November 7, 2023

Matt Runyon
1962 Market Street Partners, LLC
1962 Blake Street, Suite 200
Denver, CO 80201

RE: Existing Building Structural Assessment – 1962 Market Street

Mr. Runyon:

At your request, staff from our office visit the existing building at 1962 Market Street on October 4th, 2023. According to the Denver County Assessor's website, the effective year built was 1886.

The building has what appears to have had several structural alterations over the years, with a 'building without a permit' complaint registered with the building department in 2021. There are structural concerns observed in the building, and the concerns are discussed below. For description purposes, the building face along 20th Street will be referred to as the north side of the building. As part of our investigation, we have also developed and provided schematic framing plans.

EXISTING BUILDING DESCRIPTION

Exterior Walls

The existing walls consist of multi-wythe brick walls. It appears as if the walls transition from three wythe to two wythe brick walls at the second floor elevation, which is typical construction of the period. There is an approximate 1" thick layer of stucco on the exterior surface of the brick wall on the north and west wall that was most likely added well after the original construction of the building. The stucco extends from the first level to the lower part of the second level.

The window openings in the walls do not appear to be original to the building, as there appears to be brick of different texture infilled in previous narrow window openings, with old arched brick lintels. Based on the current window openings and window construction, it is believed the current window openings were constructed in the 1940's or 1950's. The west elevation has load path discontinuity that needs to be reinforced. The following images are of the wall elevations.

Image 1 – South Elevation

Image 2 – West Elevation

Image 3 – North Elevation

Image 4 – East Elevation (Looking South)

Image 5 – East Elevation (Looking North)

The north exterior wall near the east side appears to bow outward above the second floor level, which may be due to separation of the brick wythes. Image 6 highlights the area of the wall of concern.

Image 6 – North Elevation – Area Where Wall Appears to be Bowing

The roof slopes down from west to east, and the roof extends over the top of the roof on the low side, and deterioration on the top of the brick wall is evident (shown in Image 7), most likely from years of water infiltration. This condition has compromised the bracing of the top of wall and lateral ties from the roof diaphragm to the wall.

Image 7 – East Elevation – Top of Wall Deterioration

Top of walls on the west and south side were modified with some CMU block and newer brick at top of wall, which leads us to believe the top of the wall had water damage and was rebuilt. This condition is shown in Images 8 and 9. It is anticipated that significant portions of the exterior brick walls cannot be repaired and will require complete reconstruction.

Image 8 – West Elevation – Top of Wall Past Rehabilitation

Image 9 – South Elevation – Top of Wall Past Rehabilitation

Roof Framing

The existing roof framing consists of 1x wood decking of various widths supported by 2x6 wood joists at 24" on center, spanning south to north in bays of approximately 12'. The mild roof slope is perpendicular to the joists, sloping down to the east. A portion of the original decking appears to have been removed and replaced at the northwest corner of the building. Due to the large amount of splits and knots in the members, the 2x6 joists do not appear to be high grade framing members. The joists bear in brick pockets at the north and south exterior walls, with some pockets being oversized and not providing adequate bearing conditions. Some of the roof joists have supplemental supports to the 2x4 ceiling joist framing, which are spanning south to north and are spaced at 16" on center. Load carrying analysis of the existing roof joists show the members are overstressed in bending by 15% to 40%, depending on the allowable stress of the existing wood members. Excessive deflection of approximately 1" was observed in the framing system, and several severe splits near midspan in the ceiling and roof joists were observed, as a result of the members being overstressed. The damaged members are structurally unsound and are not capable of supporting future snow loads or activity on the roof.

The interior supports of the roof and ceiling joists appear to have originally consisted of 2x4 wood stud bearing walls, but some locations have had modern 2x wood beams installed where sections of the original bearing walls were removed. There are some new wood bearing walls installed, moving the original bearing wall location and load path. The modern built up wood beams are inadequately supported by wood posts at the beam ends, contributing to excessive deflection at the base of the posts and deflection of the roof and ceiling framing. The load path of the relocated wood bearing walls and point loads from the posts is severely compromised down to the foundation elevation. Due to the current condition and supports of the roof framing members, we believe the roof cannot be repaired and will require complete reconstruction. Images of the existing roof framing are shown and described below.

Image 10 – Existing Roof/Ceiling Framing Bearing on Interior Wall

Image 11 – Existing Roof/Ceiling Framing Bearing in Brick Pockets

Image 12 – Altered Bearing Wall Location – Northeast Section

Image 13 – Altered Bearing Wall/Beam

Image 14 – Overloaded Framing

Second Floor Framing

The existing second floor framing consists of 1x tongue and groove wood decking supported by 2x8 wood joists at 16" on center, spanning south to north in bays of approximately 12'. The joists are supported by what may be an original 12" deep steel beam, approximately 12' south of the north exterior wall. The steel beam line has one interior support column near the center of the span. The remaining floor joists appear to have been originally supported by wood bearing walls. The original load bearing walls supporting the roof framing appeared to stack on the wood bearing walls and steel support beam below the second floor framing. On the western half of the building, it appears as if more modern built up wood 2x beams have been installed to remove the original wood bearing wall below. These beams are temporarily supported with adjustable steel columns from the main level to the second floor. There is significant deflection in these beams and supports, on the order of 4 ½" downward. At the east end of the second level, the deflection of the floor joists is as much as 6 ½" from the original floor elevation. These deflections are indications of considerable structural distress and improper load paths.

The second floor is accessed by wood framed stairs at the south side of the building. The second floor joists appear to be supporting two to three ceilings on the underside of the joists. There is also significant debris filling the cavity below the floor decking and top of original ceiling. Floor decking has been removed in many locations, causing stability concerns at the compression face of the joists are not currently braced in many locations. The northern bay of framing appears to have modern plywood sheathing bearing on flat 2x's on top of the original floor decking, causing an approximate 2 ¼" step in the floor.

Due to the extent of distress, we anticipate the floor to require complete reconstruction, or nearly complete reconstruction, extending from the existing steel beam support to the south exterior wall. The updated support conditions will need to be properly tracked and supported at the foundation level. In its current condition, the second level can not be occupied. Images of the existing second floor framing are shown and described below.

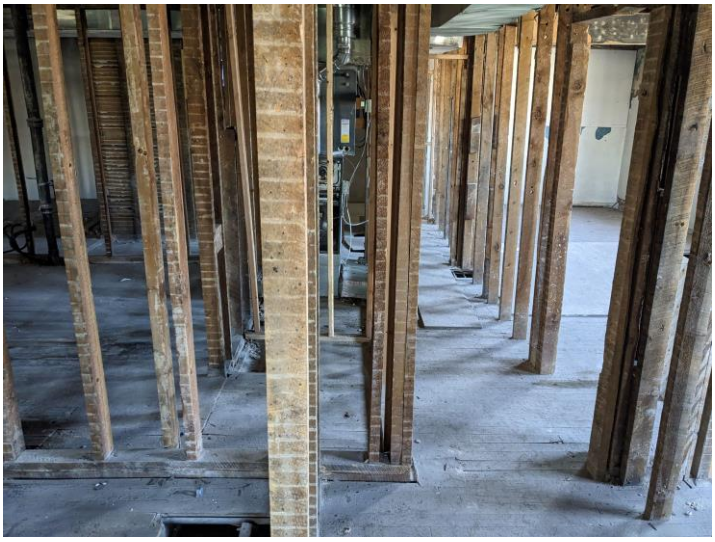


Image 15 – Second Floor – Current Condition

Image 16 – Second Floor – Damaged Joists Bearing on Modern Built Up 2x Wood Beam

Image 17 – Second Floor – Joists Bearing on Original Wood Bearing Wall – Southeast Area

Image 18 – Second Floor – Original Steel Beam Support

Image 19 – Second Floor – Bearing Wall Below Replaced by Beam

Image 20 – Main Level – Original Assumed Support Column for Original Assumed Steel Beam Above

Image 21 – Main Level – Temporary Columns (Looking Southwest)

Main Level Framing

The existing main level framing mostly consists of 1x tongue and groove wood decking supported by 2x10 wood joists at 16" on center, spanning south to north in bays assumed to be approximately 12'. It is unclear what supports the joists in the crawl space, as the soil level in the crawl space appears to be directly below the joists. The support condition of the temporary steel columns and points loads from the roof and second floor framing are questionable, and the main level framing will need to be removed to provide adequate foundation elements, as many foundation elements will require complete reconstruction. It is assumed the close proximity of the wood framing to the soil has caused decay and compromised many of the original floor joists.

The northern section of the crawl space appears to have been reconfigured and deepened many years ago, but well after the original construction date. In this area, original brick masonry walls are exposed at the exterior walls, along with cast in place concrete and concrete masonry unit stem walls. It is assumed the concrete walls were added to undermine and underpin the original brick masonry foundation walls. Numerous questionable bearing conditions were observed in the deeper section of the crawl space. It is assumed the entire main level will require complete reconstruction. Images of the existing second floor framing are shown and described below.

Image 22 – Main Level Framing – Existing Joists Above Soil

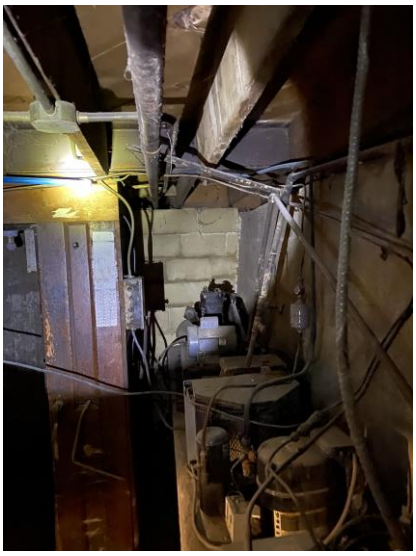


Image 23 – Main Level Framing – Modified Crawl Space/Framing

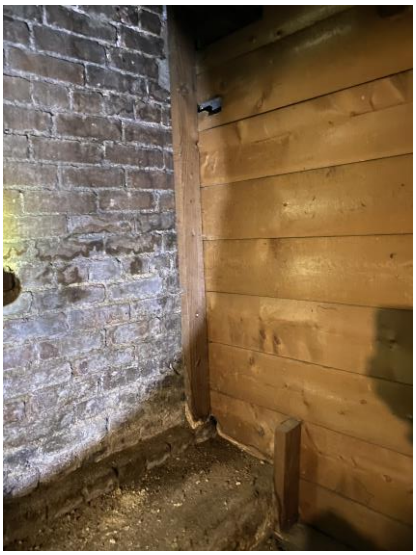


Image 24 – Crawl Space – Original Brick Foundation/Footing

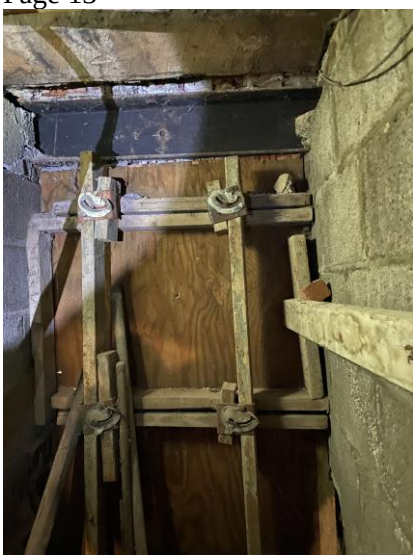


Image 25 – Crawl Space –Past Remediation Work (West Wall)

Image 26 – Crawl Space – Compromised Section – Northeast Corner

Image 27 – Crawl Space – Existing Column Support

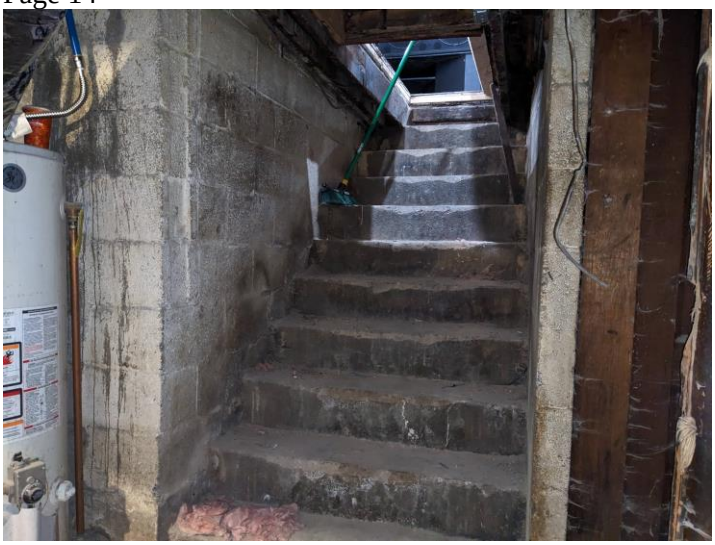


Image 28 – Crawl Space Stairs – Not Original

SUMMARY

There are several areas of the structure that need immediate attention.

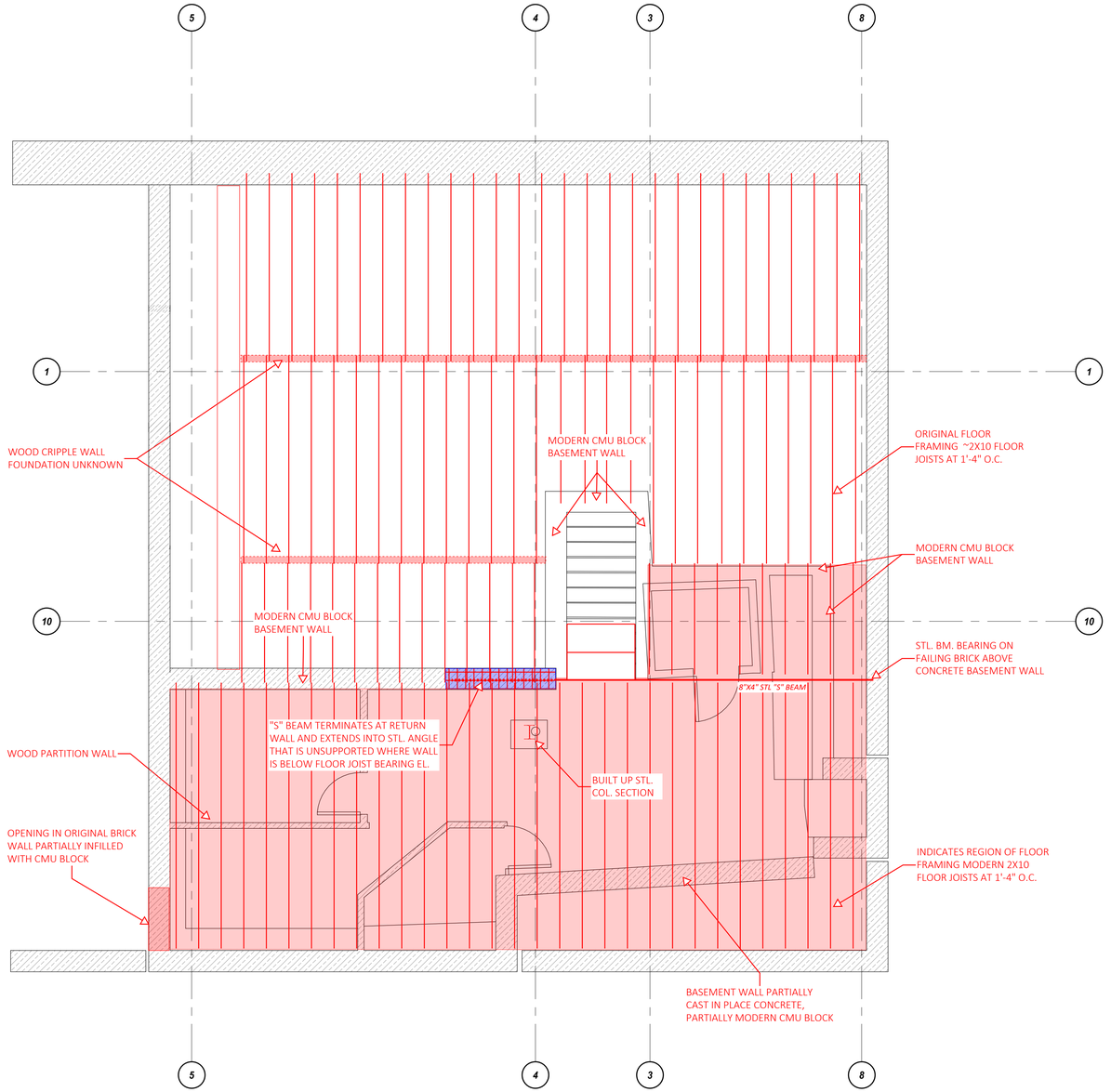
- The brick walls fixed per the descriptions above, significant portions of the exterior walls will require complete reconstruction.
- The entire roof framing area will require complete reconstruction.
- The majority of the second floor framing will require complete reconstruction.
- To properly access and repair the main level, the entire existing floor structure will require complete reconstruction.

This concludes our report. If you have any questions, or want to discuss any of the items in this report or on the drawings, please do not hesitate to contactor our office.

Prepared by:

HCDA Engineering, Inc.

Steve A. Horner, P.E.



NORTH

EXISTING BASEMENT PLAN

1/4"=1'-0"

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HCDA ENGINEERING, INC.
STRUCTURAL CONSULTANTS
9 SOUTH WEBER STREET
COLORADO SPRINGS, COLORADO 80903
(719)633-7784 FAX (719)471-3173

STAMP:

NOT FOR CONSTRUCTION

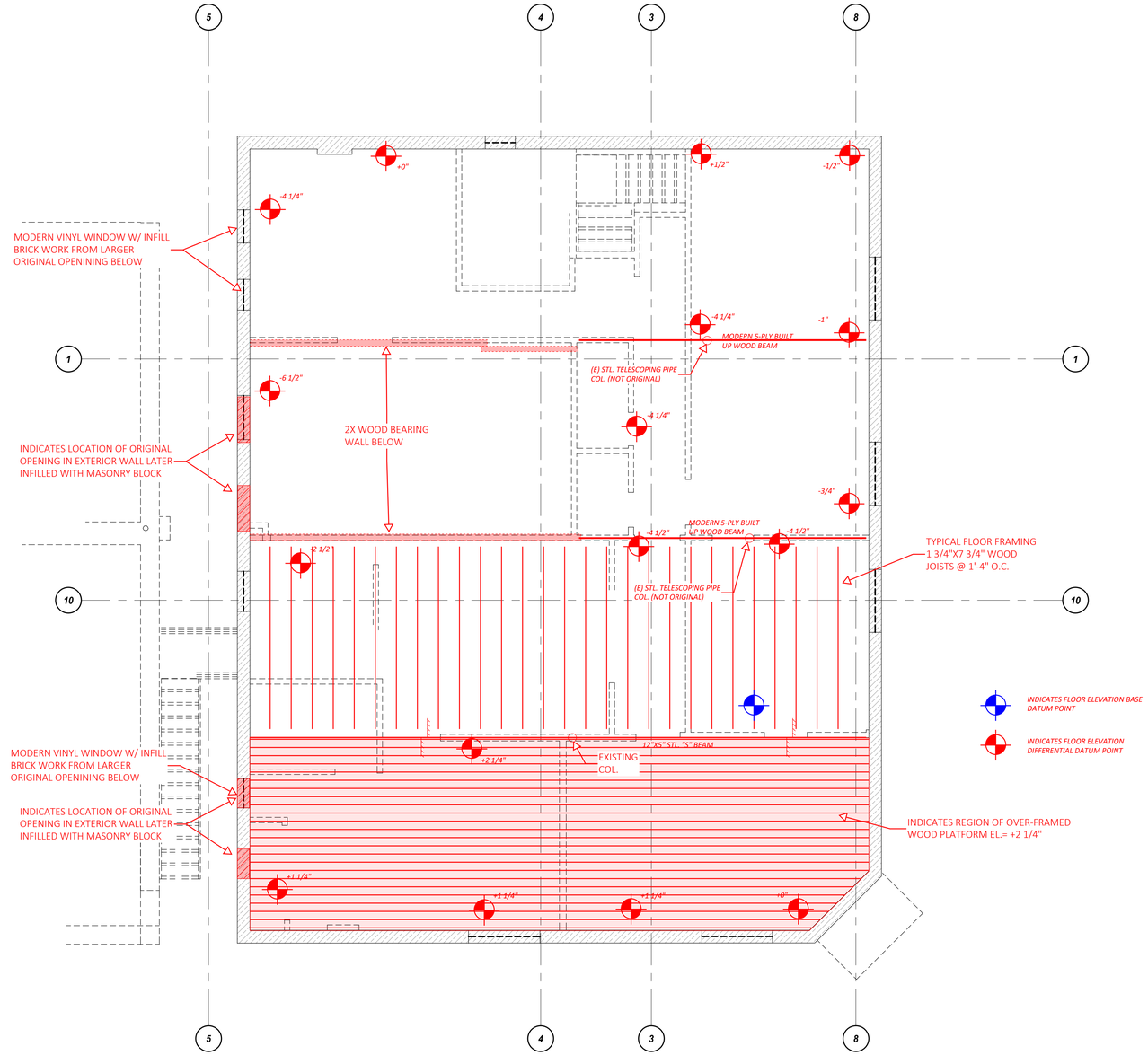
EXISTING BUILDING ASSESSMENT

1962 MARKET STREET
DENVER, CO

JOB NO.:	23218
DATE:	11/07/2023
DRAWN:	JEB
CHECKED:	SAH, MLE
SCALE:	**AS NOTED**
REVISIONS:	

SHEET NAME: EXISTING BASEMENT PLAN

SHEET # **S1.02**



NORTH

EXISTING SECOND FLOOR FRAMING PLAN

1/4"=1'-0"

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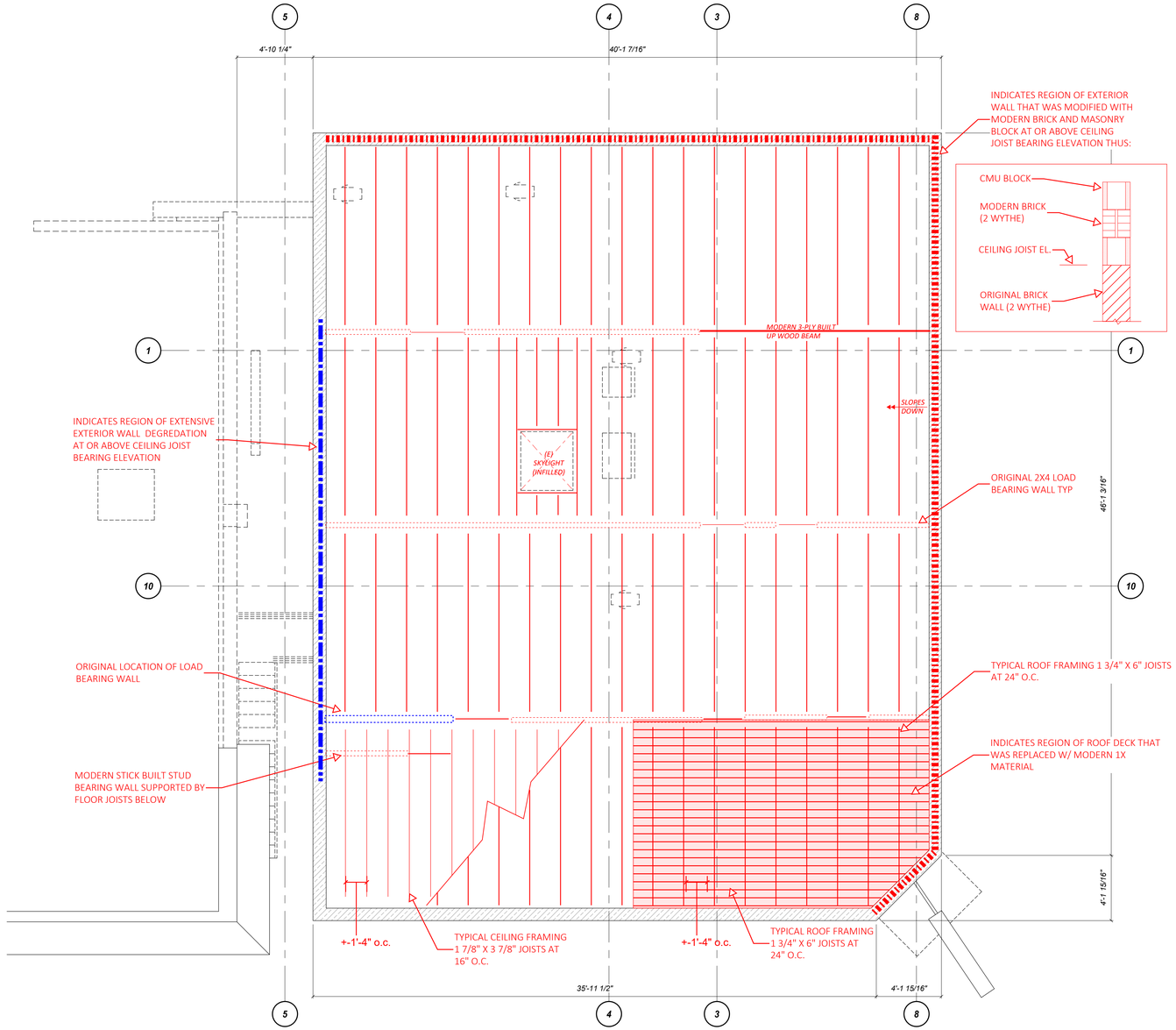
SHEET # **S1.04**



NORTH

EXISTING ROOF FRAMING PLAN

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SHEET # **S1.05**