West Main Street Property Condition Assessment Report





811-817 W. Main St. Louisville, KY 40202

Prepared for:

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Building Assessment 811 – 817 W. Main St

1.0 Introduction and scope

1.1 Purpose of Study

The purpose of this study is to provide a preliminary determination of the current condition of the buildings located at 811, 813, and 815/817 W. Main St., Louisville, KY. This preliminary condition assessment does not include disassembly of any building components but is intended to familiarize the client with the typical conditions in the building. This report is intended to identify the following items:

- Obvious visual material defects or damage to the envelope or structure
- Estimate the buildings adequacy for structural capacity of a typical 100 psf live load
- Identify if any obvious structural or envelope components require further study or testing.

General life safety issues are reviewed but a thorough life safety inventory is not included in this report. As with most historic buildings, this building does not meet current new building construction nor is it required to. Structures however are required to "be maintained in a safe and sanitary condition" (KBC 3401.2).

1.2 Planning

The study is intended to be used for budgeting for repairs. The itemized list identified in the cost estimate includes only the component listed and do not include ancillary costs such as owner administrative costs, design fees, contractor overhead and profit, etc.

1.3 Change of ownership

It is our understanding that the building is currently under option for purchase. Our services have been contracted by the purchasing party as part of the due diligence for the purchase of the property. We understand from our client that the current owner, Forte Development LLC, knows the buildings are "aged" and are potentially unsafe. They have sectioned off many areas of the buildings and have required releases from persons entering the building.

1.4 Suspected change of occupancy and alterations

The building is currently un-occupied therefore it is assumed that the any use will be a change of occupancy. The following assessment will be based upon



Fig 1:815/817 W Main



Fig 2: 813 W Main St



Fig 3:811 W Main St

that assumption. Change in occupancy of an existing building requires those areas to follow the KBC and other applicable codes (KBC 3401)

1.5 Code compliance for future use

This assessment is not a code compliance review however the codes should be considered in determining what codes and code sections may be required for anticipated future use. It is impossible to know the exact future use of the building at this time. Assumptions have been made in preparing this document about the future use of the building in order to establish a set of criteria for the basis of the assessment and cost estimate. These assumptions should be considered when reviewing this document.

The assumed occupancy live load is 100 psf. This occupancy loading includes many of the assembly uses, restaurant, hotel, residential and office uses. This structural load would not be sufficient for manufacturing, warehouse or other similar uses.

1.6 Criteria for evaluation

Various resources were used in the preparation of this study. Below is a list of the reference standards and codes used:

- SEI/ASCE 30-00
- SEI/ASCE 11-99
- International Fire Code (2006)
- Kentucky Building Code (2007 Revised Nov. 2011)

1.7 Cursory and preliminary review

The cursory condition assessment was conducted with the building purchaser, purchaser's agents and the reviewers to establish a scope of work. This cursory assessment included a brief walk through and discussion of various spaces throughout the buildings. From this walkthrough and discussion a scope of work and fee was proposed and approved by the client.

The preliminary condition assessment included a more thorough investigation of the buildings, including:

- Visual field evaluation of conditions
- The existing building was visually reviewed, no elements were uncovered.
- Representative sample of members and materials
- Identification of problem areas
- Record of observations

2.0 Methods and Techniques

During the preliminary investigation of the buildings the following techniques were utilized to review the building:



Fig 4: 811/813 W Main rear



Fig 5: 815 W Main rear



Fig 6:817 W Main rear

- Visual review from the floor. Several areas of floor joist were reviewed up-close from a ladder
- Photographs were taken for documentation and further review, a sampling is included in the report
- Drawings and sketches were made for documentation and review
- A sampling of representative measurements were taken for structural review and documentation
- Preliminary structural load calculations were completed on a representative sampling of joists for loads as noted above.
- Evaluation of the physical condition of wood was through visual review, sporadic probing and measurement.
- Evaluation of the physical condition of masonry and mortar was through visual review, and surface review
- Evaluation of the physical condition of the roofing was visual and through probable life expectancy

3.0 Description of Building and elements

3.1 Type of Architecture -

- 815/817 is a Richardsonian Romanesque style with a rusticated base and tall 3 story brick pilasters capped with 4 brick arches. The top story has a corbelled brick cornice spanning the 4 bays of rectangular windows. The top of the building is topped with what appears to be a molded copper wall cap and finials. The red brick façade is detailed throughout with red sandstone and cast iron elements.
- 813 & 811 are (2) four story Victorian style facades. The cast iron façade at the first floor is divided into 3 equal bays. The upper 3 stories are detailed with three different windows each with different styles of hood moldings. The corners of 811 are detailed with quoins on either side of these stories. The corners of 813 are not ornamented with quoins. The sheet metal cornice at the top of 811 is an infill between two stone brackets. This is sheet metal is missing from the top of 813 and a yellow brick masonry wall is exposed.

3.2 Materials

Foundation – the buildings' foundations are load bearing masonry, either brick or limestone. There are no footings exposed to observe or documentation to review. Shallow foundations are assumed, this is typical of similar structures of this type.



Fig 7: 815/817 2nd floor



Fig 8: 815/817 3rd floor



Fig 9: 815/817 4th floor



Fig 10: 815/817 basement framing

Walls – there is a mixture of non-reinforced load bearing masonry and wood framed walls in the buildings. The load bearing walls primarily follow the north-south property lines and act as party walls. These walls' finishes vary, either finished with plaster or are left exposed. The framed walls are primarily around the elevator shafts and the various miscellaneous rooms that remain. The north and south exterior walls are sometimes wood framed as well, which is sometimes supplemented with cast-iron supports.

Framing and connections – the upper floors are supported with heavy timber columns and beams at the mid-span of the building. The column beam connection varies throughout the building with primarily 2 types, cast iron column cap or nailed gravity connections. The floor framing is primarily wood joists pocketed into the brick walls. Some later repair framing is with structural steel.

Flooring – the floors above the basement level are wood construction, some areas have a finished floor intact while other areas have only subflooring in place

Roof – all areas of the building have wood decks with a sprayed polyurethane foam membrane roofing above. It is assumed that an older roofing membrane is in place under the foam roofing.

3.3 History of building

Date of construction - Based on maps created at the time by The Sanborn Map Company, the buildings were in existence before 1892. The wall cap of building 817 has the dates 1888 & 1890 in the copper coping. It is assumed this is the date of construction but no further specifics were available at the time of the report.

Additions – based on the historic maps, no additions have been made to the buildings but several areas were removed and remodeled, see below.

Repairs – based on historic maps and field observations, 813 had an extensive fire at some point. The south interior of the building shows signs of charring on the floor joists and the north ½ of the building is newer construction. A portion of this building was removed at some point on the north end creating a courtyard; this was not present in the maps dating 1906.

It is assumed that various other tenant improvements have occurred over the span of the buildings' life, but no other specifics are available at the time of this report.

3.4 Collected data

3.4.1 Available drawings



Fig 11: Cast-iron column connection



Fig 12: nailed gravity connection



Fig 13: unsecured and unsupported beams



Fig 14: 811, 1st floor apparent water and termite damage

Existing floor plans and elevations from Schaeffer construction were provided from the current building owner. These were used for the basis of the building assessment notes. The accuracy of the basis information was not verified. All text notes on the drawings provided with this report are from Joseph & Joseph or Structural Services Inc.

3.4.2 Photographs

The photographs attached with this report were taken during the time of the investigation (8/1/12 - 8/12/12) by Joseph & Joseph Architects. No historic photographs were provided or uncovered during the course of this assessment.

3.4.3 Interview with those familiar with building
As the building is unoccupied, little history is known about the building and it maintenance history. No information was provided from the owners.

3.5 Structural observations

- 3.5.1 The buildings are constructed of unreinforced brick load bearing walls with wood floor and roof framing which is common in this historic section of downtown Louisville. This type of construction does not meet the current edition of the Kentucky Building Code but are typically granted variances when upgrades and remodeling is performed.
- 3.5.2 The building areas that could be safely accessed were visually observed to assess their current condition. Documentation on the structures was not available. Neither load bearing walls nor foundations were evaluated. Where wood members were visible, sizes were either measured or estimated. Neither lumber species nor grade was known, however Yellow Poplar #2 for joists and Oak #2 for beams were assumed for checking existing framing members.
- 3.5.3 Where areas were not visible and could not be evaluated, no comment was made concerning the structural adequacy. As such, the quantities and cost estimates provided herein should be considered as a rough approximation that can only be verified after a comprehensive review of the building has been performed.

4.0 Discussion of Field Investigation

4.1 Overview

The buildings are in various states of disrepair. It was clear from the preliminary review that the buildings had sustained extensive damage from water infiltration and other forms of deterioration. Various areas of the buildings were inaccessible or finished materials hid the structural members. In many of these areas though the finished



Fig 15: 813, movement in loadbearing brick wall



Fig 16: Sprayed polyurethane foam membrane roofing



Fig 17: 813, 1st floor apparent fire damaged wood joists

materials above or below were exhibiting signs of deterioration and in those cases it was assumed that the structural members were exhibiting the same deterioration. Further detailed explanations can be found below and on the accompanying drawings.

4.2 Buildings 815/817

- Basement unreinforced limestone outer walls, brick divider wall
- 1st unreinforced brick outerwalls and divider wall
- 2nd unreinforced brick outer walls, heavy timber columns
- 3rd unreinforced brick outer walls, heavy timber columns
- 4th unreinforced brick outer walls, heavy timber columns
- 5th unreinforced brick outer walls, heavy timber columns

4.3 Building 813

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- 4.3.2 1st unreinforced brick walls
- 4.3.3 2nd unreinforced brick walls
- 4.3.4 3rd- unreinforced brick walls
- 4.3.5 4th- unreinforced brick walls

4.4 Building 811

- 4.4.1 Basement unreinforced limestone walls
- 4.4.2 1^{st -}- unreinforced brick walls
- 4.4.3 2nd- unreinforced brick walls
- 4.4.4 3rd- unreinforced brick walls
- 4.4.5 4th- unreinforced brick walls

5.0 Summary of recommended repairs and cost estimates

Life safety – the buildings are not safe for occupation in thier current condition. While this assessment is not intended to report what would be required to bring the building up to life safety standards, below is a short list of some of the items that were found to be deficient in this area.

Egress - the number of exits and the fire separation is not sufficient for a building of this size and height.

Fire separation – there is no fire rating separating the floors, a structure of this height may require floor to floor fire separation depending on the intended use.

Stair and railings – the existing stair structure and railings are not secured to the building structure. Railings are, in many cases, not of the required



Fig 18: 815/817 building facade



Fig 19: Deteriorated sandstone elements and bowing brick

height or spacing for code. In many cases, the railing is non-existent. The structural stringers of some of the stairs are damaged. In several cases, the existing stairs did not appear to be adequately secured to the wall and should not be used because they could pose a serious safety hazard.

Serviceability – the buildings in general have various issues throughout related to the serviceability of the elements. These issues appear to have been caused from water leaks, insect infestation, and fire damage.

5.1 Building Facades

The building facades have varying items that need repair. Below is an outline of items that need attention.

815/817 W. Main St

The sandstone, brick and cast-iron façade has areas that need immediate attention and other areas that should be addressed to avoid further deterioration.

The sandstone detailing has suffered extensive damage and has worn beyond recognition throughout the façade. This appears to have created opening for water to enter the façade and damage the brick. Beneath several window sills and sandstone detailing the brick has spawled or is bowing out from the face of the building. These areas should be addressed immediately as they could pose a safety hazard to the general public.

Various other areas are exihibiting cracks through the bricks and through mortar joints. (Fig 20) Other areas have been drilled for previously anchored items or miscellaneous damage. These areas should be tuckpointed and the broken bricks should be repaired.

The interior at each floor level exhibited extensive damage to the window sills and to the wall below the windows. This appeared to be caused from water infiltration from the windows. Several areas of the building exhibited vertical cracks in the brick above the windows. These should be repaired and monitored for future movement. Vertical cracking of this nature could be a sign a supporting member settling or failing.

The parapet cap was not accessible. This area should be checked for water infiltration and deterioration.



Fig 20: 815/817, cracked brick & mortar



Fig 21: 813, building facade

The windows have extensive damage to frames, sashes and sills. Extensive repair will be required to bring them to working order.

813 W. Main St.

The limestone façade on the upper three floors needs repair. Extensive cracking has occurred in the façade. The cracking has occurred primarily at the joints however some areas of the stone have also cracked. Any number of reasons could be causing this; a typical cause of this is water infiltration and deterioration of the anchors securing the stone veneer. The façade should be reviewed to check that the stone is adequately secured then tuckpointed to avoid future deterioration.

The cast-iron façade at the ground level and 2nd floor line shows extensive rusting. Numerous areas have completely rusted through or are missing. These areas should be repaired to keep water from entering the building and creating further damage.

The cornice and parapet cap were not accessible for review. This area should be checked for water infiltration and deterioration.

The windows have extensive damage to frames, sashes and sills. Extensive repair will be required to bring them to working order.

811 W. Main St.

The limestone façade is in better condition than the building at 813. However there are some instances of cracking and open mortar joints in the façade. The stone broken stone should be repaired and the missing or worn mortar should be replaced. The façade should be checked to ensure they are secure to the wall.

The cornice and cast iron portions of the façade showed signs of rust and deterioration. These areas should be repaired, secured where needed and made water tight.

The windows have extensive damage to frames, sashes and sills. Extensive repair will be required to bring them to working order.

5.2 Structure –

5.2.1 General

Moisture content – wood as a cellulose material can be dramatically effected by moisture. As wood's moisture content rises and falls the material and its



Fig 22: 813, cracked stone & mortar



Fig 23: 813, cracked stone & mortar

fibers are adversely affected. Increasing the fiber saturation point above the fiber saturation point (approximately 30%) results in lower moduli of elasticities and lower permitted allowable stress. When the moisture content is then dropped down to lower levels this can cause splitting, cracking and/or checking. (SEI/ASCE 11-99) Both increased moisture content and splitting joists are exhibited in these buildings and instances are noted on the attached drawings.

Insect attack- Damage caused by insects in this region is typically attributed to termites, although other insect damage does occur. These insects typically attack wood that is in contact with grade or close to the level close to earth. The insects typically bore tunnels in the wood following the softer grain layers thereby eating away at the structure

Fire Damage – Wood that has been affected by fire develops a char and losses material mass and structural strength. The affects of fire can vary across a member based on fire location, duration, wood moisture content and other factors. Areas where this appears to have occurred are noted on the floor plans.

Typical joist framing consists of 2x18 joists that clear span between load bearing walls. Headers and header support beams that were visible were 5x18 or 8x18 timbers. In our opinion these members are not adequate to support required live load and superimposed dead load. These areas of floor were assumed to be replaced. Although other framed openings where the structure was hidden by sheathing or finishes and was not directly visible for observation, it was assumed that the structure was of similar construction and requires replacement.

5.2.2 811 W Main

At the first and second floors, the north portion of the building and area below the skylight was unsafe due to exposure to moisture. The skylight framing requires replacement.

Building 811 showed signs of insect damage primarily in the basement and first floor structure. Further investigation by a termite inspector is suggested to determine the full extent of the infestation and estimate for treatment.

5.2.3 813 W Main

Fire damage was evident on all levels of this building and complete replacement of the original wood structure was assumed. At the north end of



Fig 24: 813, missing mortar in stone façade & missing cornice

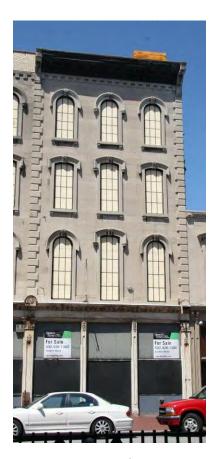
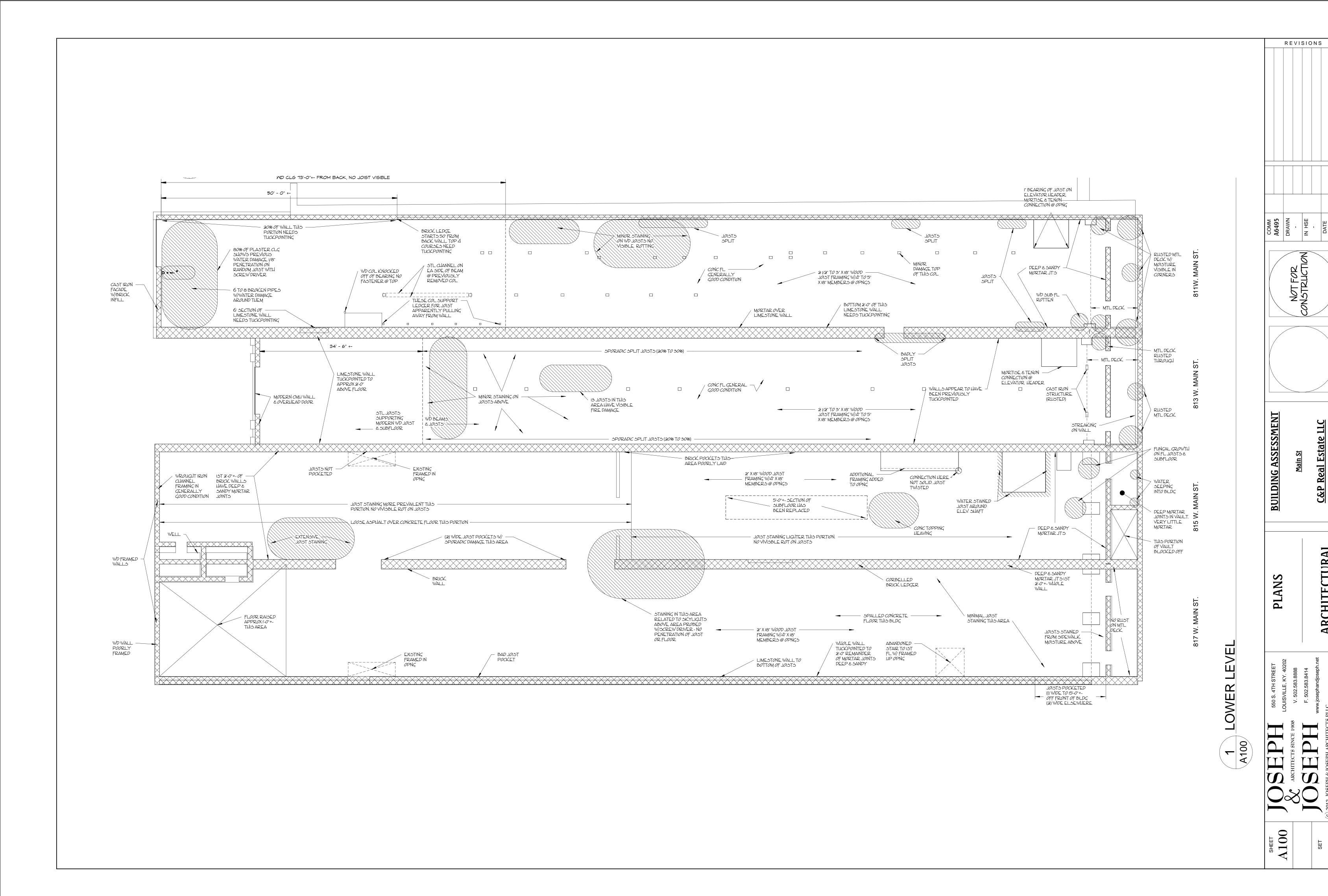


Fig 25: 811, building facade

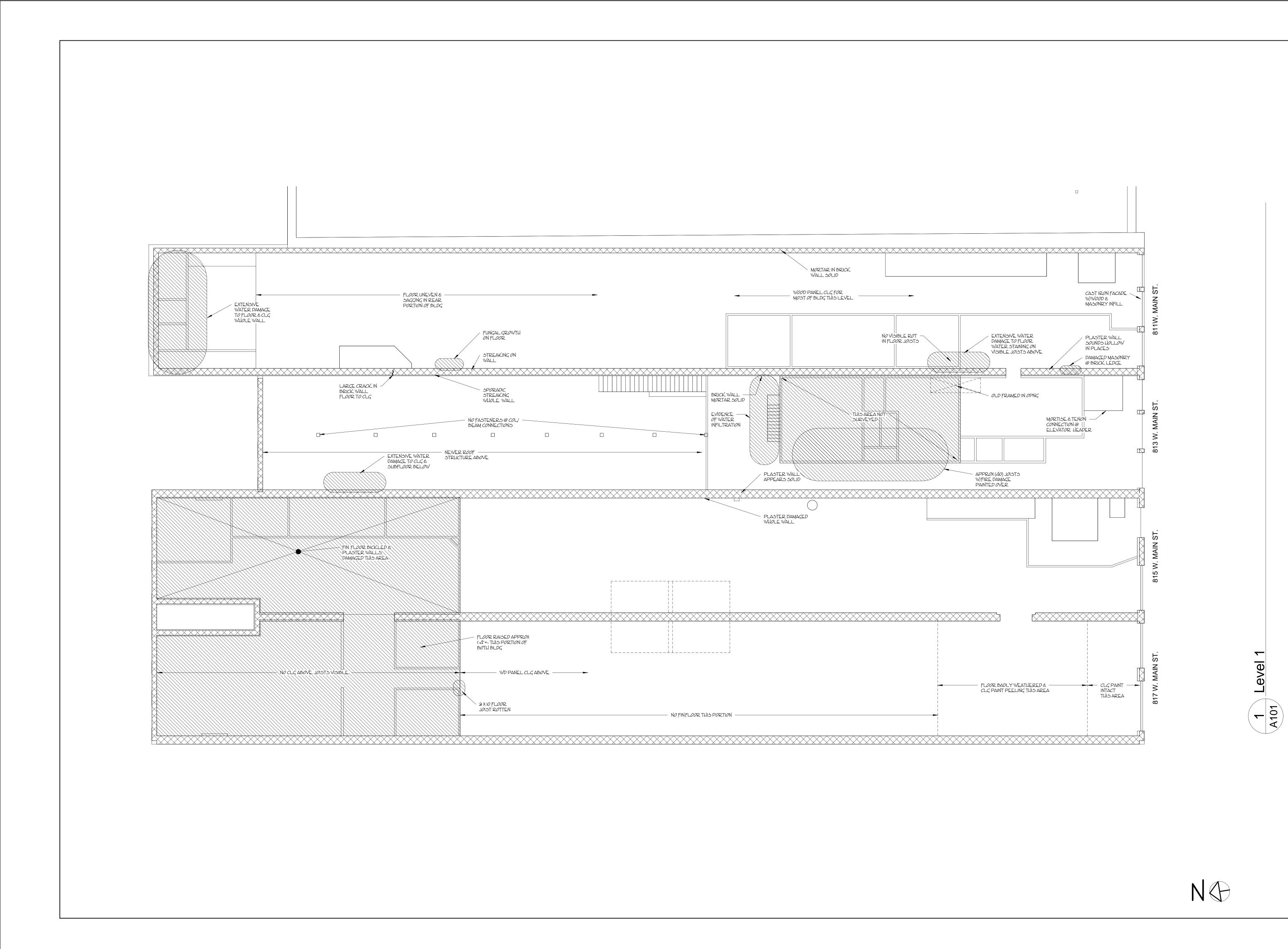
the building, the first level and low roof have already been replaced, possibly due to fire. The joists in the replaced areas are satisfactory. The wood beams supporting the joists are not adequate.

5.2.4 815-817 W Main

The north end of the building had deteriorated due to water damage and was not safe. It was assumed that the structure in these areas requires replacement. The fifth floor is framed with 2x16 joists at 16 inch spacing. This framing is not adequate and requires replacement. The roof at the south end of the building is framed with 2x12 joists at 16 inch spacing and is not adequate.

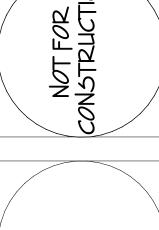


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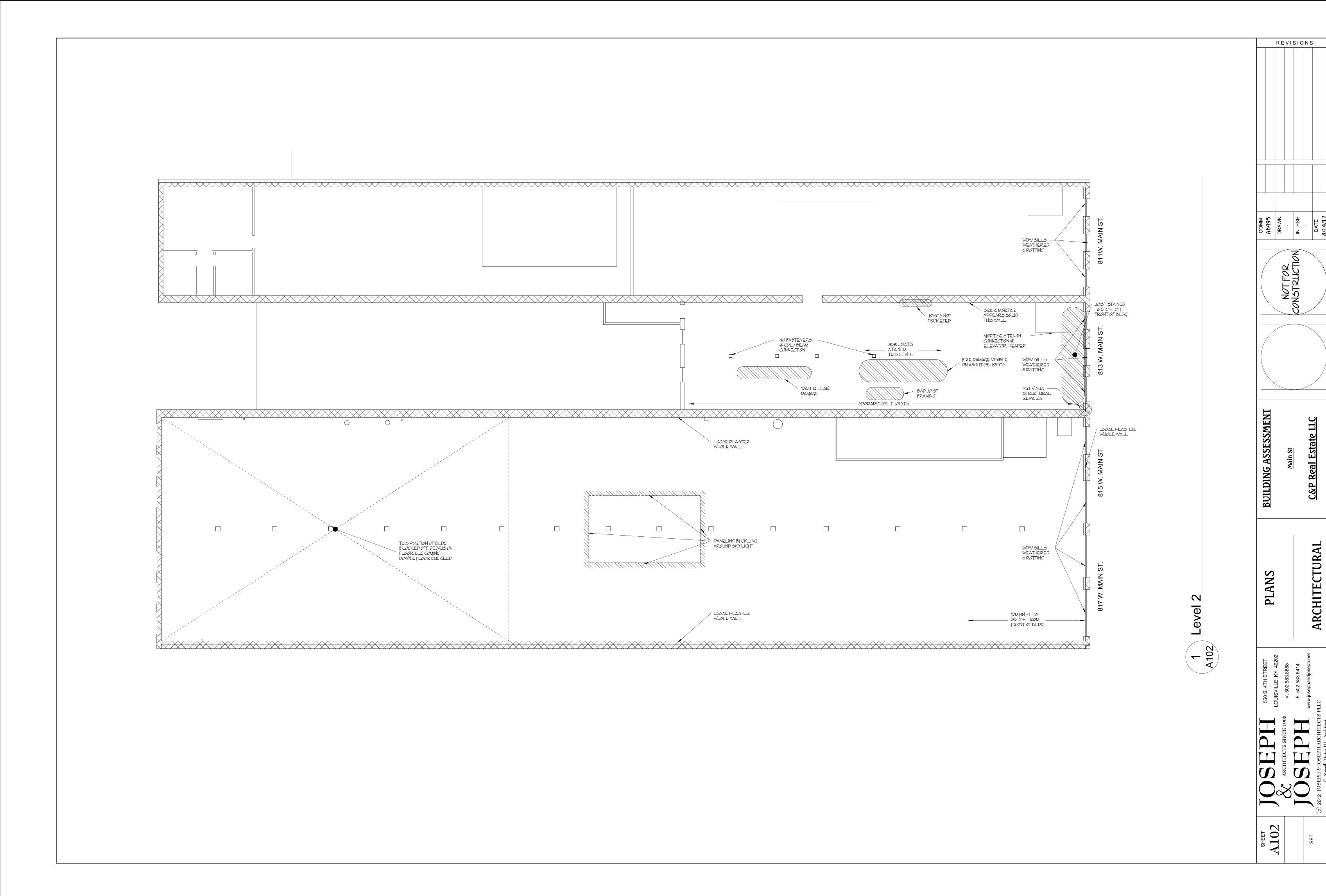
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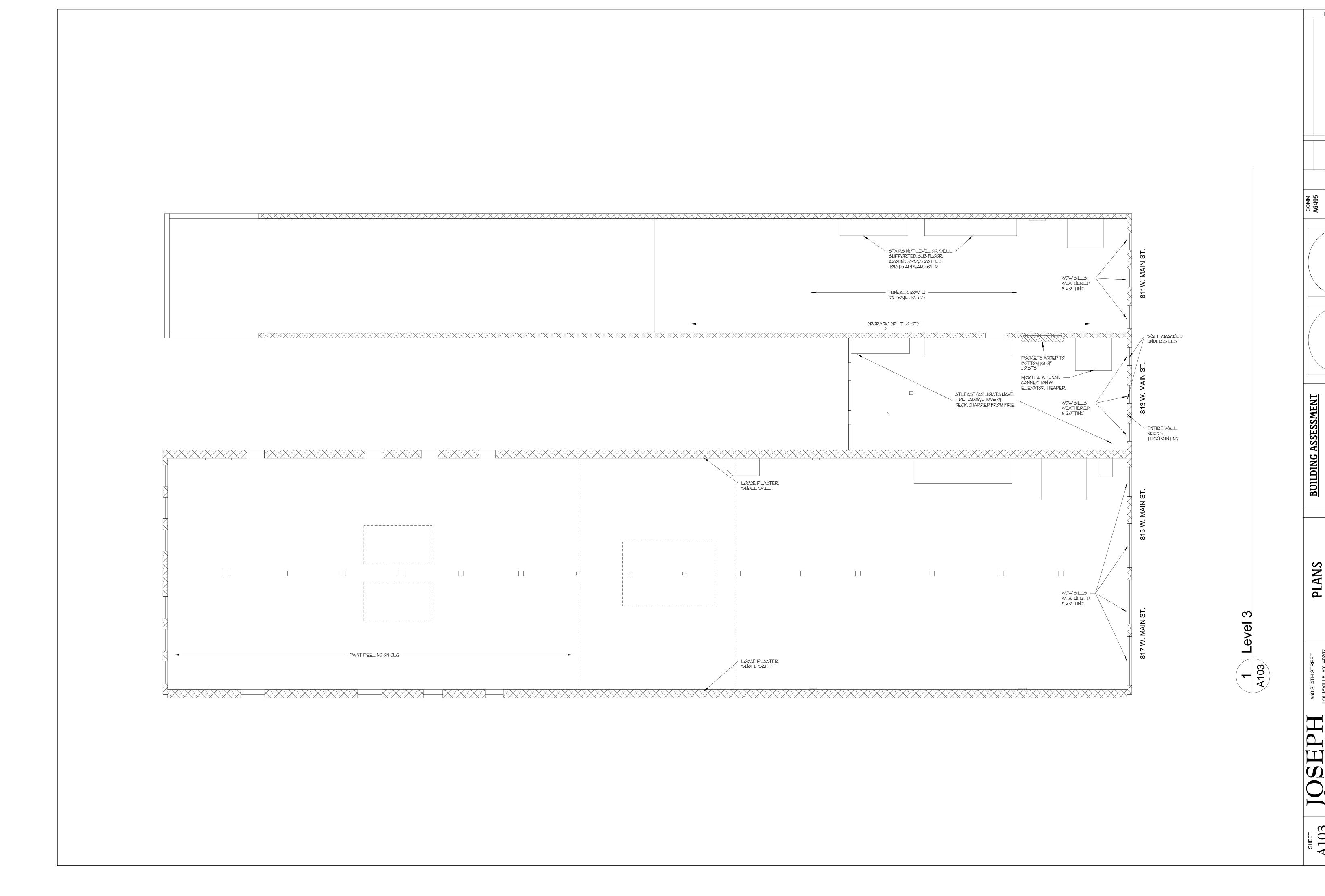
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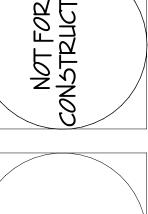
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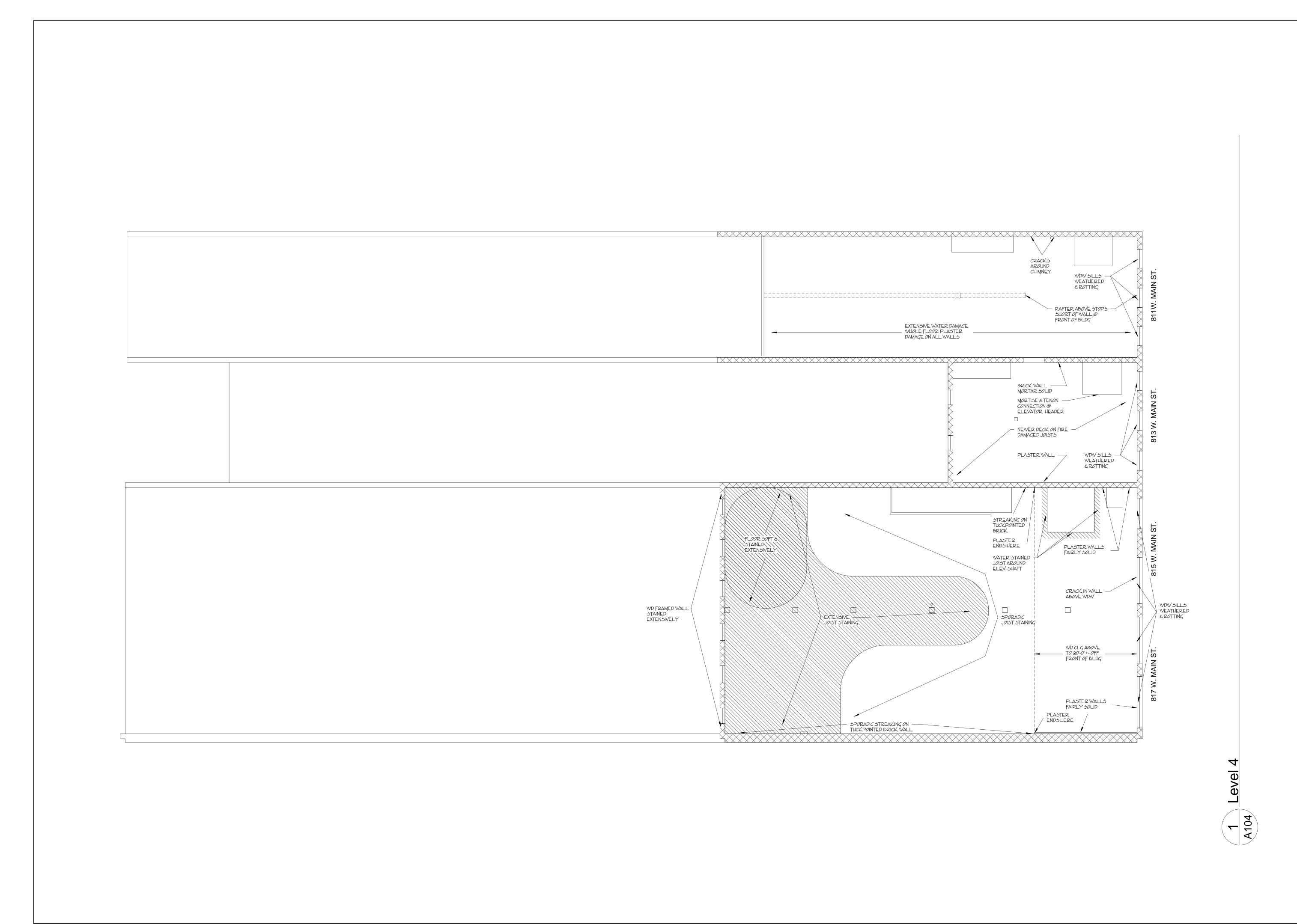


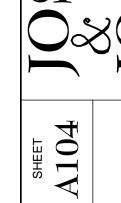


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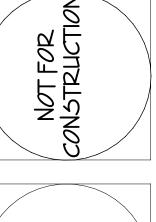




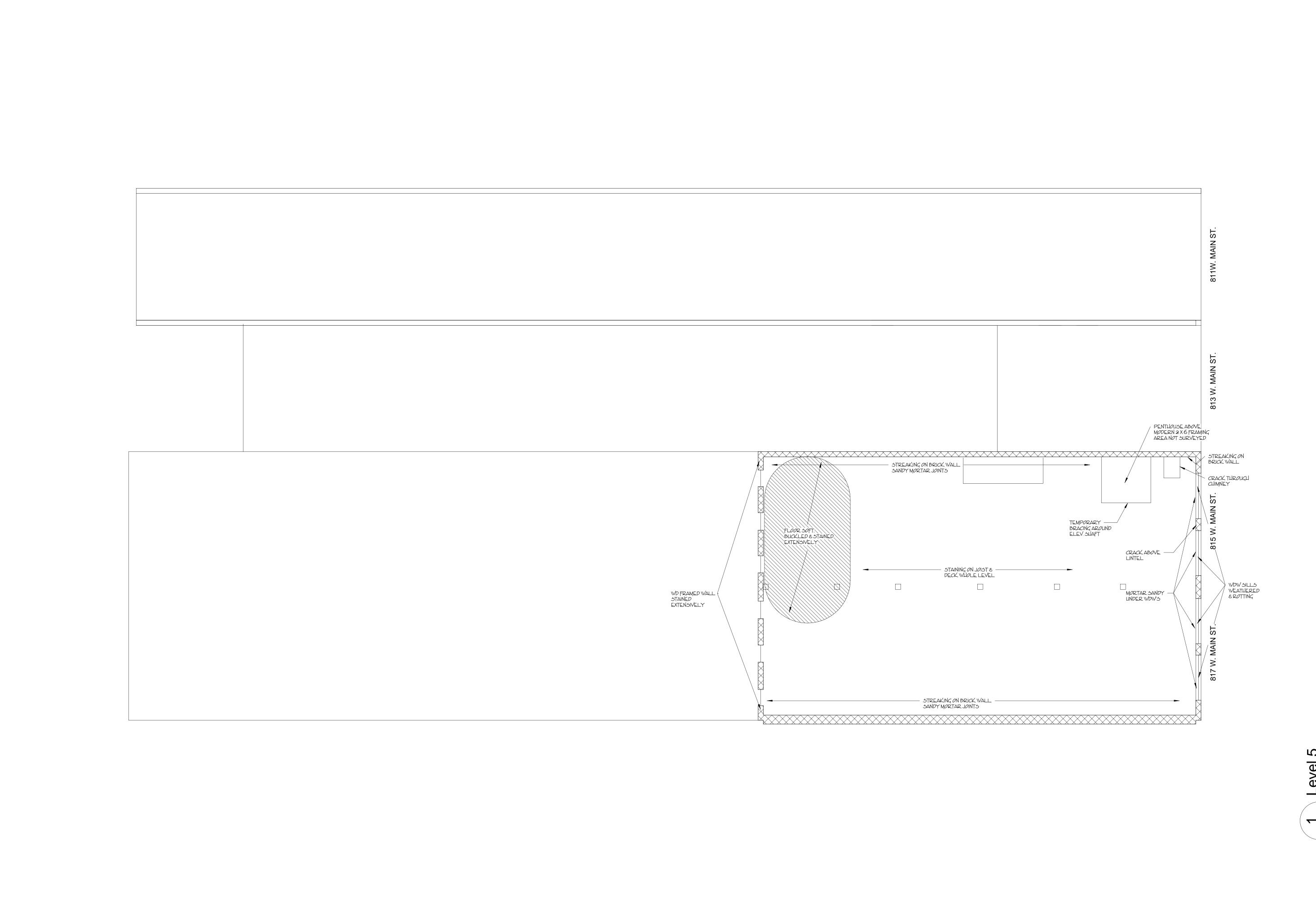
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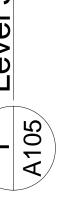
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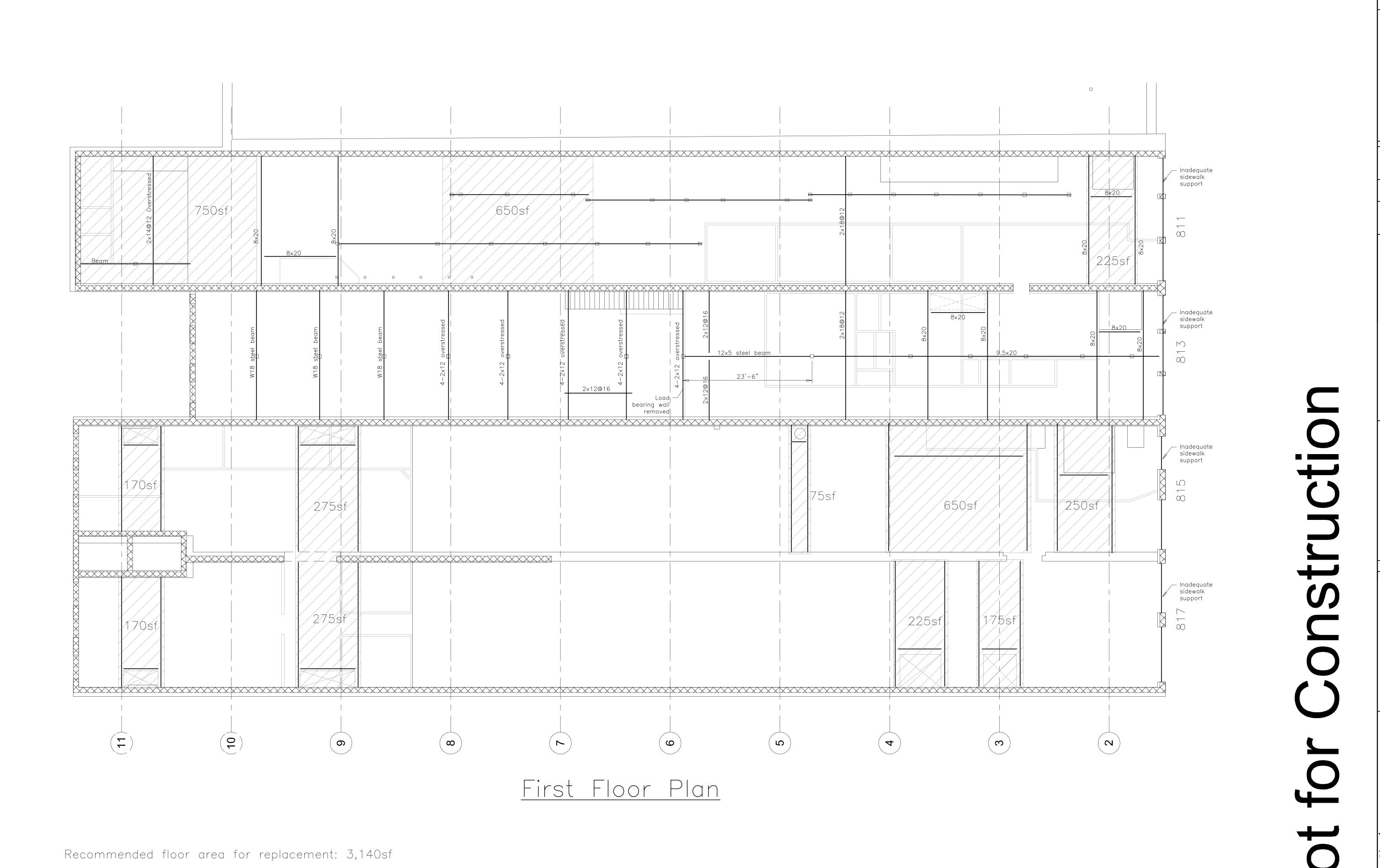
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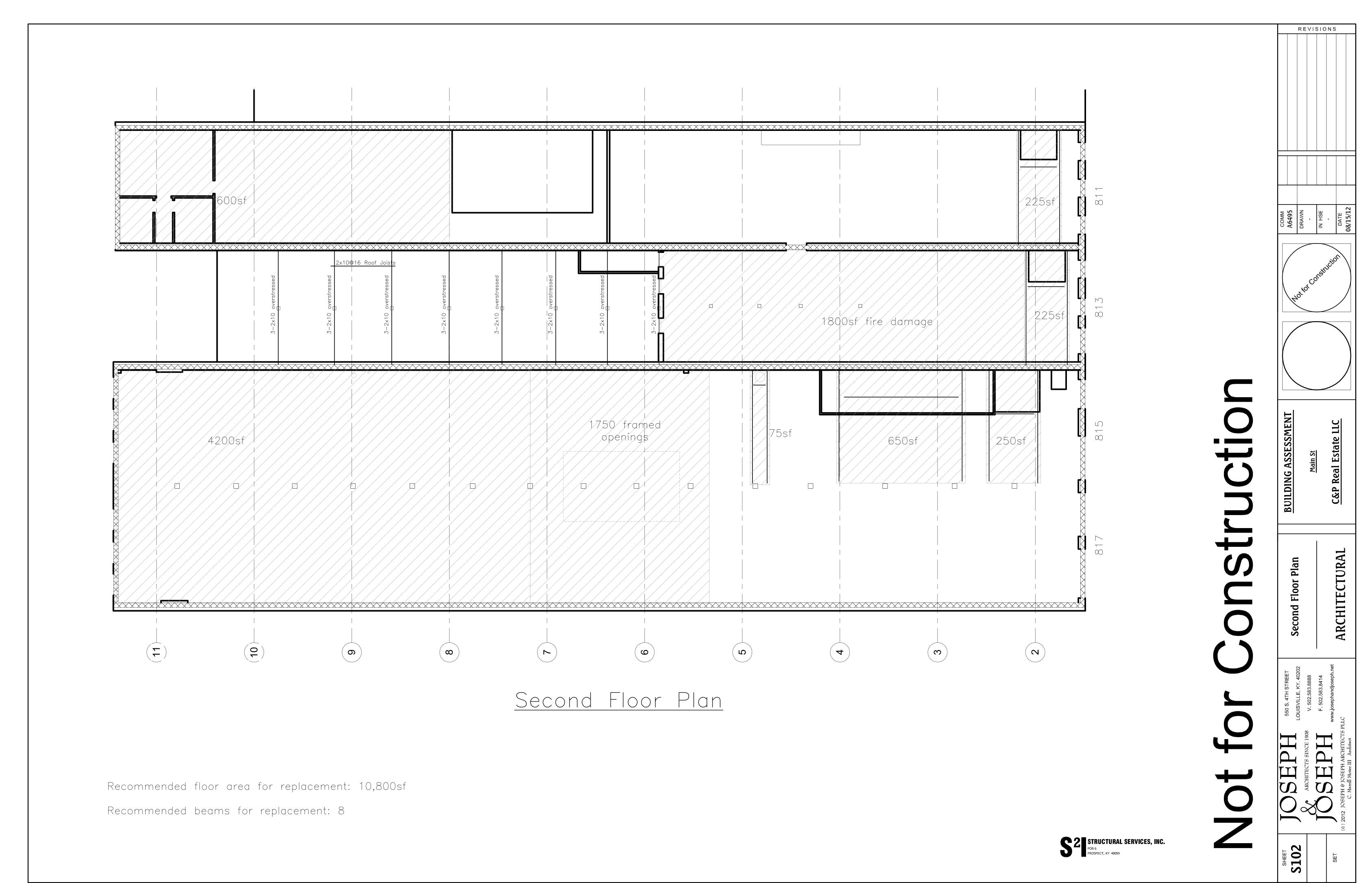
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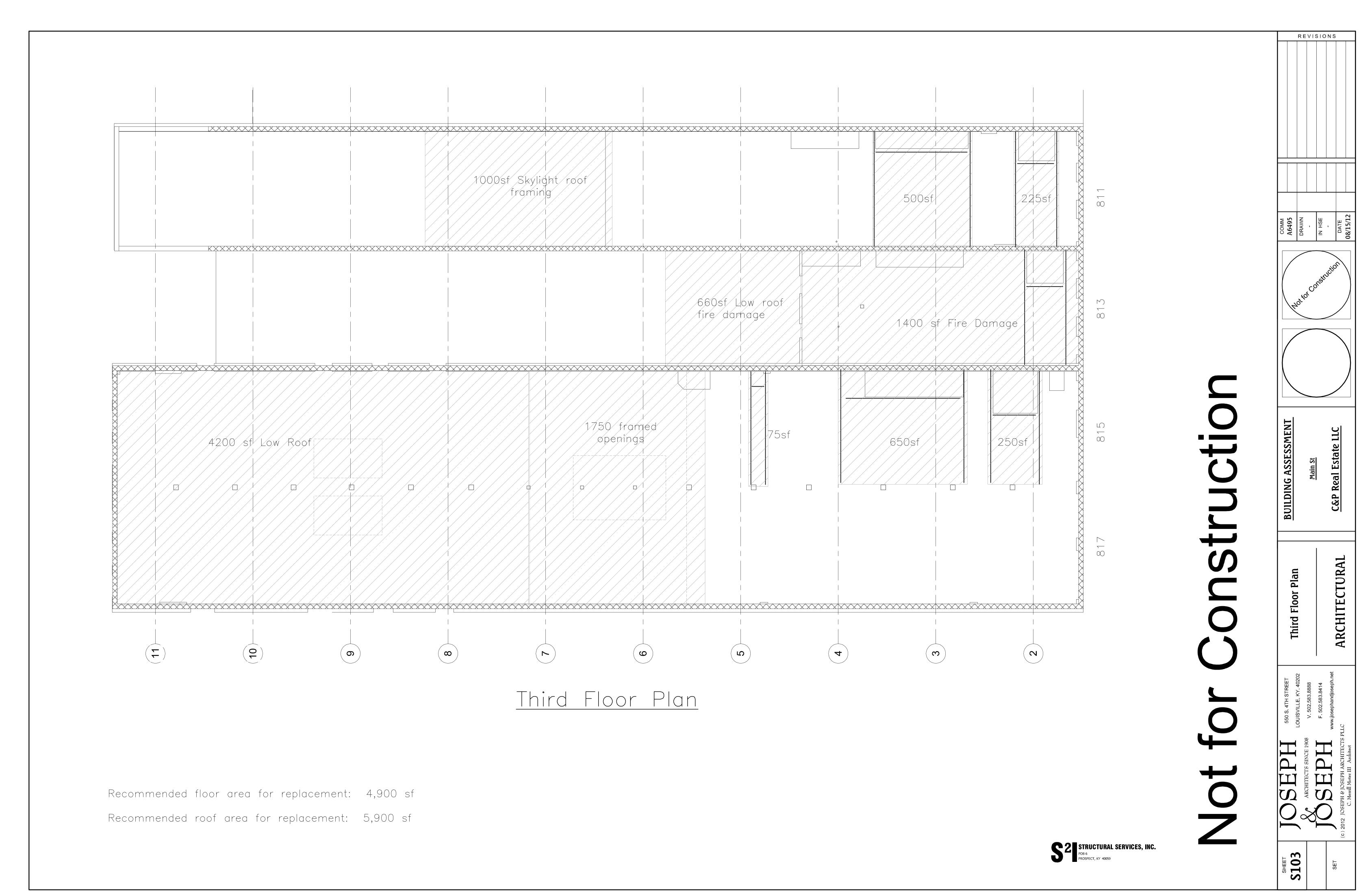
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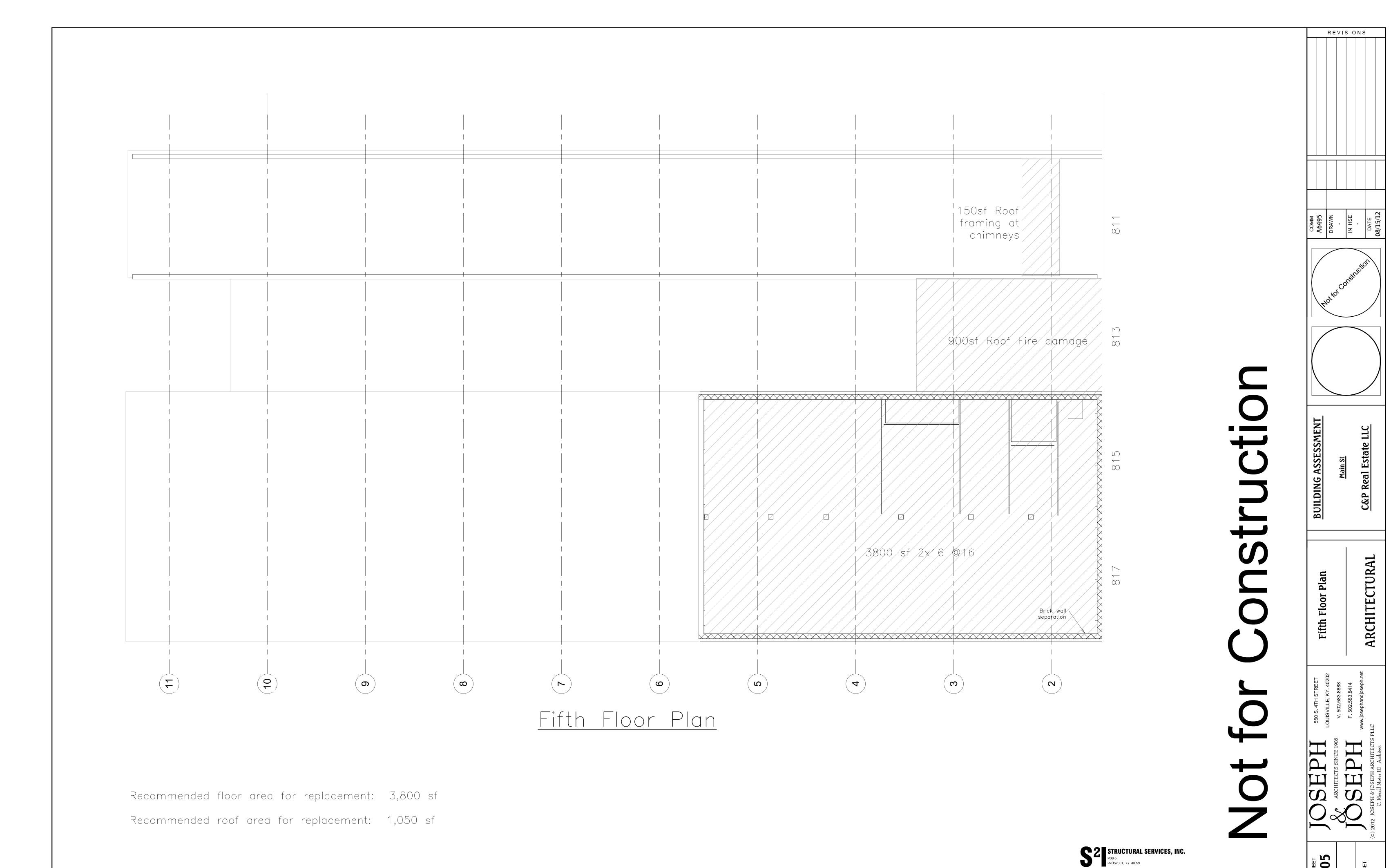


Recommended beams for replacement: 15









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