STORAGE
106.47 SF
Opera
Back of House

STAIR 2
91.67 SF
Opera
Back of House

TOILET
37.03 SF
Opera
Back of House

HALL
89.33 SF
Opera
Back of House

CORR.
76.98 SF
Opera
Back of House

COSTUME
122.43 SF
Opera
Back of House

COSTUME
219.57 SF
Opera
Back of House

CORR.
47.19 SF
Opera
Back of House

COSTUME
254.70 SF
Opera
Back of House

CORRIDOR
91.85 SF
Opera
Back of House

TOILET
34.38 SF
Opera
Back of House

1 E3.02

1 E2.02

1 E2.01

SUPPORT

OPERA HOUSE

CITY HALL

ARCOVE ARCHITECTS

N

1' 4'

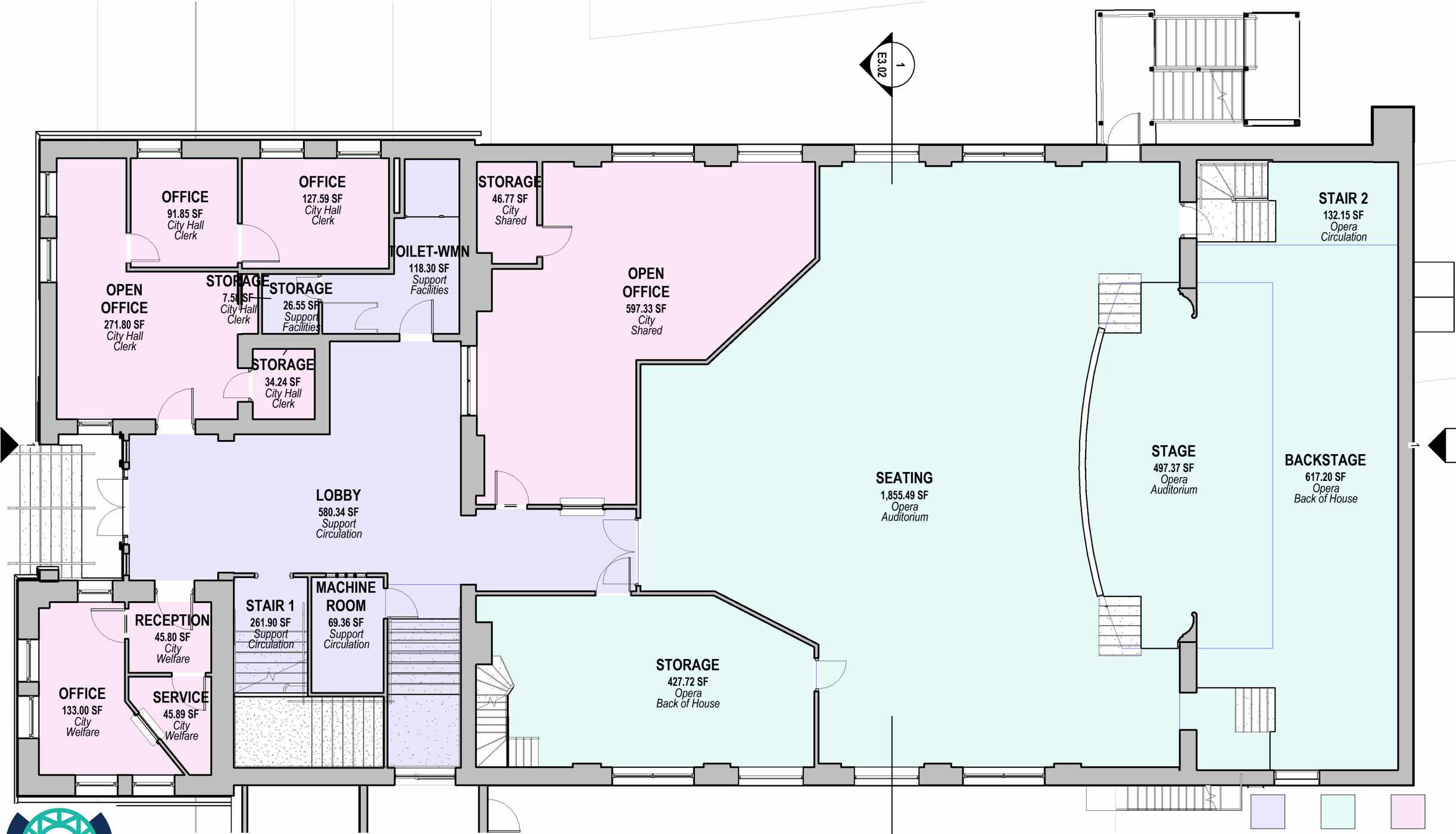
0' 2' 8'

GROUND FLOOR PLAN - EXISTING

FRANKLIN CITY HALL & OPERA HOUSE

E1.00

03/15/24
PROJECT NO:1029



ARCOVE ARCHITECTS

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1' 4'

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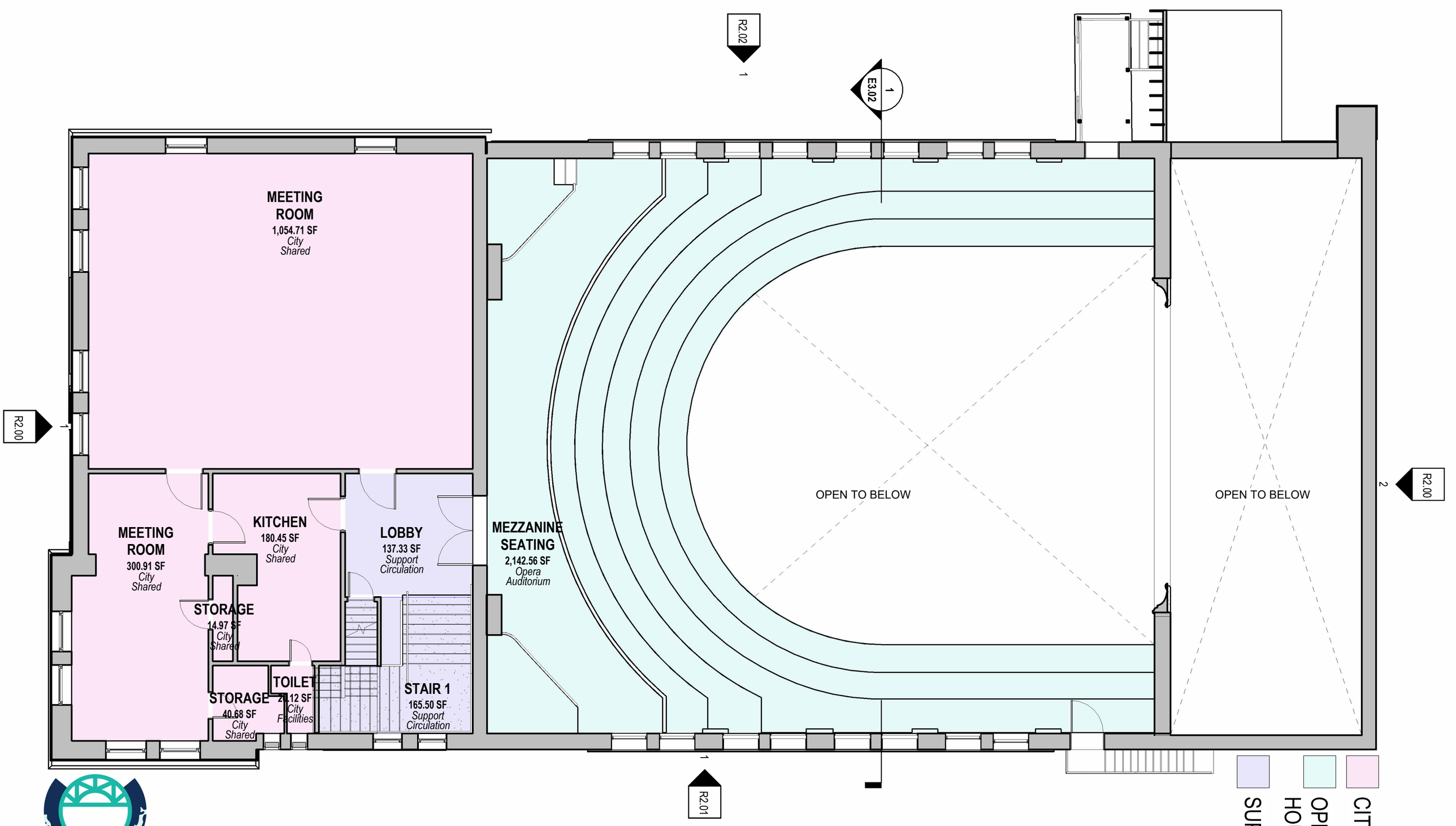
FIRST FLOOR PLAN - EXISTING

E1.01

FRANKLIN CITY HALL & OPERA HOUSE

03/15/24

PROJECT NO:1029



ARCOVE ARCHITECTS

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1' 4'

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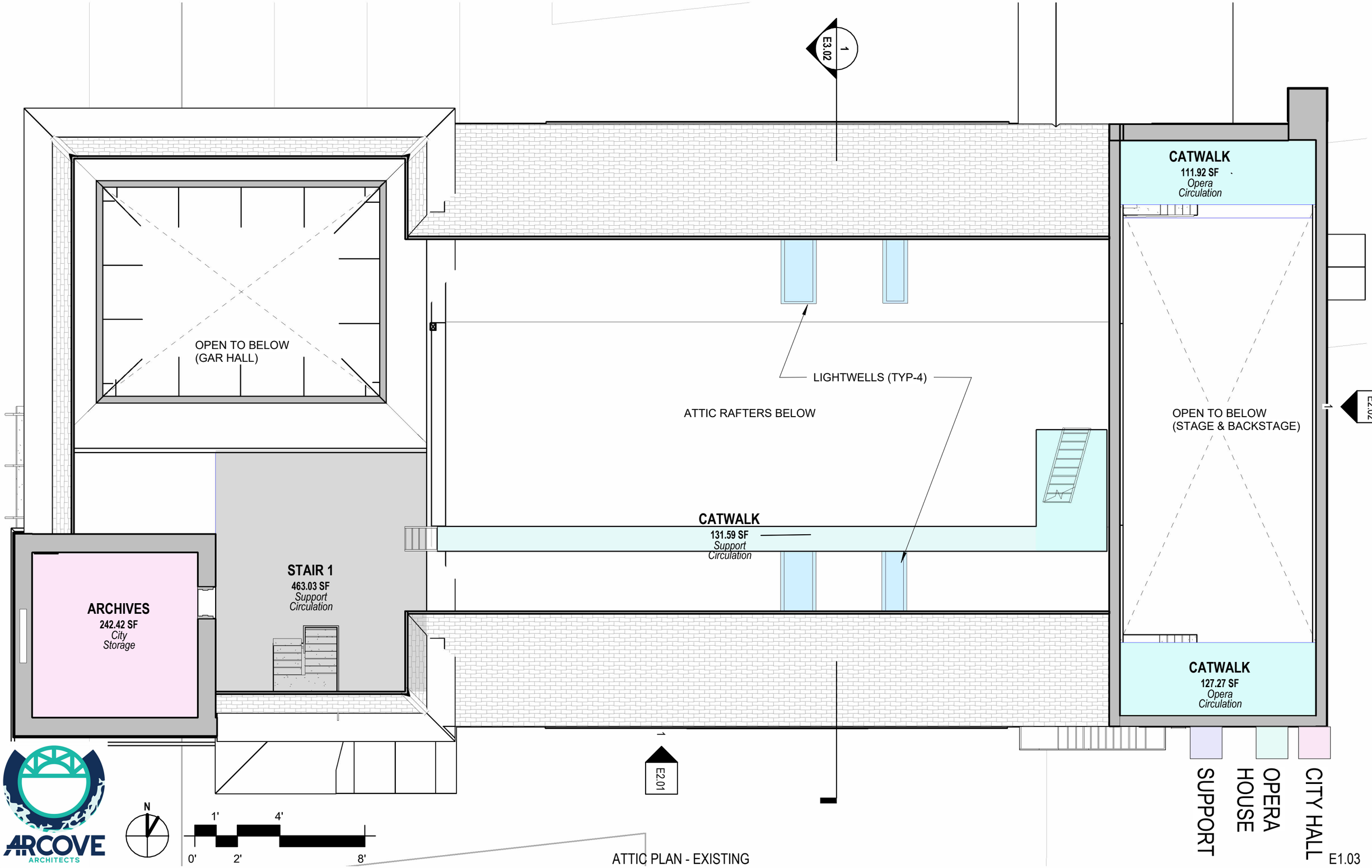
SECOND FLOOR PLAN - EXISTING

E1.02

FRANKLIN CITY HALL & OPERA HOUSE

03/15/24

PROJECT NO:1029



ARCOVE ARCHITECTS

ATTIC PLAN - EXISTING

E1.03

FRANKLIN CITY HALL & OPERA HOUSE

03/15/24
PROJECT NO:1029

E

F

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E3.02

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E2.03

1
E2.02

1
E2.01

N

1' 4'

0' 2' 8'

ARCOVE ARCHITECTS

ROOF PLAN - EXISTING

E1.04

FRANKLIN CITY HALL & OPERA HOUSE

03/15/24

PROJECT NO:1029

ARCOVE ARCHITECTS

EAST ELEVATION - EXISTING

FRANKLIN CITY HALL & OPERA HOUSE

E2.01

03/15/24

PROJECT NO:1029

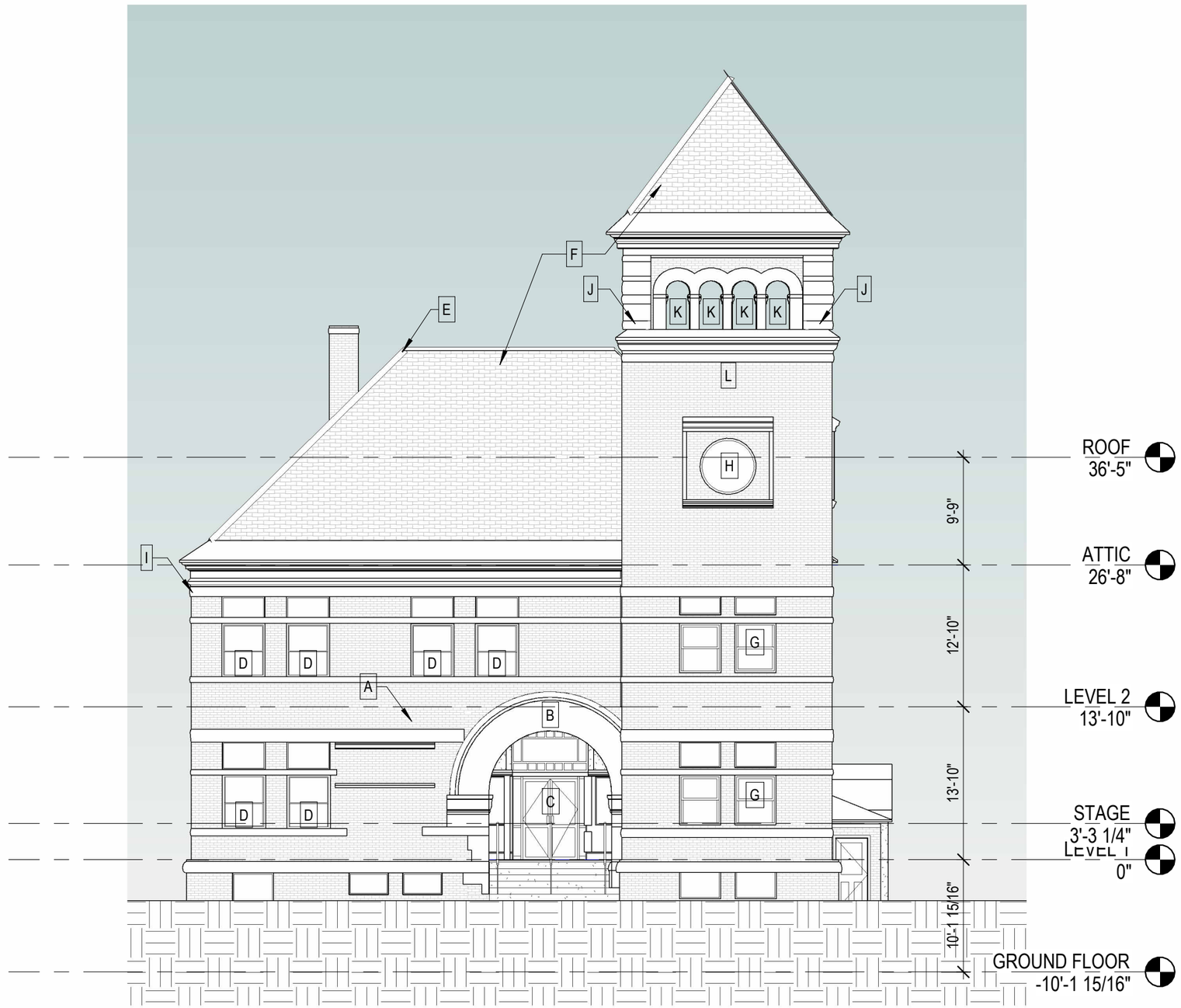
ARCOVE ARCHITECTS

NORTH ELEVATION - EXISTING

FRANKLIN CITY HALL & OPERA HOUSE

E2.02

03/15/24
PROJECT NO:1029



ARCOVE ARCHITECTS

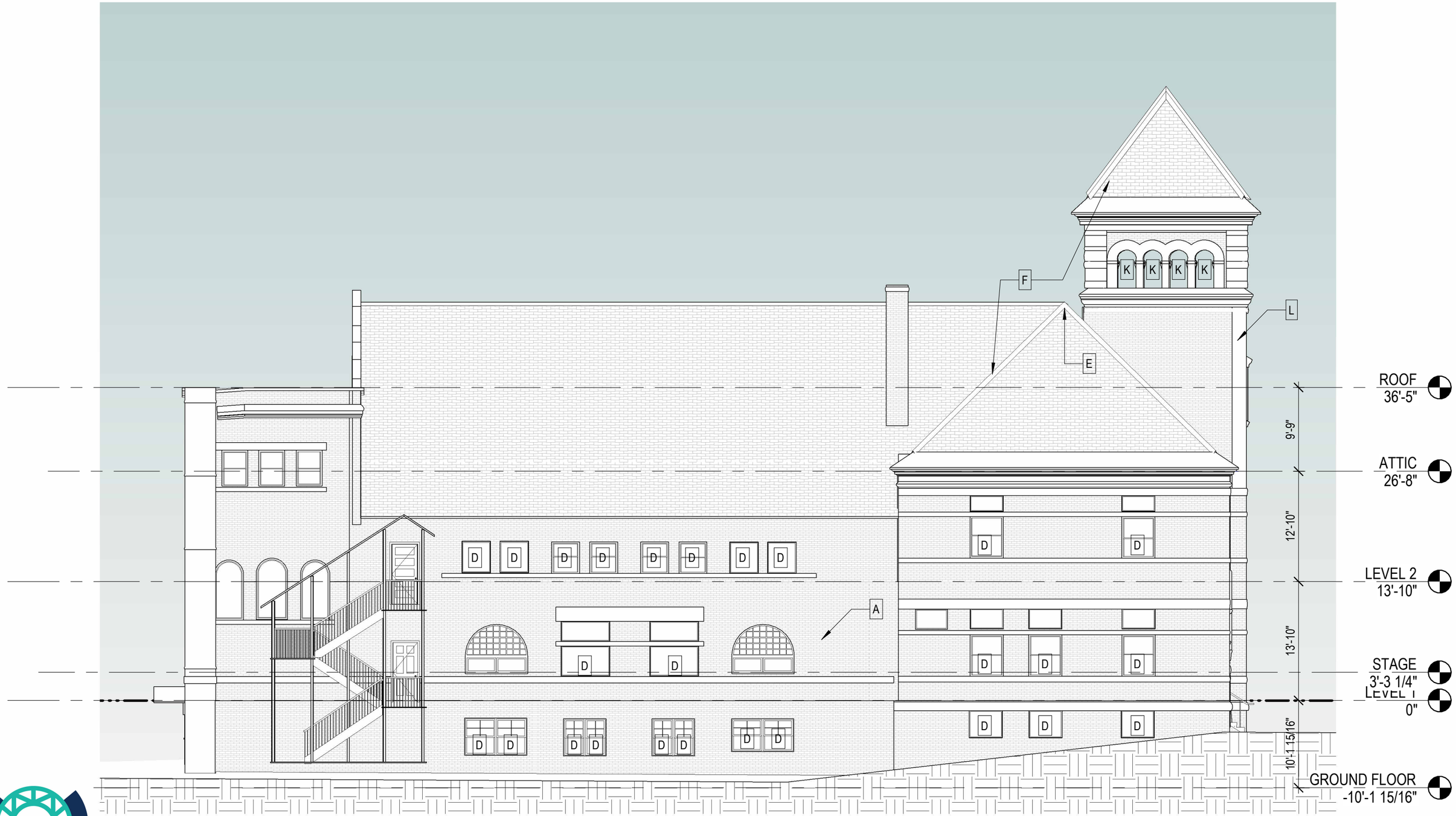
SOUTH ELEVATION - EXISTING

FRANKLIN CITY HALL & OPERA HOUSE

E2.03

03/15/24

PROJECT NO:1029



ARCOVE ARCHITECTS

WEST ELEVATION - EXISTING

FRANKLIN CITY HALL & OPERA HOUSE

E2.04

03/15/24

PROJECT NO:1029

Part III: Existing Conditions Assessment

An assessment of the existing conditions of Franklin City Hall & Opera House was conducted to determine the condition of the architectural elements, life safety, accessibility and programmatic needs as well as the structural systems and MEPFP systems. Included in this section is a summary of the architectural assessment and proposed rehabilitation work to those architectural elements of historic significance and existing to remain elements.

MEPFP existing conditions assessment summary:
Overall, the HVAC system is dated and inefficient. The system has been pieced together over the years as renovations and re-programming of the space have occurred. The original mechanical system was a steam heat system. The steam system is no longer in use, however, there are some original steam heating elements remaining (unused) in the building. Existing auditorium air handler units are obstructive to stage programmatic use as well as being past useful life expectancy. There are air conditioning units in the Auditorium that are in good condition with 5-6 years left of useful life expectancy.

Overall, the electrical system needs improvement. Most electrical devices have outlived their useful life cycle. All fuse boxes and electrical distribution equipment needs replacement. There are abandoned conduits and conductors in need of removal. There are not enough electrical devices in the building, resulting in the use of extension cords, posing safety hazards. In general, more electrical devices need to be added to meet the building's programmatic use.

Lighting fixtures are compact fluorescent and incandescent bulbs in older fixtures in need of replacement. Lighting controls do not meet existing energy code guidelines or provide efficient means of lighting occupied spaces. Emergency lighting does not provide sufficient lighting levels for path of egress. Overall, the existing lighting system is in poor condition and in need of updating.

The existing plumbing system is in working condition; however, existing fixtures are older and showing signs of use. Hot water is heated with electric hot water heaters that are distributed throughout the building. Cold water supply is metered and has a backflow preventer connected to municipal water supply. The backflow preventer is functional. Natural gas supply for the gas burner is adequate for current demand of existing system. The sewer connection is located to the east side of the building. The existing sewer run is expected to be adequate for future proposed renovation.

Fire alarm system does not provide adequate coverage for locations that require a horn/strove device or smoke detector. In the building's current condition, smoke detectors are required because the building does not have a sprinkler system.
See attached MEPFP existing conditions assessment report by CSI Engineering.

Structural existing conditions assessment summary:
Overall, the structural system of the building is in good condition for its existing use.
On the exterior of the building there are signs of cracking in the brick masonry and some areas of damaged brownstone. There is evidence of water damage, in the way of efflorescent streaking, visible on portions of the exterior masonry. Exterior North Auditorium wall-Stepped parapet wall must be dismantled and reconstructed as it is failing.

Interior exposed masonry walls at the basement level have deteriorated mortar joints in need of repointing and some areas of brickwork in need of rebuilding. The existing stone foundation walls have gaps that need to be filled with mortar and stone chinkers and an area of undermined gap at the bottom of the wall that needs to be addressed.

Interior Basement floor is a combination of slab on grade and wood joist framed floor over a crawlspace. There are uneven floor areas and sagging areas, most probably resulting from an overly deflecting beam supporting the floor framing.

At the ceiling of the first floor, areas of plaster have fallen due to water damage. Walls at the stairwell have diagonal cracks, most likely due to shifting in the wall framing behind the plaster. The ceiling of the auditorium shows visible signs of water damage.

Interior Attic space above the auditorium has three large timber trusses that span over the auditorium seating area. There is a brick pier that supports the center roof truss. This brick pier is cracked down the middle. This pier needs to be strengthened in place. Roof rafters show signs of stress, some have split and need repair to prevent further splitting. The top chord of back section roof truss has checked and as a result, requires repair as do a few other timber roof framing members, due to splitting or checking over time from structural stress.

Interior tower Belvidere and high attic show signs of efflorescence, indicating moisture issues. Further investigation is needed to determine the cause of moisture issues at the high attic/tower.

See attached Structural existing conditions assessment report by Structures North Consulting Engineering.

Architectural Assessment Summary:

Franklin City Hall is a remarkable example of the historic style Neo-Romanesque, a style of building inspired by 11th and 12th century Romanesque architecture. Neo-Romanesque architecture is characterized by pronounced round arches and massive brick/stone masonry construction. As is the case with Franklin City Hall, Neo-Romanesque buildings often have a tower, squat columns and a strong spatial presence, well suited to a public building.

The existing City Hall has intricate brickwork and arches adorning the south, east and west sides of the building. Located on the south side is the original main entrance to the building. This stepped entrance is framed by a large, brownstone arch supported by squat columns. Windows are set deep into the walls with brownstone sills and lintels. There is a corbeled brick cornice and brownstone banding around the entire façade. In general, the brownstone and brick building envelope is in good condition but is in need of localized repointing and minor repairs, often typical for buildings of this age.

There are two additions on the exterior of the building that are not original to the structure, nor are they in the Neo-Romanesque style: a wooden stair tower to the northeast and a brick covered entry to the southeast.

Another prominent feature of City Hall is the hipped-gable roof, sheathed in slate with ornamental flashing caps at the shoulders and crockets at the peaks. The slate roof is generally sound although it is nearing its expected lifespan, the slates typically hold up for about 100 years. Selective patching and repairing of the slate roof will expand it's life for another decade or two. There are visible signs of water damage to the opera house ceiling. Further investigation of the roof is recommended to determine if there are active leaks.

To mitigate moisture infiltration and damage to lower parts of building, gutters and downspouts need attention or replacement; some areas of flashing merit repair. A perimeter drainage system as well as waterproofing is recommended to help mitigate further water damage. The basement level would benefit from interior moisture mitigation, this would require removing the raised wood framed floor assembly and installing a new drained and insulated slab assembly.

Life safety means of egress needs to be addressed; the current programmatic layout does not provide code required fire separation between exit stairs and occupied area. Exit distances and separations are not compliant with current code regulations. Emergency means of egress from the mezzanine and GAR Hall not up to code.

The building is not fully accessible. Currently, there is one accessible means of entry into the building, using a stair lift. There is no accessible access to the second floor or stage area of the Opera House. In addition, and there are not enough ADA bathroom stalls for the public. Restroom facilities are undersized and poorly

located with limited fixtures and the restrooms split between women at the 1st floor and men at the ground level.

Acoustic separation between adjacent programmatic uses is not adequate. Theatrical activities held in the auditorium are audible in city hall office spaces. Interior finishes are worn and dated throughout most of the building and are in need of replacement. The basement level walls have visible signs of water staining from either water leaks or dampness.

In the Opera House auditorium, railings and seating at the mezzanine level do not meet code regulations for life safety.

The existing windows were recently replaced. The majority are in good condition though there are some broken or damaged windows in need of repair.

Architectural Existing Conditions & Restoration Drawings

Exterior:

1. Brick is crumbling in multiple areas, there are cracks in some parts of the mortar and will need localized repointing and repair.



2. Basement windows have been boarded up on the street side, windows should be replaced in the same place to allow for more daylighting in the basement.

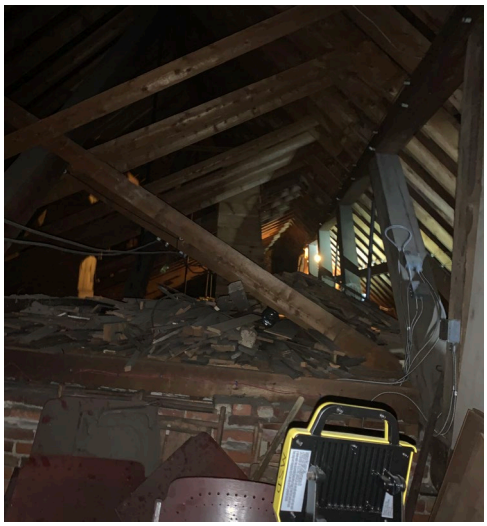


3. There are windows where the glass is cracked or damaged and will need to be repaired. The window sills are mostly in good condition though there a few that will need further investigation, specifically under the window AC units where water damage has occurred.

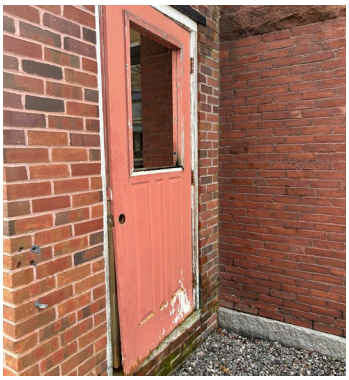
4. The brownstone masonry headers are cracked or deteriorated above the exterior doors in multiple locations, repair or replace as needed, specifically at the mezzanine exit doors on both sides. There is mold and mildew growing on the threshold above the doors that will need to be cleaned. All exterior door flashing should be investigated and reflashed.

5. Repair moisture damage at front entry and repair or replace the wood where decayed. The front entry railings should be repaired and repainted. The landing currently does not meet ADA standards as the primary means of entry. However, it does meet life safety code. (Note: and ADA compliant entry added to another side of the building could potentially eliminate the need to reconfigure this main entry to comply with ADA standards.)

6. Slate roofing and flashing is nearing the end of life expectancy. There is evidence of moisture damage to the opera house ceiling facing the street where the flashing should be investigated thoroughly



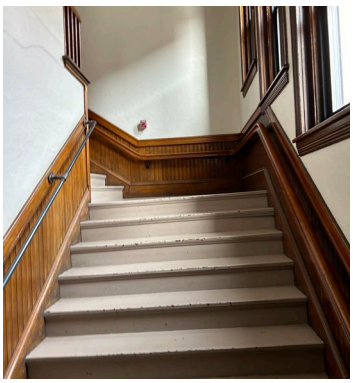
7. The existing side porch addition for ADA access is in severe disrepair. There is moisture damage to the roof, brick doors, and trim. The roof assembly will need to be replaced or demolished



Interior:

1. Fix creaky flooring that is typical throughout the building with focus in the opera house, secure any loose boards, & verify localized needs for reinforced substrates. Wood flooring finishes are worn and in need of repair and repaint. Acoustic insulation to floor ceiling assembly between theatre & city offices is needed for noise isolation between city hall and theatre use.


2. Drywall is worn and damaged in most areas of the interior. Plaster on lathe is in need of repair in various parts of the building. The decorative wood trim should be repaired or replaced where needed.

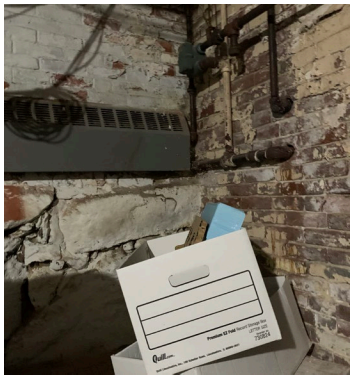
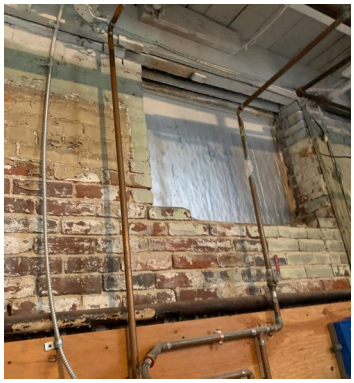

3. The finish of interior jambs, sills, & window flashing or sealant is in need of repair throughout the building.


4. All railings should be made code compliant especially those in the mezzanine of the opera house.


5. Repair, patch, & repaint holes in walls and ceilings throughout the building. There is evidence of moisture damage in various parts of the ceiling that are in need of repair.



6. Basement is damp and musty. There is cracking and spalling at masonry mortar joints due to moisture and vapor infiltration. The bricks along the exterior wall in the mechanical room have deteriorated severely. Various holes in masonry walls at utility penetrations are allowing additional moisture and thermal infiltration. The built up wood flooring should be removed and replaced with concrete slab on grade assembly. The column bases throughout the basement should be investigated at the foundation for moisture damage.


Existing Area Program:

Franklin City Hall & Opera House

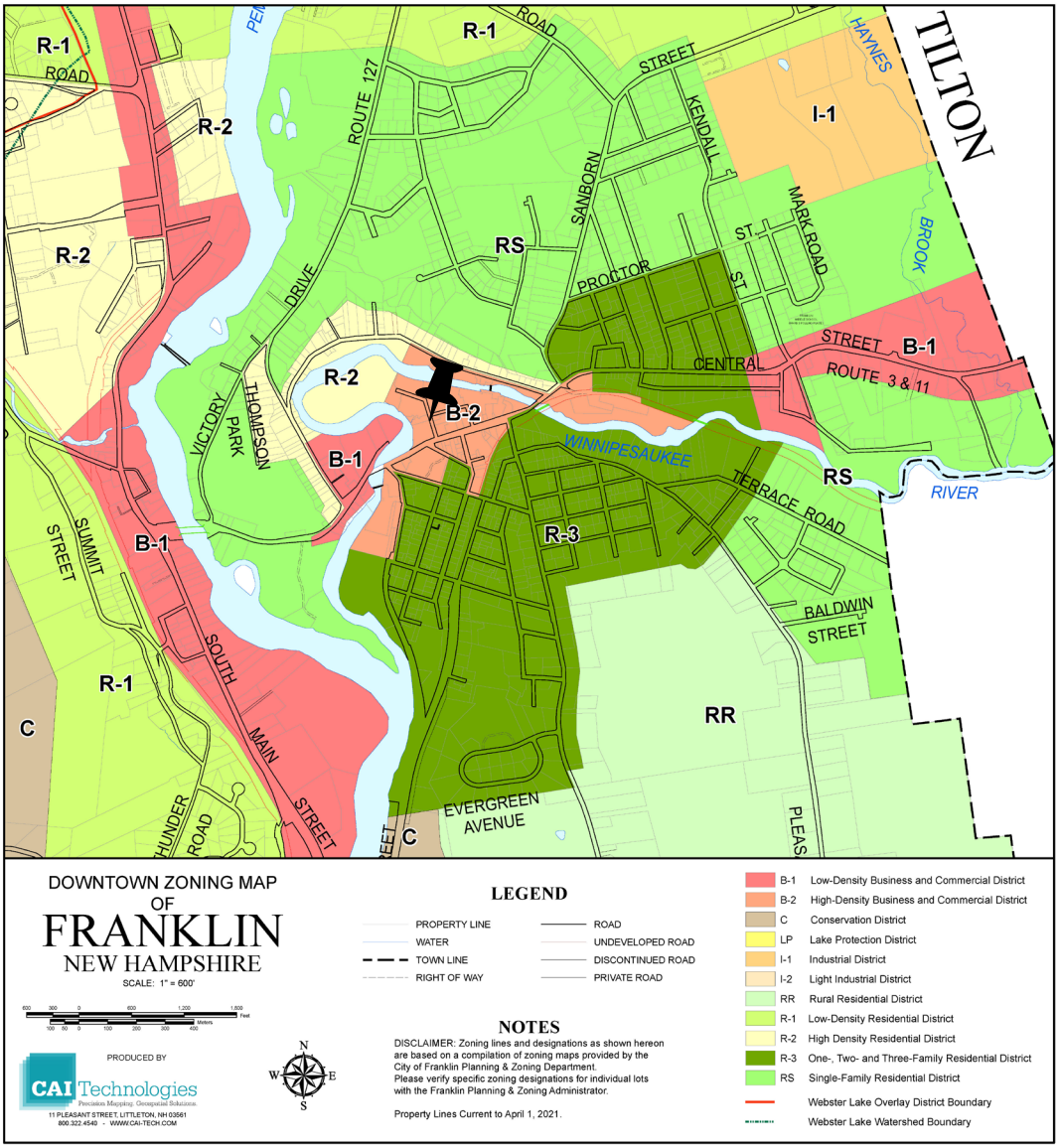
Existing Conditions Area Program

11/12/2023

#	Name	Area (sf)	Occupancy	Department
016	**OFFICE**	**167**	**City Manager**	**City**
subtotal City Manager		**167**		
107	STORAGE	34	Clerk	City
108	**OPEN OFFICE**	**272**	**Clerk**	**City**
109	OFFICE	92	Clerk	City
111	**STORAGE**	**8**	**Clerk**	**City**
113	OFFICE	128	Clerk	City
subtotal City Clerk		**534**		
015	**OPEN OFFICE**	**743**	**Finance**	**City**
subtotal City Finance		**743**		
206	TOILET	20	Shared	City
014	**MEETING ROOM**	**922**	**Shared**	**City**
116	OPEN OFFICE	597	Shared	City
201	**MEETING ROOM**	**301**	**Shared**	**City**
202	MEETING ROOM	1055	Shared	City
203	**KITCHEN**	**180**	**Shared**	**City**
subtotal City Shared		**3,075**		
001	STORAGE	242	Storage	City
115	**STORAGE**	**47**	**Storage**	**City**
204	STORAGE	15	Storage	City
205	**STORAGE**	**41**	**Storage**	**City**
002	CELL	38	Storage	City
003	**CELL**	**35**	**Storage**	**City**
004	CELL	34	Storage	City
006	**CELL**	**35**	**Storage**	**City**
009	VAULT	45	Storage	City
013	**STORAGE**	**117**	**Storage**	**City**
401	ARCHIVES	242	Storage	City
subtotal City Storage		**891**		
101	OFFICE	133	Welfare	City
102	SERVICE	46	Welfare	City
103	RECEPTION	46	Welfare	City
subtotal City Welfare		**225**		
118	FIRST FLOOR SEATING	1855	Auditorium	Opera
119	STAGE	497	Auditorium	Opera
208	MEZZANINE SEATING	2143	Auditorium	Opera
subtotal Opera Auditorium		**4,495**		
017	STORAGE	106	Back of House	Opera
018	COSTUME	184	Back of House	Opera
019	COSTUME	137	Back of House	Opera
021	STORAGE	19	Back of House	Opera
022	COSTUME	307	Back of House	Opera
024	COSTUME	220	Back of House	Opera
027	TOILET	34	Back of House	Opera
028	COSTUME	255	Back of House	Opera
029	COSTUME	122	Back of House	Opera
031	CORRIDOR	77	Back of House	Opera
032	TOILET	37	Back of House	Opera
117	STORAGE	428	Back of House	Opera
121	BACKSTAGE	617	Back of House	Opera
122	CATWALK	112	Back of House	Opera
123	CATWALK	127	Back of House	Opera
subtotal Opera Back of House		**2,782**		
105	LOBBY	580	Circulation	Support
106	MACHINE ROOM	69	Circulation	Support
207	LOBBY	137	Circulation	Support
005	TOILET-MEN	106	Facilities	Support
008	MEP	451	Facilities	Support
011	IT	129	Facilities	Support
112	STORAGE	27	Facilities	Support
114	TOILET-WMN	118	Facilities	Support
subtotal Support Facilities		**1,617**		
Net total City		5,635		
Net total Opera		7,277		
Net total Support Facilities		1,617		
Total net programmed area		**14,529**		
Gross Building Area				
	Attic	481		
	Second	5,026		
	First	6,881		
	Basement	7,002		
Total gross area		**19,390**		
Structure & Circulation		4,861		
Grossing factor*		**33%**		
**efficiency target is 30-40%*		*5,540*	*underutilized area*	

Zoning:

Franklin City Hall is in zoning district **B-2**: High-Density Business and Commercial District

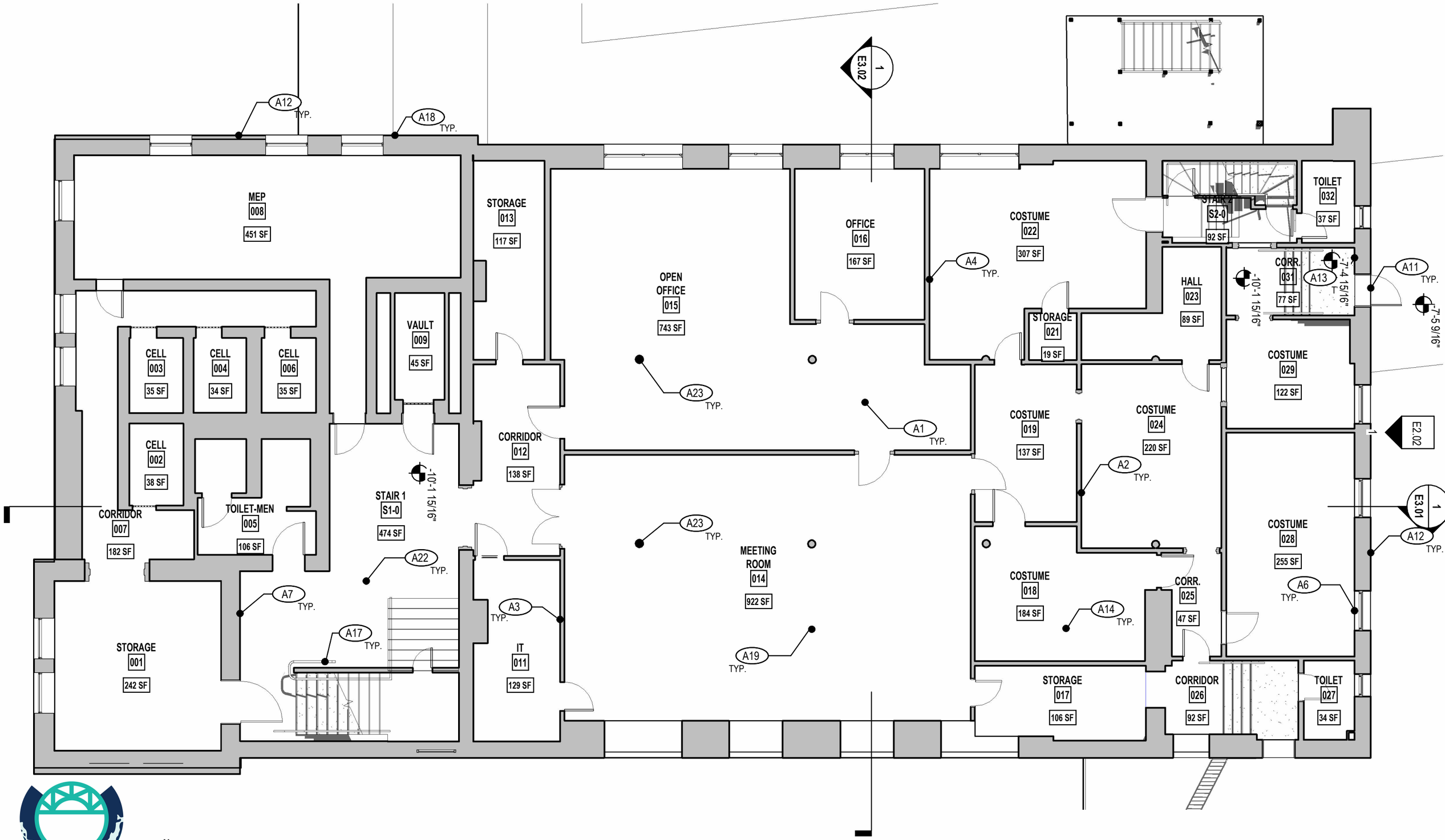


FEASABILITY NOTES	
NO.	NOTE
A1	FIX CREAKY FLOORING, SECURE ANY LOOSE BOARDS, & VERIFY LOCALIZED NEEDS FOR REINFORCED SUBSTRATES
A2	PATCH WORN AND DAMAGED DRYWALL
A3	ELECTRICAL WIRING UPGRADES NEEDED
A4	REPAIR & REPAINT PLASTER ON LATHE
A5	REPAIR OR REPLACE CEILING AT DAMAGED AREAS
A6	REPAIR FINISH OF INTERIOR JAMBS, SILLS, & V.I.F. STATE OF WINDOW FLASHING OR SEALANT
A7	REPAIR & REPAINT WOOD TRIM
A8	MAKE RAILING CODE COMPLIANT
A9	REPAIR, PATCH, & REPAINT HOLE
A10	REPAIR CRACKED MASONRY BROWNSTONE HEADER
A11	REFLASH AROUND DOOR
A12	REPAIR MOISTURE DAMAGE
A13	REPAIR & REPAINT FINISHES
A14	REFINISH FLOORING
A15	ADD ACOUSTIC INSULATION TO FLOOR CEILING ASSEMBLY BETWEEN THEATRE & CITY OFFICES
A16	LANDING SIZE INADEQUATE, RECONFIGURE STAIR TO MEET CODE
A17	REPAIR & REFINISH RAILING
A18	REPAIR, REPOINT BRICK & BROWNSTONE MASONRY
A19	REPAIR & REFINISH FLOORING
A20	REFLASH ROOF
A21	REPLACE ROOF ASSEMBLY OR DEMOLISH EXISTING PORCH ADDITION
A22	REMOVE BUILT UP WOOD FLOORING, REPLACE WITH CONCRETE SLAB ON GRADE ASSEMBLY
A23	INSPECT COLUMNS AT FOUNDATION FOR MOISTURE DAMAGE

FRANKLIN CITY HALL & OPERA HOUSE
RESTORATION KEYNOTES
03/15/2024

FRANKLIN, NH

ARCOVE ARCHITECTS



ARCOVE ARCHITECTS

N

0' 4' 2' 8' 16'

GROUND FLOOR PLAN - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R1.00

03/15/24

PROJECT NO:1029

OFFICE 109 92 SF
OFFICE 113 128 SF
STORAGE 115 47 SF
OPEN OFFICE 116 597 SF
TOILET-WMN 114 118 SF
STORAGE 111 8 SF
STORAGE 112 27 SF
OPEN OFFICE 108 272 SF
STORAGE 107 34 SF
VESTIBULE 104 94 SF
LOBBY 105 580 SF
SEATING 118 1855 SF
STAGE 119 497 SF
BACKSTAGE 121 617 SF
STAIR 2 S2-1 132 SF
STAIR 1 S1-1 262 SF
RECEPTION 103 46 SF
MACHINE ROOM 106 69 SF
OFFICE 101 133 SF
SERVICE 102 46 SF
STORAGE 117 428 SF

A1 TYP.
A2 TYP.
A3 TYP.
A4 TYP.
A6 TYP.
A7 TYP.
A8 TYP.
A9
A10
A11
A12 TYP.
A13 TYP.
A14 TYP.
A15
A16
A17 TYP.
A18 TYP.
A19 TYP.

E2.01
E2.02
E3.02

0"
3'-3 1/4"
3'-8 3/16"

N
0' 4' 2' 8' 16'

ARCOVE ARCHITECTS

FIRST FLOOR PLAN - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R1.01

03/15/24
PROJECT NO:1029

MEETING ROOM 202 1055 SF

MEZZANINE SEATING 208 2143 SF

OPEN TO BELOW

MEETING ROOM 201 301 SF

STORAGE 204 15 SF

KITCHEN 203 180 SF

LOBBY 207 137 SF

STORAGE 205 41 SF

TOILET 206 20 SF

STAIR 1 S1-2 166 SF

A1 TYP.
A2 TYP.
A3 TYP.
A4 TYP.
A6 TYP.
A7 TYP.
A8 TYP.
A10
A11
A12 TYP.
A13 TYP.
A14 TYP.
A17 TYP.
A18 TYP.
A19
A20
A21

1 E3.02
E2.03
1 E2.01

N

2' 8'
0' 4' 16'

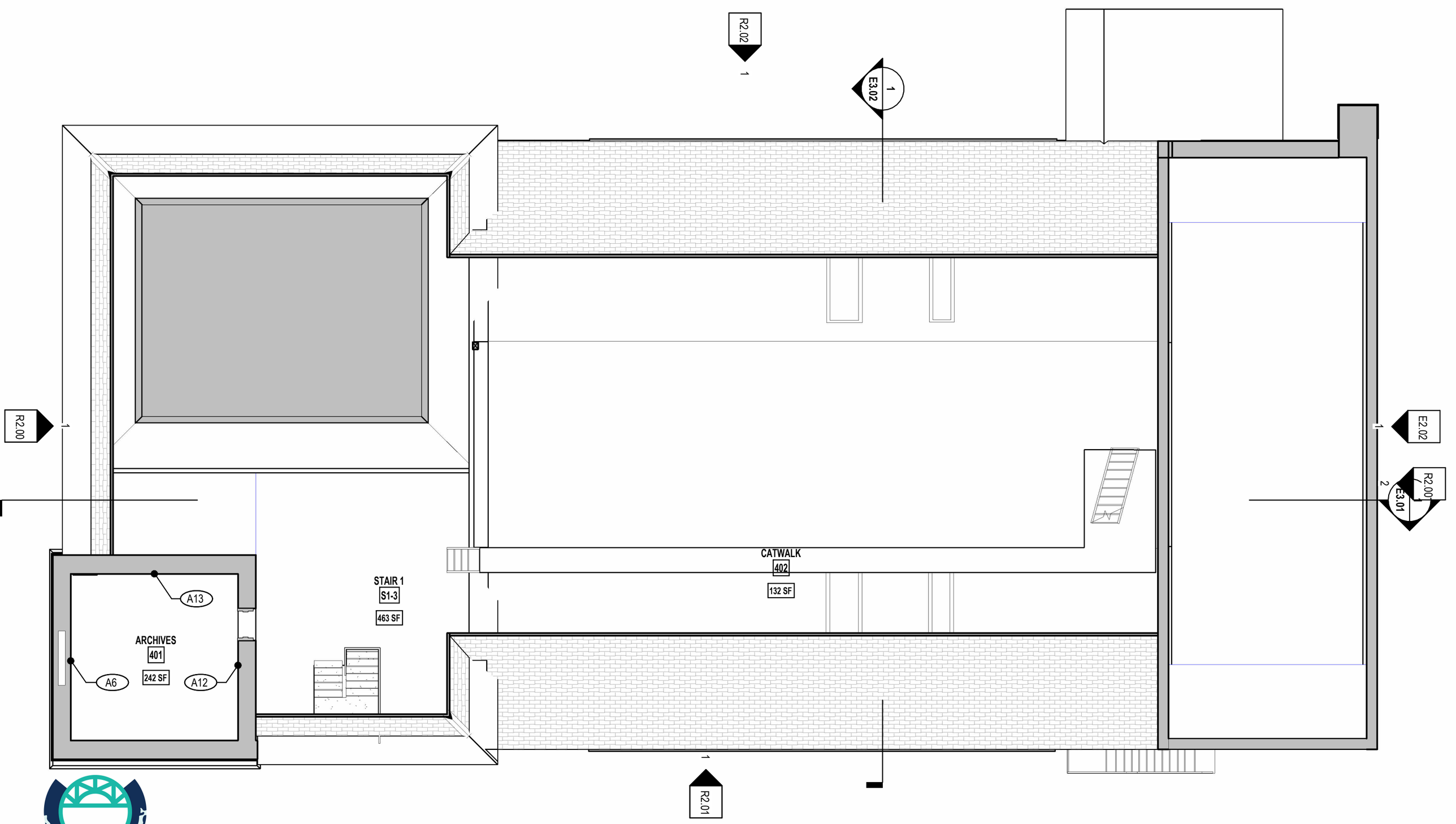
ARCOVE ARCHITECTS

SECOND FLOOR PLAN - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R1.02

03/15/24
PROJECT NO:1029



ARCOVE ARCHITECTS

N

2' 8'

0' 4' 16'

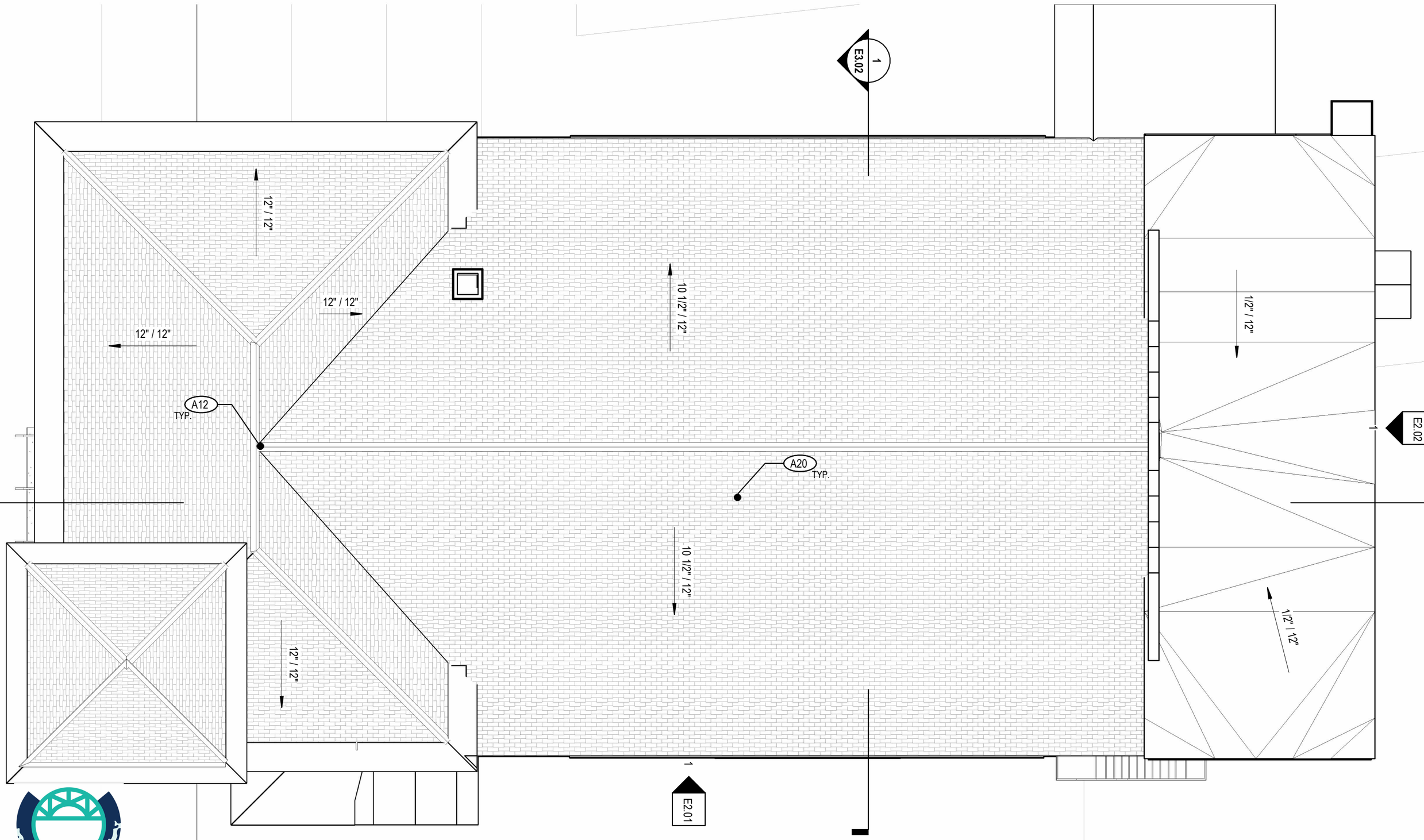
ATTIC PLAN - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R1.03

03/15/24

PROJECT NO:1029



ARCOVE ARCHITECTS

N

2' 8'

0' 4' 16'

ROOF PLAN - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R1.04

03/15/24

PROJECT NO:1029

MEP
008

CORRIDOR
007

8'-9"

CELL
003

CELL
004

CELL
006

CELL
002

VAULT
009

7'-10 1/2"

STORAGE
013

8'-8 1/2"

7'-8 3/4"

8'-8"
OFFICE
015

A5
TYP.

OFFICE
016

7'-8 1/8"

8'-7 1/2"

COSTUME
022

8'-10"

8'-10"
STORAGE
021

HALL
023

7'-10 1/2"

7'-5 3/4"
STAIR 2
S2-0

9'-0"
TOILET
032

11'-11"
CORR.
031

COSTUME
029

7'-11 3/4"

TOILET-MEN
005

7'-6 3/4"

STAIR 1
S1-0

7'-11 1/2"

CORRIDOR
012

7'-8 1/2"

COSTUME
019

8'-9 1/2"

A15

COSTUME
024

7'-8"

8'-8 1/4"

COSTUME
028

MEETING
ROOM
014

7'-10"

7'-9 1/8"

CORR.
025

COSTUME
018

7'-9"

STORAGE
001

6'-8 1/2"

3'-2"

7'-8 1/2"

IT
011

STORAGE
017

7'-10 1/2"

6'-10 1/8"

CORRIDOR
026

10'-6"

7'-9 1/2"

10'-2"
TOILET
027

ARCOVE
ARCHITECTS

N

2' 8'

0' 4' 16'

GROUND FLOOR REFLECTED CEILING PLAN - RESTORATION

R1.10

FRANKLIN CITY HALL & OPERA HOUSE

03/15/24
PROJECT NO:1029

OFFICE 109
OFFICE 113
STORAGE 115
9'-11 3/4"
OPEN OFFICE 116
A5 TYP.
7'-9 5/8"
STAIR 2 S2-1
OPEN OFFICE 108
STORAGE 111
STORAGE 112
TOILET-WMN 114
7'-7 1/2"
7'-10 3/4"
STORAGE 107
OPEN TO ABOVE
OPENT TO ABOVE
SEATING 118
STAGE 119
BACKSTAGE 121
8'-11"
TYP A12
A20
VESTIBULE 104
LOBBY 105
7'-10"
7'-9"
7'-10"
LOBBY 105
7'-11 1/2"
8'-0"
STAIR 1 S1-1
MACHINE ROOM 106
RECEPTION 103
OFFICE 101
SERVICE 102
9'-11 3/4"
STORAGE 117
7'-10 1/2"
7'-10 1/8"
A20
A21

ARCOVE ARCHITECTS

N

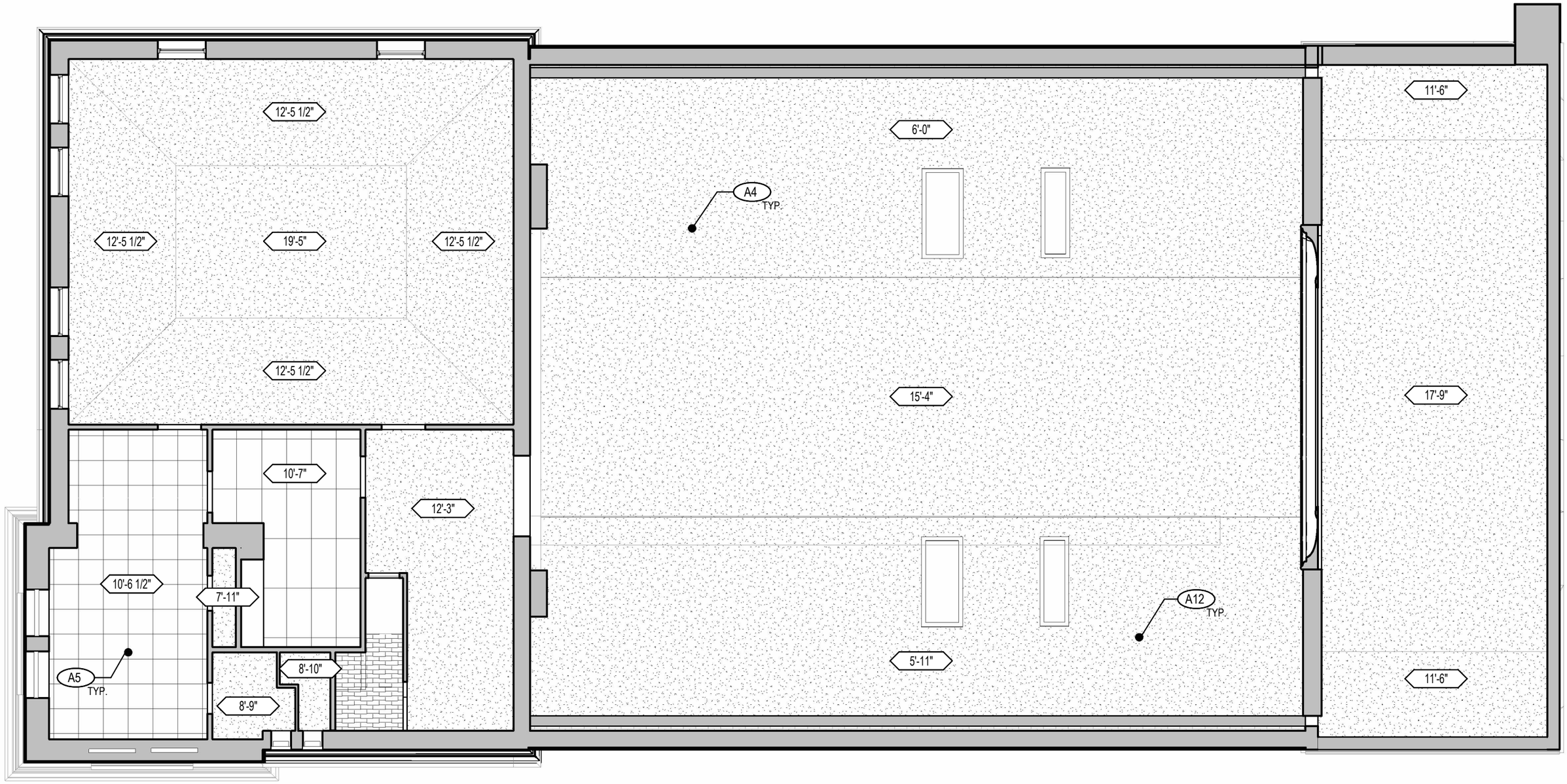
2' 8'
0' 4' 16'

FIRST FLOOR REFLECTED CEILING PLAN - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R1.11

03/15/24
PROJECT NO:1029



ARCOVE ARCHITECTS

N

2' 8'

0' 4' 16'

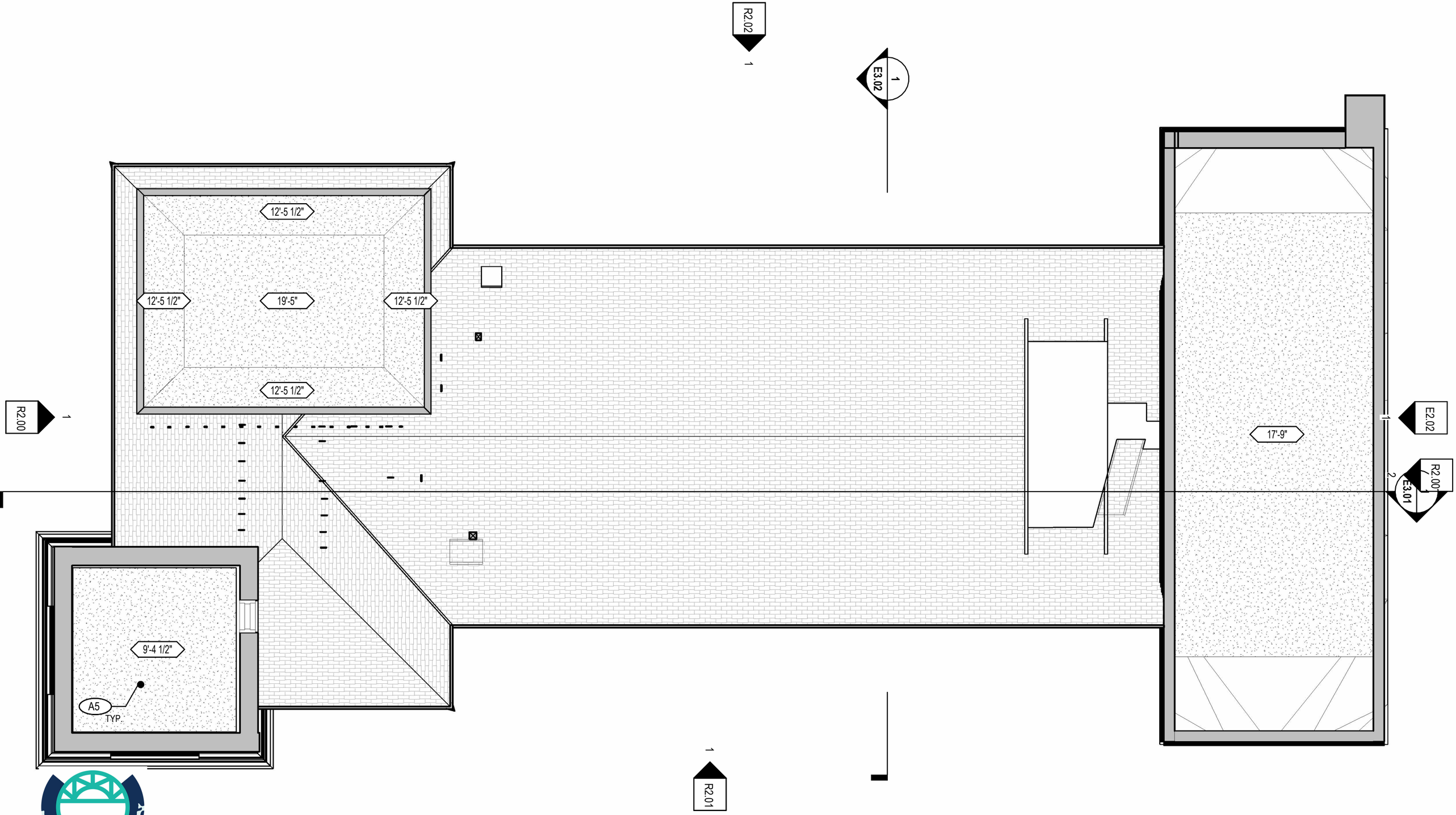
SECOND FLOOR REFLECTED CEILING PLAN - RESTORATION

R1.12

FRANKLIN CITY HALL & OPERA HOUSE

03/15/24

PROJECT NO:1029



N

2' 8'

0' 4' 16'

ARCOVE ARCHITECTS

ATTIC REFLECTED CEILING PLAN - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R1.13

03/15/24

PROJECT NO:1029

1 **SOUTH ELEVATION - RESTORATION**
3/32" = 1'-0"

2 **NORTH ELEVATION - RESTORATION**
3/32" = 1'-0"

ARCOVE ARCHITECTS

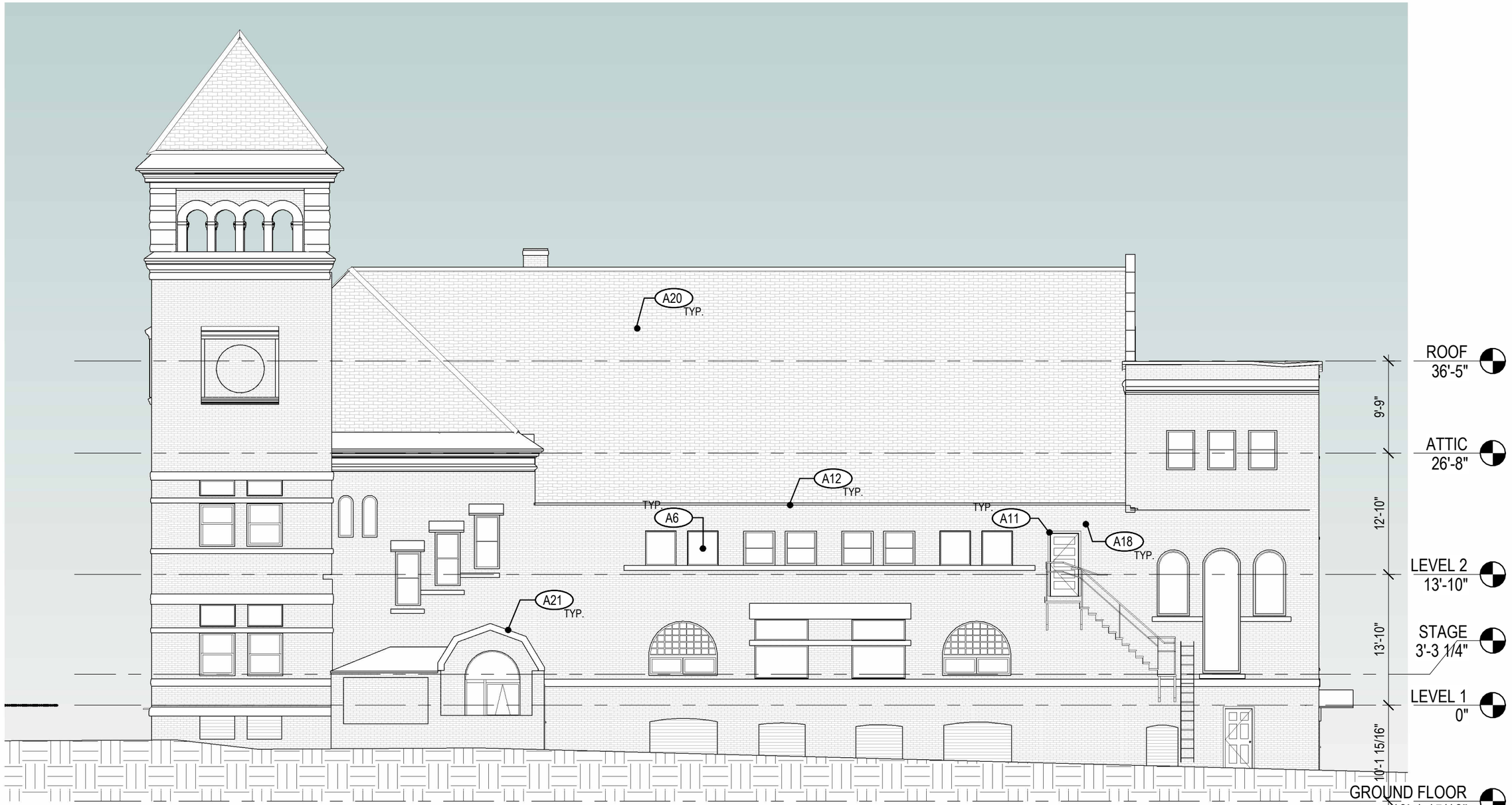
0' 4' 8' 16'

NORTH & SOUTH ELEVATIONS - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R2.00

03/15/24
PROJECT NO:1029



1 **EAST ELEVATION - RESTORATION**
3/32" = 1'-0"

ARCOVE ARCHITECTS

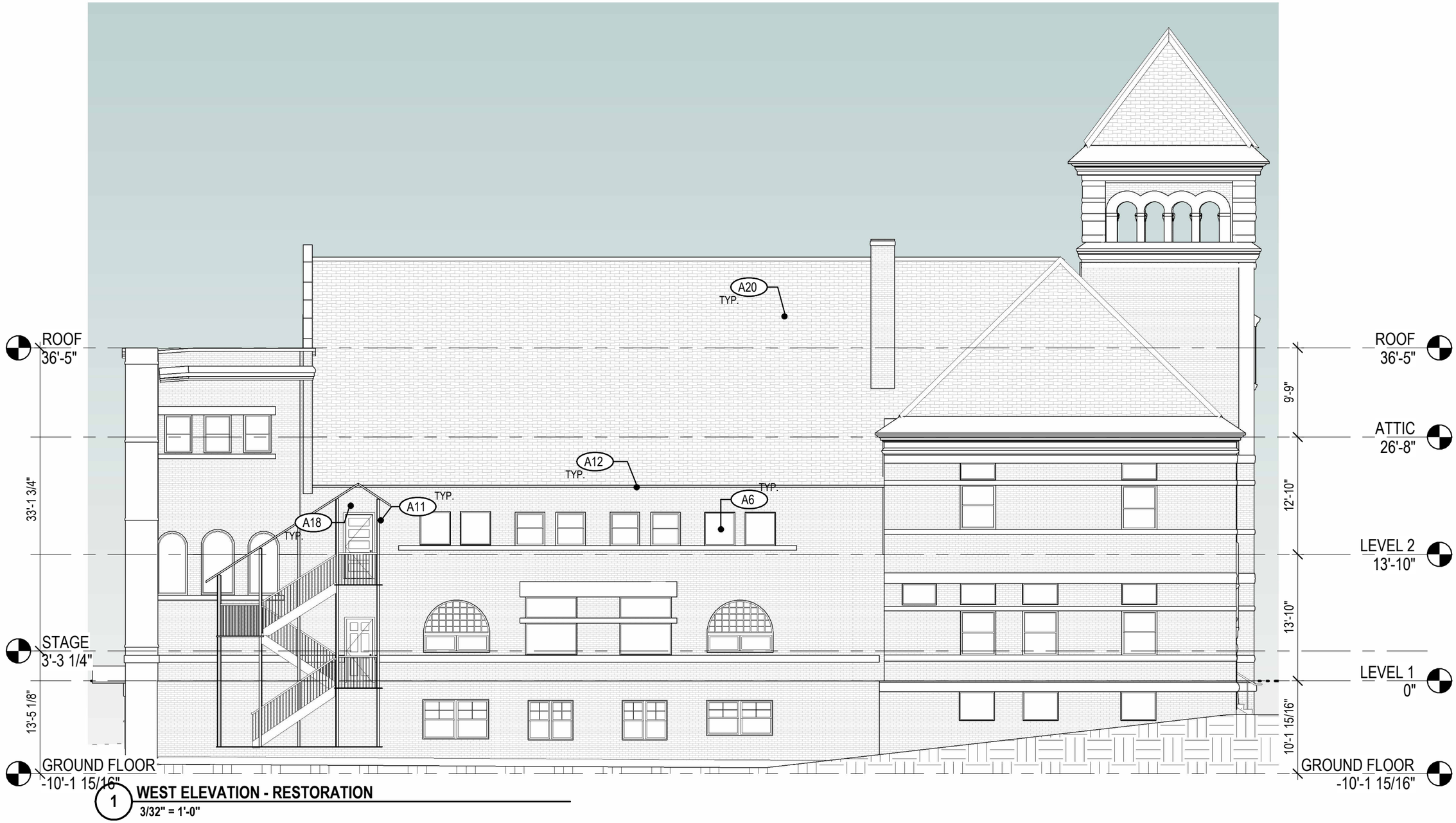
0' 4' 8' 16'

EAST ELEVATION - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R2.01

03/15/24
PROJECT NO:1029



1 **WEST ELEVATION - RESTORATION**
3/32" = 1'-0"

ARCOVE ARCHITECTS

0' 4' 8' 16'

WEST ELEVATION - RESTORATION

FRANKLIN CITY HALL & OPERA HOUSE

R2.02

03/15/24
PROJECT NO:1029

CSI ENGINEERING

HVAC • ELECTRICAL • PLUMBING • FIRE PROTECTION

Survey of Existing MEPFP Systems and Description of New Work

Franklin Town Hall
316 Central St
Franklin, NH 03235

For:

Tracy S. Kozak
ARCove Architects

Overview

Introduction

CSI Engineering, LLC performed a due diligence field investigation of Franklin Town Hall located at 316 Central St, Franklin NH. The scope of our survey was to investigate and document the existing conditions of the Mechanical, Electrical, Plumbing, Fire Protection and Fire Alarm systems within the building. This survey and report is an overview synopsis of the existing services mentioned above and not intended to provide full as-built drawings/conditions of the building.

Survey Conditions

Date	August 15, 2023
Weather	Mostly Cloudy
Temperature	75°F

Building Condition

At the time of the survey the building was observed to be in good condition for its age. The building was operational and discussed further on in the report. Due to the age of the building, most of the systems are not ideal and are not as efficient or robust as they should be.

Methodology

1. **Information Procurement**
   The Owner provided Criteria for this project includes the following:

2. **Observations**
   Our observations and documentation are provided within separate sections based on the discipline and system type. Each section shall include a general description of the systems being observed. When available and observed, documentation shall include a condition assessment, potential for reuse of equipment, and replacement recommendations if applicable. When obvious Code related issues or violations are observed, additional information pertaining to the deficiency are noted as well.

3. **Photographic Documentation**
   Digital Photographs are provided within each Engineering System Summary. The photographs presented in this report are representative of the general conditions of the equipment.

HVAC Systems Observations

Conditions will be described using the following generalized scale

0= failed/not functional, 1=poor/failure anticipated, 2=Fair/functional, requires service, 3=functional and maintained, 4=excellent/new

Overview

The condition of the existing HVAC systems throughout the building was observed to be in fair to poor condition. The existing systems seem to have been pieced together as walls, programs and layouts have changed over the years. It also appears that the heating media has been changed at some point in time from Steam to hot water. Many items are dated and inefficient for the task being performed.

System Observations

Main heating plant

The main heating plant of the building appears to be relatively new compared to the rest of the building and infrastructure. The heart of the heating plant is a Weil McLain Series 788 boiler with a Power Flame Natural Gas burner. The boiler and burner combination have a maximum heating supply capacity of approximately 1,650,000 BTU. Based on the serial numbers affixed to the burner and the boiler it appears that they were manufactured in 2015 and installed shortly thereafter. Giving them an age of 8 years old. The American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) publishes a paper listing the typical life expectancy of HVAC equipment periodically. This list is prepared to give building owners and developers ideas of when to plan for renovations and replacements based on equipment type and size. ASHRAE lists the cast iron boiler as having a useful life expectancy of 35 years while the burner has a useful life expectancy of 21 years meaning that both the boiler and the burner are well within a typical units useful life expectancy. The Boiler and burner appears to still be producing steam as opposed to hot water. Some older steam system accessories were observed to be abandoned in place in the basement and not connected. The condition of the boiler and the burner were observed to have a general rating of [3].

Bathroom Ventilation

The bathrooms were exhausted with ceiling exhaust fans. The fans were connected to a series of ductwork that communicated with the outside. The Basement men's bathroom was observed to not be ducted outside as was the women's room on the first floor. The basement bathroom ductwork was terminated in the storage area near the ground as can be seen in the pictures. The bathroom ventilation was observed to be in [0] to [1] condition. The fans are expected to have a useful life of 20 years. It is assumed that the fans are at or past this age based on their physical condition and that rest of the building.

Heating elements

The hot water heating elements throughout the building are dated and appear to be designed for the steam that was originally produced by the boiler plant. No exact age or models could be determined at the time of the site visit due to paint, locations and obstructions. They are estimated to be 25-30 years old though based on condition and physical appearance. The existing fin tube, cabinet unit heaters, ducted fan coils, and steam radiators all appeared to be a [1] to [2] rating. They are aged not optimally placed for the spaces that they serve, and the system has been pieced together multiple times to accommodate new layouts and programs. Steam radiators and the like are expected to have a useful life of 20 to 25 years. It is expected that most elements in the building are at or past this age.

Auditorium Air Handlers

The make and model of the heat and ventilation units that serve the auditorium were unable to be observed based on accessibility an storage in the way. The units appeared to be old if not original to the building based on the controls and condition of the overall unit. They appear to bring in outside air from ductwork that is routed to the exterior wall. The outside air is mixed with return air and then it is heated up via a steam coil in the unit. The air is then delivered to the auditorium through a grill in the side wall above the stage. The units do not appear to have any cooling in them. The overall condition was observed to be [2]. It was noted by the Franklin town reps that the units were in the way of production and were a nuisance in their current state. Typical steam air handlers per ASHRAE have a useful life expectancy of 20 years. It is assumed that they are near or past this age.

Auditorium Air Conditioners

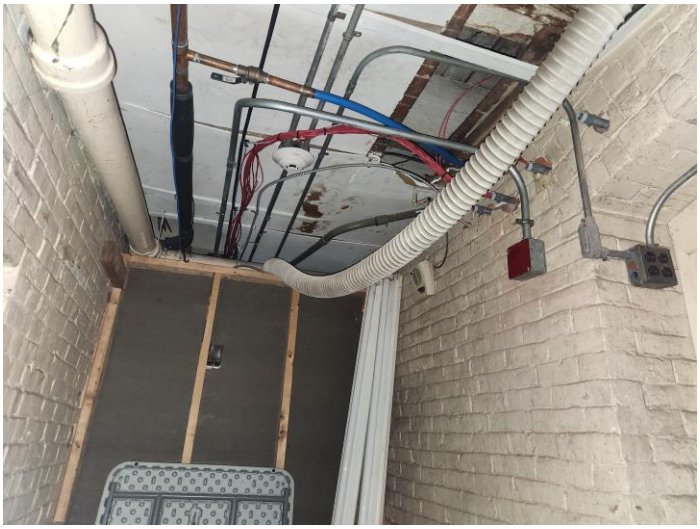
The auditorium has roughly 6-tons of cooling provided via two mini splits. The Mini splits appear to be fairly new and based on their equipment tags were manufactured in 2015 the same time as the boilers were replaced. This puts them at 8 years old when ASHRAE suggests a useful life expectancy of 15 years. The mini splits appeared to have a condition rating of [4] at the time of the site visit.

Wooden Relief ductwork

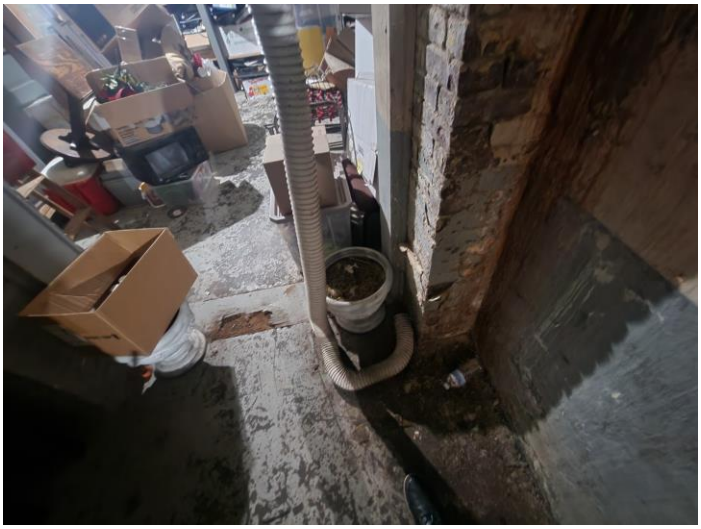
The ductwork in the attic that is meant to relieve hot air and excess pressure when the auditorium air handlers are providing ventilation, are made of what appears to be uninsulated and unlined wood. The overall condition based on its original intent is [3]. However, this should be changed to a more permanent material that would be less likely to sweat and cause water damage when air conditioning is added in any future fit outs.

Weil McLain Boiler and Power Flame Burner

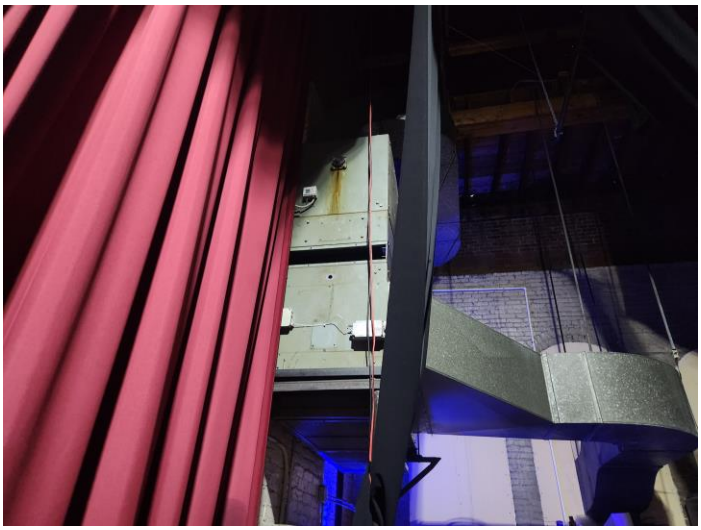
Typical Fin tube in storage areas of basement and uninsulated hot water piping



Bathroom Exhaust ductwork



Bathroom Exhaust ductwork

		
Hot water fan coil unit		**Hot water cabinet unit heaters**
		
Auditorium Cooling and fresh air supply grille		**Typical Auditorium air handler**

Auditorium air handler

Auditorium AHU fresh air connection above door

Typical Steam Radiator

Auditorium condensing units on roof

Wooden Relief ductwork in attic

No cooling or air provided in 2nd floor meeting room

Auditorium ceiling with destratification fans

Abandoned Floor grilles for old steam system

		
Existing Boiler flue		**Boiler combustion air and FCU outside air intake**

Electrical Systems Summary

Conditions will be described using the following generalized scale

0= failed/not functional, 1=poor/failure anticipated, 2=Fair/functional, requires service, 3=functional and maintained, 4=excellent/new

Overview

The condition of the existing electrical systems throughout the building are in fair to poor conditions. The existing electrical systems appear to all be in operational condition. The majority of the electrical devices and equipment appear to have outlived their useful life cycle.

System Observations

Electrical Service and Service Entrance Equipment

There are two existing electrical services entering the building. Both services are fed overhead from utility pole 234/6. The first service is a 400A 120/240V single phase three wire service for the theatre portion of the building. The second service is a 200A 120/208V three phase four wire electrical service for the town hall. Both electrical services enter the rear of the building at the backstage of the theatre area. The rating of the existing electrical service is a 2.

Distribution

The existing distribution in the building is a variety of panelboards and fuse boxes. The electrical distribution in the building is located in the backstage area and in utility rooms in the basement. Panelboards are not labeled and do not have accurate panelboard directories. Several panelboards and fuse boxes located in the backstage area are located on a raised platform and do not meet NEC clearance requirements. Due to the general age of the distribution equipment, the rating is a 1 to a 2. All fuse boxes are rated a 1 and should be phased out and replaced.

Cable and Conduit

The cable and conduit types varied throughout the building. The wiring in the building consisted of EMT, MC Cable, Romex, and knob and tube wiring. Abandoned in place conduit and conductors were observed throughout the building. It appears as though the electrical conductors have undergone multiple rounds of electrical renovations. The rating of the existing cable and conduit range from a 1 to a 3. All Romex conductors in assembly spaces are not allowed per code and therefor is rated a 1.

Electrical Devices

The electrical devices throughout the building are limited. Extension cords were observed throughout the building. GFCI receptacles were observed where required. The existing condition of the electrical devices is a 2 to a 3.

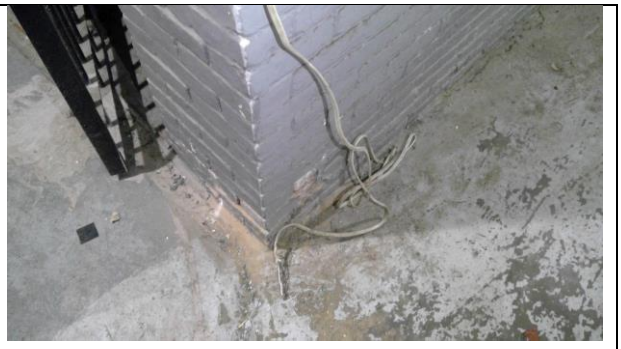
Lighting System

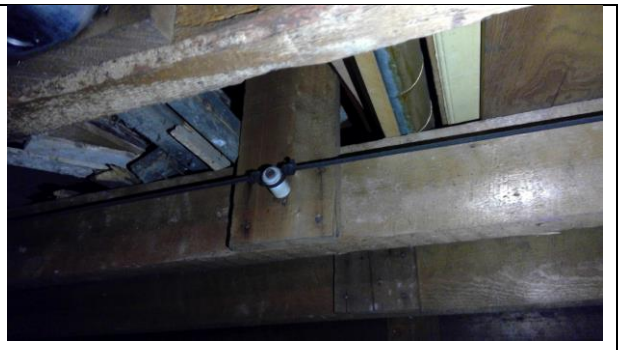
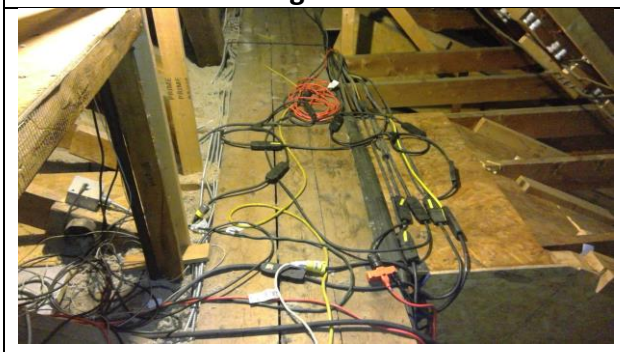
Interior lighting consisted of mainly compact fluorescent and incandescent fixtures. Light fixtures appear to be older fixtures that are starting to show signs of wear and tear. Interior lighting controls consist of toggle light switches and minimal occupancy sensors. The existing lighting and controls does not comply with existing energy code and is not an efficient way of lighting the space. Exit signage was observed throughout the building and appeared to have sufficient device locations. Emergency lighting was observed throughout the space however, did not appear to sufficient to provide 1 FC along the path of egress. The rating of the existing lighting system is a 3.

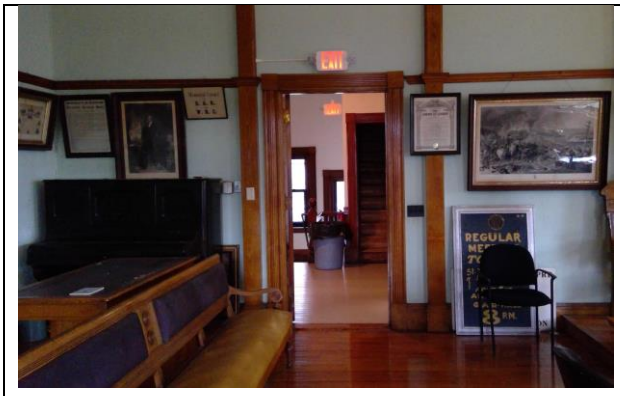
Fire Alarm System

The existing fire alarm control panel is an addressable Mircom FX-2000 Control Panel that communicates to the fire department via a Gamewell master pull box. There is an abandoned in place FCI 12 zone conventional fire alarm control panel. Devices are located throughout the whole building. Pull stations were observed at each egress. Horn/strobe devices were observed in most areas, however, did not appear to provide full coverage. The existing building does not have sprinkler protection and therefore has smoke detectors throughout most of the building. The existing smoke detection did not appear to provide full coverage throughout the whole building. The rating of the existing fire alarm system is a 3.

Electrical Digital Photographs

		
Electrical Disconnect Switch		**Abandoned Romex Conductor**

		
Existing Fuse Box		**Existing Wiring Methods**
		
Existing Show Lighting		**Existing Electrical Meters**

		
Typical Exit Signage and Emergency Lighting		**Fire Alarm master Pull Box**

Plumbing Systems Summary

Conditions will be described using the following generalized scale

0= failed/not functional, 1=poor/failure anticipated, 2=Fair/functional, requires service, 3=functional and maintained, 4=excellent/new

Overview

The Franklin Town Hall consists of 4 Floors including the basement and the attic. CSI visited the site on 08/15/23 to review the facilities existing conditions to determine if it will be feasible to use the existing conditions for the desired renovations indicated at that date. The locations of the existing above ground sanitary lines were confirmed along with the gas entrance, gas piping, vents, and domestic hot & cold-water systems within the building.

System Observations

Plumbing Fixtures

The existing toilets and lavatories on the lower level, main floor and upstairs appear to be functional Rating: 2. The break room sink on the upper level is functional Rating: 2. The mob basin in the mechanical room on the lower level is also functional Rating: 2.

Domestic water heating:

Most of the existing domestic hot water generation is done by one main electric 4500W 40-gallon water heater located in the boiler room which services the main bathrooms and sinks. There are also two small 1440W 2.65-gallon water heaters located in the single person bathrooms on the north end corners of the lower level of the building. Rating: 1.

Cold water supply

The building has its own 1” water entrance, with a meter and back flow preventer that is supplied by a 1” connection to the municipal water supply in the street. The meter and backflow preventer appear to be functional. Rating: 2.

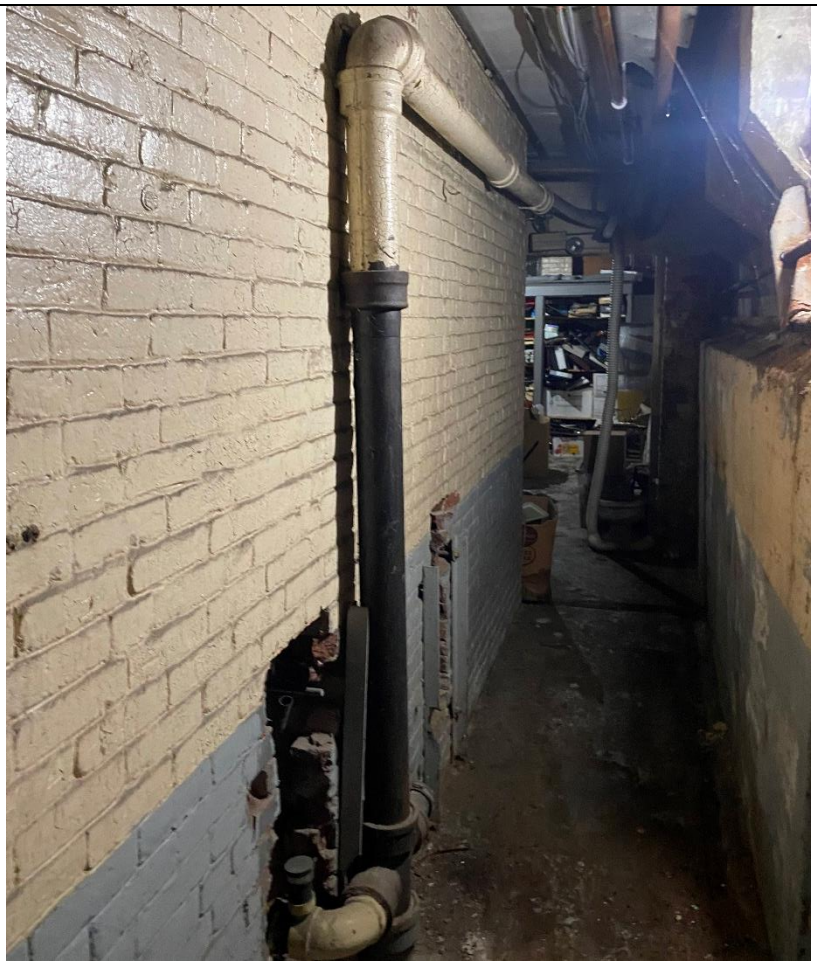
Fuel

The building has a 2” natural gas entrance with a meter and a regulator. The gas entrance is on the outside of the boiler room where it enters the building as a 2” line then heads to the gas fired boiler. There appears to be no other equipment in the building that’s served with natural gas. As it stands the gas supply is adequate for the current demand of the town hall. Rating: 2.

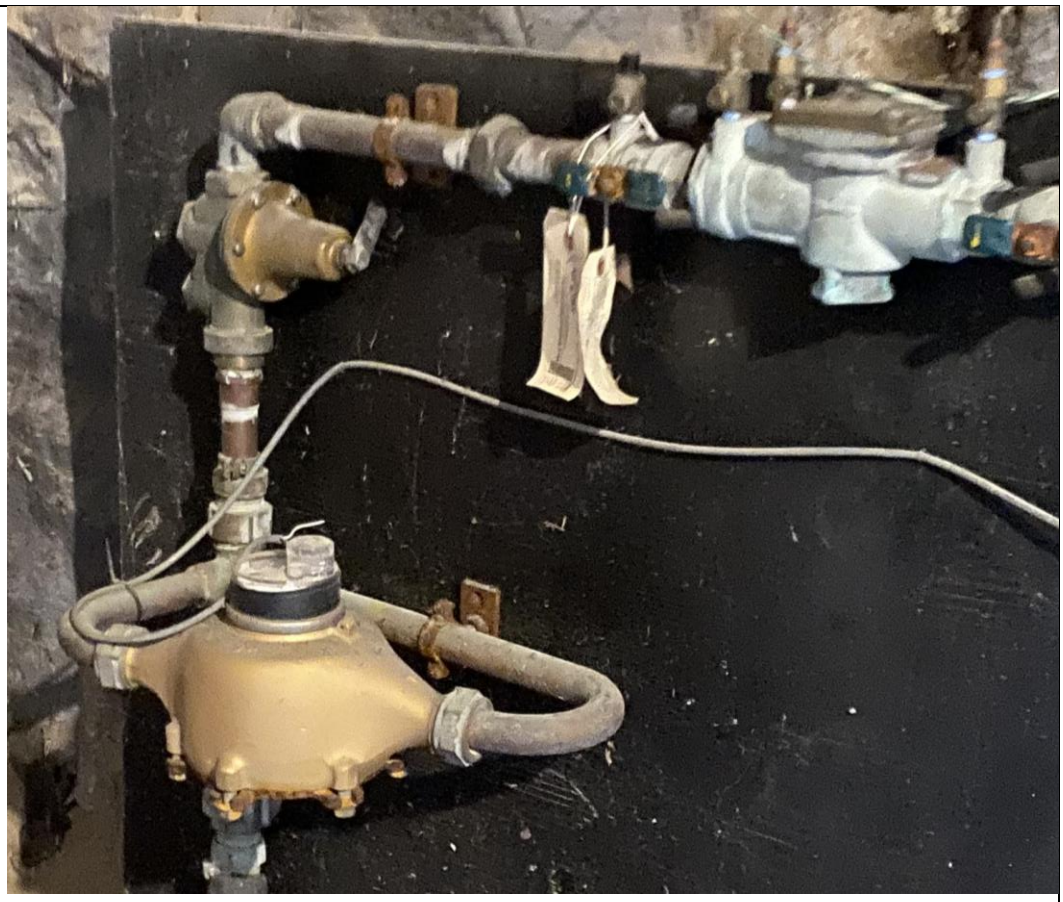
Sewer

The building has its own 4” sanitary run out to the street, it is assumed that the sewer connection is in the street on the East side of the building since there is a visible sanitary line with a cleanout below a grate in the floor that runs sloped downwards towards east side of the building. The existing system will be adequate for the future renovations and additions desired. Rating: 2.

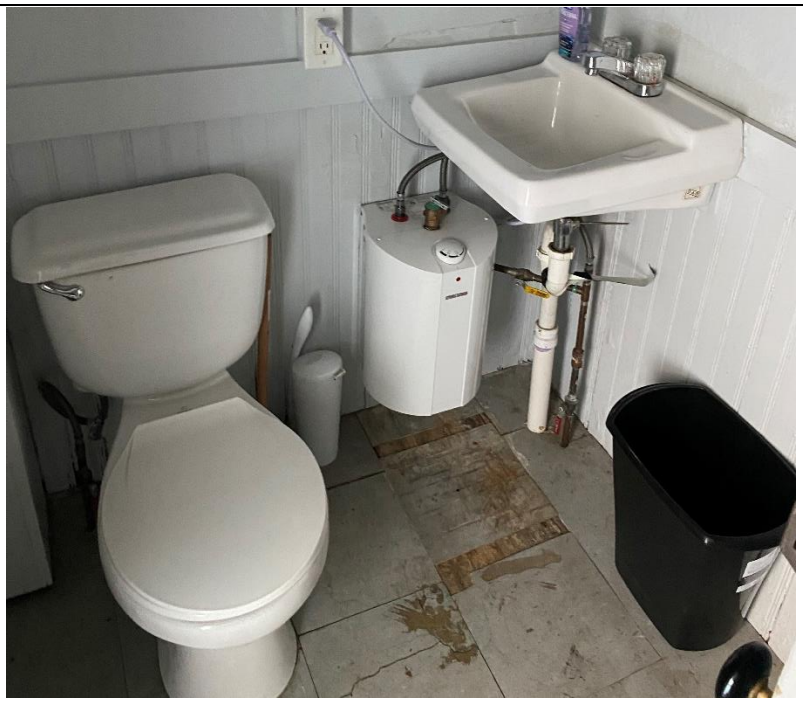
Plumbing Digital Photographs:



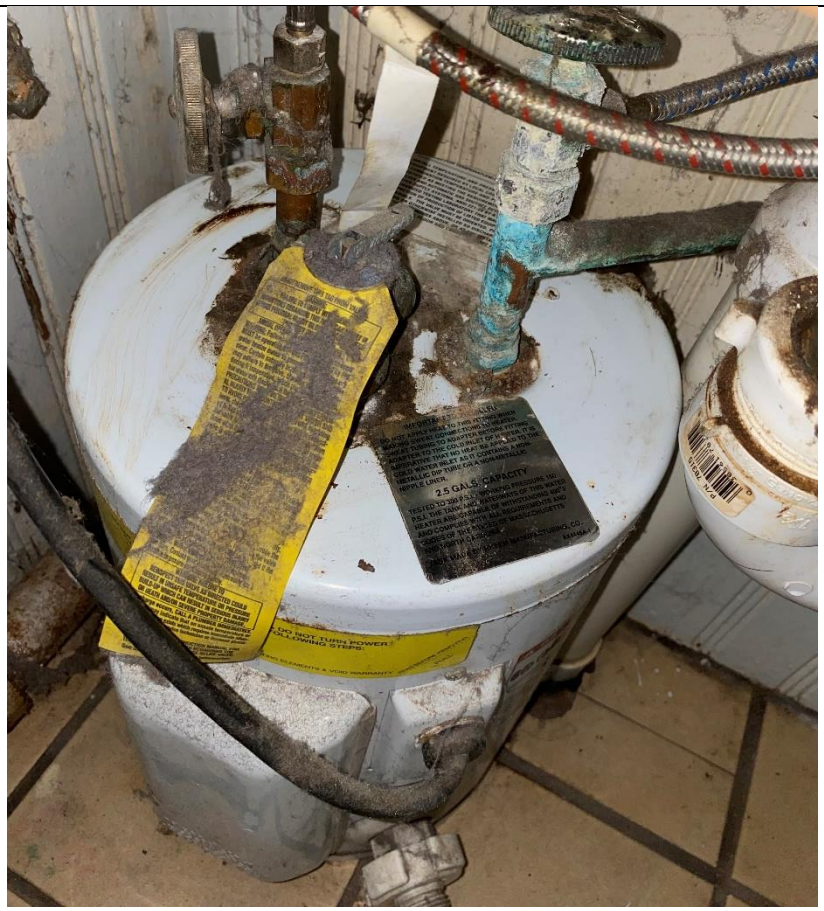
Waste drop, Basement.



Water Entrance and Backflow Preventer, Basement.

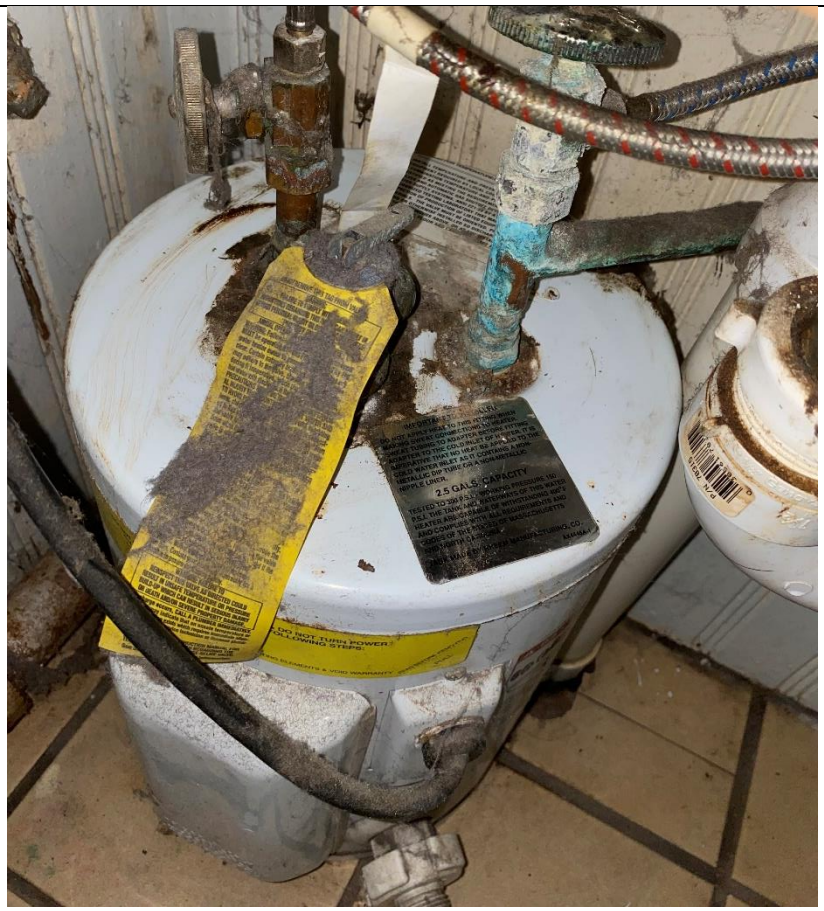


Single Bathroom 1, Basement



Individual Bathroom Water Heater, Basement

Gas Entrance and Regulator, Exterior



Individual Bathroom Water Heater, Basement

Gas Entrance and Regulator, Exterior

Structures North
CONSULTING ENGINEERS, INC.

60 Washington St, Suite 401
Salem, Massachusetts 01970-3517
P.O. Box 01971-8560
T 978.745.6817 | F 978.745.6067
www.structures-north.com

DRAFT 12 December 2023

ARCove Architects
3 Congress St, Suite 1
Portsmouth, NH 03801

Attention: Tracy Kozak

Reference: Franklin City Hall Structural Conditions

Dear Tracy

On September 25, 2023 we visited Fraklin City Hall in Franklin, NH to perform a visual evaluation of the building structure. The following is a summary of our findings and recommendations. For the purposes of this report the building will be considered to face the south.

General Description

Franklin City Hall is a free-standing 2-1/2 story structure with a full basement and an attic. Exterior walls are of multi-wythe loadbearing brick masonry with a stone foundation. Interior floors and roof planes are wood framed and supported the exterior and interior brick walls and iron columns.

In a practical sense, the structure can be considered in two halves: the 'front section', to the south, and the 'back section', to the north. These meet each other at a common, multi-wythe brick transverse bearing wall that separates the two halves.

The front section has two full stories and a partial floor at the attic level, plus a full, only partially finished basement. There is a hip roof-capped tower at the southeast corner. The exterior walls are for the most part clad in formal, hard-fired brick.

The back section contains a two-story auditorium space with a wrap-around balcony between the transverse bearing wall and a stage and fly tower to the north, behind the proscenium wall. There is a full basement below and a full, unfinished attic space above.

Noted Conditions and *Recommendations*-

During our survey of the structure, we noted the following conditions for which we have the following *recommendations*:

Exterior/ South (Front) Elevation -

- There are scattered vertical cracks in the exterior masonry near the bottom of the tower that commonly line up with the head joints between brownstone string course units. The cracks may be due to high bearing stresses on the brickwork given that they occur near windows, where such stresses are the highest. We recommend sequentially replacing the cracked brick units and adding helical joint reinforcement in the bed joints centered about the head joints between

brownstone units. Thermal expansion and contraction as well as differential moisture growth may also be contributing factors. Interestingly, and as one may note from the text below, the vertical cracking appears to be limited to the formal brick portions of the facades, and not the common brick portions.

- There are additional vertical cracks on the low rise west portion of the elevation that also align with head joints in the stonework, however, given that the compressive stresses are much lower in this area, the causes are more likely to be thermal expansion and contraction as well as moisture growth in the brick units. Cracked units should be replaced and helical joint reinforcing should be added as described above.

- Several isolated areas of brickwork have eroded mortar joints:

  - Surrounding the easternmost window to the west of the tower at the second floor.

  - To the sides of the basement windows near the center of the elevation.

  Eroded mortar joints should be cut and pointed with a compatible mortar.

- The steel window grills at the basement windows are embedded in the brick masonry to each side. The grills and the embedments are rusting and expansion of the rust is cracking the brickwork. *The grills should be removed, hot dip galvanized and painted, and then reinstalled. The cracked brickwork should be replaced*.

Exterior/ West Elevation-

- We noted vertical cracks in the at two locations, both of which start at head joints in the brownstone string course and radiate upward. Again, the causes are likely to be thermal expansion and contraction as well as moisture growth in the brick units and *the cracked units should be replaced and helical joint reinforcing should be added as described at the South Elevation*.

- Several areas on the exterior have eroded or cracked mortar joints:

  - At the head joints between many of the brownstone string course units.

  - Below the added mid-level window near the north end of the elevation.

  - At two locations between the two south-most basement level windows of the back section.

  - At the ground level between the first and second windows from the south end of the elevation.

  Eroded and cracked mortar joints should be cut and pointed with a compatible mortar.

- The brownstone is damaged at two locations:

  - The first floor level string course units are eroded at the north end of the elevation.

- The brownstone lintel unit is spalling over the northernmost first floor transom window of the front section.

The erosion and spalling of these units is not severe enough to warrant replacement, rather, the damaged portions of the units should be honed to sound material and then patched with a matching brownstone repair mortar.

- The brickwork at the sides of the mid-level doorway between the basement and first floor levels, which appears to have been added, was not properly finished at the broken-brick cut lines along the sides. *The rough-cut brickwork should be removed and re-set with proper returns at the sides of the doorway.*

- The brickwork has become loose and has shifted at the roof level, northwest corner of the fly tower, *and needs to be dismantled and re-set.*

Exterior/ East Elevation -

- There is a vertical crack over the south arched window head at the front section's attic stairway. *This should be repaired as previously described for the other elevations*.

- The eave level brownstone trim in the above-noted area has white efflorescent streaks coming out of the head joints. This is a direct indicator of past or present leakage within the eave. *The leakage should be remedied if it has not been already and the white streaking removed*.

- Several areas on the exterior have eroded or cracked mortar joints:

  - At the head joints between many of the brownstone string course units.

  - Along the bottom of the elevation where the brickwork meets the grade.

  - At scattered places on the first and second floor levels of the tower.

  - At approximately 50 percent of the front section wall surface to the north of the tower.

  - At a few sparsely scattered locations on the back section.

  Eroded and cracked mortar joints should be cut and pointed with a compatible mortar.

- There is a line of abandoned metal rods projecting out from the brownstone at the back section roof eave that is rusting and causing staining. Eventually these will rust to a point where they start jacking apart the masonry and *should all be cored out and removed and the holes patched with a matching repair mortar*.

- The metal fire escape near the north end of the elevation and its anchor bolts are rusting and causing streaking on the masonry. The entire fire escape is in poor condition and should ultimately be removed or replaced.

Exterior/ North Elevation/ Fly Tower Wall -

- There are vertical cracks over the middle and east arched window heads that should be repaired as previously described for the other elevations.

- Several areas on the exterior have eroded or cracked mortar joints:

  - At the ends of the most of the brownstone windowsills.

  - Within the brick and granite work along the bottom of the elevation where the brickwork meets the grade.

  Eroded and cracked mortar joints should be cut and pointed with a compatible mortar.

- The sealant covering the vertical slip joint between the tall brick stack at the northwest corner of the structure has failed *and needs to be replaced*.

- The metal straps and anchors that hold the stack to the building are rusted and *should at least be cleaned and repainted, but should ultimately be replaced with new shop-painted galvanized steel.*

- Some of the brickwork at the base of the stack is loose or has fallen out and *needs to be carefully removed and re-set*.

Exterior/ North Elevation/ Auditorium Wall -

- The stepped parapet at runs over the top of the gabled auditorium wall is bulging and failing *and must be dismantled and reconstructed in its entirety*.

Interior/ Basement-

The basement floor is a concrete slab on grade at most of the front section and a wood joist framed floor over a shallow crawlspace in the back section and the northeast portion of the front.

All masonry at the basement level is exposed within the front section and consists of wet-laid stonework below grade on the perimeter foundations and brickwork above and at interior walls.

- There are a few places where the floor surfaces are uneven in the back portion. This most likely relates to support conditions below, however, the crawlspace under this floor was too shallow to safely access during our investigation, so we could not assess the supports. *The uneven floor areas should be monitored to make sure that they do not worsen*.

- The wood framed floor sags noticeably within the northeast corner of the front section. We could not see below the framing but presume that there is a overly deflecting beam supporting the floor framing. This condition should be investigated in greater depth,

- The following damage was noted in the exposed brick masonry walls of the front section:

  - Deteriorated mortar joints on the south and west walls that must be cut and pointed..

- Bulging brickwork on the south side of the safe *that must be rebuilt*.

- Open gaps in the stone foundations *that need to be filled with mortared stone chinkers or brick.*

- Beam-supporting brickwork at the top center of the south wall that is crumbling- *the beam must be shored and the brickwork replaced*.

- An undermined gap at the bottom of the exposed west foundation wall's north end *that must be filled*.

- Rough-cut holes in two of the east-west running brick wall that were made to accommodate piping *that should be patched if the piping is removed*.

- At least two of the first floor joists show signs of water staining but no rot. *Leaking piping should be investigated*.

- There is a diagonal timber header running under the floor joists in the southeast corner of the front section. The ends of the header are pocketed into timber beams and are pulling out. *Additional bolster beams should be added below the ends of diagonal and run parallel to but below the existing beams at each end in order to provide more direct support to the diagonal.*

Interior/ First Floor-

The first floor is constructed with board-sheathed dimensional lumber joists running in the east-west direction. At the front section these are supported brick masonry bearing walls and timber headers and at the back sections these are supported on north-south running beams at the approximate third points of the building's width, landing on two rows of cast iron columns.

- The floor surfaces undulate in a manner that is consistent with the layout of the bearing walls below, where the joists naturally sag between supports. *None of the sagging was of an extent that would be considered concerning, given the nature and construction of this building*.

- There are scattered cracks in the plaster soffit of the balconies with in the auditorium and places where the plaster has fallen and is missing. The most common cause of fallen plaster is water damage, having noted signs of leakage in the auditorium ceiling above the balconies. Once it has been confirmed that the roof leaks have been stopped, the plaster should be repaired.

- There are diagonal cracks in the walls of the stairwell leading to the second floor. One of these is a wood-framed partition whereas the other is not. The most likely cause of the cracking is shifting in the framing or furring behind the plaster as caused by shaking of the stair. *The cracks should be monitored to see if they worsen*.

Interior/ Second Floor and Auditorium Balcony Level-

The second floor only exists within the front section of the building and consists of sawn lumber joist framing spanning between the exterior masonry bearing walls and interior wall of brick masonry and wood studding.

- The second floor surfaces undulate in a manner that is similar to the first floor and consistent with the layout of the bearing walls below, where the joists naturally sag between supports. *None of the sagging was of an extent that would be considered concerning, given the nature and construction of this building*.

- There are scattered cracks in the wall and ceiling surfaces of the Masonic Hall that most likely relate to temperature and moisture cycling and normal deflections within the building construction, however, the cracks should be monitored to see if they worsen.

The back section of the building is the open space of the auditorium and bounded by raised balconies.

- The auditorium ceiling has visible staining, suggesting that water has been leaking through the roof above. *The leakage should be stopped*.

Interior/ Attic-

The attic is divided into two sections- front and back.

The front section is a traditionally framed compound hip roof supported by the perimeter masonry bearing walls and the extended ends of the trusses from the back section. The vaulted ceiling over the Masonic Hall is suspended from the roof and projects approximately half a level above the planked attic floor, which surrounds and fills the tower.

The back section consists of three large timber trusses that span over the auditorium from the transverse bearing wall top the masonry wall over the proscenium. The southern end panels of all three trusses cantilever further south to support the rear half of the roof over the front section. The trusses support transverse sloping rafters that form a gable roof over and the auditorium's vaulted ceiling.

- The brick pier that supports the south end of the center roof truss over the transverse bearing wall is cracked down the middle. Because of the high load on the pier, it would be difficult to shore the truss at such a high elevation and the pier must stay in place. We therefore recommend injection grouting and a cement fiber wrap around the pier to strengthen it in place.

- The sloping roof rafters of the back section are "bird's mouth" notched where they land on the horizontal top chords of timber trusses, which causes a stress concentration in the rafters and several of the rafters are split. *We recommend adding sloping face-mount joist hangers on all of the notched rafters or a sloping top ledger in contact with the rafters against the low side faces of the chords to prevent further splitting.*

- The top chord of the eastern back section roof truss has a spiral check within the south interior panel (just north of the transverse bearing wall). This is due to the fact that the tree from which the chord was cut twisted as it grew, causing a spiral rotation in the grain that forces the timber to

twist. Because the twisting was resisted by the rigid connections of the truss, the timber checked instead. *The checks should be injected with adhesive and all four faces of the timber sistered with new ripped LVLs*.

- One of the joists that frames into the header framing out the chimney at the southeast corner of the back section is split and should be sistered with a matching member and supported at the end with a face mounted joist hanger.

- The north portion of the attic floor within the tower is water stained, which suggests leakage on the exterior. *This leakage should be investigated and stopped*.

- There is a split joist on the tower attic floor structure up above *that should be sistered with a new matching member.*

Interior/ Tower Belvidere and high attic-

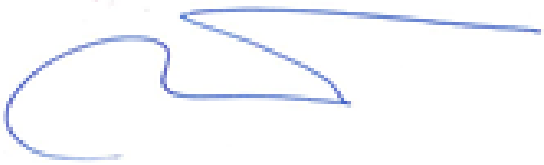
The top levels of the tower include an open belvedere above which there is an attic below the tower's steeply hipped roof spire.

- There is a considerable among of efflorescence emanating from the interior brickwork and brownstone arches and sills. This is indicative of moisture seeping into the masonry from the exterior and evaporating out on the interior, leaving behind free lime and salts that it accumulated while passing through the masonry. *The roof edge flashing should be evaluated and improved, if needed and the exterior masonry should be cut and repointed in order to stop exterior infiltration*.

The high attic could not be accessed and was therefore not inspected.

Thank you for the opportunity to survey this important and historic structure. Please contact us if you have any questions or if we can be of further assistance.

Respectfully Yours,



John M. Wathne, PE, President
Structures North Consulting Engineers, Inc.

Initial Facility Inspection Memo

To	Tracy Kozak/ARCove		
Copy		**Present**	
From	Brant Underwood	**Issue date**	September 22,2023
Location		**Visit date**	August 10, 2023
Project	Franklin Opera House	**File**	23317
Purpose	Initial facility inspection memo	**Pages**	8

Theatre Projects visited the site for initial inspection and assessment of the specification sections listed below.

Abbreviations

General abbreviations				project specific abbreviations	
APS	As per specification	**SR**	Stage right	**CH**	Concert hall
ASD	Approved shop drawings	**TEC**	Theatre equipment contractor	**DR**	Dressing room
BOH	Back of house	**TL**	Theatrical lighting	**PT**	Proscenium theatre
DS	Downstage	**TS**	Theatrical seating	**RH**	Recital hall
FOH	Front of house	**TSE**	Theatrical stage equipment	**RR**	Rehearsal room
SAT	Site acceptance testing	**US**	Upstage	**ST**	Studio theatre
SL	Stage left	**VIF**	Verify in field	**CM**	Use actual initials of CM
SLL	Sound and light lock			**GC**	Use actual initials of GC

Observations

The following are observations we made on site and/or direction given and discussed with the project architect. Theatre Projects reserves the right to re-inspect unfinished theatre equipment systems and components. If this requires an additional trip, refer to the guidelines in the contract and specifications for extended services.

1 General

Date closed	Item	Observation
	1.1	Facility exterior appears by in large to be in good shape, and has a strong presence on the main street.
	1.2	There appears to be ample parking behind and adjacent to building.
	1.3	Much of the facility is largely ADA inaccessible.
	1.4	There are insufficient bathroom facilities, and they are inadequately distributed by floor.
	1.5	The mix use between Opera house and city is somewhat confusing from a wayfinding perspective.
	1.6	Ticketing window is fairly small and tucked in behind other infrastructure.
	1.7	The flat floor of the auditorium area is not well set, and has substantial gapping in the floorboards resulting in and extremely loud floor to walk on. The finish of floor looks quite nice.
	1.8	There are numerous areas of failed plasterwork and aesthetic disrepair.
	1.9	There is no elevator in the building.
	1.10	There is no ADA access to balcony area.
	1.11	No concessions.

2 Structural

Date closed	Item	Observation
	2.1	Exposed structural elements appear to be in good shape and original to the building.

3 Plumbing and fire protection

Date closed	Item	Observation
	3.1	No fire protection system was observed beyond some handheld fire extinguishers and alarms.

4 HVAC

Date closed	Item	Observation
	4.1	Massive HVAC duct and assemblies have been installed on the SR and SL offstage area, attached to the back of the proscenium wall. These represent huge incumbrances.
	4.2	What appear to be gas lines are also present within the main offstage area, on the US side of the proscenium wall

5 Electrical

Date closed	Item	Observation
	5.1	There are numerous electrical services. It is difficult to tell upon inspection what services theatrical systems and what services building systems.
	5.2	The most modern theatrical service appears to be a stage pin patch bay

6 Theatre equipment – Adjustable acoustics

Date closed	Item	Observation
	6.1	Only visible curtains in the house were covering the glass windows and were not blackouts.

7 Theatre equipment – Orchestra enclosures

8 Theatre equipment – Platforms

Date closed	Item	Observation
	8.1	The stage platform is in reasonable shape. Understage appears to be an open plenum.

9 Theatre equipment – Rigging

Date closed	Item	Observation
	9.1	Most observed rigging is by chain. Proof was not validated at time of assessment.
	9.2	There is no operable rigging system in the fly house.

10 Theatre equipment – Controls

11 Theatre equipment – Fire safety curtain

Date closed	Item	Observation
	11.1	No fire curtain or deluge was identifiable during the inspection.

12 Theatre equipment – Chain motor system

13 Theatre equipment – Drapery

Date closed	Item	Observation
	13.1	The main curtain, borders and legs appear to be in good shape. Material and FR rating was not observed at time of inspection.

14 Theatre equipment – Pipe grid (Wood Grid Observed)

Date closed	Item	Observation
	14.1	The grid is a wood grid consisting of what appears to be nominal 2x dimensional lumber.
	14.2	Rigging is largely attached to the main joists which also appear to be 2x dimensional lumber.
	14.3	There is not apparent fire safety system in the grid
	14.4	Access to the grid appears to be by 1x straps nailed to vertical wall studs.
	14.5	There are two wood construction jumps on either side

15 Theatre equipment – Tension grid

16 Theatre equipment – Lifts

17 Theatre equipment – Seating wagons

18 Theatre equipment – Lighting instruments

Date closed	Item	Observation
	18.1	Most of the lighting instruments appear to be older incandescent.
	18.2	Some observed frenal fixtures appear to be studio lights, not theatrical.
	18.3	By rough count, there appears to be 40 or so fixtures total in the building.
	18.4	There were several older spot lights observed on platforms at the back of the balcony.

19 Theatre equipment – Dimming and control

Date closed	Item	Observation
	19.1	24 channels of dimming seemed to be apparent during the walkthrough.
	19.2	Roughly 8 speakers, including 2 monitors were visible during walk through, arranged roughly at floor, stage, and balcony level at side of the prosc.
	19.3	Audio and lighting control is antiquated- Express 2 scene preset.

20 Theatre equipment – Company switches

Date closed	Item	Observation
	20.1	Unclear- needs to be thoroughly investigated by an EC.

21 Theatre equipment – Theatrical seating

Date closed	Item	Observation
	21.1	Loose, stackable seating on the main floor. Cushion with arms.
	21.2	Balcony seating is period and stanchions are in reasonably good shape. Wood backs and seats are in various states of disrepair. Would not be considered comfortable by modern standards.
	21.3	Only center section of balcony can be used due to egress path distance limitations.
	21.4	Front of seat to balcony edge is only 10"
	21.5	Balcony rail is low.
	21.6	Full isle width is 2'-7", back to back is 2'-2".

22 Performer and Production – Accommodation

Date closed	Item	Observation
	22.1	Green Room is in need of renovation and updating.
	22.2	SR stair is only access to stage- no crossover.

	22.3	Women's dressing room is fairly large but is in need of updating and renovation.
	22.4	Men's Dressing room is quite small and in need of updating and renovation.
	22.5	There was not an apparent production break room at the time of assessment.
	22.6	Rehearsal room was not diminutive but is also not an adequate size to tape out the entire stage. Area is not column free.

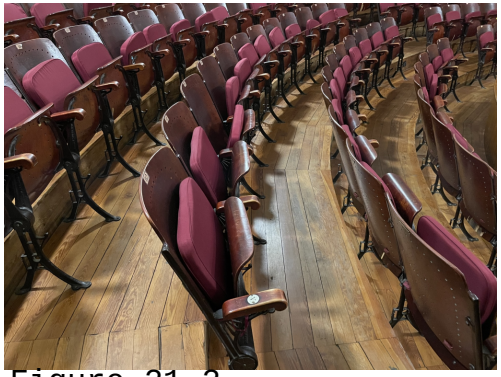


Figure 21.2

Figures 19.3

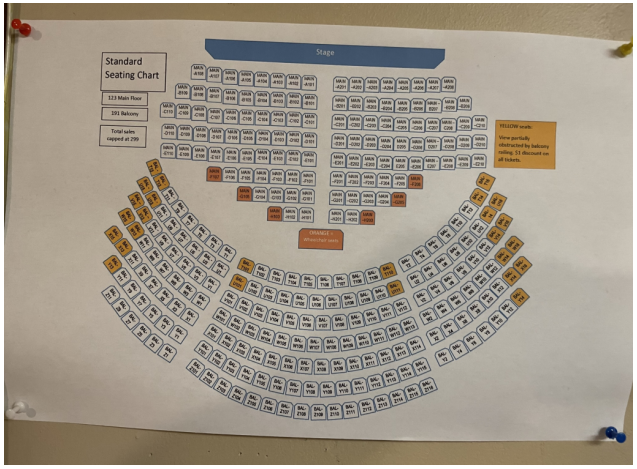


Figure 22.3

Figure 22.4

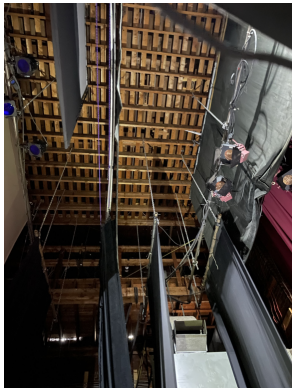


Figure 14.1

Figure 5.1

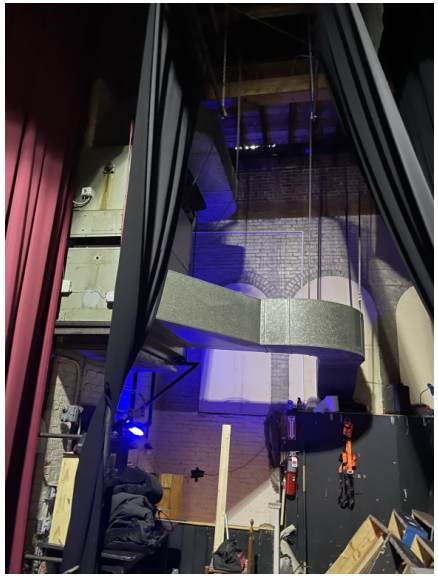


Figure 4.1

Part IV: Feasibility & Concept Design

Design direction for capital improvements to Franklin City Hall and Opera House have been developed using the findings from extensive research, information gathering and stakeholder collaboration. The city of Franklin is fortunate to be located in the heart of the tourist region of New Hampshire, and so, has a unique opportunity to leverage City Hall as a historic asset for economic growth. This feasibility study makes recommendations for modifications to the existing building that support long-term community goals for economic growth, as well as recommendations to address egress, accessibility and programmatic requirements of City Hall staff and the Opera House. Design recommendations give careful consideration to the historic character of the building.

Included in this section are design recommendations for architectural, MEPFP and Structural work, responding to findings of information gathering, research and stakeholder collaboration.

MEPFP proposed design summary:
MEPFP systems will be replaced and improved to accommodate the proposed new programmatic uses and spatial rearrangement in addition to providing a more energy efficient system with improved thermal comfort for building occupants.
A new whole building fire protection sprinkler system will be added to the building.
The entire existing electrical system is to be replaced with new service. Inside the building, all new electrical panelboards, wiring, devices and lighting is proposed.
See attached: proposed conceptual MEPFP design summary.

Structural proposed design summary:
The existing building structure will be repaired and reinforced as necessary. New structure is to be added for the proposed additions (three-story stair/elevator tower to the northwest and egress stair to the northeast). At the ground level, a new concrete floor will replace the existing wood floor. Upper-level floors will be reinforced as necessary with new structural columns and beams. At the second floor, the balcony seating area will be over-framed to accommodate stepped seating platforms (to provide the min. required aisle width between seating rows).

At the roof level above the auditorium, new steel beam framing will be added to support additional weight resulting from Opera House programming. Above the stage, the flat roof may require additional structural support to accommodate HVAC equipment, this is to be determined. The proscenium arch at the stage requires further structural analysis for additional loads resulting from fire protection equipment.
See attached: proposed structural conceptual diagrams.

Sustainability:
A stated goal of the 2015 “Franklin for a Lifetime” workshop, indicates the desire to explore ways for the city to become a designated “Sustainable City”. To help further this goal, we have included an energy analysis comparing sustainable building practices to be considered in the future.

At the end of this section is a Preliminary Budgetary Opinion of the construction costs, reflective of established project goals and design team recommendations.

Architecture: proposed scope

Architectural space layout and additions:

In the proposed architectural design solution, additions and reconfigurations fully accommodate the Proposed Program within the same building. City Hall functions are primarily contained to the lower ground floor level with a new accessible main entrance from the rear parking lot at the northwest side of building. The Performing arts functions are located on the first and second floor, with the main entrance located on Central Street. One exception to this assignment by level, is that GAR Hall, on the second floor, remains available for either occupant group use, or could easily be accessed by visiting community groups. A new elevator is located within the existing southeast tower, serving theater goers at their point of entry, and serving city hall functions downstairs at the lower level. A new three-story addition is proposed at the northwest side of the building to accommodate egress requirements for both City Hall and the Opera House.

The lower-level floor layout is completely reconfigured to accommodate City Hall programmatic space needs more efficiently, while allowing for securable office spaces with accessible public access. The new addition provides accessibility access to lower-level City Hall offices via a sloped ramp. City Hall offices on the ground floor include the following: City Manager offices with connecting waiting room for visitors, City Clerk suite with customer support windows at new City Hall Lobby, Planning suite with customer support windows at new City Hall Lobby, Finance suite, Welfare office with connected vestibule for customer support window. Support spaces for City Hall staff include a Kitchenette and Print room. The building envelope will be furred-out to improve thermal comfort for occupants, windows will be repaired or replaced as necessary and new windows added to window openings previously boarded up at the ground level.

A new gender-neutral handicapped accessible restroom is located at the lower level, off the new City Hall Lobby to the north. Another gender-neutral restroom, equipped with baby changing station, is located at the south end near the existing stairwell and doors leading to City Hall office suites. The lower-level building rehabilitation includes “Back of House” Opera House spaces: Green room, Men’s dressing room, Women’s dressing room and a gender-neutral toilet room. A new freight elevator serving the ground and first floor in this area is proposed to facilitate loading and unloading for visiting performing arts acts, while also providing handicapped accessibility to the stage.

On the first floor, rehabilitated “Front of House” programmatic needs of the Opera House are located at the existing main entry off Central St. New restrooms serving Opera House visitors (as well as City Hall) are located on either side of the main doors to the auditorium. Both restrooms are equipped with baby changing stations. At this level, the new addition provides accessible entry to the stage via the north parking lot as well as emergency egress from the auditorium. To better accommodate theatrical programmatic needs, a stair has been added to the northeast of stage. This new stair doubles as emergency egress from the balcony level of auditorium.

On the second floor, two gender-neutral restrooms are located at the south end of the building near the existing stairwell. The balcony level seating layout is modified to meet current building safety requirements. To accommodate a code compliant seating arrangement, the balcony level floor is proposed to be over-framed with stepped platforms to provide the min. required aisle width between seating rows. The new addition to the northwest provides emergency egress from the auditorium as well as storage space for use by the Opera House. A new stair addition to the northeast of the auditorium provides emergency egress for balcony level seating while also serving programmatic needs of the theater to have behind the scenes access to both sides of the stage.

To help further the community stated goal of exploring the possibility to become a “Sustainable City” (2015 Franklin for a Lifetime workshop), the design proposal includes improvements to the building envelope for increased energy efficiency as well as the recommendation to consider the installation of Photovoltaic Panels (Solar) over the north parking lot and an all electric MEP system (as an alternative to combustion fuel MEP system). (See Energy Model section for greater detail on sustainability recommendations.) Included within the broader category of sustainability is Resilience. Resilience in architecture refers to a strategy to both prevent and recover from damage resulting from environmental events (such as flooding). To minimize potential damage to City Hall from a 500 year flood and rising water tables, the proposed design incorporates interior (under slab drainage at the basement level) & exterior drainage systems, water proofing and pumps.

Proposed Area Program:

A proposed Area Program of spaces was developed through collaborative meetings between town stakeholders and the design team. The general programming consensus is to consolidate town hall services on the ground floor, community performing arts spaces on the first & second floor (auditorium), and make all spaces handicapped accessible on ground, first and second floors. Gar Hall, located on the second floor, will function as a community gathering space as well as a place for meeting functions for town hall staff.

Proposed Area Program continued

Franklin City Hall & Opera House

Proposed Program 3/08/2024

ROOM NO.	ROOM NAME	Area s.f.	Occupancy	Department
002	WAITING ROOM	80	City Manager	City Hall
003	STORAGE	33	City Manager	City Hall
004	CITY MANAGER ADMIN	203	City Manager	City Hall
005	CITY MANAGER OFFICE	233	City Manager	City Hall
subtotal City Manager		**549**		
021	CLERK OFFICE	325	Clerk	City Hall
022	CLERK DIRECTOR	181	Clerk	City Hall
023	STORAGE	61	Clerk	City Hall
subtotal City Clerk		**567**		
014	FINANCE DIRECTOR	204	Finance	City Hall
015	FINANCE	265	Finance	City Hall
subtotal City Finance		**469**		
016	PLANNING DIRECTOR	216	Planning	City Hall
017	PLANNING	235	Planning	City Hall
subtotal City Planning		**451**		
012	VESTIBULE	77	Welfare	City Hall
013	WELFARE OFFICE	93	Welfare	City Hall
subtotal City Welfare		**170**		
009	STORAGE	45	Shared	City Hall
011	RESTROOM	62	Shared	City Hall
019	PRINT ROOM	83	Shared	City Hall
020	KITCHENETTE	123	Shared	City Hall
024	CITY HALL LOBBY	350	Shared	City Hall
025	GN TOILET	43	Shared	City Hall
207	GAR HALL	1055	Shared	City Hall
208	STORAGE	199	Shared	City Hall
303	STORAGE	37	Shared	City Hall
305	TOWER	242	Shared	City Hall
subtotal City Shared		**2239**		
	Net Total City Hall	**4445**		

111	STAGE	663	Auditorium	Opera House
120	OPERA HOUSE	2262	Auditorium	Opera House
121	SOUND BOOTH	72	Auditorium	Opera House
122	LIGHTING BOOTH	72	Auditorium	Opera House
204	MEZZANINE SEATING	2060	Auditorium	Opera House
205	SNACK BOOTH	56	Auditorium	Opera House
subtotal Opera Auditorium		**5185**		
026	GREEN ROOM	664	Back of House	Opera House
027	GN TOILET	46	Back of House	Opera House
028	MEN'S DRESSING	236	Back of House	Opera House
029	WOMEN'S DRESSING	239	Back of House	Opera House
104	DIRECTOR'S OFFICE	125	Back of House	Opera House
105	STORAGE	408	Back of House	Opera House
108	BACKSTAGE	460	Back of House	Opera House
131	STORAGE	137	Back of House	Opera House
206	STORAGE	104	Back of House	Opera House
306	WING 1	112	Back of House	Opera House
307	CATWALK	320	Back of House	Opera House
308	WING 2	127	Back of House	Opera House
309	CORRIDOR	50	Back of House	Opera House
310	STORAGE	85	Back of House	Opera House
subtotal Opera Back of House		**3113**		
101	LOBBY	549	Front of House	Opera House
102	BOX OFFICE	66	Front of House	Opera House
103	BOX OFFICE SUPPORT	135	Front of House	Opera House
106	CONCESSIONS	91	Front of House	Opera House
subtotal Opera Front of House		**841**		
	Net Total Opera	**9139**		

107	WOMEN'S TLT	227	Shared	Shared - Building
108	MEN'S TLT	157	Shared	Shared - Building
202	GN TOILET	44	Shared	Shared - Building
203	GN TOILET	56	Shared	Shared - Building
subtotal Shared - Building		**484**		
	***Net Total Area-Proposed**	**14846**		
	* does not include circulation			
001	CORRIDOR	377	Circulation	Circulation
010	ELEV. LOBBY	164	Circulation	Circulation
018	CORRIDOR	298	Circulation	Circulation
030	CITY HALL ENTRY	263	Circulation	Circulation
031	VESTIBULE	48	Circulation	Circulation
110	ELEV. LOBBY	180	Circulation	Circulation
130	ELEV. LOBBY	257	Circulation	Circulation
201	LOBBY	264	Circulation	Circulation
230	CORRIDOR	238	Circulation	Circulation
301	CORRIDOR	90	Circulation	Circulation
302	CORRIDOR	19	Circulation	Circulation
ST1-0	STAIR 1	135	Circulation	Circulation
ST1-1	STAIR 1	365	Circulation	Circulation
ST1-2	STAIR 1	239	Circulation	Circulation
ST1-3	STAIR 1	134	Circulation	Circulation
ST2-0	STAIR 2	138	Circulation	Circulation
ST2-1	STAIR 2	148	Circulation	Circulation
ST2-2	STAIR 2	154	Circulation	Circulation
ST2-3	STAIR 2	102	Circulation	Circulation
ST3-0	STAIR 3	60	Circulation	Circulation
ST3-1	STAIR 3	69	Circulation	Circulation
ST3-2	STAIR 3	69	Circulation	Circulation
subtotal Circulation		**3811**		

Gross Area: Proposed	**gross sf**
Attic	1,146
Second	7,685
First	7,786
Basement	7,750
Total Proposed Building	**24,367**

Gross Area: Existing	**gross sf**
Attic	481
Second	5,026
First	6,881
Basement	7,002
Total Existing Building	**19,390**

Code Analysis:

FRANKLIN CITY HALL & OPERA HOUSE — Project Address: 316 Central Street, Franklin, NH 03235

March 15, 2024

LIFE SAFETY & BUILDING CODE ANALYSIS

1) Applicable Codes & Regulations

Downtown Revitalization District

- International Existing Building Code (IEBC) , 2018 Edition with NH Ammendments
- International Building Code (IBC) , 2018 Edition with NH Ammendments
- International Energy Conservation Code, 2018 Edition with NH Ammendments
- International Mechanical Code 2018 with NH Ammendments
- National Electric Code, NFPA-170 2023 with NH Ammendments
- New Hampshire Elevator and Escalator code 2019
- International Plumbing Code 2018 with NH Ammendments
- International Fire Code, 2018 with NH Ammendments
- NH State Fire Code Saf-C 6000, NFPA-1, 2018 Edition
- NFPA 101, Life Safety Code - 2021 Edition
- NFPA-13, Standard for the Installation of Sprinkler Systems- 2016 edition
- NH Code for Barrier Free Design
- Americans with Disabilities Act Standards for Accessible Design 2010
- American National Standard for Accessible and Usable Buildings and Facilities - ICC/ANSI A117.1 (2009)
- City of Franklin, Zoning Ordinance
- City of Franklin, Chapter 78 Heritage Commission

2) Summary of Work

Rehabilitation of existing municipal building (city hall & community assembly/theater) and addition on northwest side of building. New addition is to accommodate vertical circulation throughout building for accessibility and direct access of lower level City Hall offices from parking lot on north side of building. A separate smaller stair addition is to accomodate required egress from Level 2 auditorium. Restoration efforts to existing building address deficiencies in building envelope, MEP systems and structural system. Reconfiguration of spaces on ground level for programmatic use by City Hall. Reconfiguration of spaces at Level 1 for use by Opera House. Reconfiguration of spaces on Level 2 for use by Opera house and City Hall.

3) Zoning

B-2 High-Density Business and Commercial District

4) Renovations Scope:

IEBC - Existing Building Code, **Alterations Level 2**

Occupancy; Chapter 43, Building

5) Occupancy- Mixed

IBC (304.1) & NFPA (Chapter 39)	B - Business (existing floors ground, 1 & 2)
IBC (303.2) & NFPA (Chapter 13)	A-1 Assembly (existing floors 1 & 2) Performing Arts

6) Minimum Occupancy Separation (with sprinkler system) * Sprinklers Added to Building

hours	IBC table 508.4	NFPA table 6.1.14.4.1a
OCCUPANCY	A1 - Performing Arts Theater	B- Business
A1 - Theater (Performing Arts)	-	**1**
B- Business	**1**	-

IBC Table 509- Incidental Use Areas

Furnace Room > 400k BTU/hour	1 Hr
Boiler Room > 15psi & 10 hp	1 Hr
waste & linen collection rooms over 100 sf	1 Hr
Separation Continuity	IBC 711.2.3.1
horizontal assemblies - supporting construction	Horizontal assembly's supporting construction is required to be fire-resistance rated, except at incidental uses where required rating does not exceed 1 hour.

7)

Gross Floor Area (sf) (Proposed Option)

Level	Occupancy	Zoning & IBC - Building Area Footprint to outside face of exterior walls	IBC - Occupancy Floor Area to inside face of exterior walls
Attic	B-Business	n/a	n/a
2nd floor - Offices & support spaces	B - Business	1,744	1,550
2nd floor - Gar Hall	A - Assembly	1,181	1,080
2nd floor - Performing Arts Theater	A1 - Assembly	2,320	2,153
1st floor - Offices & support spaces	B - Business	4,998	4,543
1st floor- Performing Arts Theater (seating area)	A1 - Assembly	2,545	2,416
Gross area above grade		**20,538**	**18,745**
Ground floor (Partially below grade) - Offices & support spaces	B - Business	7,750	7,003
GROSS TOTAL		**20,538**	**18,745**

8) Elements

	IBC table 601	NFPA Table A.8.2.1.2
Construction Type	**3B**	**III-200**
Building Element	**Rating in hours**	
Primary Structural Frame	0	0
Columns		
supporting more than one floor, columns, other bearing walls		
supporting one floor only		
supporting roofs only		
Beams, Girders, Trusses		
supporting more than one floor, columns, other bearing walls		
supporting one floor only		
supporting roofs only		
Bearing Walls -Exterior	**2**	**2**
Bearing Walls - Interior	0	
Nonbearing Walls - Interior & Exterior	0	0
Members	0	0
Roof Construction & Secondary Members	0	0

9) **Fire Resistance Rated Construction**

Component	reference IBC / NFPA	IBC rating	NFPA rating	Table 8.3.4.2
New Shaft and Vertical Exits *(connecting 3 stories)	713.4, 715 / 8.6.5 (2)	1 hour (fire barrier)	1 hour fire barrier	.75 doors only
Existing Shaft and Vertical Exits	IEBC 802.2.(5) / 8.6.5 (3)	1/2 hour up to 3 stories	1/2 hour fire barrier	
*exit stair can be open between 2 floors max if occ load <10, and not more than 1 story from grade				

10) **Interior Walls and Ceiling Finish Requirements** -Interior Finish Class IBC Table 803.13 — Fully Sprinklered System with automatic sprinkler system in accordance with Section 903.1

Occupancy Type - With Sprinkler System	Exit enclosures and passageways	Corridors	Rooms & enclosed spaces
A- Assembly	B	B	C
B - Business	B	C	C

11) **Maximum Length of Exit Access Travel**

With Sprinkler System

Business Occupancy- Type B	**IBC**		**NFPA**	
Common Path Limit - space with one exit	1006.2.1	100'	39.2.5.2.3	75'
Dead End Limit	1020.4	50'	39.2.5.3	50'
Exit Access Travel Distance Limit	1017.2	300'	39.2.6.2	200'
Assembly Occupancy- Type A	**IBC**		**NFPA**	
Common Path Limit	1029.8	shall not exceed 30' from any seat to a point where an occupant has a choice of two paths of egress travel to two exits		
Dead End Limit - at Balconies	1021.2	20'		
Exit Access Travel Distance Limit	1017.2	250'		

12) **Occupant Load**

IBC Table 1004.1.1 NFPA Table 7.3.1.2

Use	designed area (sf)	sf/person - IBC	net/gross	Occupants per use	Floor Level	**Occupants per floor**	# exits / floor
B- office - 2nd floor	1,509	100	gross	15	2	**249**	**3**
A - Assembly 2nd floor (Gar Hall) Concentrated chairs only)	545	7	net	78	2		
A - Assembly 2nd floor (Mezzanine fixed seating area)	156 (fixed seats)	determined by # of fixed seats	net	156	2		
A- Assembly 1st floor Theater Lobby (circulation path area not included)	85	5	net	17	1	**317**	**3**
A - Assembly 1st floor (Concentrated- chairs only- NOT fixed)	1,356	7	net	194	1		
B- office - 1st floor	3,160	100	gross	32	1		
Stage & Platform (backstage) - 1st. Floor	1,125	15	net	75	1		
B- office - ground floor	6,350	100	gross	64	0	**73**	**3**
Locker Rooms (Women & Men) - ground floor	438	50	gross	9	0		
S2 - Accessory, Storage, MEP - ground floor	324	300	gross	1	0		
Total Occupants in Building				640		**640**	

13) table 1006.3.2/ NFPA 7.4.1.1)

Max Occupants Per Floor	Exits required per level Ground, 1st & 2nd floors
500	2

Spaces & stories with 1 exit	IBC	NFPA
unoccupied attic (hvac equipment only)	**1208.2** Minimum 20"x30" opening, with minimum 30" clear headroom	**7.13.2** & **7.13.1(1)(c)** 100' max travel distance, existing building

*NFPA **3.3.290** Story. The portion of a building located between the upper surface of a floor and the upper surface of the floor or roof next above. 3.3.290.1 Occupiable Story. A story occupied by people on a regular bases.

14) **Egress Width per Occupant Served**
accordance with Section 903.3.1.1

	IBC	IBC 1005.1	NFPA 7.3.3.1	total req.per exit(inches)	Min. Width Provided
Stairways at Mezzanine level seating- 2nd fl	1005.3.1	.3 inches/occpt.	.3 inches/occpt.	23.40	36"
Other egress components- 2nd fl	1005.3.2	.2 inches/occpt.	.2 inches/occpt.	24.89	34" min. clear door openings

15)

Minimum Required Width of Egress	1005.1	IBC 1011.2		
	Min. Width (in/occ)	Min. Width Prescriptive	Min. Width Provided	NFPA 7.3.4.1
Stairways- 1st fl	31.73	36.00	36.00	
Passageways, Aisles and Corridors- 1st fl	31.73	B:36	36.00	

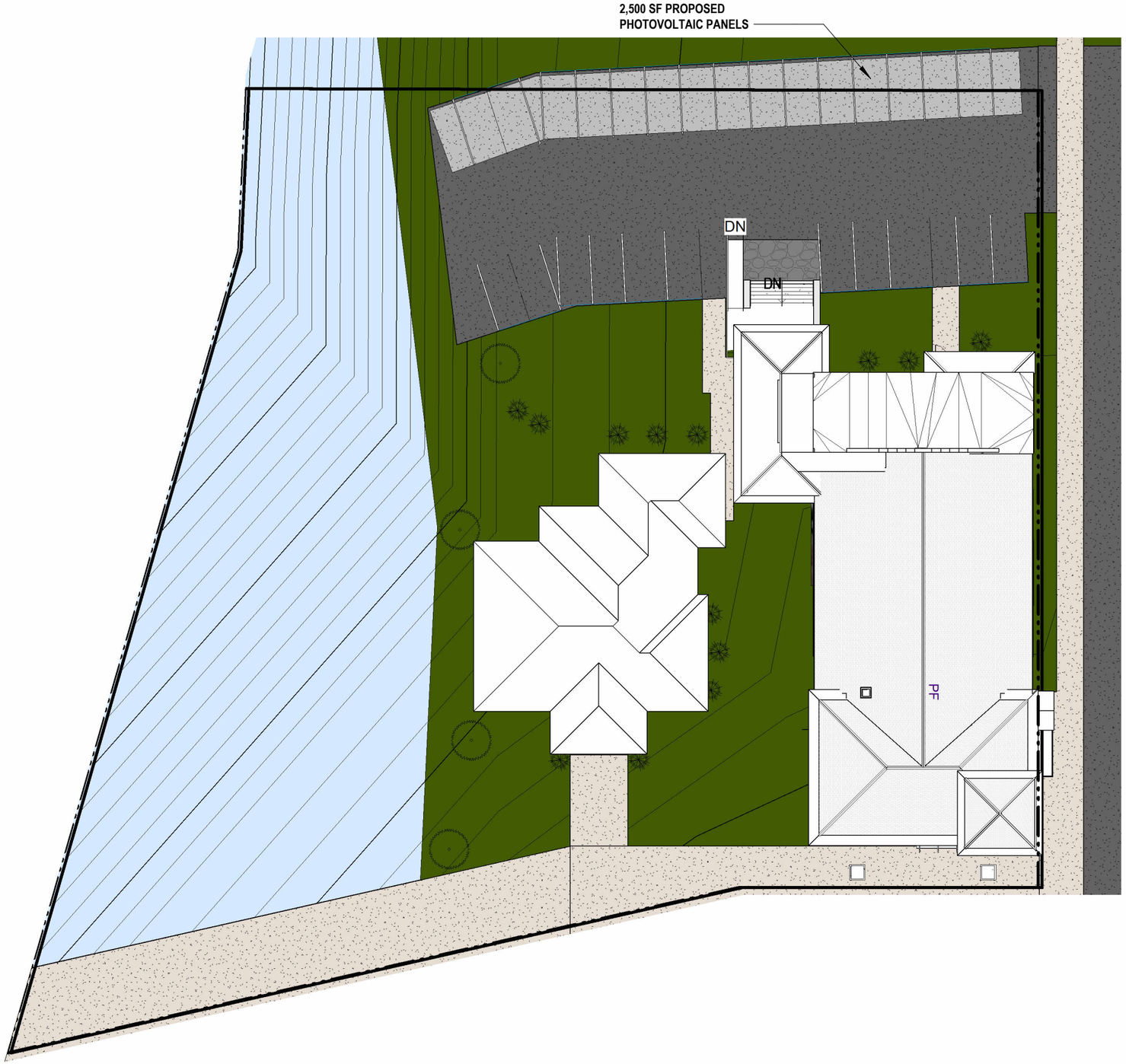
16) **Minimum Number of Plumbing Facilities** IBC Table 2902.1

		Water Closets (M/F 50-50)				Lavatories (M/F 50-50)		Tubs/ Showers	Drinking Fountains (410.1 IPC)		Service Sink
	No. occupants	no. required per use	Total Male	Total Female	total required	no. required per use	total required	required	required	total required	
S2 - Accessory storage, MEP	1	1 per 100			0.13	1 per 100	0.13	None	1 per 1000	0.0	0
A - Assembly (includes Theater + Gar Hall+ Lobby + Stage + Locker rooms)	528	1 per 125 Male, 1 per 65 female	2	4	6	1 per 200	3	None	1 per 500	1	1
B - Office	110	1 per 25(@<51) & 1 per 50 (@>50)			3	1 per 40(@<81) & 1 per 80 (@>80)	2	None	1 per 1000	1	1
Total Required					**10**		**5**	None		**2**	**2**
Total Provided					**11**			None		2	**2**

17) **Energy Requirements**

IEBC Alternations 908.1: Alterations to existing buidlings are **permitted without requiring the entire building to comply** with the energy requirements of the IECC. Alterations shall conform to energy requirements of IECC as they relate to new construction only.
Climate Zone 5

Building Envelope Requirements	Prescriptive Table C402.1.3 & C402.4	Performance Table C402.1.4	SHGC - sew	SHGC - n
Roof insulation entirely above deck	R-30 ci	U-0.032		
attic	R-49	U-0.021		
walls above grade -- metal framed	R-13+ R10ci	U-0.055		
walls above grade -- mass masonry	R-11.4ci	U-0.09		
walls below grade	R-7.5ci	C-0.119		
un heated slab on grade floors	R15 for 24" below	F-0.52		
floors joist/framing	R-30 ci			
windows - fixed		U-0.36		
windows - operable		U-0.45		
windows - pf<.2			0.4	0.53
windows - .2<=pf<.5			0.48	0.58
windows - pf>=.5			0.64	0.64
glazed entrance doors		U-0.63		
Swinging solid opaque Doors		U-0.37		



N

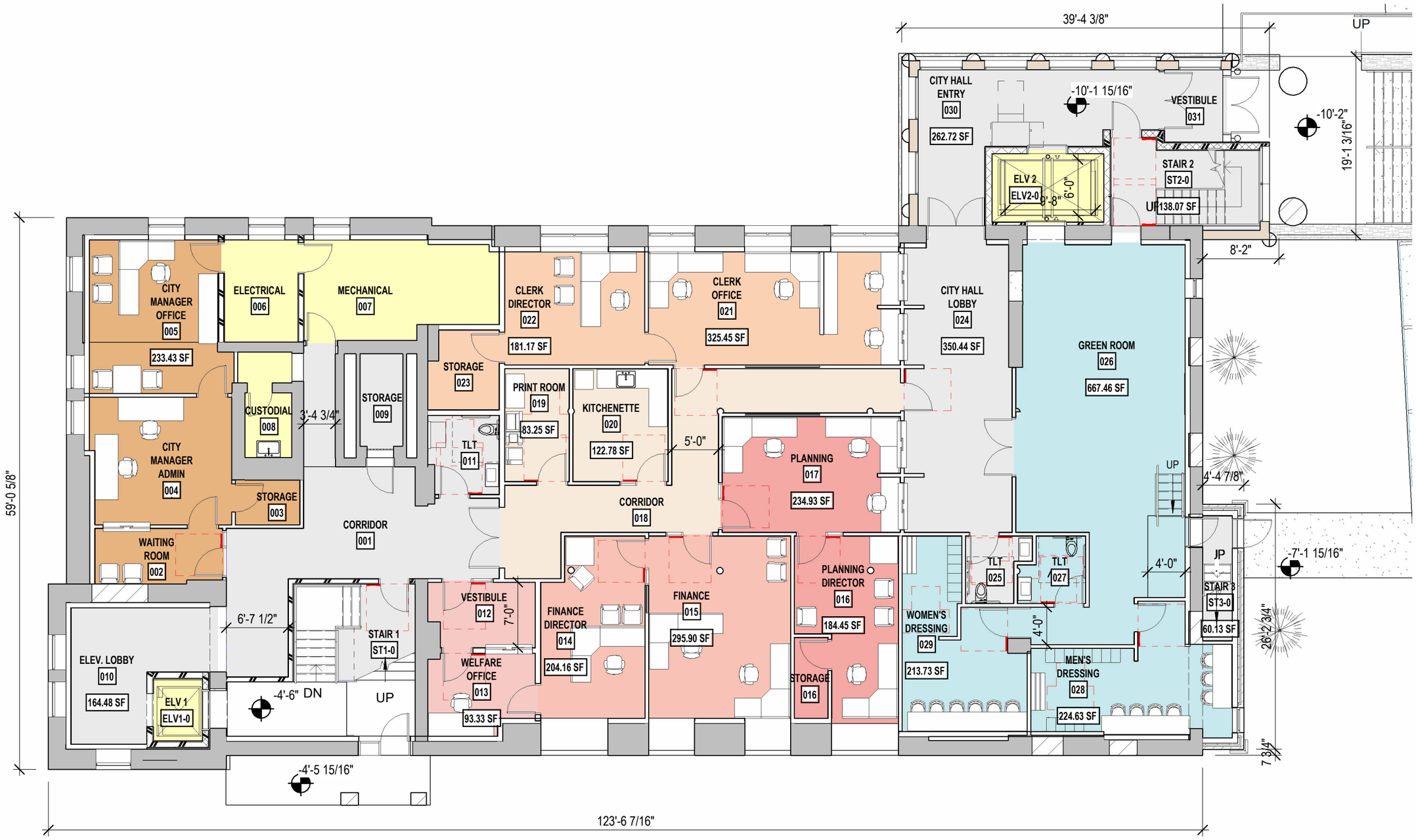
ARCOVE ARCHITECTS

SITE PLAN

FRANKLIN CITY HALL & OPERA HOUSE

P0.00

03/15/24
PROJECT NO:1029



1 GROUND FLOOR - PROPOSED - MARKETING

3/32" = 1'-0"

ARCOVE ARCHITECTS

N

0' 4' 8' 16'

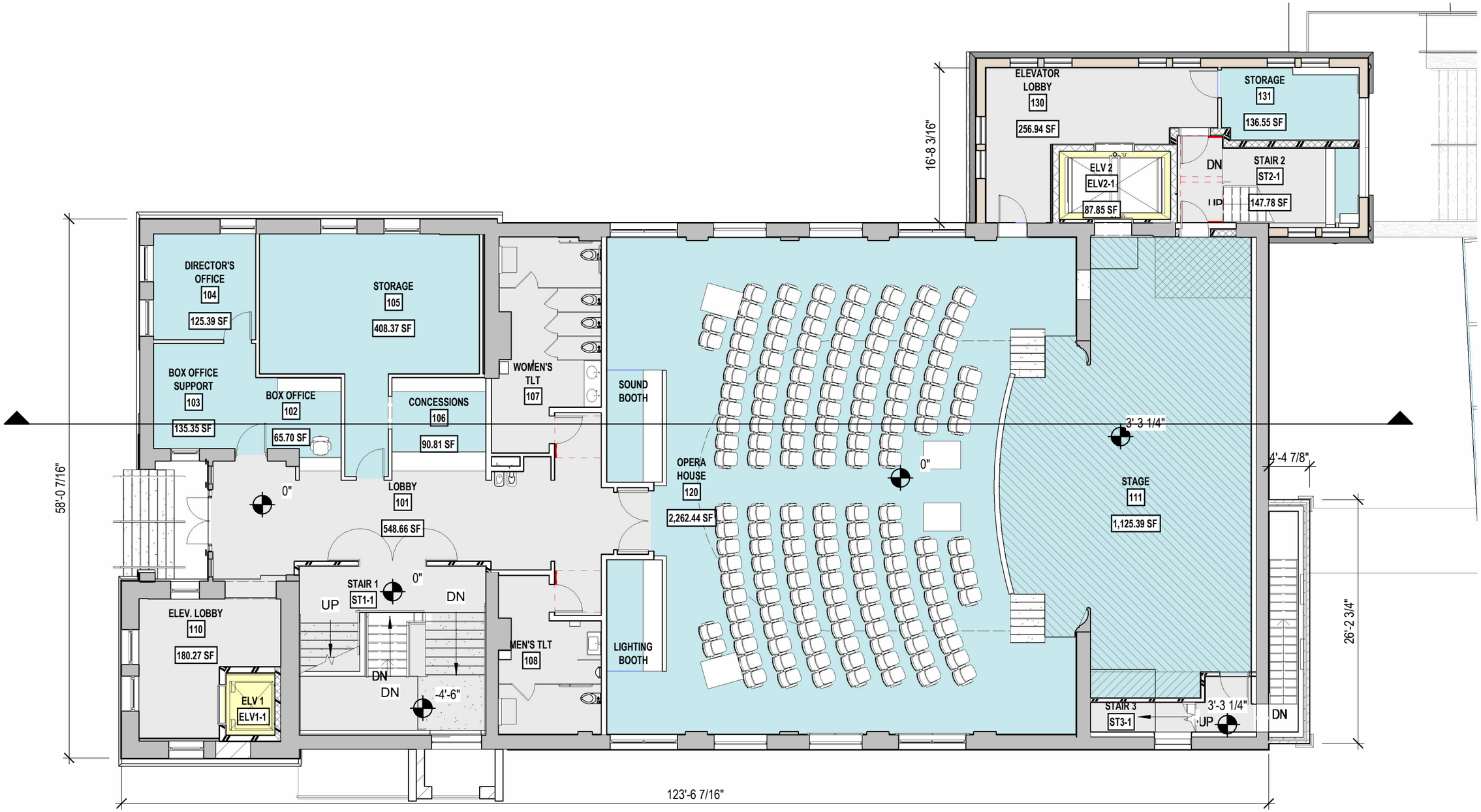
GROUND FLOOR PLAN - PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.00

03/15/2024

PROJECT NO:1029



1 LEVEL 1 - PROPOSED - MARKETING

3/32" = 1'-0"

N

0' 4' 8' 16'

ARCOVE ARCHITECTS

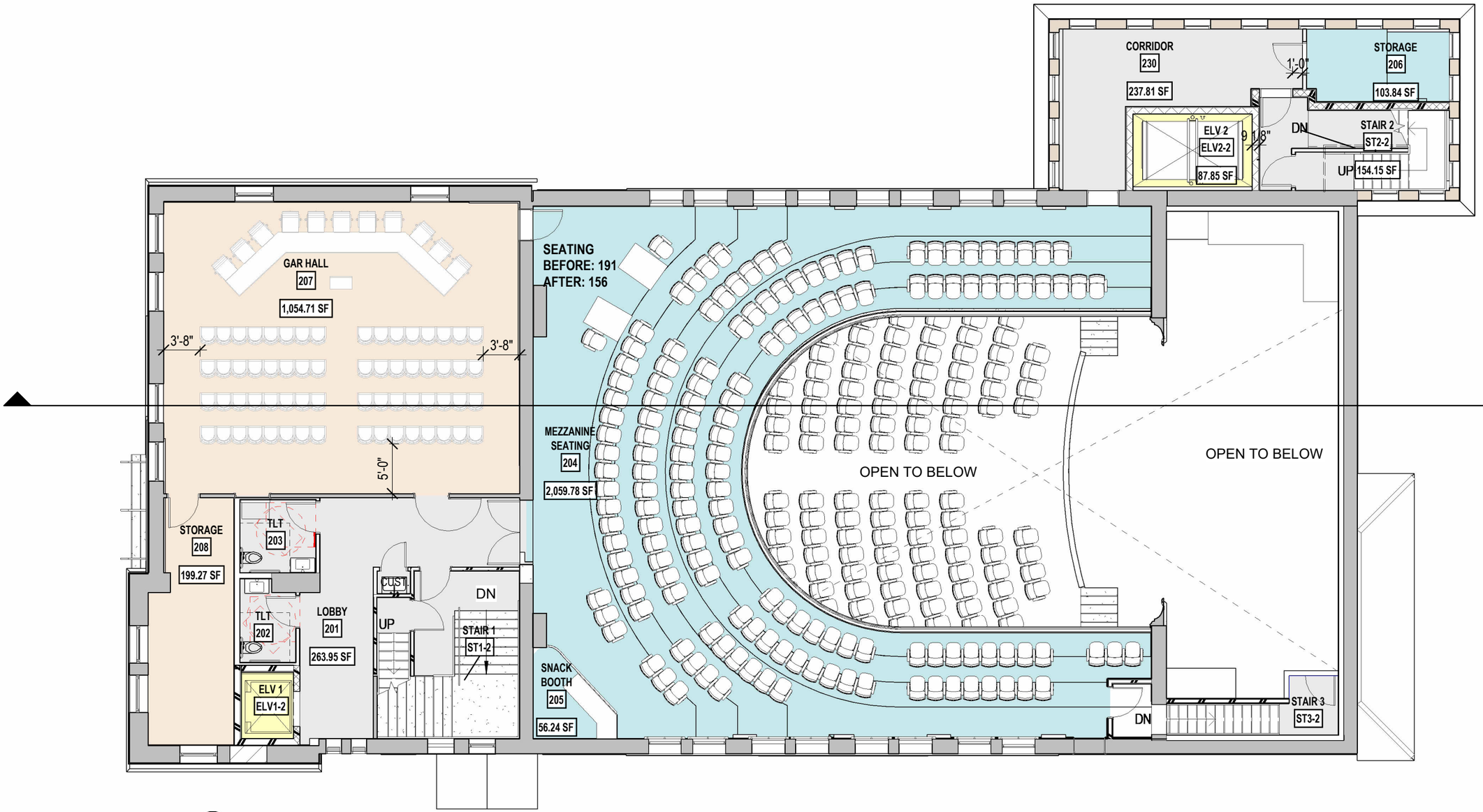
FIRST FLOOR PLAN - PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.01

3/15/24

PROJECT NO:1029



1 **LEVEL 2 - PROPOSED MARKETING**
3/32" = 1'-0"

ARCOVE ARCHITECTS

N

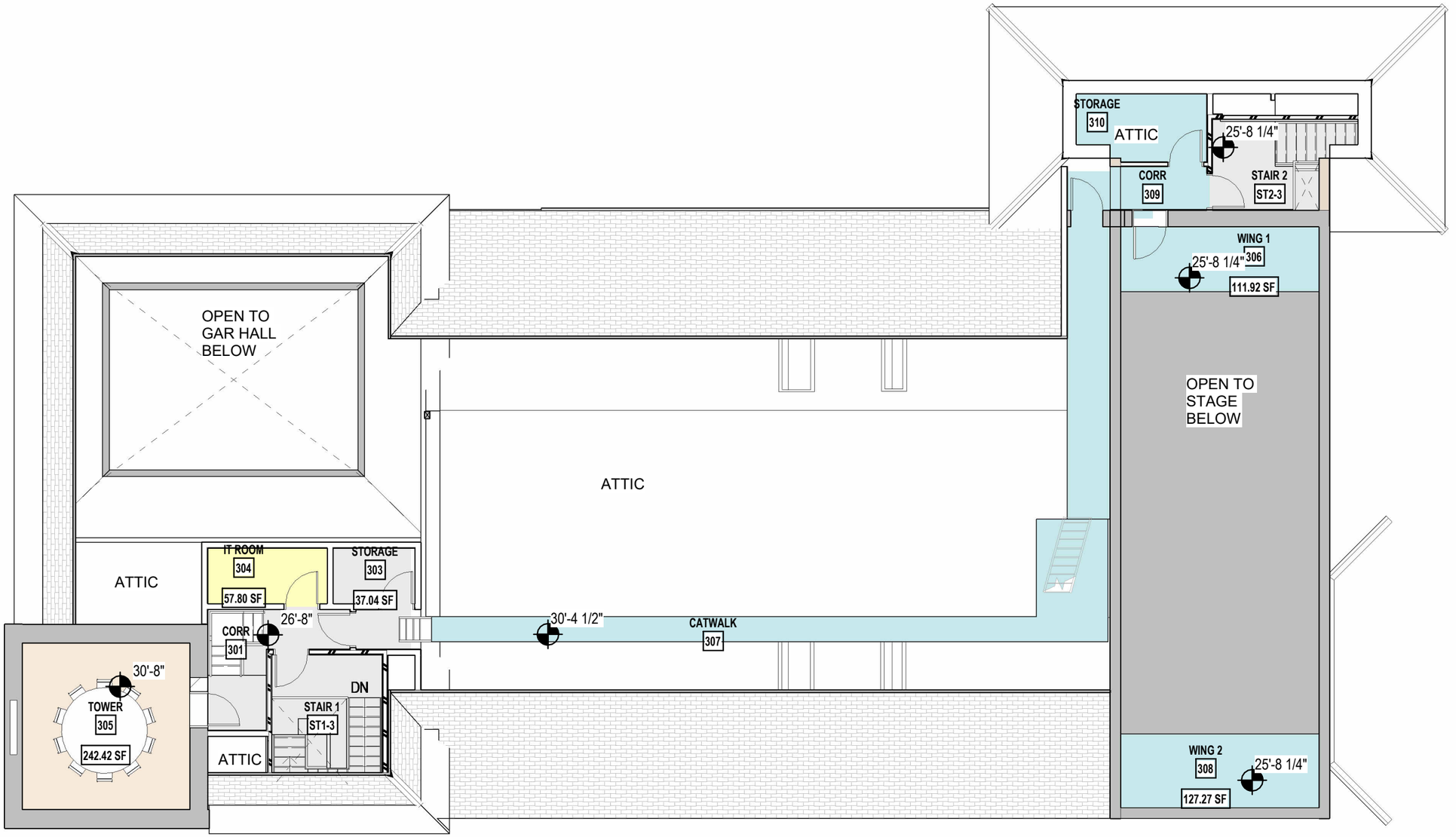
0' 4' 8' 16'

SECOND FLOOR PLAN - PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.02

3/15/24
PROJECT NO:1029



1 ATTIC - PROPOSED - MARKETING

3/32" = 1'-0"

ARCOVE ARCHITECTS

N

0' 4' 8' 16'

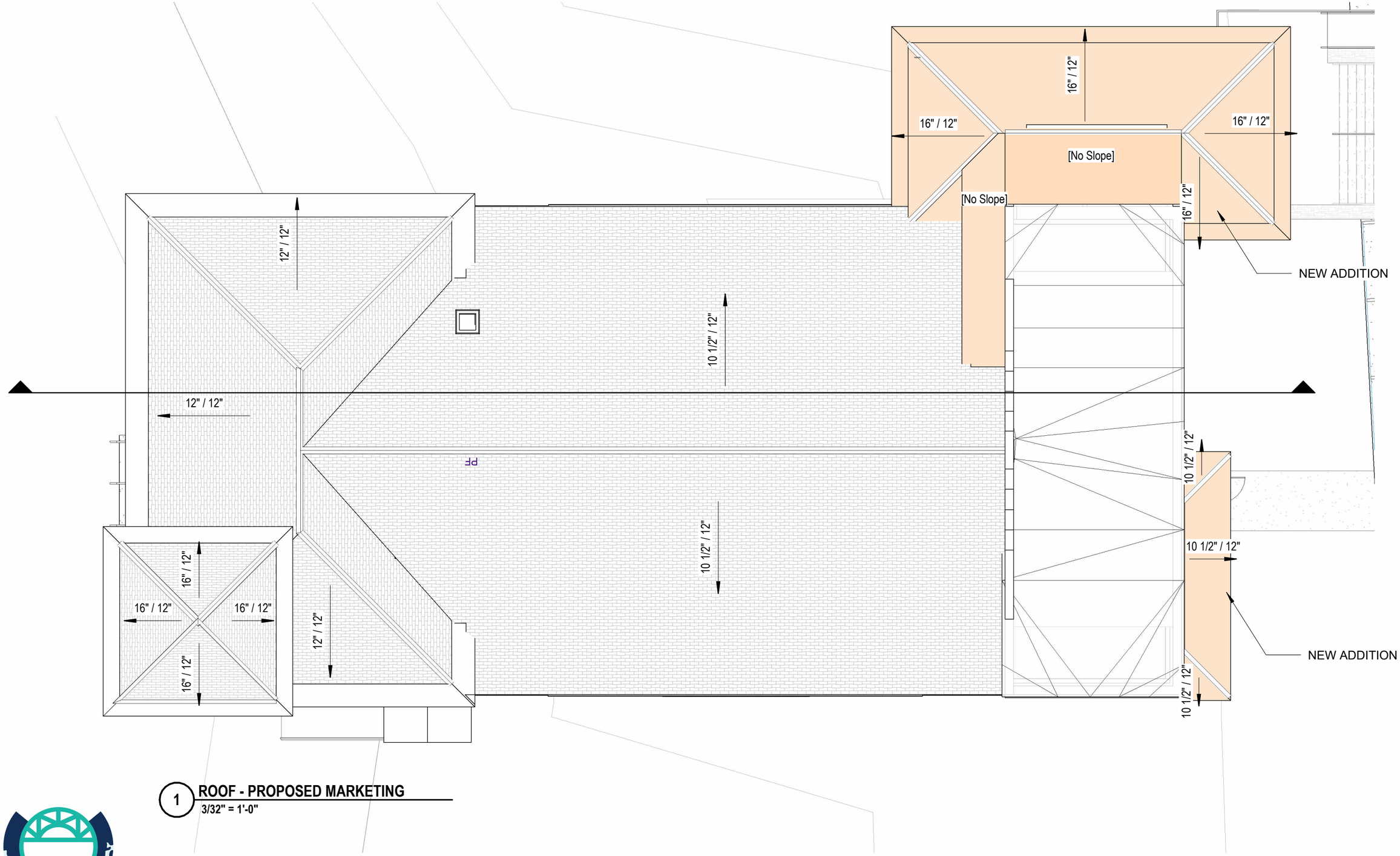
ATTIC PLAN - PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.03

03/15/2024

PROJECT NO:1029



1 **ROOF - PROPOSED MARKETING**
3/32" = 1'-0"

ARCOVE ARCHITECTS

N

0' 4' 8' 16'

ROOF PLAN - PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.04

03/15/24
PROJECT NO:1029

1 **WEST ELEVATION - PROPOSED**
3/32" = 1'-0"

ARCOVE ARCHITECTS

N

0' 4' 8' 16'

EXTERIOR ELEVATION - PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.05

03/15/24
PROJECT NO:1029

1 **NORTH ELEVATION - PROPOSED**
3/32" = 1'-0"

0' 4' 8' 16'

ARCOVE ARCHITECTS

EXTERIOR ELEVATION - PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.06

03/15/24
PROJECT NO:1029

1 **SOUTH ELEVATION - PROPOSED**
3/32" = 1'-0"

0' 4' 8' 16'

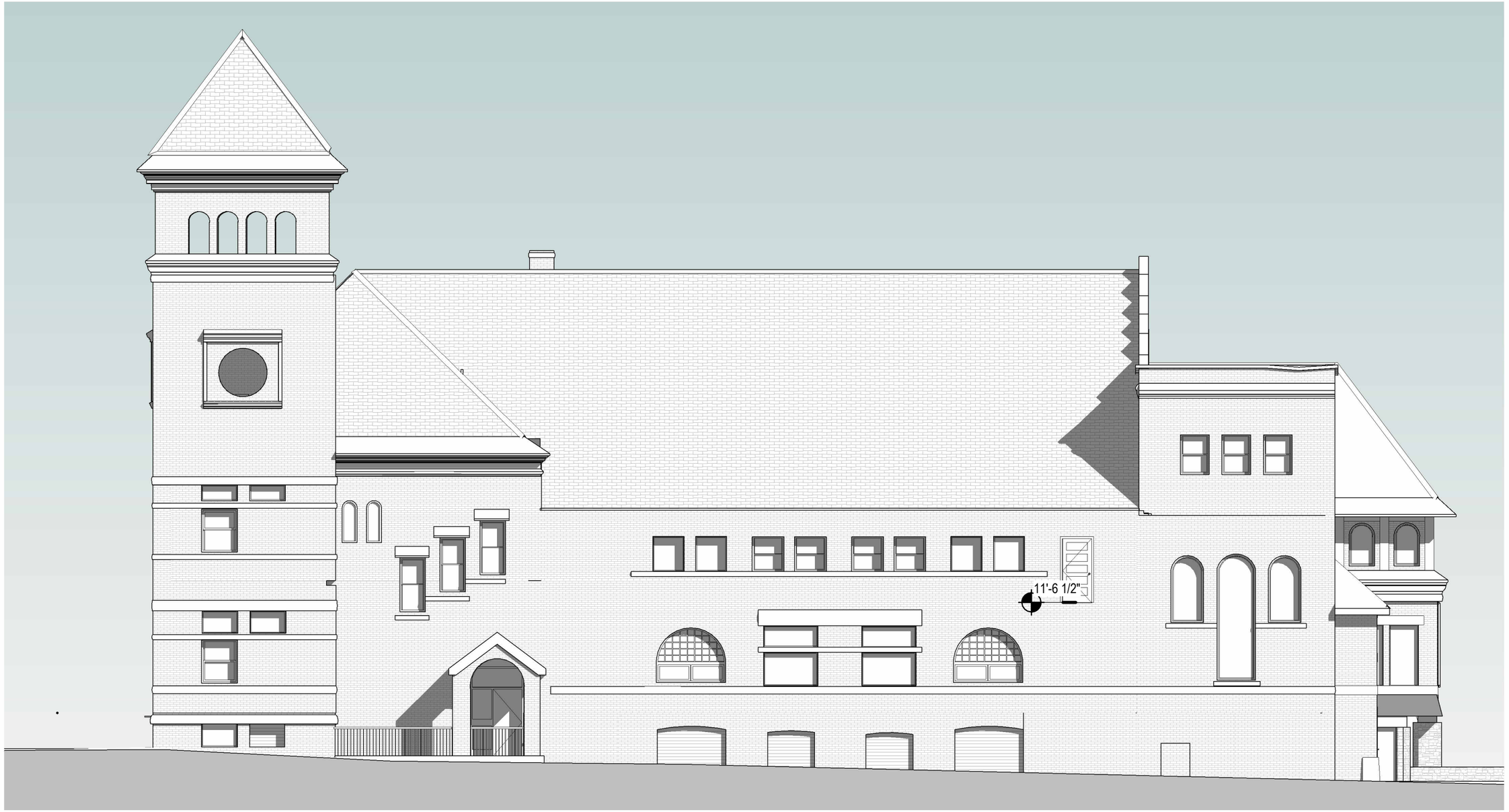
ARCOVE ARCHITECTS

EXTERIOR ELEVATION - PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.07

03/15/24
PROJECT NO:1029



1 **EAST ELEVATION - PROPOSED**

3/32" = 1'-0"

ARCOVE ARCHITECTS

0' 4' 8' 16'

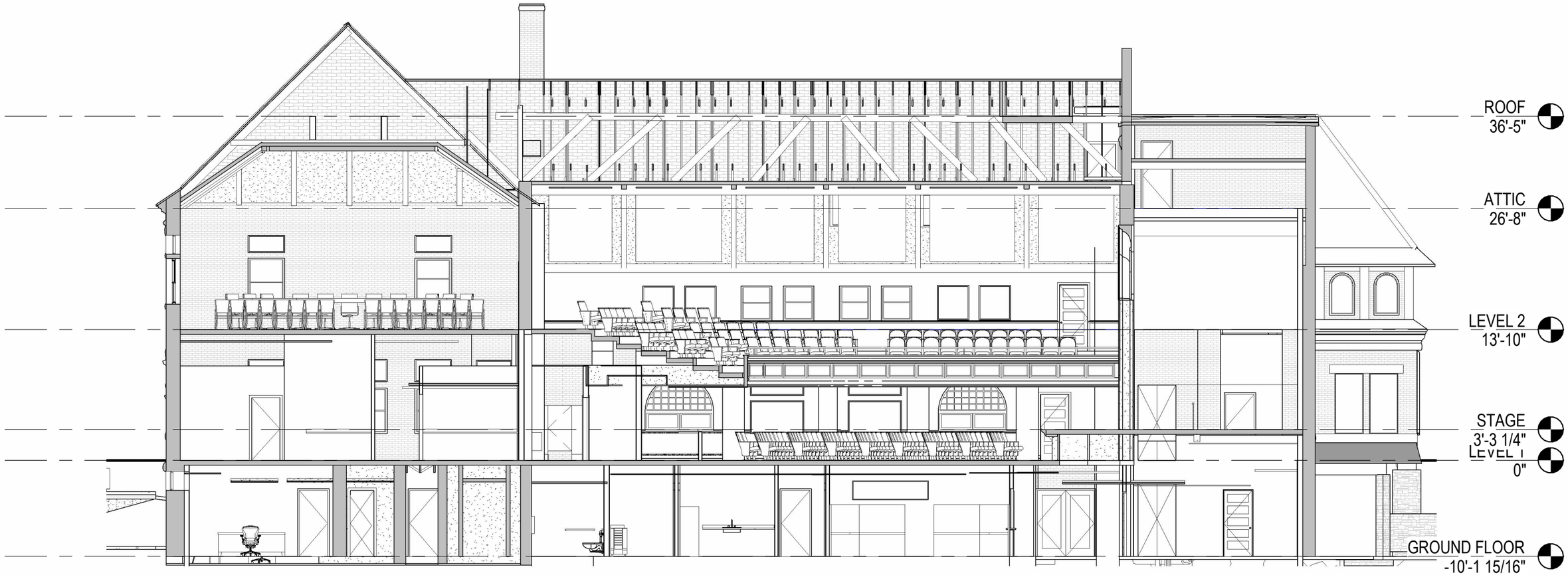
EXTERIOR ELEVATION - PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.08

03/15/24

PROJECT NO:1029



ARCOVE ARCHITECTS

0' 4' 8' 16'

BUILDING SECTION PROPOSED

FRANKLIN CITY HALL & OPERA HOUSE

P1.11

03/15/2024
PROJECT NO:1029

ARCOVE ARCHITECTS

EXTERIOR RENDERING

FRANKLIN CITY HALL & OPERA HOUSE

P1.09

03/15/24

PROJECT NO:1029

ARCOVE ARCHITECTS

INTERIOR RENDERING

FRANKLIN CITY HALL & OPERA HOUSE

P1.10

03/15/24
PROJECT NO:1029

Fire Protection Systems Summary

Overview

The existing building currently has no fire protection systems.

Mechanical Conclusions and Recommendations

Whole building hot water heating system:

Existing Boiler, piping and radiator heating system:

As the existing piping system and radiators are not routed/installed or sized correctly for the new layouts along with the piping being old and in an generally unknown condition, CSI recommends removing the entire piping system and original radiators with an option to remove the existing boiler.

Option A: Remove all piping, pumps, radiators, valves and controls for the current system and replace with new piping, pumps, radiators and controls to match the proposed new wall and room layouts.

A completely new piping system sized and routed correctly to serve new appropriately sized and located heaters throughout the building to match the new layouts of rooms and walls. This will ensure that all new rooms and spaces will get the required heat to prevent freezing and allow for the smallest size emergency generator possible to protect the building during winter storms. CSI would propose using steel, copper and pex piping depending on the size of the hot water piping in various areas of the building. New cabinet unit heaters, fin-tube radiators and unit heaters would be sized and placed in all areas of the building as required by the new architectural layouts. New ECM modulating pumps would allow for greater part load efficiency and would reduce the cycling of the boilers and lower overall fuel usage throughout the heating season. The hot water system controls would be replaced with a new electronic system to monitor temperatures and control valves allowing for more precise temperature control and reducing overheating or wasted heat in spaces that do not need it.

Pros: All new spaces would be provided heat with new piping that would last decades, and all worries of leaks or scale/corrosion build up of existing piping would be eliminated. Controls and variable speed pumps that are automatically controlled would all be able to more accurately and efficiently provide heat to the areas that need it with as little waste as possible.

Cons: The initial cost of this would be much more than trying to tap off of the existing piping system. System must still operate at 180° as there will be no benefits of lower water temp due to the boiler not being a high efficiency condensing type boiler.

Option B: Replace boiler with new appropriately sized high efficiency condensing boiler.

CSI would propose to at the same time the piping, pumps and radiators are replaced and that the heart of the boiler plant, the boiler itself, be replaced. Two physically smaller boilers with appropriately sized burners would be specified to provide redundancy to the building in case something happened to one boiler, or it had to be turned offline for service. The boilers would be high efficiency type boilers and would operate at a lower water temperature than the current existing system which would reduce heat loss through the piping and increase overall system efficiency.

Pros: The high efficiency condensing boilers will allow for nearly 95-97% combustion efficiency as opposed to the 80-85% that the current system has. The new boilers will also allow for modulating the firing rate, which further increases efficiency as the current boiler appears to only fire at 100% capacity regardless of the actual demand in the building. You will get redundancy in the heating system so in the event of a failure hot water will still be able to be generated and protect the building from freezing.

Cons: The new boilers will add to the first cost of the renovation of the building and will require venting penetrations out of the existing window in the planned mechanical room space rather than using the existing chimney.

Opera House Theater:

Ventilation and cooling:

The existing stage and theater seating area air handlers and mini splits and wooden hot air relief ductwork should be removed and replaced with dedicated air handlers sized for the ventilation and cooling requirements of the space. For placement, redundancy and structural reasons CSI is recommending two air handlers to serve the stage and theater seating areas. These units would be standard high efficiency air cooled direct expansion refrigeration cooling circuits with natural gas heating sections to cool and heat the recirculated and fresh outside air for ventilation. The units would distribute the air through ductwork and grilles to the seating areas and the stage. The units would have economizer control and demand control ventilation capabilities allowing for 100% outside air to be used when advantageous rather than having to use the refrigeration circuit. The system would also monitor CO2 concentrations in the return air to modulate the outside air volume as needed to keep CO2 levels to appropriate and safe levels. This would reduce the amount of outside air being brought in during periods of low occupancy automatically to further reduce the energy expended and the amount of cooling and heating required. The units would be spaced on opposite sides of the existing flat roof section at the rear of the building on manufacturer provided roof curbs. Structural engineer to specify any reinforcements required for existing structure underneath.

Emergency Stage Smoke Exhaust:

As no system exists currently a new emergency smoke control fan shall be installed with ductwork, dampers and controls powered by the emergency generator to remove smoke from the stage and

seating area as required by code. The fans would be tied into the fire alarm system and only used during emergency situations.

Railings and service areas:

As the flat roof would not allow for the code required 10'-0" of space around all units a service railing or barrier would have to be installed on the back face of the flat roof to provide security and protection to technicians on the roof servicing the equipment. This railing or barrier would have to be designed by the architect or structural engineer to conform with the requirements of the IBC.

Theater prep, rehearsal and storage spaces:

The opera house and preparation, rehearsal and storage spaces are proposed to be served with a central air-cooled heat pump condenser with an array of indoor units mounted in the spaces served by refrigerant lines to provide individual heating and cooling operation. These indoor zones would all be provided with their own thermostat for individual operation. The air-cooled heat pump condenser would have low-ambient heating operation and would be capable of providing nearly full heat during a design day in the winter. To prevent having to oversize the system for heating CSI is suggesting that the hot water heating system provide the additional heat needed during the winter design temperatures units would be ins. The air-cooled condenser is proposed to be installed on grade between the library and the opera house. They shall be installed on minimum 18" snow stands to provide clearance from snow in the wintertime and allow for proper operation.

City Hall spaces:

Heating and cooling:

The city hall offices, waiting rooms and general use spaces are proposed to be served with a central air-cooled heat pump condenser (separate from the Opera House system) with an array of indoor units mounted in the spaces served by refrigerant lines to provide individual heating and cooling operation. These indoor zones would all be provided with their own thermostat for individual operation. The air-cooled heat pump condenser would have low-ambient heating operation and would be capable of providing nearly full heat during a design day in the winter. To prevent having to oversize the system for heating CSI is suggesting that the hot water heating system provide the additional heat needed during the winter design temperatures. The air-cooled condenser is proposed to be installed on grade between the library and the opera house. They shall be installed on minimum 18" snow stands to provide clearance from snow in the wintertime and allow for proper operation.

Ventilation:

The city hall offices, waiting rooms and general use spaces are proposed to be served with a ducted energy recovery unit to provide the bathroom exhaust and the code required ventilation during occupied hours of operation. This ERV would be installed in the basement and would have a series of ductwork communicating with the exterior of the building and the interior bathrooms and occupied spaces. The heating and cooling of the outside air could be done via the hot water heating system or with electric duct heaters.

General HVAC components throughout the building:

Ductwork:

Any and all new ductwork shall be insulated with minimum R-6 insulation where installed within the building envelope. Where installed outside the building envelope such as in attic spaces it shall be insulated with minimum R-12 insulation. Approximate duct sizes and shaft sizes/locations shall be determined during SD phase.

Piping:

A series of copper, steel and PEX piping shall be utilized where piping is replaced dependant on the size of the pipe being installed. Steel piping with Victaulic fittings or copper with soldered or pressed joints shall be used for 2" and larger piping and Pex tubing with expansion fittings shall be used for piping 1.5" and below for ease of installation and offsets. Piping shall be insulated with minimum 1.5" insulation unless allowed otherwise by code (1/2" and 3/4" tubing)

Radiators:

Existing radiators shall be replaced with new high efficiency radiators appropriately sized for the new wall and room layouts. They shall be provided with automatic air vents, shutoff valves and any other accessories required and specified along with enclosures and trim pieces required by the manufacturer.

Controls:

The general HVAC controls in the building shall be removed and replaced with new programmable electronic thermostats allowing for scheduling and control of individual components. CSI does not think that a BMS system is required for proper operation unless there is a building standard practice within Franklin for new and retrofitted municipal buildings.

Automatic control valves shall control the flow of hot water to new radiators and unit heaters to reduce the amount of wasted heat in spaces that do not require additional heat.

Dampers and louvers:

Where exterior wall louvers are required a AMCA listed product shall be used providing proper free area to reduce rain infiltration and to reduce noise. The dampers and connected ductwork shall be isolated from the system using automatic control dampers that will be interlocked with the appropriate systems controllers allowing for automatic operation and local alarm capabilities in the event of a failure to open/close.

Electrical Conclusions and Recommendations

Electrical Service and Service Entrance Equipment

The existing electrical service will need to be upgraded to support the added load for the building. A new 1,200A 208Y/120V three phase four wire electrical service will be required. This new electrical service will need to be by a pad mounted transformer located on the west side of the building. The new pad mount transformer will feed a new distribution panelboard located in the main electrical room on the basement level. A new CT cabinet and utility meter will be required for utility metering purposes. The existing service grounding shall be removed and replaced with a new service grounding that is adequately sized for the new service.

The existing transformer feeding the library next to the town hall is located where the new addition is planned and will therefore need to be relocated. A new pad mount and conductors and conduits from the pad mount to the existing library's main electrical room will need to be provided. The new location for the relocated transformer should be either behind the library or next to the proposed transformer for the town hall. Due to recent flooding in the area, the utility company may require that the transformers be installed on raised platforms to lift them above potential flood zones. All utility work shall be coordinated with the utility company.

Distribution

All existing fuse boxes and load centers should be removed. All new and existing loads should be fed from new panelboards located throughout the building. New panelboards shall be in areas that are able to maintain proper NEC clearance requirements.

New panelboards should be placed in electrical room 006 in order to feed loads on the basement level. On the first floor, a new panelboard should be located in storage room 105 to feed the front of house electrical loads and a second panel in either storage 109 or on the side of the stage where it will be out of viewing range to feed theatre loads. On the second floor, a new panelboard should be located in storage room 208 to feed second floor loads. On the attic level, a new panelboard should be located in storage room 307 that will feed rooftop HVAC equipment as well as stage lighting located in the attic space.

A new generator will need to be provided for the project to back up the stage smoke control system. The new generator will need to be roughly 20kW/25kVa capacity to support the code required loads. If additional loads are desired to be on backup power, then the size of the generator may need to increase to support the added loads. The generator will either need to be located on grade at least 25'-0" away from any utility transformer or on the roof. If the generator is located on the roof there may be the need for additional guard rails to be installed given the limited area of available rooftop space. A new 100A 208Y/120V three phase four wire automatic transfer switch will need to be provided in the main electrical room to feed an emergency panelboard. If optional standby loads are desired to be added to the generator, a secondary automatic transfer switch will be required that powers an optional standby generator panelboard.

Cable and Conduit

All existing knob and tube and Romex conductors shall be removed. All existing abandoned conductors shall be removed. New cable and conduit will need to be ran throughout the building. New Sch. 40 PVC shall be provided for underground conduit from the pad mounted transformer to inside of the building. All above grade and exposed conduit shall be EMT. All distribution feeds from the main distribution panelboard to each panelboard shall be by EMT conduit and THW/THHW conductors. Individual branch circuits shall be by MC conductors. Romex conductors shall not be used.

Electrical Devices

New electrical devices will be required throughout the building. The existing quantity of electrical receptacles through the building is severely lacking in areas resulting in the use of extension cords throughout the building. A sufficient number of receptacles shall be provided to remove this tripping hazard in the future. New floor boxes shall be provided in meeting rooms, green room, and on the stage.

Lighting System

Per 2018 IECC requirements, performing arts theaters are allowed 1.18w/sq ft. lighting power density. Per 2018 IECC C405.4.1.7, lighting or theatrical purposes, including performance, stage, film production, and video production do not count against the allowable wattage allowance.

New LED lighting shall be provided throughout the building. All new lighting shall be controlled by either occupancy/vacancy sensors or time clocks per IECC requirements. New emergency lighting shall be provided by either integral battery packs or small-scale lighting inverters located at each level inside of storage rooms to provide 1 foot candle on average long the path of egress. New exterior emergency lighting shall be provided at each exit along the path of egress to ensure occupants are able to safely exit the building at nighttime in case of an emergency. New Exit signs shall be provided throughout the building to provide a clear path of egress to building occupants.

New theatrical lighting and controls shall be provided. Theatrical lighting shall be hung from rafters from the attic. All theatrical lighting shall be controlled via a specialized lighting control system for theatrical lighting with a main control point located in the lighting booth located on the first floor.

Fire Alarm System

The existing fire alarm system should be replaced with a new fully addressable fire alarm system. New addressable pull stations shall be provided at every building egress and floor landing. New addressable smoke detectors shall be provided above the fire alarm control panel in the main electrical room as well as at the fire alarm annunciator at the main entryway. New addressable heat detectors shall be provided in the attic. The fire alarm system shall monitor the sprinkler system by tamper and flow switches as required. Notification in the building shall be by general horn/strobe evacuation. The fire alarm system shall communicate with the local fire department via a wireless communicator.

Security System

A new security system will need to be designed for the building by a security consultant. New cameras, card/fob access, and panic buttons should be provided throughout the building based on

the security consultant's recommendations and the town's needs. Power will be provided to control panels and power panels as required throughout the building to support the security system.

Plumbing Conclusions and Recommendations

The entire Plumbing system is outdated and insufficient for the proposed new layout and needs to be replaced.

PLUMBING SYSTEMS, NEW WORK

The work under this Section shall include the furnishings of all materials, labor, equipment and supplies and the performance of all operations to provide complete working system, in general, to include the following items:

- Piping – General
- Roof Drainage, if required.
- Sanitary Waste and Vent Piping
- Indirect Waste Piping
- Domestic Water Piping
- Fuel Gas Piping
- Unions and Flanges
- Pipe Joint Materials
- Water Hammer Arrestors
- Gauges and Thermometers
- Hangers, Inserts and Supports
- Sleeves, Firestopping
- Valves
- Hose Bibbs and Exterior Non-freeze Wall Hydrants
- Plumbing Fixtures and Trim
- Pumps
- Backflow Preventers
- Floor Drains and Floor Sinks
- Roof Drains, When Indicated
- Traps
- Floor and Wall Cleanouts
- Domestic Water Heaters
- Thermostatic Mixing Valves
- Expansion Tanks
- Domestic Water Service Meter
- Piping Insulation
- Watertight Sleeves
- Access Panels
- Cleaning and Testing

Domestic Water Service and Distribution

A new domestic water line will be supplied by the municipal water system via a site main to a 2" domestic water entrance to 18" above the finished floor in the Mechanical Room. At which point the Plumbing Contractor will decrease the pipe to 2" and provide a shut-off, water meter and reduced pressure zone backflow preventer with a strainer, and then run 2" to the building. A pressure reducing valve will be provided directly after the backflow preventer if the street pressure exceeds 80 psi there. A second 1-1/4" reduced pressure backflow preventer and shut-0ff valve may be provided as a connection point to supply the lawn irrigation system if requested.

Distribution piping inside the building will supply water to all the plumbing fixtures and kitchen equipment, as well as water heater and exterior hose bibbs. Flowguard Gold CPVC Piping and fittings will be used for general water distribution, with Type L copper piping with soldered or PropPress fittings used near the water heater, water entrance and wherever the pipe supports inline equipment.

Sanitary Waste and Vent

A 4" sanitary waste will exit the building to a manhole designated by the Civil Consultant. For economy the interior sanitary waste and vent system above and below the slab will primarily be schedule 40 PVC drainage piping and sanitary fittings. No-hub cast-iron piping with sanitary fittings used at locations where sound attenuation is important.

Roof Drainage

The roof is generally pitched and it is assumed that the majority of the rainwater will fall off the edge of the roof or into gutters that if collected will be done by the Civil Consultant. The roof has limited "flat" areas which might need roof drainage. Roof drainage piping above the slab will be cast-iron the same as sanitary waste above.

Natural Gas

The building will be supplied with natural gas via a new site main and exterior gas meter provided by the gas utility. Low pressure gas will be provided to the emergency generator and distributed inside the building to HVAC units, gas fired domestic water heaters. Piping will be black-iron piping with threaded or MegaPress fittings.

Insulation

All domestic water and any interior roof drain piping will be insulated with fiberglass pipe insulation with all service jacket. Water fittings to have PVC jackets. Cold water, roof drain and hot water piping less than 1-1/2" in diameter will be insulated with 1' thick, while hot water piping 1-1/2" or greater will be insulated with 1-1/2" thick.

Domestic Hot Water

Domestic hot water will be generated by a high efficiency (95%) gas fired water heater located in the mechanical room. Unless hotter water is needed the tanks will be set for 140 deg to prevent the growth of Legionnaires disease.

A thermostatic missing valve will be provided near the hot water tank to mix safer 120 deg hot water which will be piped around the building for general uses. A recirculation/return piping system will be provided to keep the water hot close to the fixtures and reduce waiting times.

Plumbing Fixtures

Plumbing fixtures will be standard commercial quality for durability, equal to Kohler or American Standard. Input from the Architect on fixture preferences will be sought for lavatories, faucets, electric water coolers and any other fixtures considered aesthetically significant.

Water closets will be elongated floor mounted flush valve, 1.28 GPF toilets with high MaP scores of 1000+ with commercial duty plastic toilet seats with open fronts. Handicap toilets will be the higher 16-1/2" to the rim ADA models. Urinals will be wall mounted, and mounted at ADA height. Single toilet bathrooms will have manual flush valves while the toilets and urinal in the group bathrooms near the opera house will have automatic sensor electronic activation.

Lavatories in single person bathrooms are assumed to be commercial wall mounted ADA models, but this will be verified with the Architect. They will be provided with ADA commercial duty single handle mixing faucets and grid drains. For the lavatories in the group bathrooms near the opera house it is assumed that they will be integral ADA sinks in a solid surface countertop and will have automatic sensor electronic activation faucets. They too will be provided with mixing faucets and grid drains. ADA lavatories will be provided with handicapped insulation kits for the p-traps and supplies.

General use sinks will be drop-in 18 Ga. 304 Stainless steel equal to Elkay. They will all be of ADA depth unless told otherwise. They will be single or double bowl as shown on the architectural plans. Exact sizes to be coordinated. All faucets will be manually operated.

Service sinks will be 24"x24"x10" molded stone mop basins with service sink faucets with vacuum breakers.

Exterior non-freeze hose bibs will be provided around the building.

Sump pumps:

A submersible sump pump will be provided in the sump in the bottom of the elevator pit to remove groundwater and sprinkler discharge in the event of fire. It will be run to an indirect connection at a floor drain in the Mechanical Room. It will have an oil sensor to prevent the discharge of hydraulic fluid into the sanitary system. System to have a local failure/high water alarm.

A “Basement” prefabricated channel drainage system will be installed in the slab along where it contacts the outside perimeter wall. Drainage piping will be provided from these channels and be run to a pit in the Mechanical Room which will have an automatic duplex submersible sump pump system that will discharge through the outside wall onto a splash block. Pit to have a local failure/ high water alarm.

Fire Protection Conclusions and Recommendations

Fire Protection Recommendations

Due to the extensive nature of the renovations, a fire protection system will be required throughout the building.

A 6-in. fire service should be provided from the public water supply to the building. A minimum 4 x 8 space will be needed where the fire protection service enters to make room for a double check backflow preventer, a wet alarm check valve, and a dry alarm check valve with air compressor.

The wet sprinkler system will cover all heated portions of the building, while the dry sprinkler system will cover the attic and any other unheated spaces. The ceiling of the auditorium may need to be covered by the dry system, unless there is a warm interstitial space between the attic bottom framing and the auditorium ceiling.

Sprinkler protection may be required under the stage of the auditorium unless the under-stage space meets this exception in the code:

Sprinklers are not required under stage areas less than 4 feet (1219 mm) in clear height that are utilized exclusively for storage of tables and chairs, provided the concealed space is separated from the adjacent spaces by Type X gypsum board not less than 5/8-inch (15.9 mm) in thickness.

Fire hose valves will be required on each side of the stage as required by code.

If the height above the stage to the roof deck above is 50 ft. or higher, a 1-hr fire curtain shall be used to protect the opening in the Proscenium wall meeting the requirements of NFPA 80, or a fire deluge water curtain.

Sprinkler protection in all other areas shall be as follows:

Light Hazard design in areas such as offices and function areas, restrooms, lobbies, closets, conference rooms, and similar. The maximum sprinkler head spacing for light hazard areas is 225 sq. ft. per sprinkler. The maximum spacing between sprinklers is 15 ft., with the maximum distance from walls being 7-ft. 6-in. The hydraulic design of the system shall be based on providing a density of 0.1 gpm/sq. ft. over the most remote 1,500 sq. ft. area including a 100-gpm hose allowance.

Ordinary Hazard Group 1 design in areas such as mechanical rooms, electric rooms, and similar spaces. The maximum sprinkler head spacing for light hazard areas is 130 sq. ft. per sprinkler. The maximum spacing between sprinklers is 15 ft., with the maximum distance from walls being 7-ft. 6-in. The hydraulic design of the system shall be based on providing a density of 0.15 gpm/sq. ft. over the most remote 1,500 sq. ft. area including a 250-gpm hose allowance.

Ordinary Hazard Group 2 design in areas such as record storage rooms and similar spaces. The maximum sprinkler head spacing for light hazard areas is 130 sq. ft. per sprinkler. The maximum spacing between sprinklers is 15 ft., with the maximum distance from walls being 7-ft. 6-in. The hydraulic design of the system shall be based on providing a density of 0.20 gpm/sq. ft. over the most remote 1,500 sq. ft. area including a 250-gpm hose allowance.

For the in-attic sprinkler system, the sprinkler system shall provide an Ordinary Group 2 design if the space will be used for storage. The operating area will increase an additional 30%, plus an additional 30% for the excessive slope of the attic roof resulting in an operating area of 2,535 sq. ft.

For the auditorium space ceiling protected by the attic dry system, a Light Hazard design shall be provided. The operating area shall be increased 30% resulting in an operating area of 1,950 sq. ft.

If the height of the highest occupied floor is greater than 30 ft. from the lowest level of fire department vehicle access, than a manual wet standpipe system will be required. The system will require to have 2 ½" hose valves located within all exit stairs on the main landings. The system will be required to provide 250-gpm @ 100 psi at the most remote standpipe's hose valve plus an additional 250-gpm at the floor below the remote hose valve, and 250-gpm at the top of any other standpipes. A total of 750 gpm at 100 psi will be required for the system, and be available at the fire department connection when a fire truck pumps connects to it.

REFERENCED NOTES

A. REPLACE WITH ROUND STEEL PIPE AND NEW REINFORCED CONCRETE FOOTINGS FOR INCREASED LOADS FROM ABOVE.

B. NEW CAST-IN-PLACE REINFORCED CONCRETE FOOTINGS OR UNDERPINNING AT NEW BEAM LOAD POINTS ON EXISTING INTERIOR BRICK WALLS.

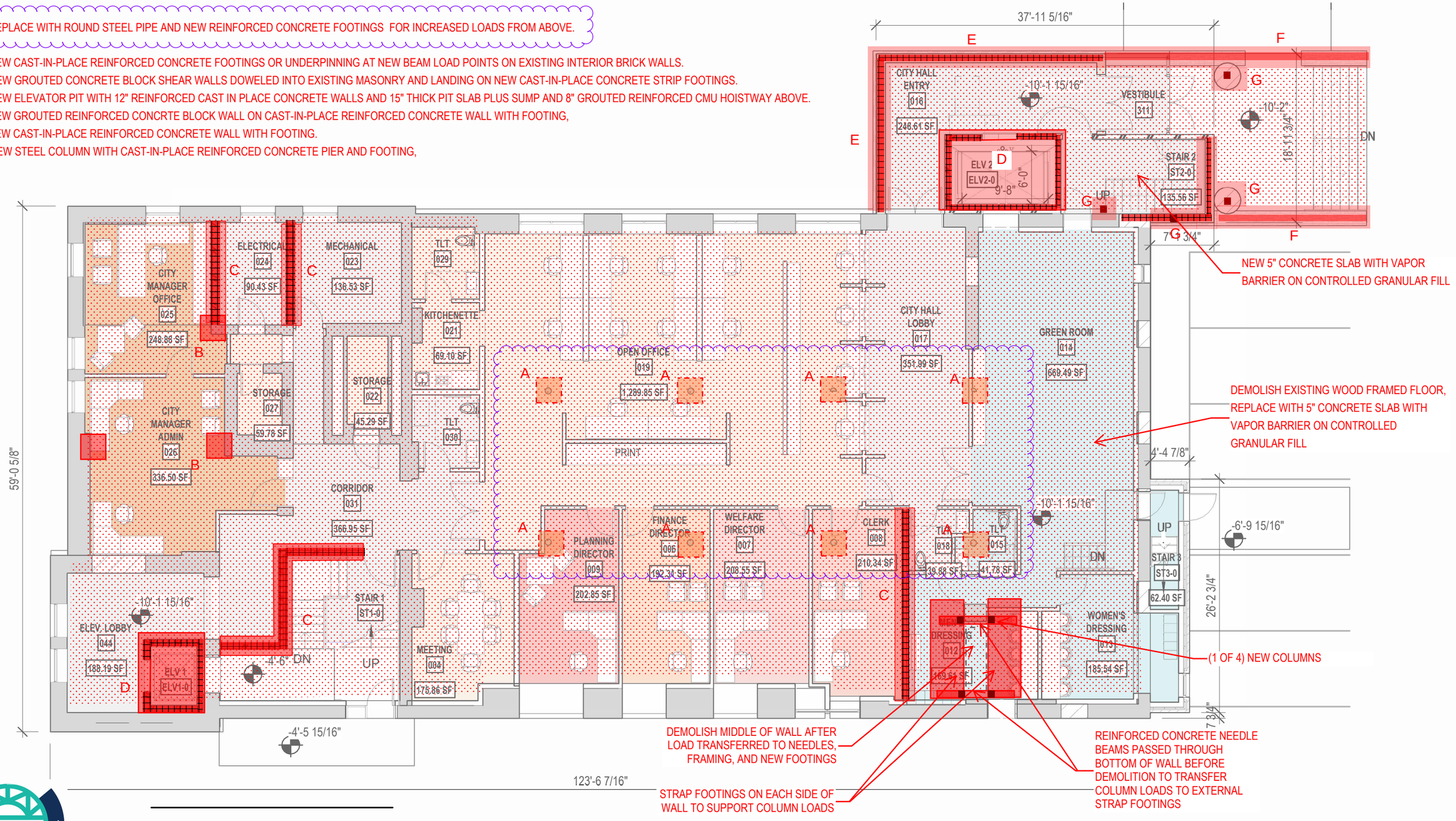
C. NEW GROUTED CONCRETE BLOCK SHEAR WALLS DOWELED INTO EXISTING MASONRY AND LANDING ON NEW CAST-IN-PLACE CONCRETE STRIP FOOTINGS.

D. NEW ELEVATOR PIT WITH 12" REINFORCED CAST IN PLACE CONCRETE WALLS AND 15" THICK PIT SLAB PLUS SUMP AND 8" GROUTED REINFORCED CMU HOISTWAY ABOVE.

E. NEW GROUTED REINFORCED CONCRTE BLOCK WALL ON CAST-IN-PLACE REINFORCED CONCRETE WALL WITH FOOTING,

F. NEW CAST-IN-PLACE REINFORCED CONCRETE WALL WITH FOOTING.

G. NEW STEEL COLUMN WITH CAST-IN-PLACE REINFORCED CONCRETE PIER AND FOOTING,



ARCOVE ARCHITECTS

N

GRAPHIC SCALE: 3/32" = 1'-0"

0' 5' 10' 20'

UPDATED 3-13-24

NOTE: IN ADDITION TO WORK SHOWN, COMPLETE REPAIRS OUTLINED IN STRUCTURES NORTH REPORT DATED 12-12-23

GROUND FLOOR STRUCTURAL PLAN WITH FOUNDATIONS

P1.00

STRUCTURAL SCOPING NOTES BY JMW / STRUCURES NORTH / 2-2-24

FRANKLIN CITY HALL & OPERA HOUSE

1/17/2024
PROJECT NO:1029

REFERENCED NOTES

A. REPLACE WITH ROUND STEEL PIPE AND NEW REINFORCED CONCRETE FOOTINGS FOR INCREASED LOADS FROM ABOVE.

B. NEW STEEL BEAM IN PLACE OF REMOVED WALL TO SUPPORT WOOD JOIST FLOOR FRAMING.

C. NEW DOUBLE STEEL BEAM STRADDLIGN EXISTING MASONRY WALL WITH NEEDLE PLATES BETWEEN THEM FOR LOAD TRANSFER FROM BRICKWORK BEFORE DEMOLITION AT BASEMENT LEVEL- NO TEMP. SHORING NEEDED. WOULD BE HELPFULL IF COULD HAVE A COLUMN IN THE CENTER.

D. NEW 8" GROUTED REINFORCED ELEVATOR HOISTWAY WITH BOLTED STEEL LEDGER ANGLES TO SUPORT INTERSECTED FLOOR FRAMING.

E. SEISMIC EXPANSION JOINT BETWEEN ADDITION AND MAIN STRUCTURE.

F. NEW GROUTED REINFORCED CONCRETE BLOCK SHEAR WALLS TIED INTO FLOOR DIAPHRAGM.

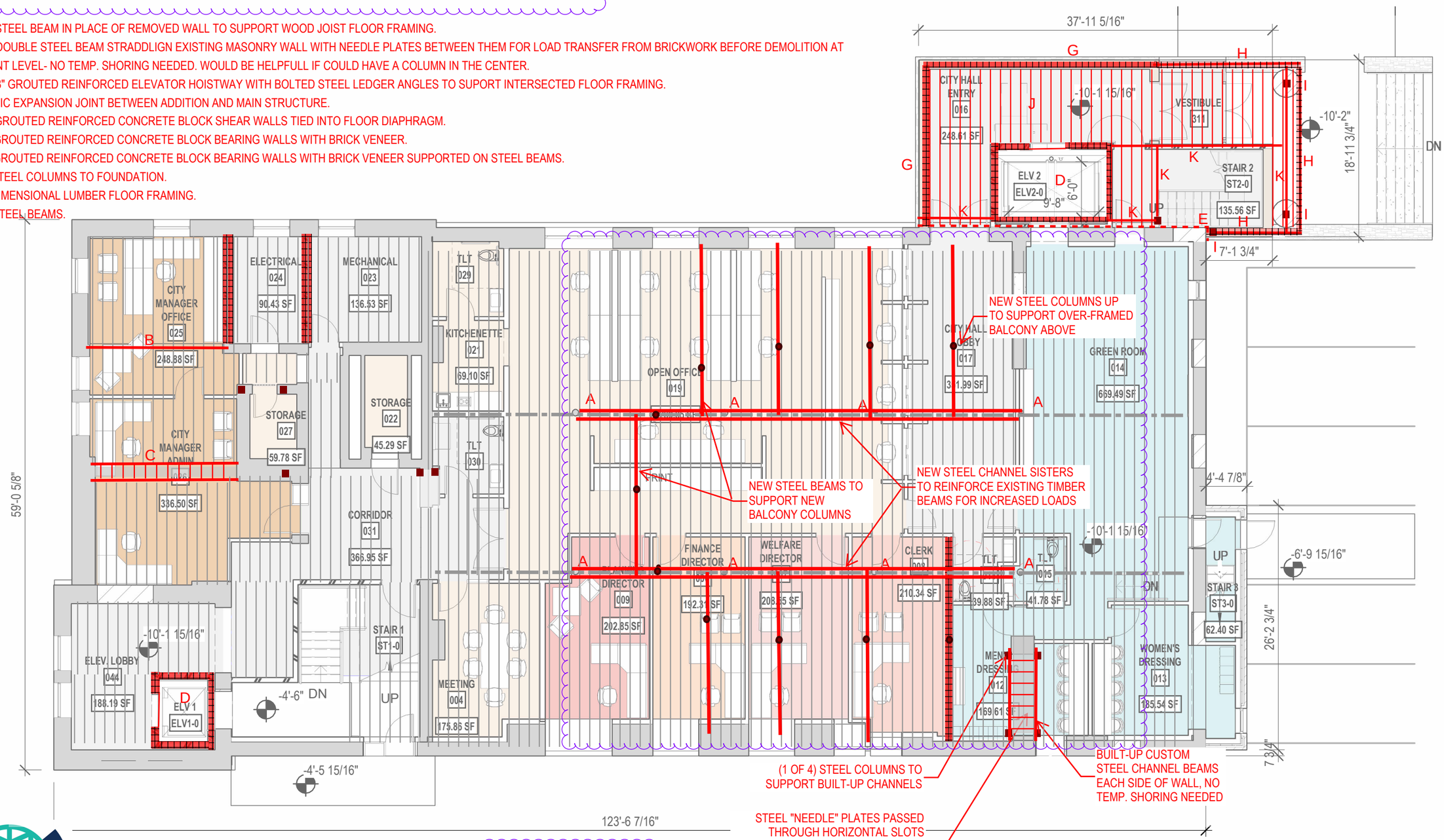
G. NEW GROUTED REINFORCED CONCRETE BLOCK BEARING WALLS WITH BRICK VENEER.

H. NEW GROUTED REINFORCED CONCRETE BLOCK BEARING WALLS WITH BRICK VENEER SUPPORTED ON STEEL BEAMS.

I. NEW STEEL COLUMNS TO FOUNDATION.

J. NEW DIMENSIONAL LUMBER FLOOR FRAMING.

K. NEW STEEL BEAMS.



UPDATED 3-13-24

GRAPHIC SCALE: 3/32" = 1'-0"

0' 5' 10' 20'

NOTE: IN ADDITION TO WORK SHOWN, COMPLETE REPAIRS OUTLINED IN STRUCTURES NORTH REPORT DATED 12-12-23

ARCOVE ARCHITECTS

STRUCTURAL SCOPING NOTES BY JMW / STRUCURES NORTH / 2-2-24

FIRST FLOOR STRUCTURAL PLAN LAID OVER BASEMENT FLOOR PLAN

FRANKLIN CITY HALL & OPERA HOUSE

P1.00

1/17/2024

PROJECT NO:1029

REFERENCED NOTES

A. NEW DOUBLE STEEL BEAM STRADDLING EXISTING MASONRY WALL WITH NEEDLE PLATES BETWEEN THEM FOR LOAD TRANSFER FROM BRICKWORK BEFORE DEMOLITION WITH NEW COLUMNS DOWN TO REMAINING MASONRY BELOW- NO TEMP. SHORING NEEDED. THESE WILL BE LARGE MEMBERS SINCE THEY ALSO CARRY THE END OF THE CENTER ROOF TRUSS.

B. NEW 8" GROUTED REINFORCED ELEVATOR HOISTWAY WITH BOLTED STEEL LEDGER ANGLES TO SUPORT INTERSECTED FLOOR FRAMING.

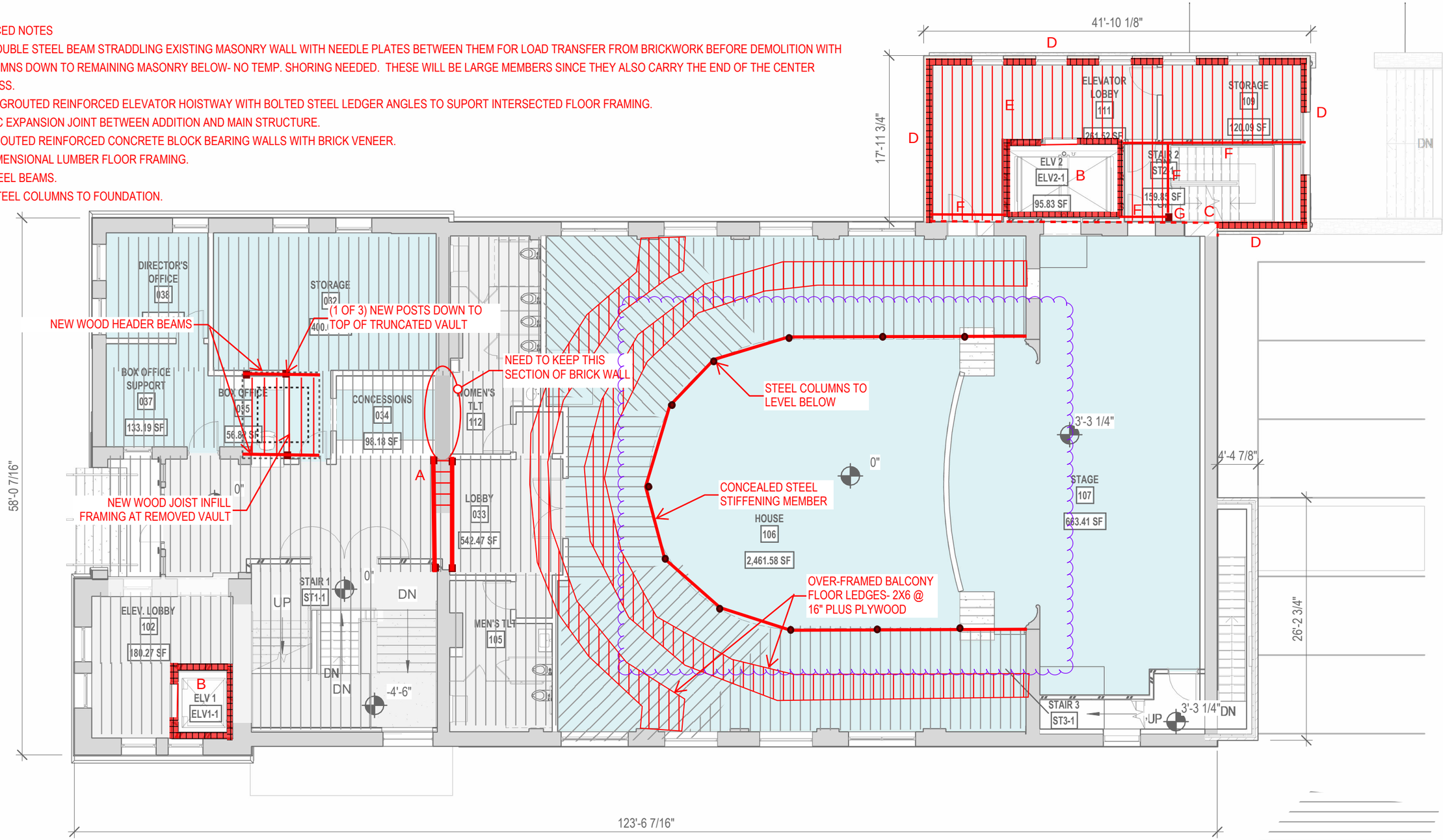
C. SEISMIC EXPANSION JOINT BETWEEN ADDITION AND MAIN STRUCTURE.

D. NEW GROUTED REINFORCED CONCRETE BLOCK BEARING WALLS WITH BRICK VENEER.

E. NEW DIMENSIONAL LUMBER FLOOR FRAMING.

F. NEW STEEL BEAMS.

G. NEW STEEL COLUMNS TO FOUNDATION.



UPDATED 3-13-24

NOTE: IN ADDITION TO ~~WORK SHOWN,~~ COMPLETE REPAIRS OUTLINED IN STRUCTURES NORTH REPORT DATED 12-12-23

ARCOVE ARCHITECTS

GRAPHIC SCALE: 3/32" = 1'-0"

0' 5' 10' 20'

SECOND FLOOR STRUCTURAL PLAN LAID OVER FIRST FLOOR PLAN

P1.01

STRUCTURAL SCOPING NOTES BY JMW / STRUCURES NORTH / 2-2-24

FRANKLIN CITY HALL & OPERA HOUSE

1/17/24

PROJECT NO:1029

REFERENCED NOTES

A. NEW DOUBLE STEEL BEAM STRADDLING EXISTING MASONRY WALL WITH NEEDLE PLATES BETWEEN THEM FOR LOAD TRANSFER FROM BRICKWORK BEFORE DEMOLITION WITH NEW COLUMNS DOWN TO REMAINING MASONRY BELOW- NO TEMP. SHORING NEEDED. THESE WILL BE LARGE MEMBERS SINCE THEY ALSO CARRY THE END OF THE CENTER ROOF TRUSS.

B. NEW 8" GROUTED REINFORCED ELEVATOR HOISTWAY WITH BOLTED STEEL LEDGER ANGLES TO SUPORT INTERSECTED FLOOR FRAMING.

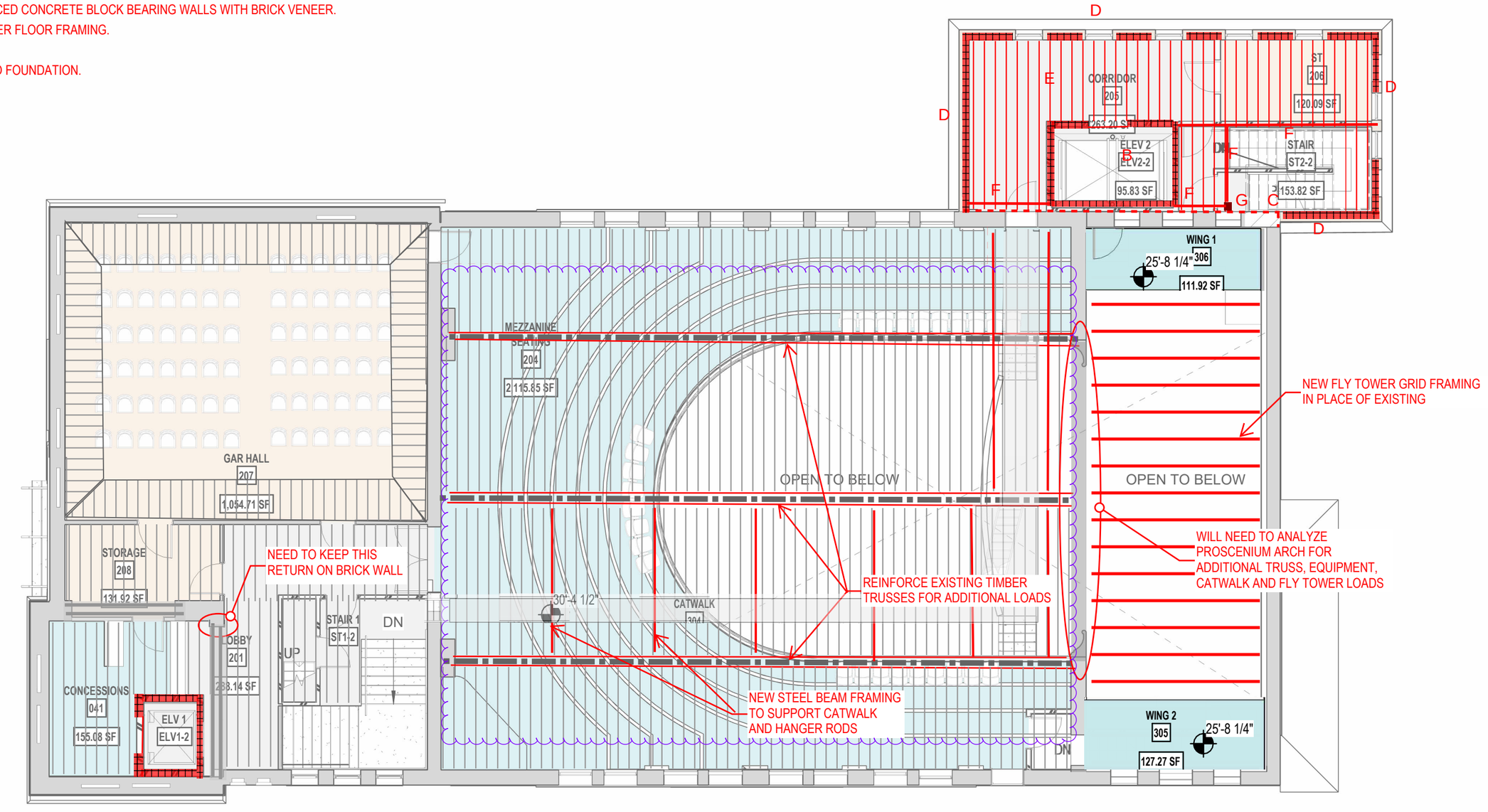
C. SEISMIC EXPANSION JOINT BETWEEN ADDITION AND MAIN STRUCTURE.

D. NEW GROUTED REINFORCED CONCRETE BLOCK BEARING WALLS WITH BRICK VENEER.

E. NEW DIMENSIONAL LUMBER FLOOR FRAMING.

F. NEW STEEL BEAMS.

G. NEW STEEL COLUMNS TO FOUNDATION.



ARCOVE ARCHITECTS

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GRAPHIC SCALE: 3/32" = 1'-0"

0' 5' 10' 20'

NOTE: IN ADDITION TO WORK SHOWN, COMPLETE REPAIRS OUTLINED IN STRUCTURES NORTH REPORT DATED 12-12-23

ATTIC FLOOR STRUCTURAL PLAN LAID OVER SECOND FLOOR PLAN

P1.02

STRUCTURAL SCOPING NOTES BY JMW / STRUCURES NORTH / 2-2-24

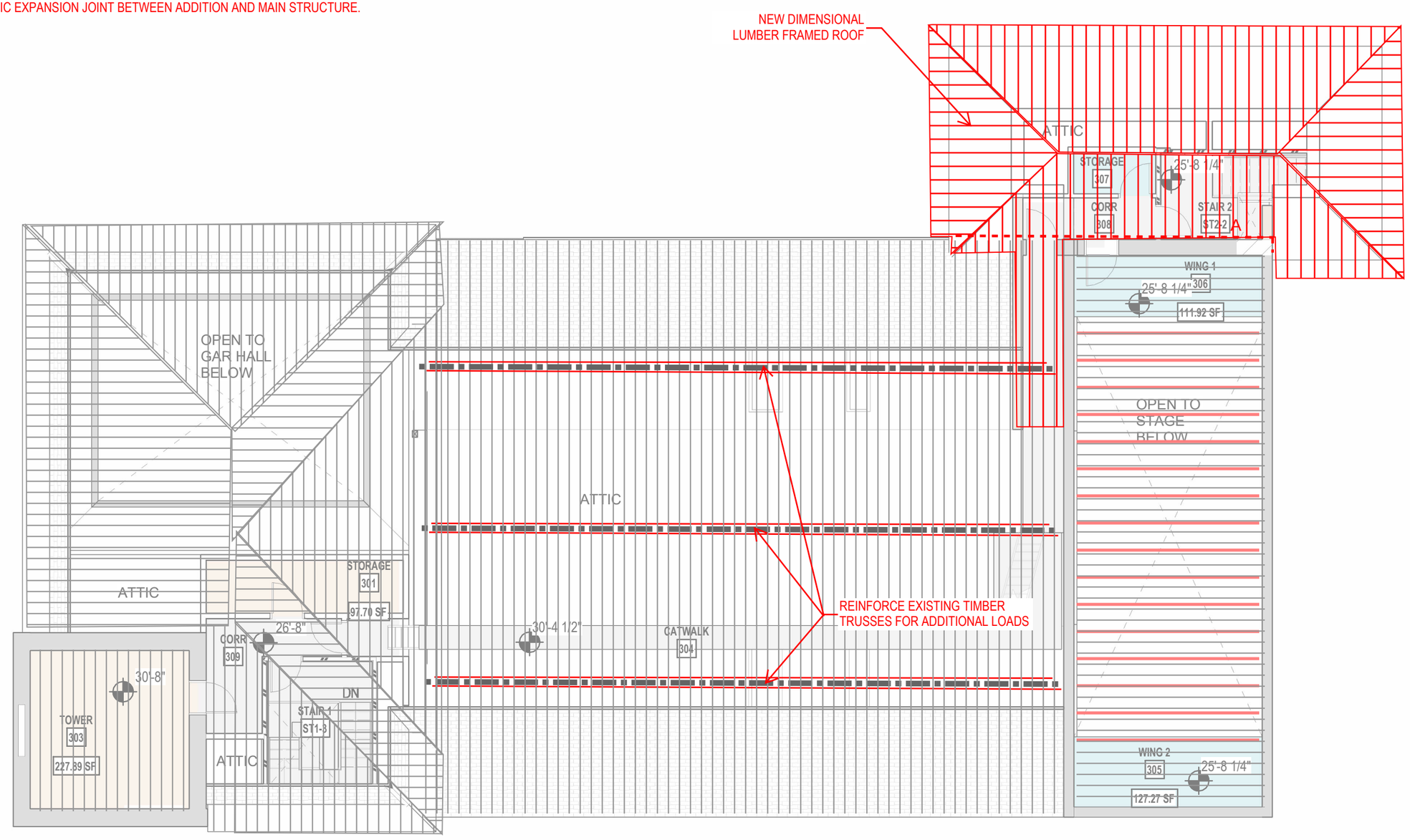
FRANKLIN CITY HALL & OPERA HOUSE

11/12/23

PROJECT NO:1029

REFERENCED NOTES

A. SEISMIC EXPANSION JOINT BETWEEN ADDITION AND MAIN STRUCTURE.



ARCOVE ARCHITECTS

N

GRAPHIC SCALE: 3/32" = 1'-0"

0' 5' 10' 20'

NOTE: IN ADDITION TO WORK SHOWN, COMPLETE REPAIRS OUTLINED IN STRUCTURES NORTH REPORT DATED 12-12-23

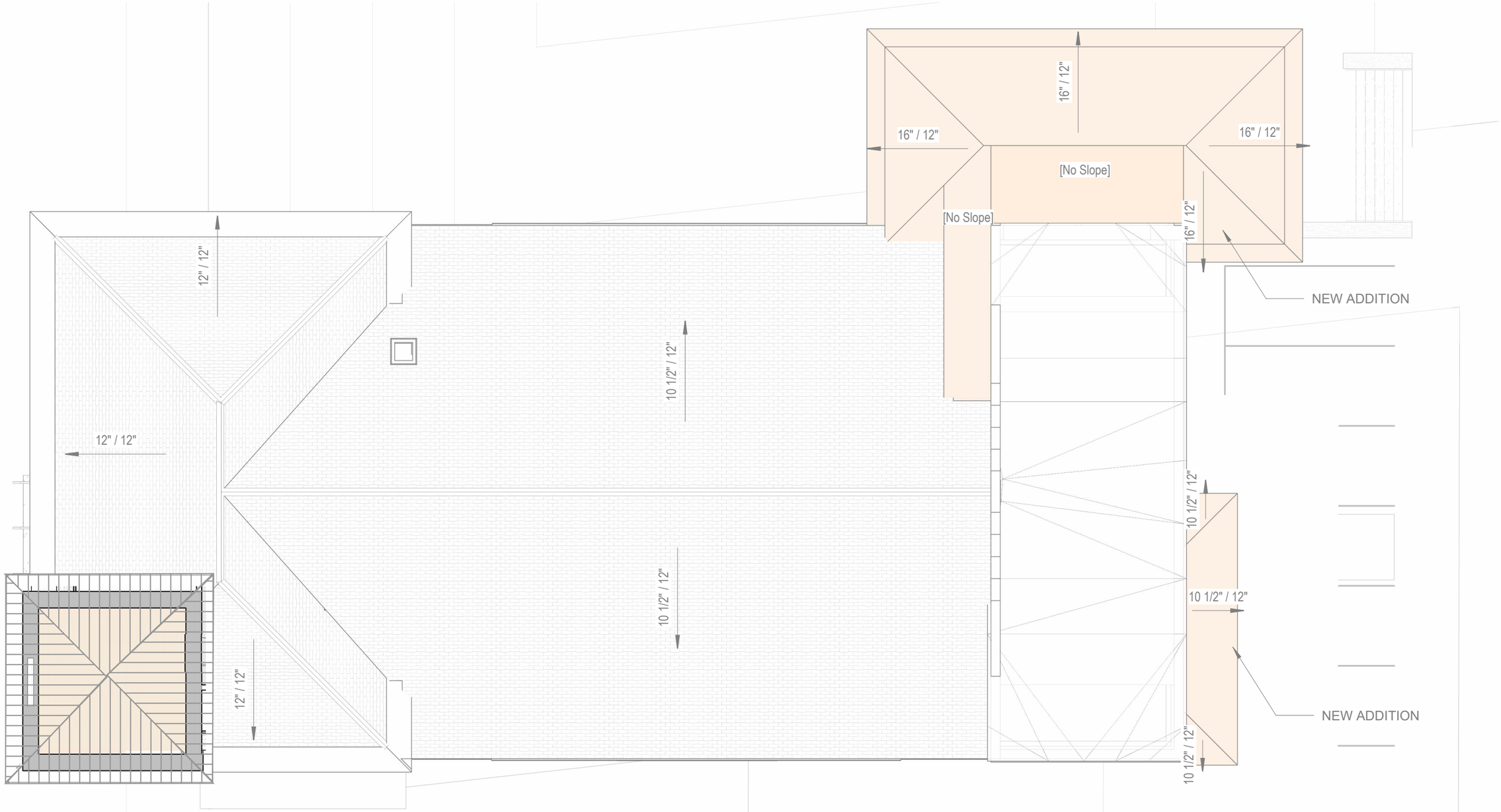
ROOF STRUCTURE PLAN WITH UPPER LEVEL OF TOWER

P1.03

STRUCTURAL SCOPING NOTES BY JMW / STRUCURES NORTH / 2-2-24

FRANKLIN CITY HALL & OPERA HOUSE

01/16/2024
PROJECT NO:1029



ARCOVE ARCHITECTS

N

GRAPHIC SCALE: 3/32" = 1'-0"

0' 5' 10' 20'

NOTE: IN ADDITION TO WORK SHOWN, COMPLETE REPAIRS OUTLINED IN STRUCTURES NORTH REPORT DATED 12-12-23

TOWER ROOF STRUCTURE PLAN WITH MAIN ROOF BELOW

P1.04

STRUCTURAL SCOPING NOTES BY JMW / STRUCURES NORTH / 2-2-24

FRANKLIN CITY HALL & OPERA HOUSE

01/17/24

PROJECT NO:1029

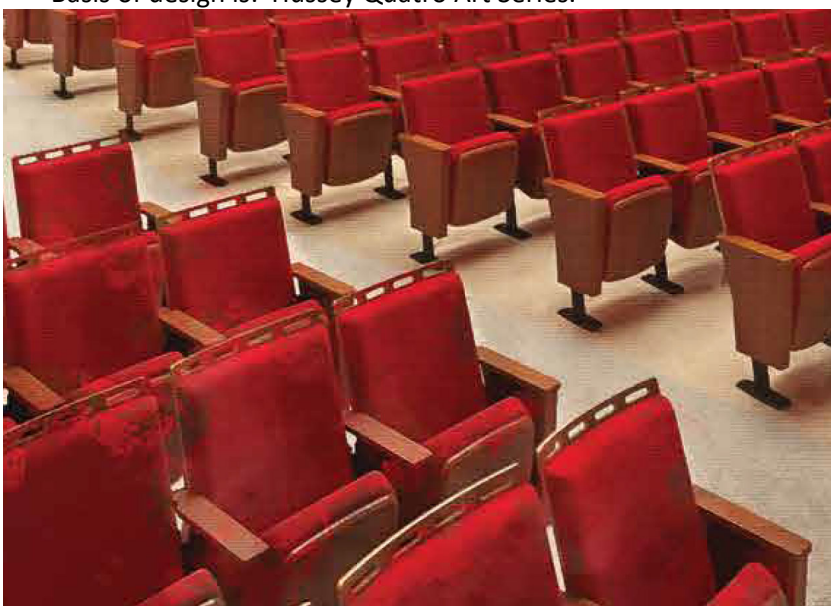
Performing Arts: proposed scope

Systems & Components:

Theater space fit-out equipment and furnishings are proposed to enhance the offerings and functionality of the auditorium, front of house and back of house spaces. Proposed system improvements include:

Seating

- Replace existing seating with more comfortable, egronomic and contemporary seating.
- The Auditorium main floor would utilize movable fold-up seating, for maximum flexibility for use of the space.
- The Mezzanine would have fixed seating, spaced and arranged to provide code compliant egress at aisle and between rows.
- Basis of design is: Hussey Quatro Art Series.



Audio/Visual

- Infrastructure and equipment patch points
- Projection equipment and retractable screen
- Sound system, controls and speakers –
    - House – 2 speaker vertical arrays flanking proscenium; 1,000 pounds each +/-; hung from ceiling; structural reinforcement required.
    - Wire sound system for support spaces and back of house cast rooms.
- Hearing Impairment Assistance – FR or IR system emitters at Auditorium and at front of house points of sale.

Lighting

Controls, lighting board - Front of house lighting integrated with house and stage lighting.

Stage Lighting components –

Balcony Rail lighting components, supported along face of mezzanine rail. Reinforce structure for 30-50 plf, provide power data and cabling along mezzanine rail.

Overhead lighting – supported at ceiling hung catwalks (at 1 to 3 locations), over auditorium seating area.

Grid

Above the backstage area, replace existing wooden grid with code compliant steel grid, with walkable channel grid and counterweight line grid system.

Catwalks

Steel framed Catwalks for AV and Lighting adjustments, to be hung 4-6 feet below existing ceiling, with solid wood back panels facing the audience; open front rail facing the equipment and stage.

ENERGY ANALYSIS

FRANKLIN CITY HALL & OPERA HOUSE

March 15, 2024

Franklin City Hall & Opera House was analyzed for energy performance using Covetool Energy Modelling software. The results of our analysis compare the existing conditions with the proposed Basis-of-design (new HVAC systems, proposed renovations, and additions). Additionally, five options are evaluated for further enhanced energy performance. Options 1 and 2 add wall insulation and solar panels. Options 3, 4, and 5 change gas powered HVAC systems to all electric, with corresponding options for added wall insulation and solar panels.

When compared to similar typical code compliant buildings for "baseline" EUI (Energy Use Intensity), Franklin City Hall's existing condition performance is noticeably worse. The Baseline condition refers to the CBECS (Commercial Buildings Energy Consumption Survey) by the U.S. Energy Information Administration. The Baseline EUI is 46.48 kBtu/sf/yr. Existing conditions of EUI for Franklin City Hall is ±126.14 kBtu/sf/yr. The main contributors to this poor energy performance are the inefficient HVAC systems (heating & cooling), the absence of energy management (automated controls) system, such as daylight sensors/occupancy sensors, and inadequate wall insulation. The Covetool energy models evaluation the following scenarios:

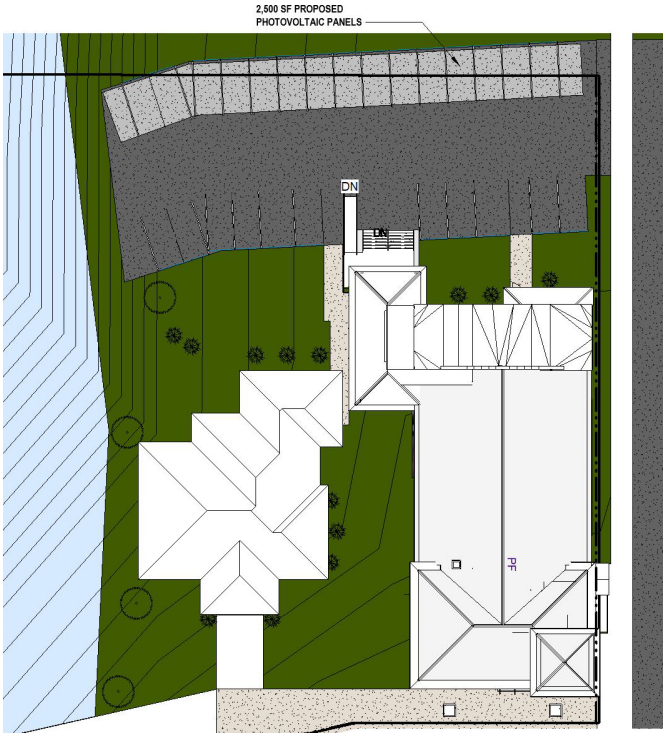
Existing Condition: Building as is, current state.
The existing heating system is a gas fired combustion system, powered by a boiler and Power Flame Burner installed in 2015. Distribution is via a hydronic baseboard system. Additionally, an air handler provides fresh air to the auditorium, while two air source heat pumps provide cooling, (refer to the CSI engineering MEP report). The existing attic has R-40 insulation, and a lack of wall insulation provides an effective thermal value of R-5.5 for walls.

Basis-of-design: Proposed new HVAC systems, renovations and additions.
As described in the CSI Engineering narrative, provide updated HVAC and electrical systems, using a combination of gas and electric powered equipment. The EUI is anticipated to be 54 kBtu/sf/y, which is about ±57% more efficient than the Existing

Condition. The design is still higher than the typical building Baseline by CBECS. The preliminary modelled utility expense for electricity is ±$14,798.83 /yr, and for Gas is ±$2,498.92 /yr.

Option 1: Add wall Insulation.
Improving the wall insulation by building furring walls at the inside face of the exterior walls to achieve R-19 would reduce the energy consumption to ±43 kBtu/sf/y EUI, which is better than the Basis-of-Design by 65%. The preliminary modelled utility expense for electricity is ± $14,149/yr, and for gas is ± $1,309/yr, which could provide a savings of ±$649/year for electricity and a savings of $1,189/yr for gas, when compared to Basis-of-design.

Option 2: Add wall Insulation and Photovoltaic Solar Array
Install 2,500 SF of photovoltaic panels on a new canopy structure at west row of parking would provide renewable energy for building. This strategy would reduce the EUI by ±21 kBtu/sf/y, an improvement over Option 1 by 83%. The preliminary modelled utility expense for electricity from the grid would be reduced to ± $4,081.03 /yr for a savings of ±$10,086/yr over Option 1.



Site Plan Diagram – PV Array Parking Canopy

Option 3: All-electric HVAC systems.
Replace the existing heating system with a new all electrical ASHP (Air-Source Heat Pump) system, heat exchanger (heat recovery system), and all electrical water heater system. Anticipated EUI is ±**55** kBtu/sf/y, for a ±56% improvement over Existing Condition system. This is still higher than the CBECS Baseline for typical buildings. The anticipated annual electric utility cost is ±$24,960.

Option 4: All-electric HVAC systems & Wall Insulation.
In addition to the new all electric HVAC system, this option adds insulation to the interior of exiting brick masonry walls for R-19 thermal value. Anticipated EUI is ±**43** kBtu/sf/y, for a ±65% improvement over Option 3. Anticipated annual utility cost is ± $19,599, for a savings of approximately $ 5,361per year over the Option 3 with gas & electric HVAC systems.

Option 5: All-electric HVAC systems, Wall Insulation, & Photovoltaic Panels.
Installing photovoltaic panels on a new parking canopy at west row of parking.
The anticipated coverage area is ±2500 SF. Anticipated EUI is ±**21** kBtu/sf/y, for a ±83% improvement over Option 4. Anticipated annual utility cost is ± $9,531 for a savings of approximately $ 10,068 per year, compared to Option 4.

Table 1: Options Performance Comparisons

Option	Existing	Base Design	Option 1	Option 2	Option 3	Option 4	Option 5
Operating Cost Analysis	Roof R-40, Walls R-5.5	NEW MEP	+ Walls insulation to be R-19	+Photovoltaic panels	NEW MEP ALL ELECTRICAL	+ Walls insulation to be R-19	+Photovoltaic panels
Annual Energy Use Intensity (EUI)	126	55	43	21	55	43	21
Annual Energy Expense	$22,602E+ $8,108 Gas	$14,798E+ $2,498 Gas	$14,149E+ 1,309 Gas	$10,086E+ $1,309 Gas	$24,960	$19,599	$10,086
Annual Energy Saving	-	$ 7,804E+ 5,610 Gas	$ 649E+ $1,189 Gas	$ 4,063	$5,750	$-2,303	$1,309

ENERGY OPTIONS COMPARISON

Existing Condition and all-electric Options 3, 4, & 5.

Franklin Town Hall- Existing

Floor Area by Template

Meeting Hall 8151.85 ft²

Option 3:
New addition and NEW MEP

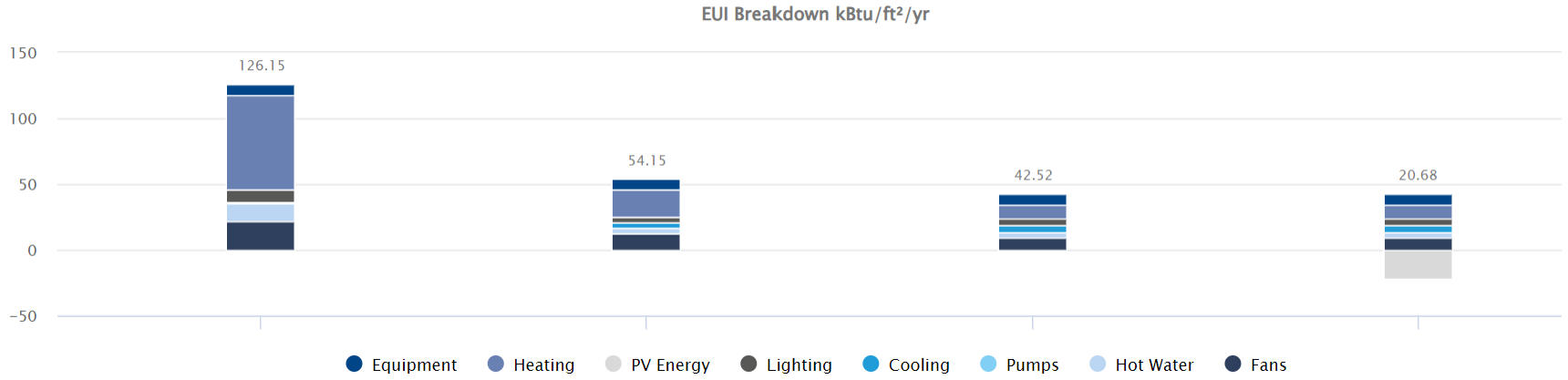
Meeting Hall 10566.03 ft²

Option 4: +Wall insulation

Meeting Hall 10566.03 ft²

Option 5: +Photovoltaic Panels

Meeting Hall 10566.03 ft²



ENERGY OPTIONS COMPARISON

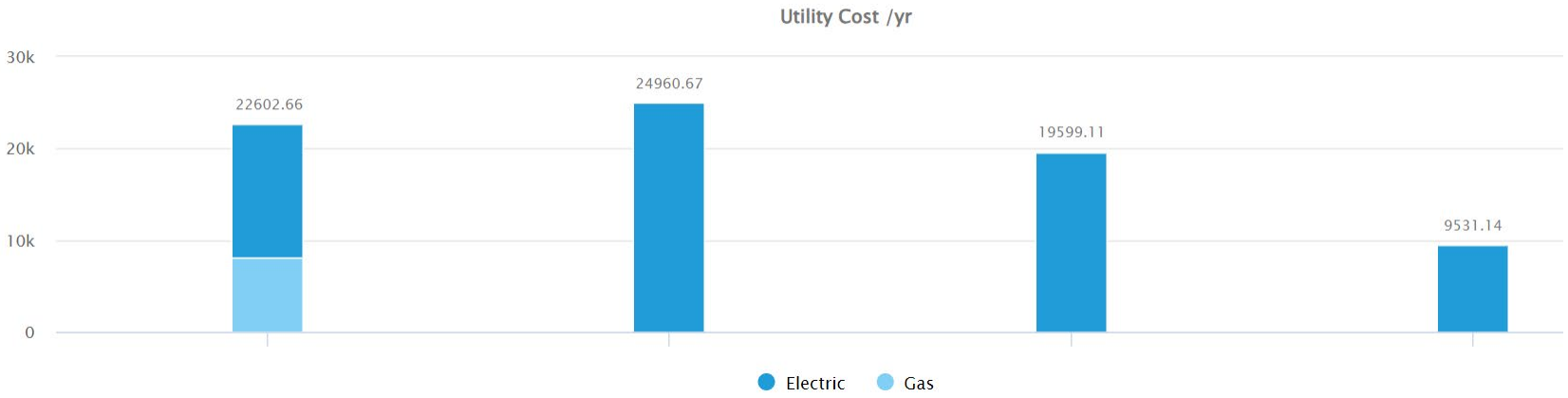
Whole Building EUI

Meeting Hall 126.14 kBtu/ft²/yr

Meeting Hall 54.13 kBtu/ft²/yr

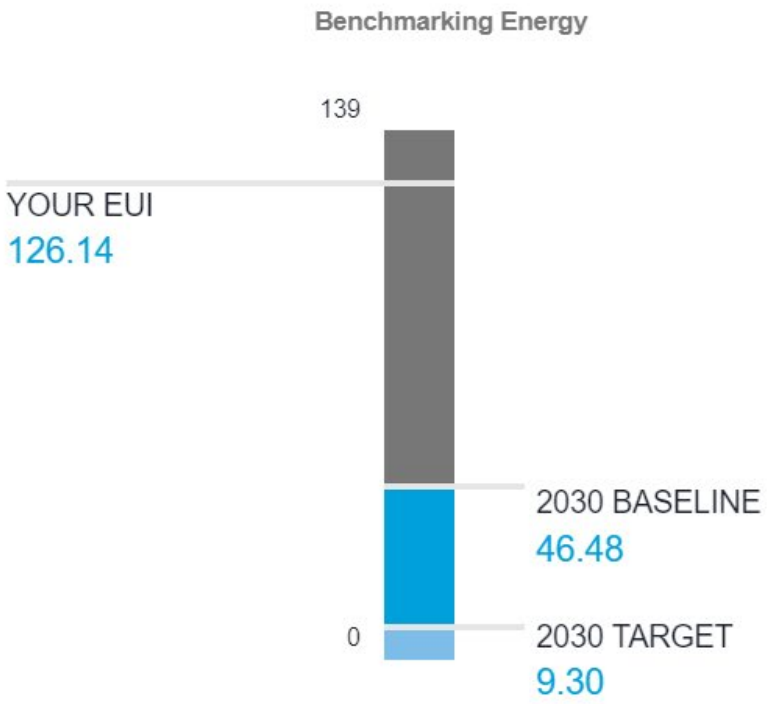
Meeting Hall 42.51 kBtu/ft²/yr

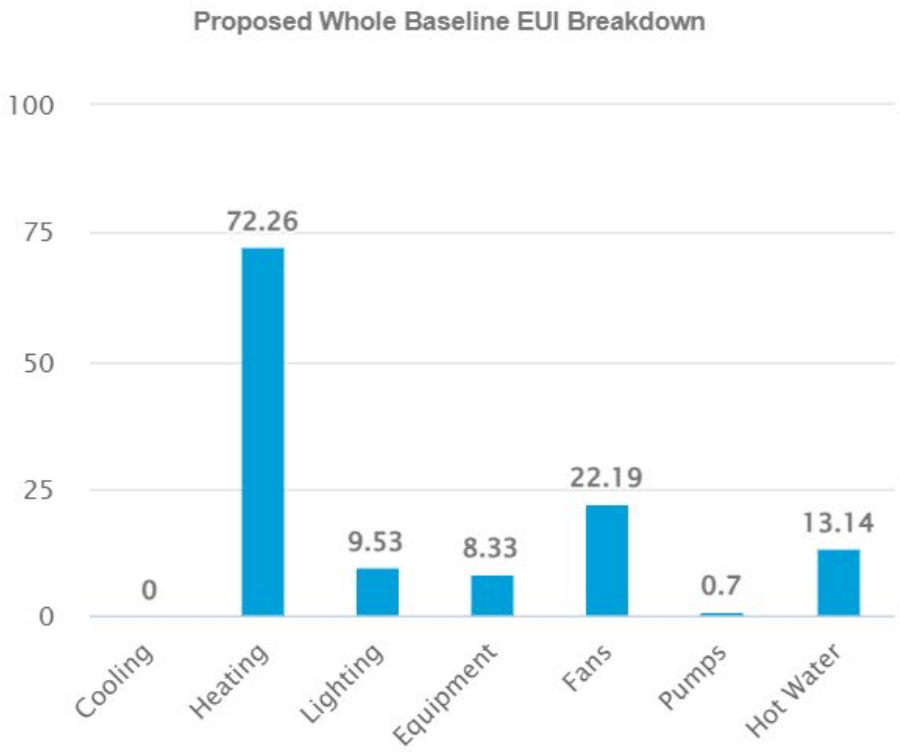
Meeting Hall 20.67 kBtu/ft²/yr



ENERGY OPTIONS COMPARISON

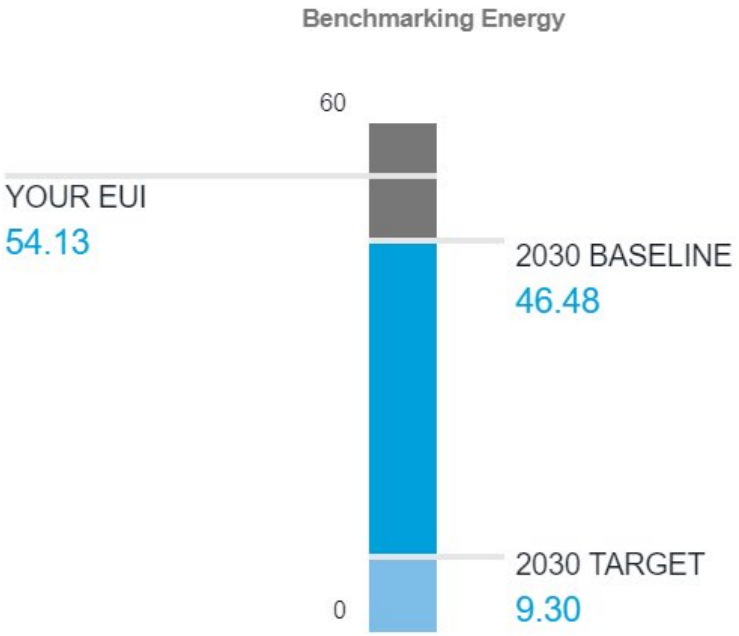
EXISTING CONDITION

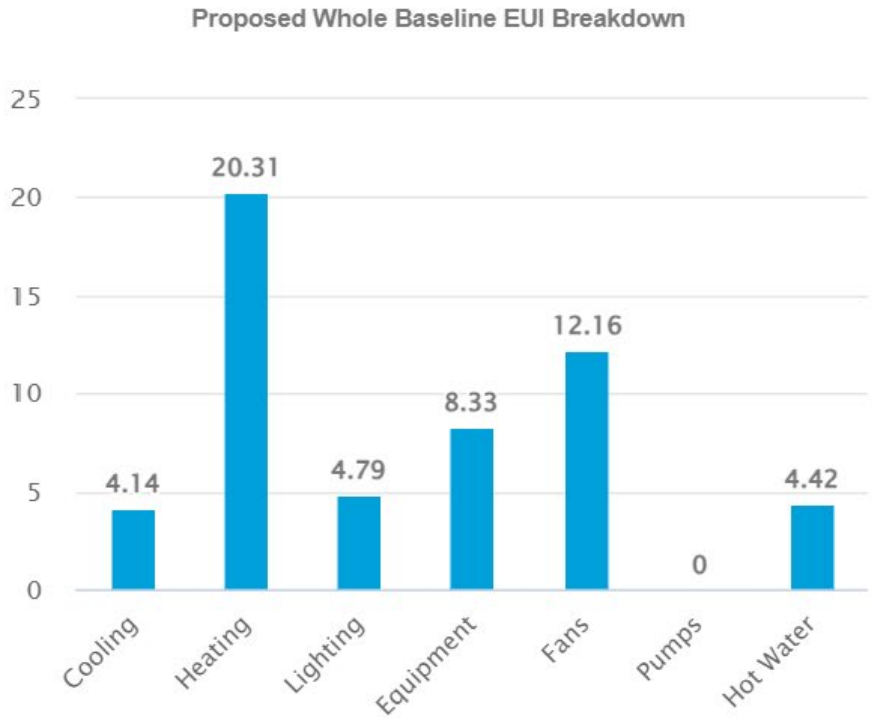




ENERGY OPTIONS COMPARISON

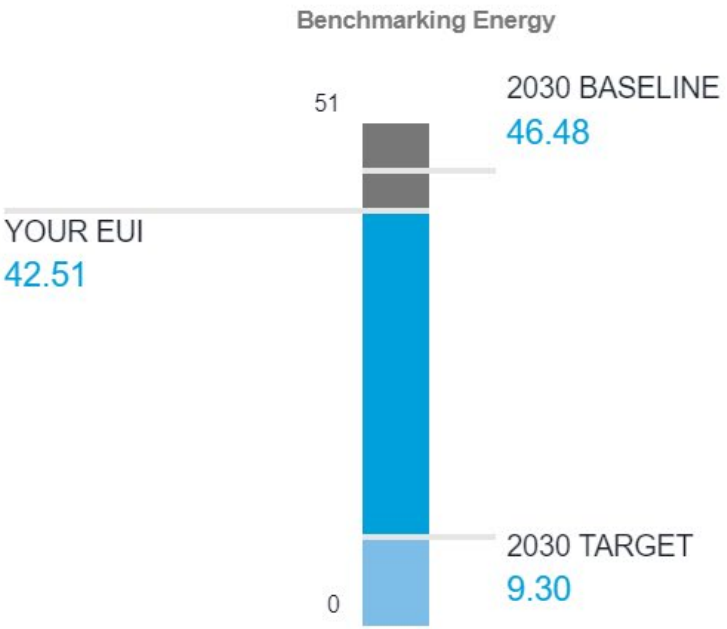
Option 3 – NEW ADDITION AND NEW MEP All electrical

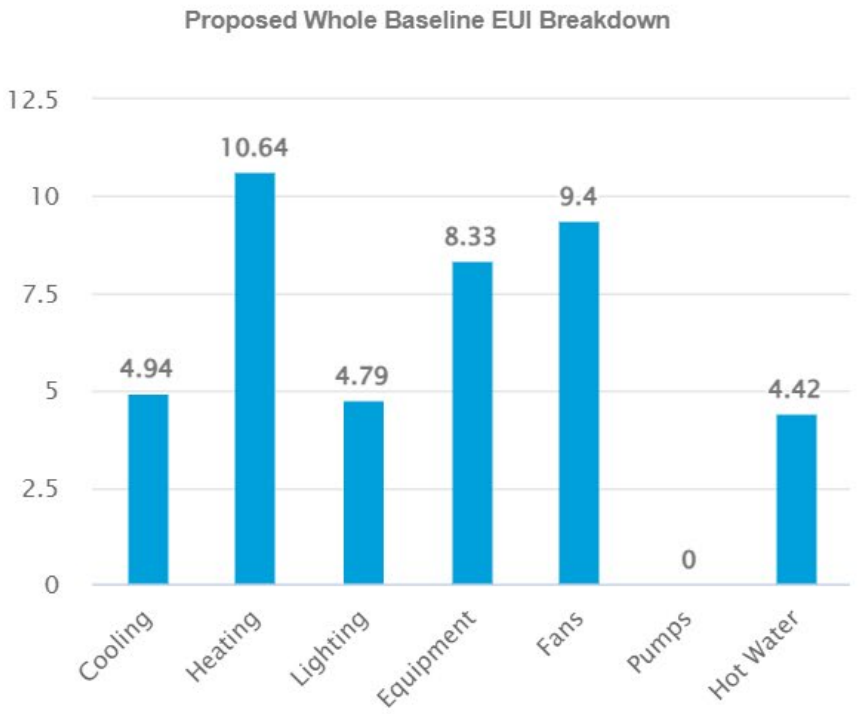




ENERGY OPTIONS COMPARISON

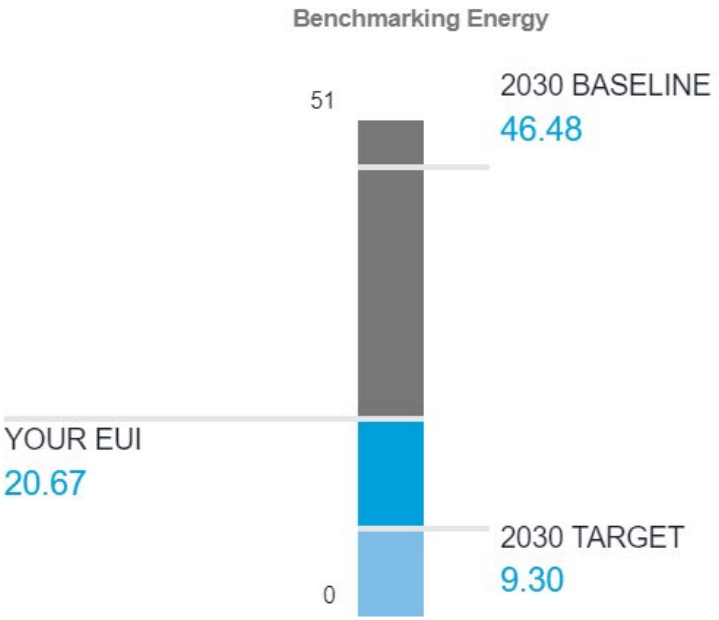
OPTION 4: + Wall Insulation

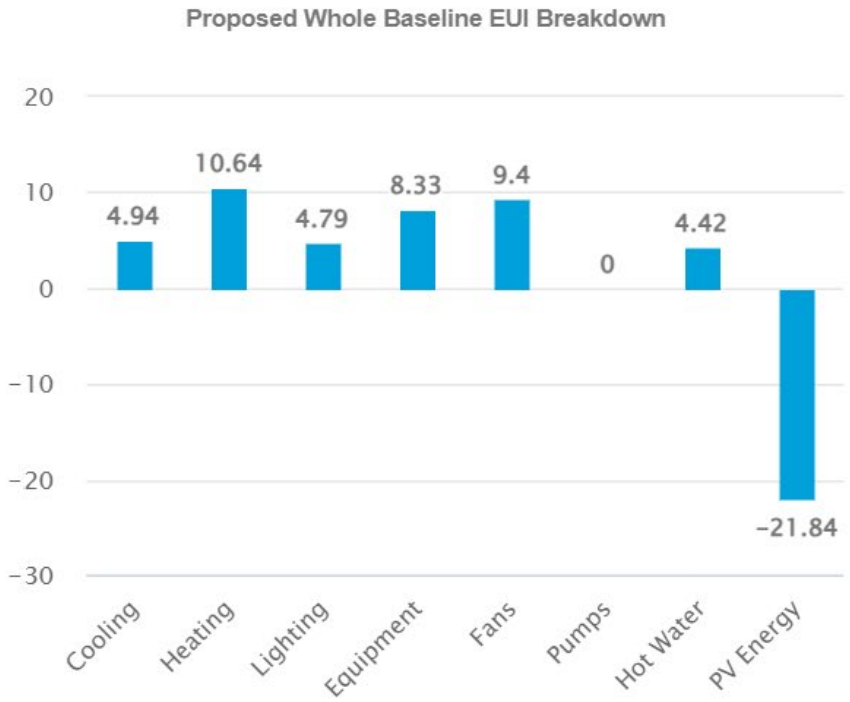




ENERGY OPTIONS COMPARISON

OPTION 5: + 2500 SF Solar Panels





Project Phasing

Construction work will be phased to allow select areas of the building to remain operational while other areas are under construction. Phasing will also be used to schedule the rehabilitation/construction of program spaces deemed financially necessary to delay until additional funding is secured.

Phase 1: All current City Hall operations to be relocated from Ground Floor to temporary location for the duration of basement rehabilitation.

- Exterior rehabilitation of existing building: brickwork, brownstone, windows, and other areas identified in existing conditions assessment.
- Ground Floor rehabilitation, City Hall Spaces with temporary Ground Floor entrance
- Level 2 rehabilitation of City Hall space, Gar Hall
- Attic level rehabilitation of City Hall space, Tower Office
- New elevator for accessibility located in existing Southeast tower
- MEP system upgrade for Ground Floor
- Sprinkler system, all levels
- Structural rehabilitation of roof structure
- Structural rehabilitation as needed on exterior walls and at the Ground Floor
- Sitework infrastructure, relocation of transformer and sewer lines.

Phase 2: City Hall operations relocate from First Gloor and temporary location to renovated Ground Floor.

- Level 1 rehabilitation of Main Street entrance, Lobby, Front of House spaces
- Associated MEP and sprinkler systems upgrade

Phase 3:

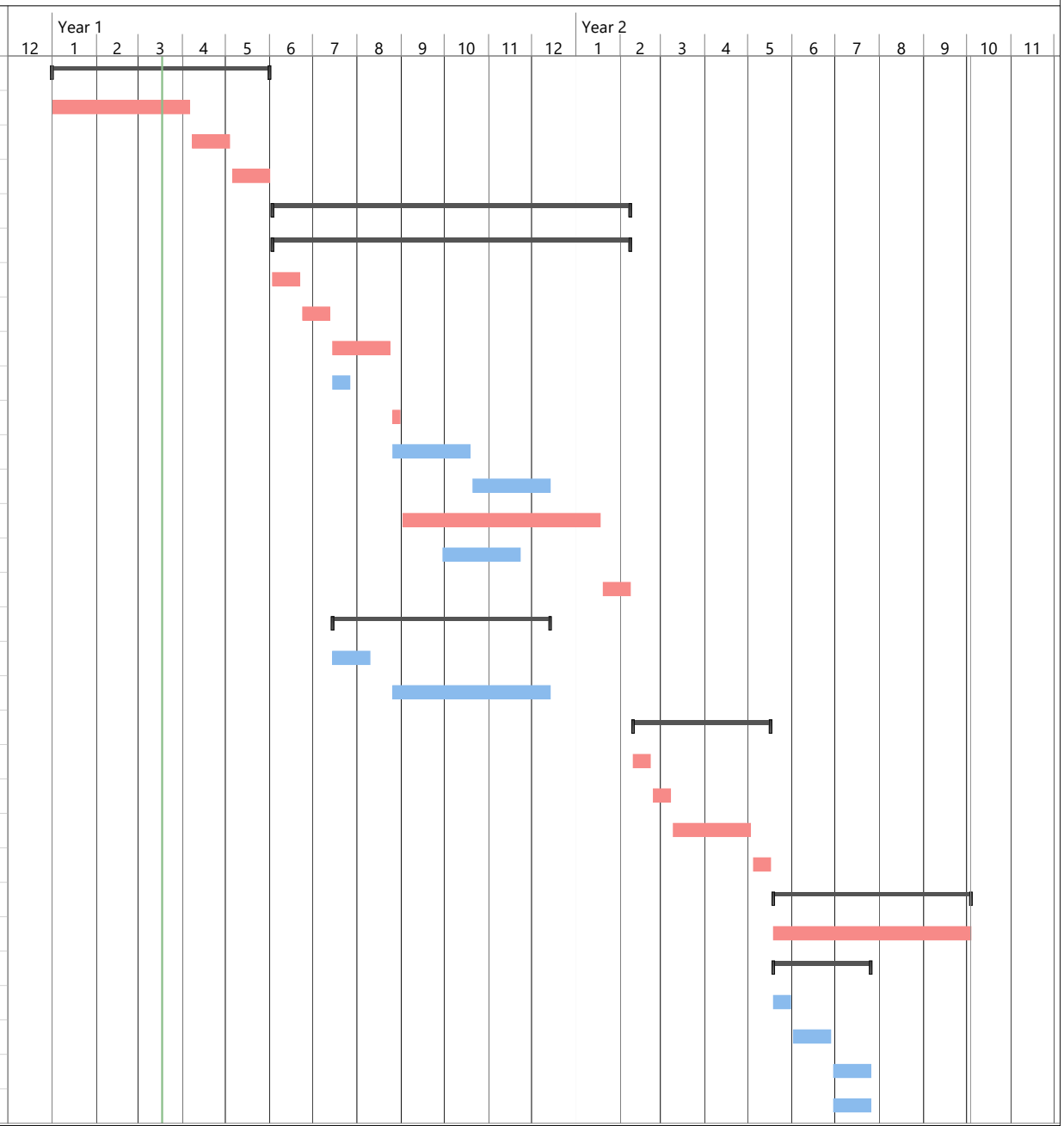
- Opera House spaces:
  - Ground Floor - Back of House: Green Room, Dressing Rooms
  - First Floor – Level 1 public bathrooms, Auditorium, Stage and Backstage
  - Mezzanine – seating area & 2nd floor Lobby spaces
  - Attic – catwalk connector
- Addition: Northwest Stair tower/new entry to Ground Floor City Hall
- Addition: Northeast Stair (stage & mezzanine egress)
- Continuation of MEP system upgrade
- Continuation of sprinkler system install for additions and Opera House spaces
- Rehabilitation of balcony level seating in Opera House: overbuild of seating area, new seats
- Freight Elevator for Opera House
- New Rear entry Sitework; sunken entry plaza, ramp

Potential Future Phase:

- Opera House backstage expansion
- Solar Array canopy installed in parking lot.
- City Hall offices relocated to new site/building, freeing up space for Opera House expansion of programming.

CITY HALL & OPERA HOUSE
FRANKLIN, NH

ID	Task Name	Duration
1	**PRECONSTRUCTION**	**110 days**
2	CONSTRUCTION DOCUMENTS	70 days
3	BID DURATION	20 days
4	EVALUATE/AWARD	20 days
5	**PHASE ONE-BASEMENT**	**180 days**
6	**INTERIOR**	**180 days**
7	DEMO	15 days
8	FOOTINGS/SLAB	15 days
9	STRUCTURAL	30 days
10	WATERPROOFING	10 days
11	ACOUSTIC CEILING	5 days
12	STAIR & ELEVATOR 1 - SHAFT	40 days
13	ELEVATOR 1	40 days
14	FITUP	100 days
15	SPRINKLER	40 days
16	CO & MOVE INTO SPACE	15 days
17	**EXTERIOR**	**110 days**
18	SITEWORK	20 days
19	FAÇADE & ROOF IMPROVEMENTS	80 days
20	**PHASE TWO- FIRST FLOOR**	**70 days**
21	DEMO	10 days
22	STRUCTURAL	10 days
23	FITUP	40 days
24	MOVE INTO SPACE	10 days
25	**PHASE TWO- ADDITIONS**	**100 days**
26	GROUND UP	100 days
27	**PHASE TWO- OPERA MEZZ & ATTIC**	**50 days**
28	DEMO	10 days
29	STRUCTURAL	20 days
30	FITUP & CURTAIN	20 days
31	THEATER EQUIPMENT	20 days



DeStefano & Associates, Inc.

PLANNING• DESIGN • CONSTRUCTION

March 21, 2024

FRANKLIN CITY HALL & OPERA HOUSE PRELIMINARY BUDGET SUMMARY			BREAKDOWN BY PHASE				BREAKDOWN BY TRADE			
CATEGORY	VALUE		PHASE ONE - sitework, infrastructure, & ground floor-City Hall	PHASE TWO - existing upper floors, City Hall	PHASE THREE - Opera House Additions		MEP	SPRKLR	STRUCTURAL	ARCHITECTURAL
EXTERIOR MASONRY, FLASHING, ROOF REPAIRS	$ 200,000		$ 200,000							
BASEMENT WATERPROOFING & PUMP	$ 150,000		$ 150,000							
DEMOLITION	$ 145,000		$ 145,000							
BUILDING ADDITION	$ 900,000				$ 900,000		$ 120,000.00	$ 15,000	$ 300,000	$ 665,000
STAIR ADDITION	$ 120,000				$ 120,000		$ 16,000.00	$ 2,000	$ 39,000	$ 63,000
INTERIOR FINISHES & MEP	$ 1,900,000		$ 938,000	$ 675,000	$ 287,000		$ 1,140,000.00	$ 115,000		$ 780,000
SPRINKLER	$ 135,000		$ 120,000		$ 15,000			135000		
ELEVATORS & SHAFTS	$ 500,000		$ 300,000		$ 200,000				$ 120,000	$ 280,000
SITEWORK	$ 300,000		$ 100,000		$ 200,000					
MISC. STRUCTURAL REPAIRS	$ 150,000		$ 150,000						$ 150,000	
STRUCTURAL IMPROVEMENTS	$ 495,000		$ 495,000						$ 495,000	
MEZZANINE W/OVERBUILD FRAMING	$ 135,000		$ 35,000		$ 100,000				$ 135,000	
FIRE CURTAIN	TBD				TBD					
SECURITY & ACCESS CONTROL SYSTEM	$ 50,000		$ 50,000							
COST SUB-TOTAL	**$ 5,180,000**		**$ 2,683,000**	**$ 675,000**	**$ 1,822,000**		**$ 1,276,000**	**$ 267,000**	**$ 1,239,000**	**$ 1,788,000**
CONTINGENCY / INCIDENTALS	$ 1,036,000		$ 536,600	$ 135,000	$ 364,400		$ 255,000.00	$ 26,000	$ 240,000	$ 357,600
GENERAL CONDITIONS & CGL INSURANCE	$ 932,400		$ 482,940	$ 121,500	$ 327,960					
GC OVERHEAD & PROFIT	$ 357,420		$ 185,127	$ 46,575	$ 125,718					
total soft costs	44.90%									
TOTAL	**$ 7,505,820**		**$ 3,887,667**	**$ 978,075**	**$ 2,640,078**					
P & P BOND,IF REQUIRED	$ 150,116	#	$ 77,753	$ 19,562	$ 52,802					

DEDUCTS: NON-LIFE SAFETY & CODE REQUIRED ITEMS	
EXTERIOR MASONRY, FLASHING, ROOF REPAIRS	$ 200,000
BASEMENT WATERPROOFING & PUMP	$ 150,000
ARCHITECTURAL layout modifications, PHASES 1 & 2	$ 806,500
subtotal	$ 1,156,500
soft costs	$ 519,269
total	**$ 1,675,769**

DEDUCT S: OPERA HOUSE	
Phase 3	**$ 2,640,078**

Adjusted Total, City Hall code improvements only	**$ 3,189,974**

DeStefano & Associates, Inc.
PLANNING • DESIGN • CONSTRUCTION

3/19/2024

ITEMS NOT ACCOUNTED FOR IN BUDGET
THEATER EQUIPMENT/ FFE
GRID REPLACEMENT – • WALKABLE STEEL CHANNEL GRID AND COUNTERWEIGHT LINE GRID SYSTEM (FOR RAISING/LOWERING LIGHTS); • STRUCTURAL ROOF REINFORCEMENT.
SMOKE CURTAIN AT STAGE PROCENIUM
THEATER SEATING REPLACEMENTS • FOLDING AT FLOOR • FIXED AT MEZZANINE
THEATER LIGHTING & CONTROLS - • FRONT OF HOUSE LIGHTING. • HOUSE LIGHTING. • STAGE LIGHTING FROM SUSPENDED CATWALKS, AT FRONT RAIL OF MEZZANINE (WITH STRUCTURAL REINFORCEMENT AND POWER/DATA), AND ABOVE STAGE.
SOUND SYSTEM & CONTROLS; • (2) 1,000# VERTICAL SPEAKER CLUSTERS • STRUCTURAL REINFORCEMENT FLANKING STAGE FOR SPEAKER ARRAYS SUPPORT. • BACK STAGE AND BACK OF HOUSE AREAS WIRED FOR INTEGRATED SOUND
AV INFRASTRUCTURE AND EQUIPMENT- • PROJECTION EQUIPMENT AND RETRACTABLE SCREEN • PATCH POINTS • ASSISTIVE LISTENING SYSTEM FOR HEARING IMPAIRED (FR OR IR SYSTEM, AT HOUSE AND POINTS OF SALE)
CATWALKS (2) – • SUSPENDED 4'-6' FROM CEILING OVER AUDITORIUM, • BACK PANELS AND FRONT RAIL. • SERVES LIGHTING & AV EQUIPMENT.
SMOKE CURTAIN AT STAGE (1-HOUR RATED, 20'X30')
ACM HAZARDOUS MATERIALS REMOVALS
ADDED INSULATION TO EXISTING WALLS AND ATTIC
PERMIT FEE
INSURANCE
THIRD PARTY TESTING
A/E CONSTRUCTION ADMIN
WINTER CONDITIONS
ESCALATION

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Part V: Supplemental Information

Technical Resources

Reference Links for Relevant Secretary of the Interior Standards, NPS Preservation Briefs, & Other Technical Guidance Documents

THE SECRETARY OF THE INTERIOR'S STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES WITH GUIDELINES FOR PRESERVING, REHABILITATING, RESTORING & RECONSTRUCTING HISTORIC BUILDINGS
https://www.nps.gov/orgs/1739/upload/treatment-guidelines-2017-part1-preservation-rehabilitation.pdf

The Secretary of the Interior's Standards for the Treatment of Historic Properties: Rehabilitation as a Treatment and Standards for Rehabilitation
https://www.nps.gov/articles/000/treatment-standards-rehabilitation.htm

Preservation Brief 1: Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings, by Robert C. Mack, FAIA, and Anne E. Grimmer, 2000:
https://www.nps.gov/orgs/1739/upload/preservation-brief-01-cleaning- masonry.pdf

Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings, by Robert C. Mack, FAIA and John P. Speweik, 1998: https://www.nps.gov/orgs/1739/upload/preservation-brief-02-repointing.pdf

Preservation Brief 3: Improving Energy Efficiency in Historic Buildings, by Jo Ellen Hensley and Antonia Aguilar, 2011:
https://www.nps.gov/orgs/1739/upload/preservation-brief-03-energy- efficiency.pdf

Preservation Brief 4: Roofing for Historic Buildings, by Sarah M. Sweester, 1978:
https://www.nps.gov/orgs/1739/upload/preservation-brief-04-roofing.pdf

Preservation Brief 9: The Repair of Historic Wooden Windows, by John H. Myers, 1981:
https://www.nps.gov/orgs/1739/upload/preservation-brief-09-wood-windows.pdf

Preservation Brief 10: Exterior Paint Problems on Historic Woodwork, by Kay D. Weeks and David W. Look, AIA, 1982:
https://www.nps.gov/orgs/1739/upload/preservation-brief-10-paint-problems-exterior-woodwork.pdf

Preservation Brief 24: Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches, by Sharon C. Park, AIA, 1991: https://www.nps.gov/orgs/1739/upload/preservation-brief-24-heating-cooling.pdf

Preservation Brief 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings, Sharon C. Park, AIA, 1996: https://www.nps.gov/orgs/1739/upload/preservation-brief-39-controlling-moisture.pdf

NPS/EPA Preservation Brief: Energy Advise for owners of Historic and Older Homes
NPS & EPA, Advisory Council for Historic Preservation, National Council of State Historic Preservation Officers, 2016. https://archive.epa.gov/region5/sustainable/web/pdf/energy-advice-for-owners-of- older-homes.pdf

Building Science Corporation Insight 041: Rubble Foundations
Joseph W. Lstiburek, Phd, P.Eng, Fellow ASHRAE, 2010: https://www.buildingscience.com/documents/insights/bsi-041-rubble-foundations

Appendices:

Meeting Notes

- Stakeholders 9/12/2023
- Stakeholders 01/31/2024
- Stakeholders 03/13/2024

MEETING NOTES
Stakeholder Input

Project Name: **Historic Assessment & Feasibility Study**

City Hall & Opera House

Owner: **City of Franklin NH**

Date: September 12, 2023

Arcove Project Number: 1029

Present:

Michelle Stanyan	City of Franklin	City Clerk & Tax Collector	City Clerk & Tax Collector
Mike Foss	City of Franklin	Fire	Fire Chief/EMD
Justin Hanscom	City of Franklin	Municipal Services	Municipal Services Director, Primary Water Operator
Seth Creighton	City of Franklin	Planning	Planning Director
Krystal Alpers	City of Franklin	Parks & Recreation	Parks & Recreation Director
David Goldstein	City of Franklin	Police	Chief of Police
Rob Sargent	City of Franklin	Library	Library Director
Rocky Marsh	City of Franklin	Municipal Services	Deputy Director
Lisa Jones	City of Franklin	City Manager's Office	Executive Secretary
Judie Milner	City of Franklin	City Manager's Office	City Manager
Dan Darling	Franklin Opera House	Opera House	Director, Franklin Opera House
Tracy Kozak	Design Team	Arcove Architects	Principal Architect
Kayla Keeler	Design Team	Arcove Architects	Architectural Technician
John DeStefano	Design Team	DeStefano & Associates, Inc	President, Sr Project Manager & Estimator
John Wathne	Design Team	Structures North	Principal Structural Engineer
Brant Underwood	Design Team	Theater Project Consultants	Project Manager
Jim O'Brian	Design Team	CSI Engineering LLC	Principal; Chief Electrical Engineer
Eric Pflugradt	Design Team	CSI Engineering LLC	Plumbing Designer
Domenic Ciolino	Design Team	CSI Engineering LLC	Fire Protection
John Cass	Design Team	CSI Engineering LLC	Principal, HVAC Engineer
Viktor Shoberg	Design Team	CSI Engineering LLC	Mechanical Engineer
Robert Schenk	Design Team	CSI Engineering LLC	Electrical Designer

Cc:

A. <u>Programming</u>

1. Theater - Need better access to stage for large items
2. Shared use of auditorium, currently by theater and city council. City would like a dedicated city council room. Gar hall?
3. c1908 theater photos. Open theater. 400 seats target capacity. For niche
4. Julie - Another city building exists offsite, 3 workers there need to move to city offices here.
5. More professional dept head meetings – space? EOC?
6. Overtime employees- must have window daylight space.
7. Security system - No keys, all wireless.
8. Seth – ADA accessible a must; modern amenities, hot water, water bottle filler, basic.
9. Accessible, first floor bathrooms, exits. Stage & backstage. All but maintenance spaces.
10. AV needed for meeting spaces. Wireless. Big screen for presentations, town meetings.
11. Judie - Guilford town hall is a good prototype.
12. Concessions – can be a primary revenue generator.
13. Ticketing, lobby (lobbies).
14. Seating cupholders. Historic seating – comfy? Not. mixed opinions. brant: for outside performances, and visiting audiences, these existing seats will not work. Project committee to make recommendations.
15. Preserve historic architecture, but seats can be replaced.
16. Lighting wells are not original. Can integrate lighting supports with historic features.
17. Storage – opportunities for offsite storage – yes. Old computers and envelopes and random stored items can go.
18. Jail cells – keep one. The rest can go.
19. Theater storage – offsite facilities currently rented. Prop & Costumes always offsite expect for what is currently in production.
20. Footlight Theater Company – offsite.
21. Opera house storage –
    a Community theater
    b School
    c Summer kids programs
22. Mostly need dressing rooms and makeup space for school productions with 60 kids.
23. Rehearsal space – ideally use the stage. Sometimes with 100+ performers, have to split upstairs and downstairs for rehearsal. Or use school or church if something else is happening here.
24. Shows Wednesday through Sunday typically.
25. Keep mixed use in place, city & theater. Future use all performing arts, future arts ed & maker space.
26. Would love a year-round after school program.

27. Sound control between perf arts and city use and issue. Sound isolation very important. Split front/rear? Or by floor (city at bottom floor). Concern for floor impact sound isolation – dance performances.
28. GAR hall – municipal use – then use all basement for theater. (brant).
29. Rehearsals conflict with city staff hours for sound transmission.
30. Acoustical treatments in auditorium, walls ceiling – can help.
31. Neighbors can hear sound, too – complaint.
32. Structural capacity for GAR – not enough for file cabinets.
33. Parking – build above? Podium construction above parking area may be possible.
34. Split level bathrooms an issue. Need to be all bathrooms at same level to function.
35. Show parking – street, nearby lots. Side and front entrance mostly used, mostly front door.
36. Ticketing as people walk in somewhat, mostly presale.
37. Connecting to library option? Community – open to possibilities. Elevator lobby can be closed off from library. Library trustees, and owned by city. Seth – worried about aesthetic of connection.
38. Public support for elevator and bathroom, more than mep (things they use and can see are easier to gain support).
39. 1990 concept addition – on the right track.
40. Don't want new elevator to impact historic roof.
41. Brant – back of house space- needs serious restructuring.
42. Library elevator – Foss, not optimistic for the connection. Does it save significant $ to make it worth it?
43. GAR hall – for city meetings? Seth, way too small. Council meetings are small enough, but public forums (100 people) gar is too small.
44. GAR Hall and current auditorium space about same size.
45. Meeting room next to GAR not really used.
46. Seth – public involvement at city meetings is increasing. Need to engage the public more going forward, need to plan for larger meetings.
47. Librarian will forward library floorplans to Arcove.
48. Brant – could use renovated auditorium for big city presentations.
49. Judie - building used as election polling for Ward 2. Temporary voting booths set up in auditorium, small area, doesn't need much space – will preclude permanent seating.
50. Police chief – building security is currently terrible. fobs could be improved, piggybacking going in the doors.
51. Operable windows for emergency escape (active shooters, etc). No window ac units.
52. City clerk & welfare need glass transaction separation windows from customers for security. Also at city manager office. Lockable offices.
53. Need hardened spaces, for antiterrorism, bullet proof under counters. Panic buttons.
54. Reducing storage in building – goal.
55. Clerks office

a Open workstations preferred
b Teller style closer, with separation from director.
c Director
d 3 workstations

56. Finance
    a Director, one separate office,– 2 guests chairs, one is a rocking chair must stay
    b 3 work stations
57. City manger department
    a Two work stations.
    b Reception area
    c private area
    d Don't need a little meeting room.
58. Welfare
    a one workstation
    b separate private room
    c separate transaction window
59. Planning dept
    a Storage needs onsite critical. 24 -drawer file cabinets
    b Copier printer (no plotter)
    c Separate office for Seth with 2 guest chairs and table for plans.
    d Assistant – shared open space; with assessing technician; and one more staff.
    e Can share one central print room
60. Storage
    a Library basement is available for relocated city storage

B. <u>MEP/FP (CSI)</u>

1. Fire protection - Dominic
    a No existing sprinkler; alarm is not current, needs updating for current compliance. Install sprinkler system. – dry attic system? GAR – concealed piping. Stage – both side and underneath. Balcony seating, concealed spaces. new service entrance from street and sprinkler room. Challenging but straight forward. Preaction system for computer – server. Main server for entire city is currently in city hall.
    b Deluge system required for stage proscenium – sprinkler heads heat activated, at both sides. Fire curtain system alternative (preferred).
    c Smoke ventilation system required for back stage – grant funding is available.
    d Town records – will relocate to historic society.

2. HVAC –

a Existing hot water was converted to steam heating system – replace with high efficiency boiler (remove radiators). Zoned.
b Many windows – natural ventilation possible for most spaces. Energy efficiency important and fresh air changes – is mech vent for all spaces a goal? Yes – for all occupied systems. More expensive, but plan on it. Currently limited ac. Ac retrofits – split system heat pumps; less intrusive with zoned controls. Remove existing hvac equip from back stage – a rear addition could allow rooftop mech equip – and/or on top of backstage (review structural & screening).
c Vault record storage – yes. Needs special climate control. Server room.
d Heat pumps - Wall mounted or ceiling cassettes or floor mounted type, can be attic ducted.
e Ground mounted equipment? Variable vrf system – refrigerant flow. One outdoor unit connected to all the indoor systems. Could be roof or ground mounted. Reduces refrigerant piping extents / costs.

C. Electrical –
a Most of the system is old, needs replacing (knob & tube & fuse boxes). Need to upgrade service – 2 existing. Keep separate – for town hall & opera house., 2 meters. Keep exist elect service location in the building. Led lighting upgrades. Automatic plug load controls? Coordinate with IT. Motion detectors, occupancy sensors. Lighting controls. Co2 detectors, for ventilation.
b Backup power. Generator – yes. Office use. Building not used as emergency shelter. Elevator.
c Solar pv array – battery storage – elect room needs extra ventilation. Backup power? Coordinate with generator hookup when needed. Size of array – depends on loads – hvac add a lot; less for lighting. Elevator usage? 4-8 hours a day solar power? Or just offices?
d Pv solar – need to insulate building first.
e Natural gas preferred for generator.
f Security – mason alarms wireless. Surveillance cameras. Keyless. Door hardware - fob system or Keypads: A&B – looking to change vendor – will bid for best rates. Keypad preferred.
g Preferred theater lighting – substantial, with controls. To be developed.

D. <u>Plumbing</u>
a Hot water current a 40 gallon water heater for bathrooms and sinks. 2-6.5 gal water heaters for theater sinks. Should all be replaces, with one central system, recirculating – more efficient.
b Gas service – with new generator and RTU, will need to be resized.
c Cold water – need larger water entrance, currently undersized 1-1/2" required.

d Sanitary – current size is fine. Clean up exposed pipes, consolidate layout.
e Bathrooms- currently not enough
f Elevator sump pit & pump, need floor drain
g Loading dock (potential) need floor drain for rain water

E. Structural – Structures North

1. Good bones, interior sound. No red flags, will go through interior for signs of damage, investigation pending proposed program.
2. Use group or seismic hazard change? Town hall & assembly use currently. An addition onto current structure with more than 10% of current mass, change of use, or alterations >50% of a floor will trigger seismic upgrades – would require lateral reinforcement – shot create shear walls, additional frames.
3. May need select demo investigations. Site visit Friday 9/22 or 9/25 full day 10-4. 9/25 for site visit.

F. Performing Arts – Theater Consultants

1. Theater access to backstage – hoist? Lift? Large theater equipment. Priority.
2. Remove built up basement floor – new slab moisture control.
3. Theater - lacks assembly lobby; ticketing is a challenge. Need elevator for balcony seating. Aisleways and seat spacing not up to code (rows too close). Bathrooms major issue.
4. Sightlines – large flat floor with tall stage, challenge for solutions available. As dedicated space, helps.
5. Voice reinforcement for presentations (municipal and/or film)
6. Performers – ada access needed. Green rooms, dressing rooms – need updating, especially for visiting performers. Productions – outside acts will expect updated level of production support, led lighting infrastructure – not nearly enough existing. Need several front of house positions for lighting. Recommend a real flyout, some line sets for series of lights, borders backdrops, fly projection screens. Grid capacity, fire curtains are heavy – structural requirements. Need a stage left exit. Stairs are too tight, challenging. Loading dock, rehearsal space. Av equipment.
7. Judie – for funding, need a defensible number % of building, that is opera house related. (office use doesn't qualify).
8. Flat auditorium floor is essential to theater needs – multipurpose use. Performers love the space. Don't want glitzy 21st century space, want to restore and improve existing space; bring up to code.
9. Keep the historic aspects, historic feel. School productions and community gatherings happen here.
10. Hearing assist – system – yes, wanted.
11. Auditorium flooring is original, has been refinished.

G. **Next Steps**

1. $5 million +/- construction budget? TK advised ballpark budget for full gut and renovations at $400sf/20,000sf = 8,000,000. New addition would be similar $/sf.
2. Need final report Asap! January funding target, for 30 year celebration for theater in 2025.
3. Phased construction approach. Brant – need operable fly house as baseline, but can populate it with equipment in later phases. Light rigs – couple thousand pounds each – structural requirements?

MEETING NOTES 02
Stakeholder Input

Project Name:	**Historic Assessment & Feasibility Study**
	City Hall & Opera House
Arcove Project Number:	1029
Owner:	**City of Franklin NH**
Meeting Date:	January 31, 2023
Issue Date:	2/7/24
Recorded By:	Arcove Architects
Location:	Virtual Meeting/Zoom
Subject:	Stakeholder Feedback / Review of Design Concept

Attendees & Distribution:

Name	Affiliation	Department	Role	Present
Dan Darling	Theater	Franklin Opera House	Director, Franklin Opera House	x
David Goldstein	City of Franklin	Police	Chief of Police	X
Domenic Ciolino	Design Team	CSI Engineering LLC	Fire Protection	x
Eric Pflugradt	Design Team	CSI Engineering LLC	Plumbing Designer	x
Jim O'Brian	Design Team	CSI Engineering LLC	Principal; Chief Electrical Engineer	x
Jillian Borgherdt	Design Team	Structures North	Structural Engineer	x
John DeStefano	Design Team	DeStefano & Associates, Inc	President, Sr Project Manager & Estimator	x
John Wathne	Design Team	Structures North	Principal Structural Engineer	x
Judie Milner	City of Franklin	City Manager's Office	City Manager	x
Jule Finley	Theater	THE FRANKLIN PLAYERS	Director	x

Justin Hanscom	City of Franklin	Municipal Services	Municipal Services Director, Primary Water Operator	x
Kayla Keeler	Design Team	Arcove Architects	Architectural Technician	x
Krystal Alpers	City of Franklin	Parks & Recreation	Parks & Recreation Director	x
Michelle Stanyan	City of Franklin	City Clerk & Tax Collector	City Clerk & Tax Collector	x
Mike Foss	City of Franklin	Fire	Fire Chief/EMD	x
Robert Schenk	Design Team	CSI Engineering LLC	Electrical Designer	x
Seth Creighton	City of Franklin	Planning	Planning Director	x
Tracy Kozak	Design Team	Arcove Architects	Principal Architect	x
Viktor Shoberg	Design Team	CSI Engineering LLC	Mechanical Engineer	x
Zach Andrews	Design Team	CSI Engineering LLC	Engineer	x

City of Franklin	CF	Franklin Opera House	FOH
CSI Engineering LLC.	CSI	Arcove Architects	AA
Structures North	SN	DeStefano & Assoc.	DA
Theater Project Consultants	TPC		

Purpose of Meeting:

Stakeholder review of design concept & Feasibility study. Goal of the meeting was to collect feedback on proposed design and budgetary estimate, and create list of action items for the further development of project.

No.	Discussion	Action By/Date Due
02.01	Programming for Shared Spaces: • Bathrooms – one basement single user bathroom moves up to second floor.	AA
02.02	Programming for City Hall: • Attic Level ○ Add an IT room for use by City of Franklin (subdivide Storage room) ○ Change 'Tower Room' to 'Meeting Room' • Second Floor / Mezzanine ○ none • First Floor ○ none • Ground Floor ○ Rework organization of city departments- see attached sketch ○ City Manager needs designated storage, security Vestibule, waiting room, & professional entrance ○ Meeting room to become Welfare directors office, 2 chair meeting room, & vestibule (3 rooms total needed for Welfare- Vestibule/Meeting/Office) ○ Planning Director switch to finance 2 person office ○ Finance director stays where located, then planning, then meeting room at the end ○ All departments to be separated ○ Switch private toilet with Clerks storage & Private office separated from planning with a glass door, 2 checkout windows req. Clerk- Storage/Office/Open office with work stations- Clerk section to be walled off from the rest of the ground floor offices. ○ All walls at basement will need to be shored out at existing masonry approximately 8-12" ○ Planning department requests 1 window to the outside & only requires 1 checkout window ○ Kitchenette preferably relocated possibly shared with area for print room ○ Print Room to be enclosed & needs space for plotter and large printers	AA

	○	
02.03	Programming for Opera House: • Attic ○ Lighting and Sound Rig will be excluded from Phase 1; to be included in future Phasing ○ New addition storage room to be dedicated for theater use. • Second Floor / Mezzanine ○ Change concessions space into two single user bathrooms. ○ Add small snack bar within back corner of auditorium. ○ Storage space next to Gar Hall can get smaller ○ Gar Hall – provide an elevated built-in U-shaped desk area (judicial style "bench") with seating for 11 city counselors. ○ Provide a podium in the middle clear aisle in front of council bench. ○ Designate storage in new addition as storage for Opera House, props and costumes. ○ Add a custodial closet on each floor if possible ○ Theater seats will be replaced for code compliant egress spacing. Tiered floor will be investigated for possible overbuild to bring mezzanine seating up to code. ○ Hang tie rods (1" diameter) to support load of new overbuild floor tiers at mezzanine. • First Floor ○ Lighting & Sound booths on 1st floor is preferable ○ Would like to sell pre-bottled beer & wine in concessions ○ Mop basin & drinking fountain required ○ Plumbing infrastructure in 1st floor concessions for future kitchen upgrades ○ Designate temporary costume storage ○ Custodial Closet • Ground Floor ○ Larger dressing rooms are needed for both men and women. Space is needed for up to 50 people in each dressing room. Costume racks will be positioned throughout dressing rooms.	REC AA
02.04	Architectural	AA

	• Design team to explore options for fire curtain at stage; existing overhead lift height is limiting factor; structural reinforcement needed. • Acoustic Floor assembly for level 1 floor to improve acoustic separation between Opera House and ground floor office space below. Install better performing acoustical sound separation floor/ceiling assembly. Noise transmission from theater to city hall spaces is a concern. • Replace 1st floor hardwood flooring (has been refinished for the last time, too thin) .	
02.04	Mechanical, Electrical, Plumbing & Fire Protection: • Mechanical / Plumbing ○ Larger mechanical room needed on ground floor • Electrical ○ Electrical room needs two means of egress, swinging out ○ Research if Library and City Hall can share the same transformer • Fire Protection ○ Opera House has designated money for fire safety of 150k needed to be spent by sept 30th (will need to be extended if not allocated in time, phase with this in mind) ○	CSI
02.04	Structural: • Explore options for additional structural support of Mezz. Seating/overbuild • Verify if walls at basement will need to be shored out at existing masonry, approximately 8-12” •	SN
02.05	Budget: • Preliminary conceptual budget was presented by John Destefano. Total construction cost estimated at approximately $6.3 million; excluding soft costs (permitting, design fees, insurance, phasing, etc) and theater fit-out equipment, auditorium seating and mezzanine reframing, stage fire curtain, window replacements at backstage & basement, insulation, and hazmat abatement.	DA
02.06	Schedule: • Construction Phasing –	All

	◦ Phase 1: City Hall functions move to first & second floors (Opera House remains vacated). Construction work at Ground floor level, and new entry addition. ◦ Phase 2: City Hall functions occupy the completed Ground Floor level. Work commences at upper floors. ◦ Completion: Opera House occupies upper floors. Design team to make design updates to present for next Wednesday 2/7/24. Next stakeholders meeting to be scheduled; City Manager's office to coordinate. Agenda for Next Meeting: Review updated design & budget. •	

The above represents the author's recollection of the issues discussed and agreements made. Please notify author of any errors or omissions within 1 week of issuance, otherwise this record shall stand as an accurate representation of the meeting.

MEETING NOTES 04
SECURITY

Project Name: **Historic Assessment & Feasibility Study**

City Hall & Opera House

Arcove Project Number: 1029

Owner: **City of Franklin NH**

Meeting Date: 3/13/24

Issue Date: 3/13/24

Recorded By: Arcove Architects

Location: ZOOM

Attendees & Distribution:

Name	Affiliation	Department	Role	Present
Judie Milner	City of Franklin	City Manager's Office	City Manager	x
Mike Foss	City of Franklin	Fire	Fire Chief/EMD	x
David Goldstein	City of Franklin	Police	Police Chief	x
Tracy Kozak	Design Team	Arcove Architects	Principal Architect	x
Kayla Keeler	Design Team	Arcove Architects	Designer	x
CC: DESIGN TEAM				
Jim O'Brian	Design Team	CSI Engineering LLC	Principal; Chief Electrical Engineer	
John DeStefano	Design Team	DeStefano & Associates, Inc	President, Sr Project Manager & Estimator	
Brant Underwood	Design Team	Theatre Projects	Performing Arts consultants	
John Wathne	Design Team	Structures North	Principal Structural Engineer	

Abbreviations:

City of Franklin	CF	Franklin Opera House	FOH
CSI Engineering LLC.	CSI	Arcove Architects	AA
Structures North	SN	DeStefano & Assoc.	DA
Theater Project Consultants	TPC		

Purpose of Meeting:

Building Security planning review

No.	Discussion	Action By/Date Due
04.01	Security Goals: 1. Alter what we reasonably can for renovation of existing building elements. 2. Improve operational protocols, such as use of badges, and staff training. 3. Incorporate new building elements to improve security such as electronic access control systems.	3/15/24
04.02	Avoid dead end rooms in city offices; provide an escape route from each office area; leading to either a secure shelter in place room or a secondary secure means of egress. Provide connecting doors between select offices.	3/15/24
04.03	Windows may be used as emergency egress. Provide bullet proof glass at all city office windows.	3/15/24
04.04	Access control – key pads or fobs (not keys). On concept basement plan, the gray shaded areas are the only areas accessed by the public. Other areas are controlled access for staff or theater groups only.	3/15/24
04.05	Provide panic buttons, mobile & hardwired. Consider emergency pull “blue light stations” at shelter in place locations such as Clerk’s Storage room.	3/15/24
04.06	Gar Hall – provide bullet proof dais, panic buttons, emergency egress, verify access and visibility measures.	3/15/24

The above represents the author’s recollection of the issues discussed and agreements made. Please notify author of any errors or omissions within 1 week of issuance, otherwise this record shall stand as an accurate representation of the meeting.