

Structural Engineering Report For **The Guild House** **62 South Swan Street Albany, NY**



Prepared For:

Dean Leander Harding, Cathedral of All Saints

Prepared By:

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Executive Summary:

The existing Guild House building is in an advanced deteriorated condition due to decades of benign neglect. It can be saved and restored in a phased manner that will preserve its historic character by constructing a new, modern structure within the existing envelope as well as fixing the roof and masonry bearing walls throughout. Recommendations for sequencing the work in a phased manner are provided in the report below.

On November 14, 2023 and January 18, 2024, Bryan Clapper, PE, from Clapper Structural Engineering, PLLC performed an inspection of the Guild House. The purpose of the inspections was to review the existing structural condition of the building.

The Guild house is an existing 3 story wood framed building with brick and clay tile masonry bearing walls. It is understood that the original building was built in 1902 and renovated/alterd in the late 1940s.

The following is a detailed summary of the structural components of the building:

Roof:

The roof consists of wood framed rafters and purlins supported by steel trusses.

- The purlins/rafters appeared to be in good condition at the time of inspection. The inspection was performed from the floor. A closer inspection will be needed after the floor framing is stabilized. Any damaged or rafters/purlins will need to be sistered or replaced. From our inspection it appears that minimal reinforcement will be needed, but this will need to be confirmed when safe access can be provided.
- In the locations where purlins/rafters are supported by the exterior masonry bearing walls, they are pocketed into the masonry. Each of these locations should be inspected when safe access can be provided. It is likely that these rafter ends have rot/deterioration. Any areas that have rot will need to be sistered and resupported.
- The valley rafters are damaged at the locations where they bear on the exterior masonry walls. In some locations these valleys are damaged beyond repair at the bearing location. It is recommended that these valleys be re-supported by adding supplemental steel supports and/or by replacing the valleys in their entirety. It is recommended that new wood framed walls be installed around the perimeter of the building. These walls will be used for support and columns can be placed in the locations of the valleys for support.
- The steel trusses were in fair condition at the time of inspection. It is recommended that surface rust be removed, and the steel be recoated with adequate paint. Where the ends of the trusses bear on the exterior masonry wall it is recommended that new supports are added. This can be done with new steel columns and site fabricated reinforcement plates.

Floors:

The two upper floors are wood framed. The floor framing for those floors consists of wood floor joists supported by steel beams and masonry bearing walls. The lowest floor appears to be a combination of wood framing in some locations and concrete slab on grade for most of the floor area.

- The wood framing for the two upper floors is in poor condition; there are areas where the floor framing is collapsed. Where the wood meets the bearing walls, the ends of the joists are damaged beyond repair in several locations.
- The steel beams were not fully exposed at the time of inspection. Assuming they are in good condition it is recommended that they remain in place.
- Based on the condition of the wood framed joists for the upper floors it is recommended that all the floor joists be removed in their entirety and replaced. This is shown graphically in the schematic structural plans attached.
- In areas of the 1st floor where wood framing was originally installed, it is recommended from a structural perspective to remove the remainder of the wood framing, install a proper crushed stone subbase and vapor barrier, and provide a concrete slab on grade.

Exterior Walls

The exterior walls are comprised of clay masonry tiles and brick masonry.

- There are several areas marked on the schematic structural plans where the masonry is in very poor condition and needs to be repaired.
- Aside from the clear areas that need to be addressed, the masonry needs to be repointed throughout the structure on both the inside and exterior of the building. It is recommended that during the repointing process any loose or damaged masonry be replaced.
- After all the masonry is repaired throughout the building it is recommended to provide new wood framed walls along the entire perimeter and along any interior bearing walls. The new wood framed walls will structurally act as bearing walls. The walls can also be used for insulation purposes.

Seismic Requirements

The building code requires that any unreinforced masonry building undergoing a renovation of this magnitude be reviewed for seismic requirements.

- The results of this analysis will require that the roof and floor diaphragms are properly attached to the masonry exterior bearing walls.
- Lateral stability is also reviewed as part of this analysis, it is possible that new shear walls or steel moment frames will be required. With the new bearing walls being installed as described above, if needed portions of those walls can be utilized as wood frame shear walls.

Foundations

The foundations were not exposed for visual inspection during the site visits. The majority of the floor and roof load will now be supported on the new wood framed bearing walls as described above. Beneath the bearing walls will need to be new footings. The new footings will support the majority of the floor and roof loading and will unload the existing foundation. Any areas in the existing foundation walls that are showing signs of settlement will need to be further reviewed and design for stabilization will be required.

Sequencing and Order of Priority

Structural Priority #1

- The first order of priority is to fix the masonry as marked up on the schematic plans as “masonry repair priority #1.” This area is in very poor condition and is in imminent danger of

collapse. Temporary shoring will need to be installed and that portion of the wall will need to be partially removed and rebuilt.

- All roof leaks and gutter failures need to be addressed as part of phase #1. The building structure will continue to deteriorate if the water infiltration is not resolved.
- Select temporary shoring is recommended during this phase in areas where there is potential for collapse.

Structural Priority #2

- The second priority is to reattach the floor diaphragms to the masonry exterior walls. This will need to be performed in a sequential manner. Our original concept is to perform this in approximately 8 sequences.
- The first step of each sequence would be to build new foundation elements to support what will be the new wood framed bearing walls.
- The second step would be to remove the 2nd floor framing in the area, build new wood framed bearing walls, then replace the floor framing.
- Prior to rebuilding the new wood framed bearing walls, masonry repair from the inside of the building will be required.
- The next step would be to do the same for the 3rd floor framing.
- The number of areas that can be addressed and the order in which they will need to be addressed will be dependent on funding and construction costs for each sequence. When more information is known about these items, a proper shoring and sequencing plan can be provided.

Structural Priority #3

- With the floor stabilized, all required roof framing repairs and reinforcement can take place.
- All masonry repairs from the interior can also take place from the 3rd floor to the roof.
- Finally new wood framed walls can be installed after the masonry repair is complete.
- Simultaneous to these repairs, exterior masonry repairs can be made.

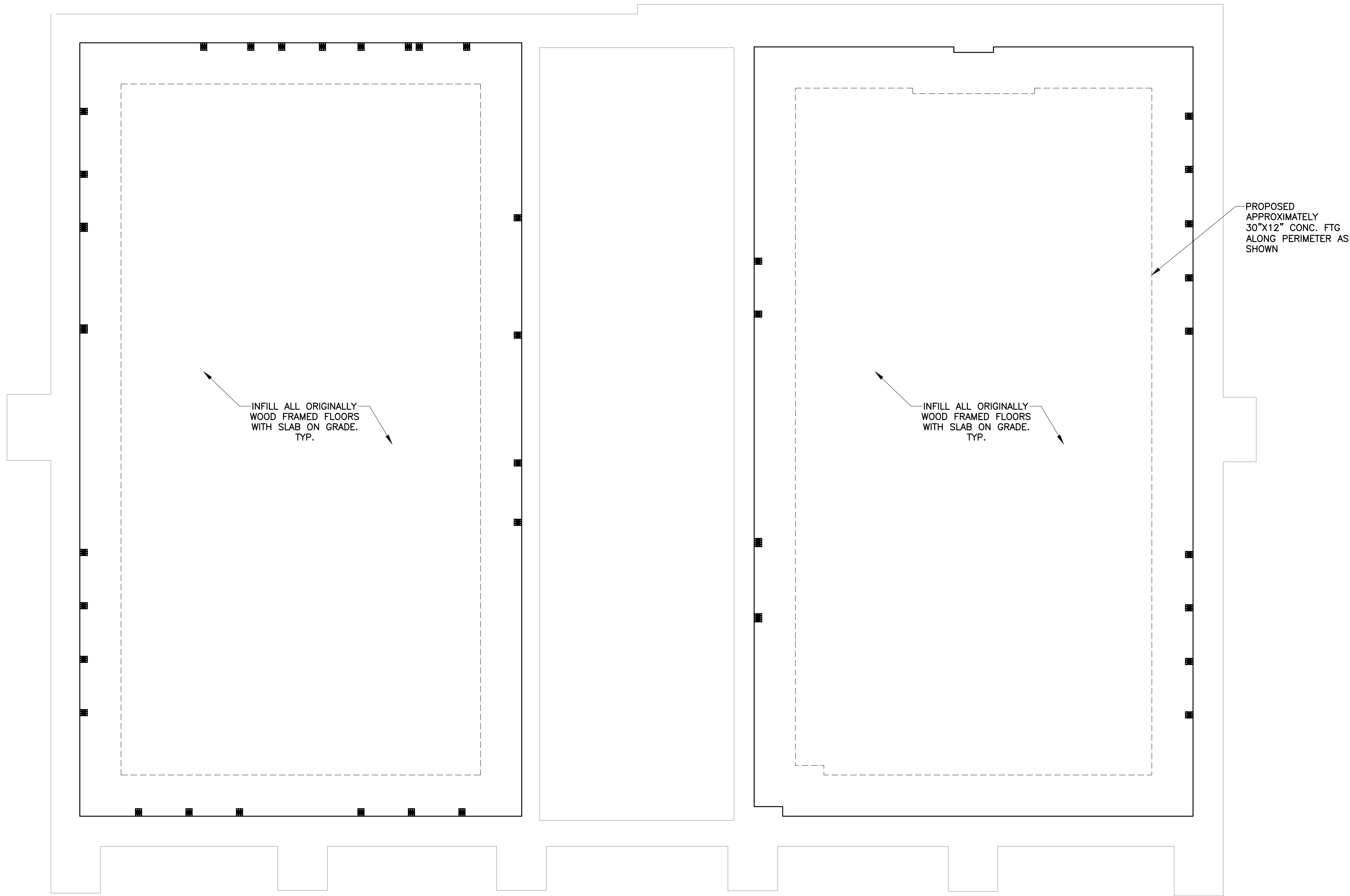
During the repair and stabilization process, routine inspections by a structural engineer are recommended. Priorities may change if new problem areas arise during the process. With a structural engineer routinely inspecting the building, they can make the determination if any areas need to move up in priority during the process.

This completes our report. This report is based on visual observations of structural elements that were accessible at the time of our visit. We did not perform any materials tests on any of the building elements to determine their conformance to accepted standards. The findings associated with this report are limited to the condition of the exposed structural elements. This report does not express or imply a warranty of the building or of any of the building elements and there is no claim, either stated or implied, that all conditions were observed.

The opinions of Clapper Structural Engineering, PLLC expressed in this report were formed utilizing the degree of skill and care ordinarily exercised by a prudent engineer in the same community under similar circumstances. The conclusions presented herein represent Clapper Structural's professional judgment based on the information obtained during the course of this assignment.

The schematic plans are for initial budgeting and visual representation of the descriptions above only. Construction Documents stamped by a NYS professional engineer will be required prior to performing any work as well as proper permitting from all required agencies and the building department is required.

Should you have any questions with this report please feel free to contact me.



1 SCHEMATIC FOUNDATION PLAN
S-101 SCALE: 1/4"=1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

DWG BY/CHECK BY:GP/BC

JOB # 23297

UNAUTHORIZED ALTERATIONS OR ADDITION TO A PLAN BEARING THE SEAL OF LICENSED PROFESSIONAL ENGINEER IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

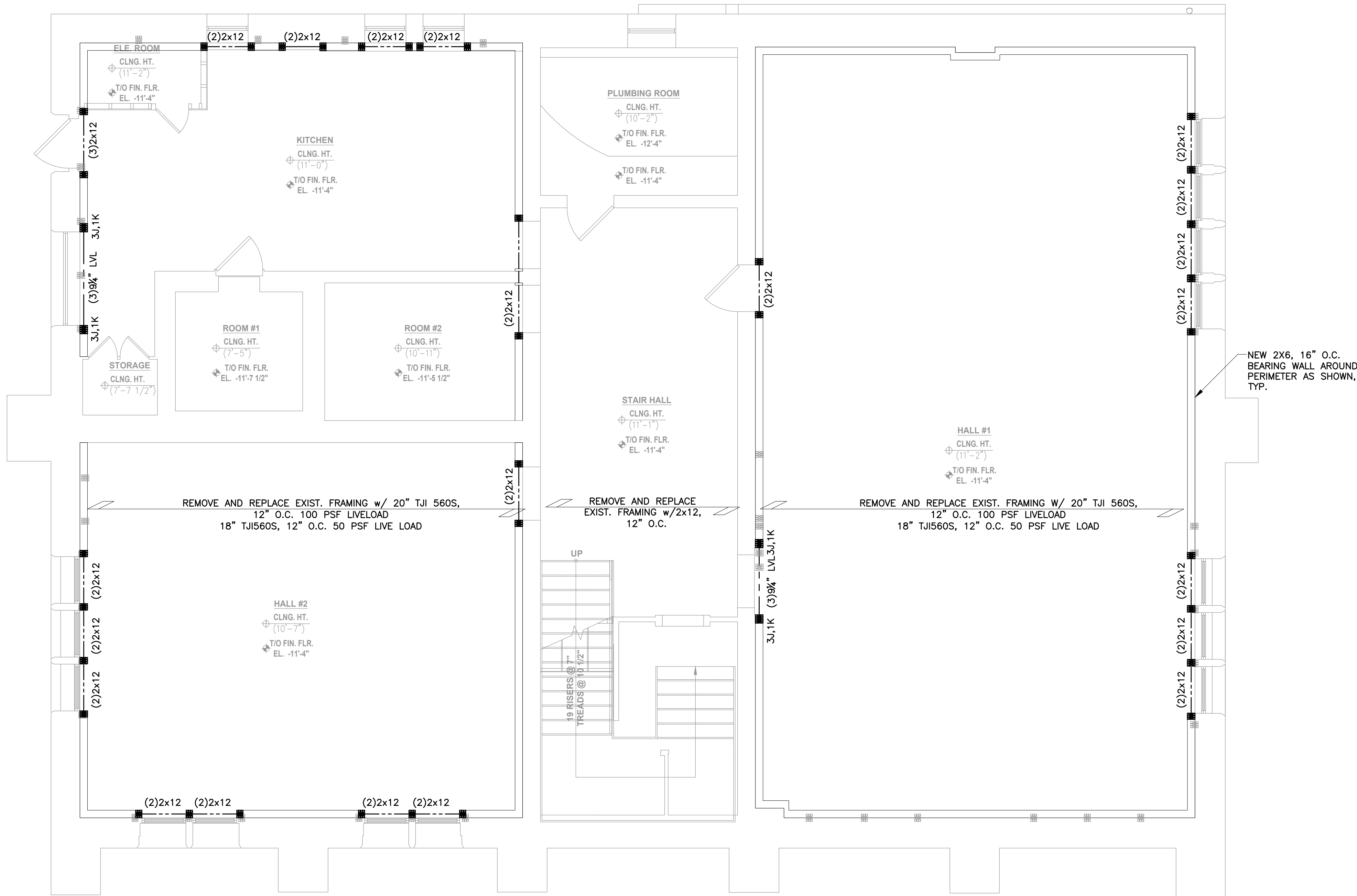
S-101

PLANS FOR:
CATHEDRAL OF ALL SAINTS -
GUILD HOUSE
62 SOUTH SWAN STREET
ALBANY, NY

SHEET TITLE:
SCHEMATIC
FOUNDATION PLAN



DATE:	ISSUE:
3/13/2024	SCHEMATIC STRUCTURALS



1 SCHEMATIC 2ND FLOOR FRAMING PLAN
S-102 SCALE: 1/4"=1'-0"

- NOTES:
1. ALL DOOR AND WINDOW HEADERS TO BE (2)2x10 WITH (2) JACK STUD AND (1) KING POSTS U.N.O.
 2. ALL BEAMS ARE FLUSH FRAMED UNLESS NOTED OTHERWISE

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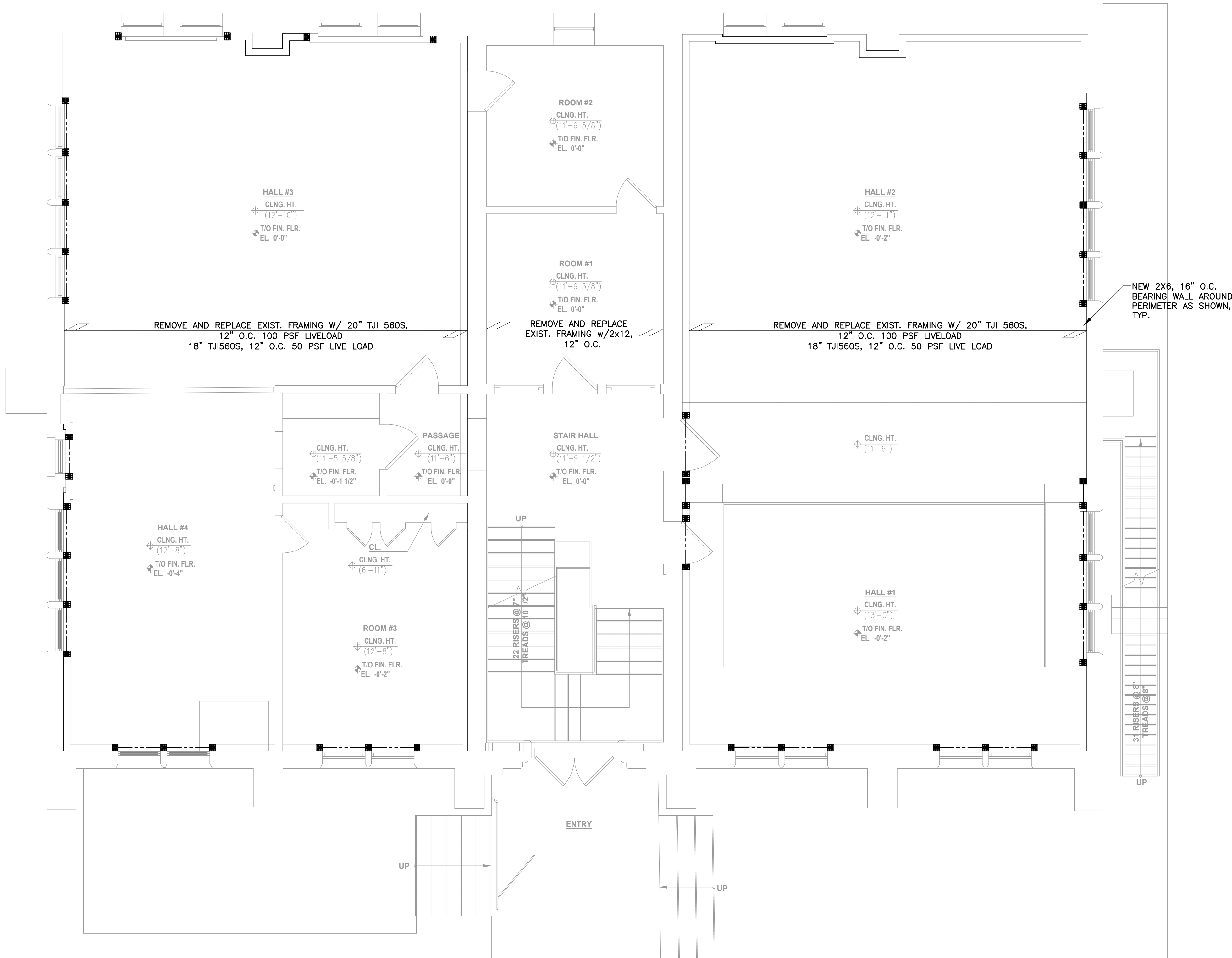
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PLANS FOR:
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1 SCHEMATIC 3RD FLOOR FRAMING PLAN
S-103 SCALE: 1/4"=1'-0"

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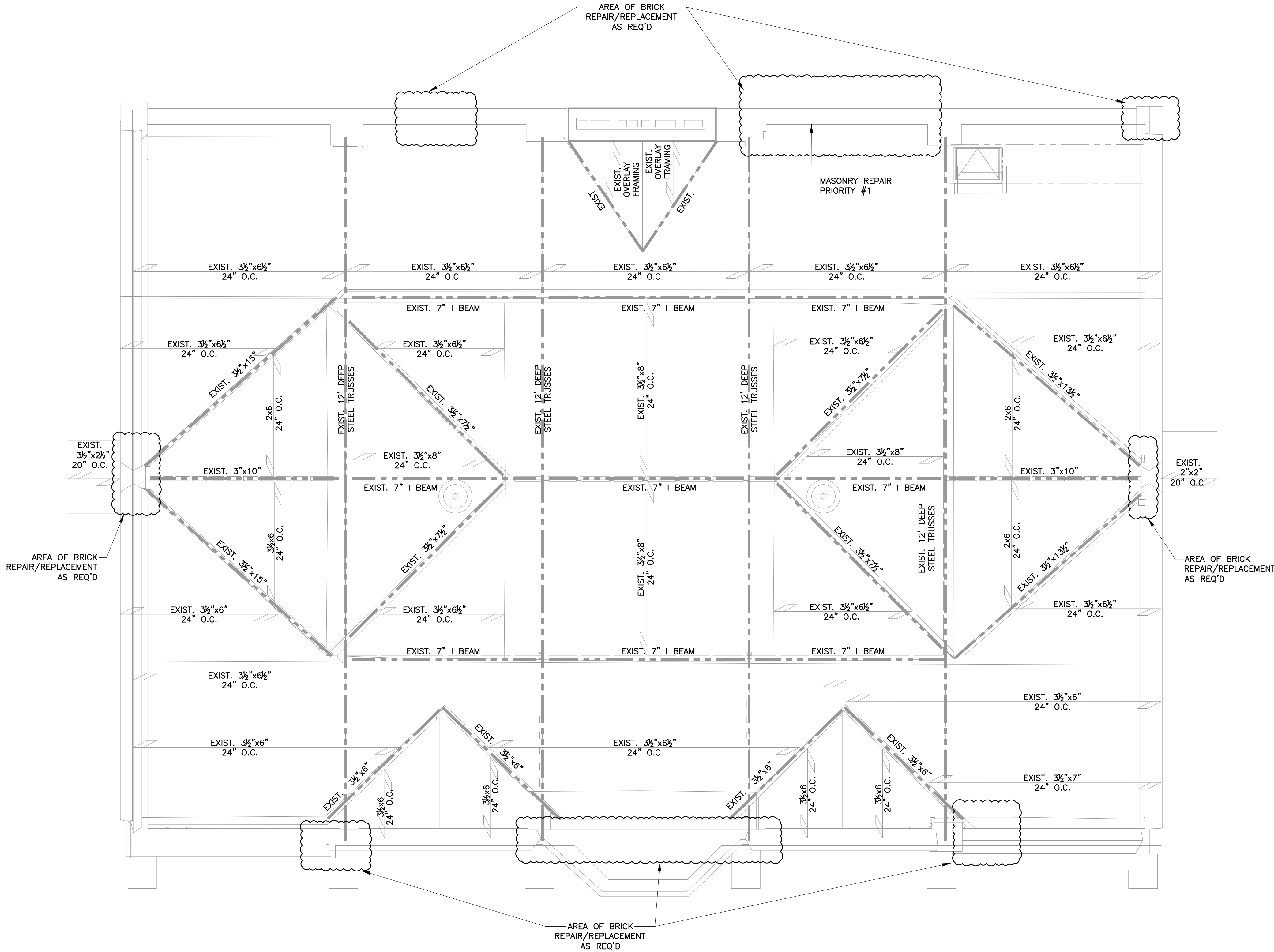
S-103

SHEET TITLE:
SCHEMATIC 3RD
FLOOR FRAMING PLAN

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62 SOUTH SWAN STREET
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1 SCHEMATIC ROOF FRAMING PLAN
S-104 SCALE: 1/4"=1'-0"

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S-104

PLANS FOR:
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SHEET TITLE:
**SCHEMATIC ROOF
FRAMING PLAN**



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