Colliers Engineering & Design

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Structural Condition Assessment

Former Schatz Manufacturing Co. Building Campus

Fairview Avenue, Poughkeepsie NY

Date: June 28th, 2024

Project Number: 22008880A

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1.0 Executive Summary

Colliers Engineering & Design was retained by the County of Dutchess to perform a structural investigation of the former Schatz Federal Bearing Company facility to ascertain information regarding the structural systems and their condition. Due to the size of the facility, the findings and recommendations will be presented as "North Building" and "South Building." Refer to Appendix A for Building Location and ID Plan, Appendix B for North Building Existing Conditions, Appendix C for North Building Assessment Field Notes, Appendix D for South Building Existing Conditions, and Appendix E for South Building Assessment Field Notes.

1.1 NORTH BUILDING

High Priority Items (Address within One Year)

1.1.1 Building 6 is in unsafe condition due to the failure of the poured gypsum roof and the southern entry canopy, as well as the extent of deterioration of the floor. Building 6 should be demolished.

1.1.2 Building 7 is in unsafe condition due to the failure of the wood framed floor and roof and the extent of masonry deterioration. Building 7 should be demolished.

1.1.3 The steel fire escape located on the north face of Building 1 is unsafe and should be removed and replaced with a fire escape that complies with current building code standards for means of egress. The fire escape access points should be blocked to protect the public from utilizing this stair.

1.1.4 Based on the extent of roof structural deterioration and/or failure, the following building roofs decks should be removed and replaced as soon as possible to prevent further failure:

- Building 2 (metal edged gypsum plank).
- Building 3 (metal edged gypsum plank).
- Building 4 flat roofs and sawtooth valleys (wood tongue-and-groove plank).
- Building 5 sawtooth valleys and portion of collapsed roof (wood tongue-and-groove plank).
- Building 7 (wood tongue-and-groove plank).
- Building 8 sawtooth valleys (wood tongue-and-groove plank).

1.1.5 The roofing material, although not structural, is beyond its service life and all roofs should be replaced as soon as possible to prevent the continued infiltration of water into the building enclosure.

1.1.6 All masonry parapets are in poor condition and should be repointed and damaged bricks be replaced. All damaged or missing coping stones along with their respective through wall flashings should be re-built or replaced. **The coping stones on the west wall of Building 1 are loose and are in danger of falling onto a lower roof. These should be re-set as soon as possible.**

Medium Priority Items (Address within One to Three Years)

1.1.7 There are several concrete column caps on top of the exterior masonry columns on Building 1 that are in poor condition and should be removed or replaced.

1.1.8 The concrete stair landing and concrete landing beam in Building 1 south stair should be repaired.

1.1.9 All the concrete slabs at Building 1 exhibit a concerning level of cracks, calcified stalactites along the bottoms of the slab, staining, and organic growth. These are all likely caused by repeated water infiltration into the building. Replacement of the roofing system and proper flashings should help with restricting the

entry of moisture into the building, but broken windows and exposed masonry head and bed joints will all allow for the entry of wind driven rain and moisture. All built up wood plank flooring should be removed from all floors as that is a source for retaining moisture. Additionally, testing should be employed to ascertain the following information regarding the structural integrity of the slab prior to designing for and applying structural loads:

- Concrete Compressive Strength – Cores should be taken on each floor to determine its in-situ concrete strength.
- Petrographic analysis should be performed to determine alkali-silica reactivity and to determine the amount of freeze-thaw the existing concrete has been subject to.
- Chloride ion testing should be performed with the extracted concrete core samples to determine the estimated chloride ion content within each of the slabs. The concentration of chlorides in the concrete may be an indicator for concrete with a higher likelihood for slab reinforcement corrosion.
- Reinforcement size and spacing: GPR or Impulse-Response testing can be used to provide the slab reinforcement spacing and location within the slab but not the material information. This may also assist in locating areas of spalled concrete within the floor slab. Removing a portion of the concrete to expose the reinforcement will allow for verification of bar size, and a steel sample to be obtained for additional testing to confirm steel grade.

1.1.10 The concrete columns at Building 1 have condition varying in poor to good condition. Any columns that have crack widths exceeding 1/16 inches should be sounded to determine if the concrete has delaminated from the column. Concrete in the delaminated areas should be removed and re-poured. While this is occurring, the rebar in the cracked areas should also be inspected for rust and rust should be removed prior to pouring patching concrete. Any rebar that has lost more than 15% of its section should be removed and a new bar should be spliced to the existing.

1.1.11 The concrete lintels and sills enveloping Building 1's exterior should be repaired. This is particularly evident along the north face and wall faces that are above the lower roof and are exposed to freeze and thaw cycles.

1.1.12 Based on the extent of observed steel corrosion, the following building structural steel elements (joists, beams, girders, columns) should be cleaned of rust scale, treated with a corrosion inhibitor and re-painted. Any steel element with more than 15 percent of section loss should be reinforced:

- Building 2 – Spandrels, Girders, Columns.
- Building 3 – Open Web Joists, Girders, Columns.
- Building 4 – Sawtooth Trusses, Spandrels, Girders, Columns.
- Building 5 – Sawtooth Trusses, Girders, Columns.
- Building 8 – Sawtooth Trusses, Girders, Columns.

Low Priority Items (Address within Three to Five Years)

1.1.13 All organic growth and graffiti should be removed from the masonry using the gentlest means possible.

1.1.14 Remove peeled paint from existing masonry walls and concrete floors using the gentlest means possible. This paint appears to not be compatible and/or does not adequately allow for water to escape the structural elements.

1.1.15 The handrails serving Building 1's stairs are not code compliant and should be replaced with handrails that meet current building code standards.

1.1.16 Deteriorated masonry head and bed joints should be repointed through the entire North Building. Mortar sampling should be performed to determine the composition of aggregates and cements.

1.2 SOUTH BUILDING

High Priority Items (Address within One Year)

1.2.1 Building 18 is in unsafe condition due its roof structure being physically connected to the existing timber framed building south of it that is currently collapsing. Building 18, as well as the timber framed building should be demolished.

1.2.2 Building 19 is in unsafe condition due to the level of deterioration of the concrete channel plank roof, the condition of the structural steel elements, and the failure of the window lintel on the south face of the building. Building 19 should be demolished.

1.2.3 Building 20 is in unsafe condition due to the failure of the concrete plank roof as well as structural failure of at least four roof joists. Building 20 should be demolished.

1.2.4 The building north of and directly adjacent to Building 21, although not listed in the report, has partially collapsed and is in unsafe condition. This building should be demolished.

1.2.5 Building 22 is in unsafe condition due to the failure of at least three roof joists and its proximity to the existing timber framed building south of it that is currently collapsing. Building 22, as well as the timber framed building should be demolished.

1.2.6 The stairway located south of Building 13 is in poor to unsafe condition based on the extent of cracking along the walls and due to the partially collapsed condition of Building 20, which supports the first floor of the stair. This stair should be demolished and replaced.

1.2.7 The concrete lintel supports along the exterior faces of Building 10, 12, 13 and 14 are in unsafe condition and should be repaired immediately.

1.2.8 There is an overhead door opening on the east side of Building 21 which is currently not supported by a lintel. This masonry wall should be temporarily shored until a lintel can be provided.

1.2.9 The concrete beams located on Building 14's third floor framing plan should be repaired as soon as possible.

1.2.10 The third-floor slab of Building 13 has experienced significant deflection, spalling and corroded rebar in spalled concrete locations. Remove stored materials that are located above this slab to reduce structural load and repair the slab.

1.2.11 Based on the extent of roof structural deterioration and/or failure, the metal edged gypsum plank roof deck on Building 21 should be removed and replaced as soon as possible to prevent further failure.

1.2.12 The roofing material, although not structural, is beyond its service life and all roofs should be replaced as soon as possible to prevent the continued infiltration of water into the building enclosure.

1.2.13 All masonry parapets are in poor condition and should be repointed and damaged bricks be replaced. All damaged or missing coping stones along with their respective through wall flashings should be re-built or replaced. **The coping stones on the west wall of Building 14 are loose and are in danger of falling onto the sidewalk. These should be re-set as soon as possible.**

Medium Priority Items (Address within One to Three Years)

1.2.14 There are several concrete column caps on top of the exterior masonry columns on Building 10 through 17 are in poor condition and should be removed or replaced.

1.2.15 The steel stairs and landings located at Buildings 10 and 12 are beyond their useful life and should be replaced with stairs that meet current building code standards for means of egress.

1.2.16 All the concrete slabs at Buildings 10 through 17 exhibit a concerning level of cracks, calcified stalactites along the bottoms of the slab, staining, and organic growth. These are all likely caused by repeated water infiltration into the building. Replacement of the roofing system and proper flashings should help with restricting the entry of moisture into the building, but broken windows and exposed masonry head and bed joints will all allow for the entry of wind driven rain and moisture. All built up wood plank flooring should be removed from all floors as that is a source for retaining moisture. It should be noted that a structure fire on the 2nd floor of Buildings 12 through 15 may have directly impacted the strength of the concrete. Testing should be employed to ascertain the following information regarding the structural integrity of the slab prior to designing for and applying structural loads:

- Concrete Compressive Strength – Cores should be taken on each floor to determine its in-situ concrete strength.
- Petrographic analysis should be performed to determine alkali-silica reactivity and to determine the amount of freeze-thaw the existing concrete has been subject to.
- Chloride ion testing should be performed with the extracted concrete core samples to determine the estimated chloride ion content within each of the slabs. The concentration of chlorides in the concrete may be an indicator for concrete with a higher likelihood for slab reinforcement corrosion.
- Reinforcement size and spacing: GPR or Impulse-Response testing can be used to provide the slab reinforcement spacing and location within the slab but not the material information. Removing a portion of the concrete to expose the reinforcement will allow for verification of bar size, and a steel sample to be obtained for additional testing to confirm steel grade.

1.2.17 The concrete columns at Building 10 through 17 have condition varying in poor to good condition. Any columns that have crack widths exceeding 1/16 inches should be sounded to determine if the concrete has delaminated from the column. Concrete in the delaminated areas should be removed and re-poured. While this is occurring, the rebar in the cracked areas should also be inspected for rust and rust should be removed prior to pouring patching concrete. Any rebar that has lost more than 15% of its section should be removed and a new bar should be spliced to the existing.

1.2.18 Based on the extent of observed steel corrosion, the following building structural steel elements (joists, beams, girders, columns) should be cleaned of rust scale, treated with a corrosion inhibitor and re-painted. Any steel element with more than 15 percent of section loss should be reinforced:

- Building 19 – Spandrels, Girders, Columns.
- Building 21 – Open Web Joists, Girders, Columns.

Low Priority Items (Address within Three to Five Years)

1.2.19 All organic growth and graffiti should be removed from the masonry using the gentlest means possible.

1.2.20 Remove peeled paint from existing masonry walls and concrete floors using the gentlest means possible. This paint appears to not be compatible and/or does not adequately allow for water to escape the structural elements.

1.2.21 Deteriorated masonry head and bed joints should be repointed through the entire South Building. Mortar sampling should be performed to determine the composition of aggregates and cements.

1.3 BOILER FLUE STACKS

1.3.1 The 74-foot-tall brick boiler flue stack is leaning to the north approximately 0.72 degrees, or approximately 11.25 inches. Additionally, the head and bed joints along the upper third of the stack are severely deteriorated, and vertical cracking and bulging of masonry may be an indication of failure due to hoop stresses. Based on these considerations, the 74-foot-tall brick boiler stack is in unsafe condition and should be demolished.

1.3.2 The 98-foot-tall brick boiler flue stack is leaning to the north approximately 0.43 degrees, or approximately 8.75 inches. Additionally, the head and bed joints along the upper third of the stack are severely deteriorated, and vertical cracking may be an indication of failure due to hoop stresses. Based on these considerations, the 98-foot-tall brick boiler stack is in unsafe condition and should be demolished.

1.4 STRUCTURAL CONSIDERATIONS FOR PROPOSED FUTURE USE

1.4.1 The buildings are noted as "eligible for listing" for historic designation by the New York State Historic Preservation Office (SHPO), resource evaluation 02714.000601 dated May 28, 2020. Under the 2020 Existing Building Code of New York State (EBCNYS), definitions, a building is considered "historic" from a code contextual standpoint if it is listed as or is certified as *eligible for listing* by the State Historic Preservation Officer. Additional historical research should be pursued to identify items of architectural and/or historic importance for future filings. Due to the quantity of building additions throughout the buildings' history, a thorough review from a historical context should be provided to identify which structures on the property are historic and non-historic.

1.4.2 Structures that are designated as "historic" are allowed to be repaired back to their pre-damaged condition without requiring additional building evaluations for current code-mandated wind and seismic forces. However, any portions of the building which are considered dangerous by the building official must be remedied.

1.4.3 Assuming that the buildings are re-purposed for commercial or multi-family use, the assumed reconfiguration extents would bring the scope of work to "Alteration Level 3" work as defined in the EBCNYS Chapter 6. Alteration Level 3 work is subject to Chapters 7, 8 and 9 of the EBCNYS. Based on local spectral response parameters, the Seismic Design Category for the Building is "B" for the buildings. Evaluation of unreinforced masonry parapets, unreinforced masonry partitions, and anchorage of unreinforced masonry walls to roofs are required for Seismic Design Category "C" or higher and are therefore not applicable.

1.4.4 An evaluation of the structural work scope will be required to determine if the work is considered "substantial structural alteration" work as defined in EBCNYS Chapter 2. If the proposed work is classified

as "substantial structural alteration" work, then the existing building(s) will require evaluation for current building code level wind forces and reduced building code level seismic forces. If the work is less than "substantial structural alteration work," then the work is considered "limited structural alteration" work and will be subject to the provisions of Chapter 7 and 8 of the EBCNYS.

2.0 Project Scope/Background

2.1 PROJECT SCOPE

As part of a Brownfield Opportunity Area (BOA) Nomination adaptive re-use study, Dutchess County retained Bergmann to conduct a structural visual assessment of the multiple buildings and structures within the Fairview Avenue Campus. Prior to Bergmann's involvement, this campus has gone through multiple rounds of ownership and the space has been utilized for several commercial and industrial applications. Through its history, presence of hazardous materials, unpermitted additions, occupancies, numerous code violations and eventual neglect and vandalism have rendered the buildings unsuitable for human occupancy.

On March 19th and March 20th, 2024, Bergmann structural engineer Paul Byrd, PE and design engineer Michael Didas, EIT surveyed the buildings, documented key structural features, and noted areas of structural deficiency. A summary of the various buildings' history, assumptions and structural features are presented in the following sections.

2.2 BUILDING HISTORY

The former Schatz Federal Bearing Company was located on a 20-acre site on Fairview Avenue in Poughkeepsie, NY. Per the New York State Historic Preservation Office (SHPO)'s Cultural Resource Information System (CRIS), father and son Adolf and Herman Schatz moved their ball bearing company from New Haven, Connecticut to Poughkeepsie NY in 1910, where the buildings currently preside. The Schatz's formed the Federal Bearing Company, which eventually held competitive contracts for bearing production with large scale automotive parts retailers along with major automobile manufacturers. From what started as a small company with 75 employees eventually grew to approximately 1,200 employees, with significant expansions of the original building into the campus that is the subject of this report.

Although this campus is not listed as "historic" with the National Parks Service's *National Register of Historic Places*, it is considered a survey point of interest in the Dutchess County's *Historic Resource Survey* and is listed as "eligible for historic designation" (USN 02714.000601) in the SHPO *Cultural Resource Information System (CRIS)* due to its contributions as a major manufacturer for the automotive industry. Additional historical research may discover examples of items of architectural historic importance for future filings.

For this report, Bergmann has divided the campus into a "North" and a "South" building. Each building contains multiple additions and areas that were previously demolished. Furthermore, there are various ancillary structures which Bergmann understands will not be included in the BOA Adaptive Reuse Study. Likewise, there are some building additions that are currently collapsed, which are assumed to be demolished and will not be included in the BOA Adaptive Reuse Study. See Figure 1 below for an overall view of the campus, which can also be seen in Appendix A.

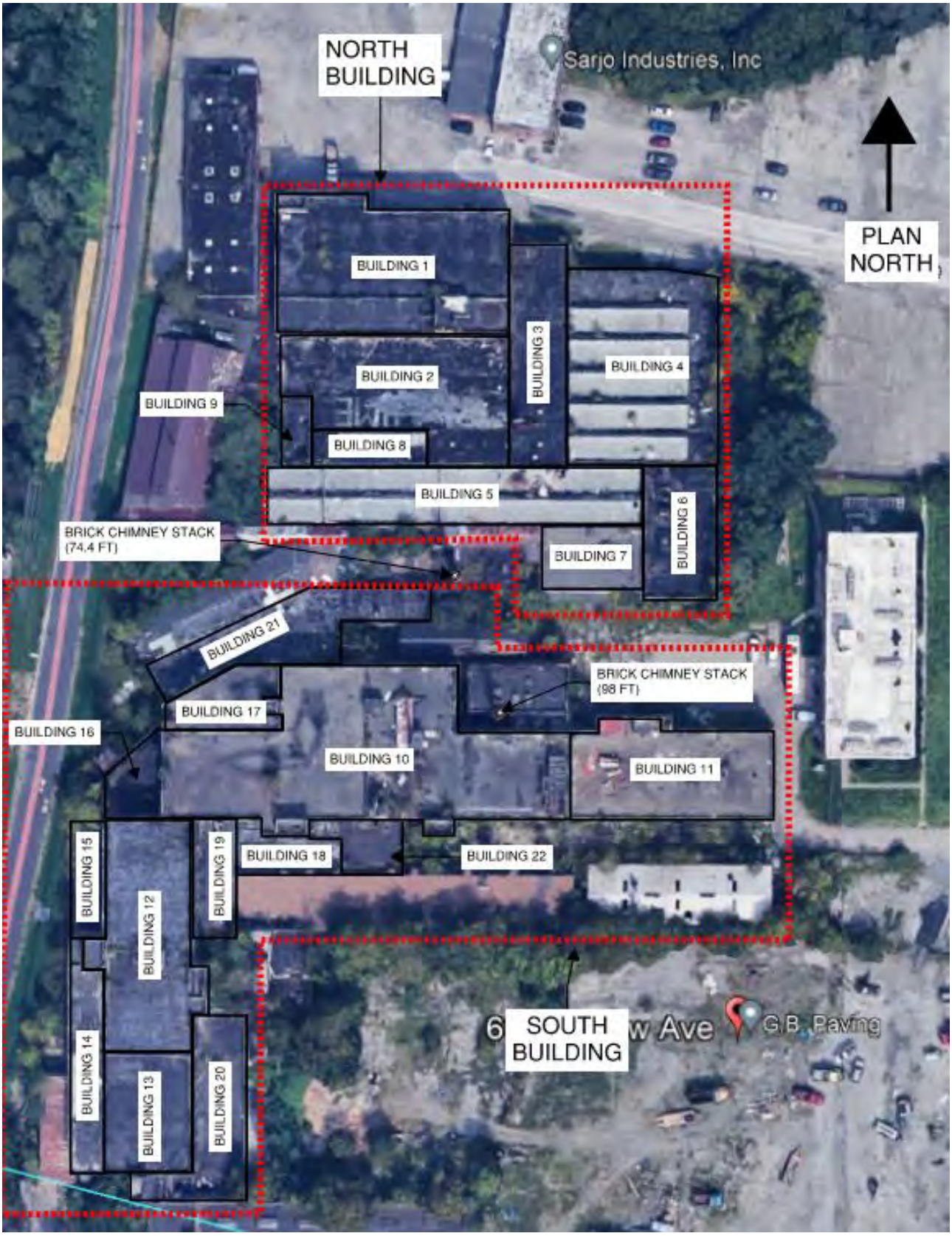


Figure 1: Schatz Federal Bearing Co Campus- Overall Plan

2.3 EXISTING STRUCTURAL SYSTEMS

2.3.1 North Building

The north building is comprised of nine separate buildings of varying structural systems presented below:

Building 1

Building 1 is a 55,700 gross square foot (including roof), three-story structure. The roof and floors consist of cast-in-place structural concrete slabs, supported by circular interior concrete columns and rectangular exterior concrete columns. Along the south portion of the 3rd and roof of the building, concrete spandrel beams span east to west and concrete girder beams span north to south for approximately 7,500 square feet of the building floor. The exterior building walls consist of multi-wythe unreinforced brick masonry infills between the rectangular building columns which support large bay windows. Above and below the windows are reinforced concrete beams spanning from column to column. Along the roof, unreinforced brick masonry parapets with reinforced concrete copings extend approximately four feet above the roof line. The foundation is assumed to be conventional concrete spread footings and wall footings but could not be confirmed while on site.

Photo 1: Building 1, Third Floor

Building 2

Building 2 is a 10,500 square foot, single story structure. The roof consists of metal edge gypsum roof plank (see Figure 2) decking, spanning over wide flanged structural steel spandrels at approximately 3 to 4 feet on center. These steel spandrels are supported by wide flanged steel beams spanning approximately 20 feet on center between structural steel columns. On the east, the building is enclosed by a single-story concrete masonry unit (CMU) block wall, building 1 to the north, and unreinforced brick walls enclose the west and south portions of the building. The foundations are assumed to be concrete spread footings but could not be confirmed on site.

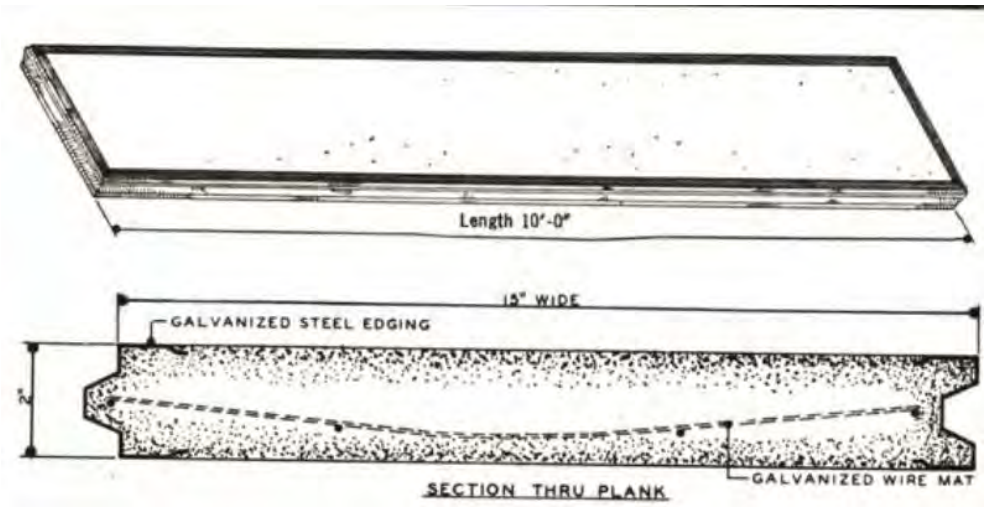


Figure 2: Metal edge gypsum roof plank (ref: United States Gypsum historical product data)

Photo 2: Building 2, looking north at Building 1 first floor.

Building 3

Building 3 is a 5,300 square foot, single story structure. The roof consists of metal edge gypsum roof plank decking spanning over open web metal bar joists spaced at approximately 5 feet on center. These steel spandrels are supported by wide flanged steel beams spanning approximately 20 feet on center between structural steel columns. On the north, east and south, the building is enclosed by single-story unreinforced brick masonry walls. To the west, the building is enclosed by a single-story CMU wall. The foundations are assumed to be concrete spread and wall footings but could not be confirmed on site.

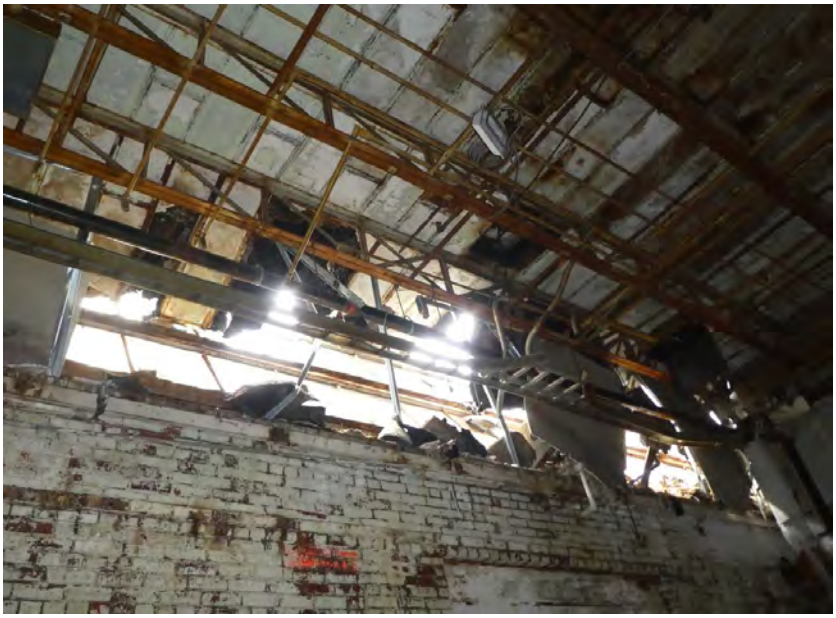


Photo 3: Building 3, looking south at Building 5 roof.

Building 4

Building 4 is a 12,500 square foot, single story structure. The roof consists of tongue and groove wood planks spanning between structural steel supports spaced at approximately 10 feet on center. Along the outer 20 feet on the north and east elevations, the roof is flat with wide-flanged steel spandrels supporting the wood plank deck. These spandrel beams along the flat roofed portion either are supported by wide-flanged steel girder beams or pocket directly onto unreinforced brick masonry bearing walls. Within the remainder of the building, the wood plank decking is supported by a series of sawtooth roof trusses supported by wide-flanged steel girder beams. These girder beams span approximately 20 feet and are supported by wide-flanged structural steel columns. On the north, west, east, and south, the building is enclosed by single-story unreinforced brick masonry walls. The foundations are assumed to be concrete spread and wall footings but could not be confirmed on site.

Photo 4: Building 4, looking east up at sawtooth roof.

Building 5

Building 5 is a 10,600 square foot, single story structure. The roof consists of tongue and groove wood planks spanning between structural steel supports spaced at approximately 10 feet on center. The wood plank decking is supported by a series of sawtooth roof trusses supported by wide-flanged steel columns and unreinforced brick bearing walls. These girder beams span approximately 20 feet and are supported by wide-flanged structural steel columns. On the north, west, east, and south, the building is enclosed by single-story unreinforced brick masonry walls. The foundations are assumed to be concrete spread and wall footings but could not be confirmed on site.

Photo 5: Building 5, looking east up at sawtooth roof.

Building 6

Building 6 is a 4,500 square foot, single story structure. The roof consists of a poured gypsum slab over steel "t" sections inverted, also known as "bulb tees." These bulb tees are supported by structural steel framing members which are supported by structural steel columns and on the exterior unreinforced brick masonry bearing walls. Much of the roof structure could not be observed due to the presence of rigid ceilings; however, it appears that the ceilings are supported by a rigid steel suspension system which is assumed to be supported directly by the steel roof framing. The floor composition could not be determined due to the extent of debris. Columns are assumed to be supported by concrete spread footings, and walls are assumed to be supported by continuous wall footings.

Photo 6: Building 6, looking north up at collapsed roof.

Building 7

Building 7 is a 3,000 square foot, single story structure. The roof consists of tongue and groove wood planks spanning between wood cripple wall beam supports spaced at approximately 10 feet on center. These cripple walls are supported by heavy timber beams, which bear on heavy timber columns and on unreinforced brick bearing walls. The floor appears to be a wood floor with wood lumber joists, but due to the level of debris and collapsed floor structure it could not be confirmed.

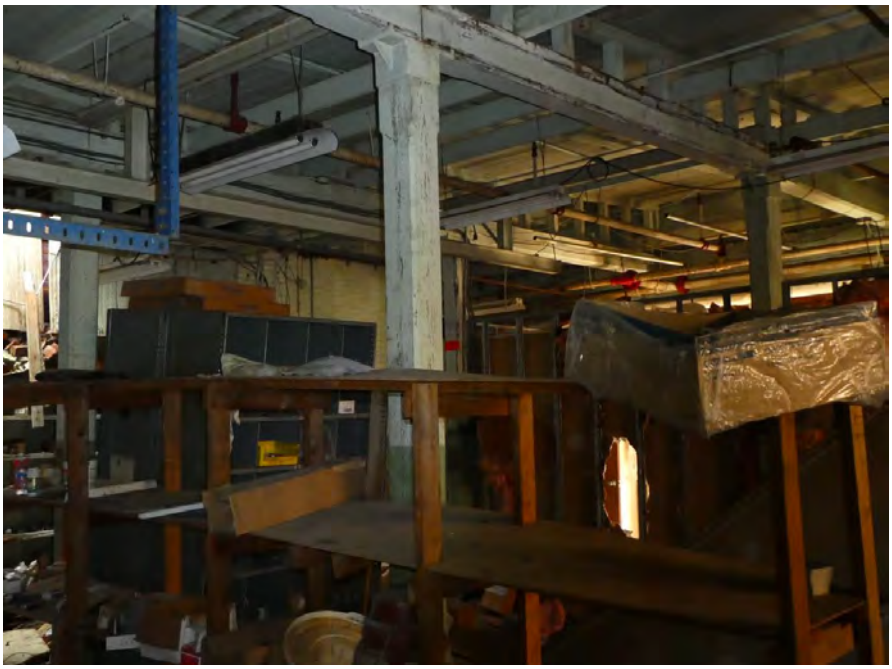


Photo 7: Building 7, looking southeast.

Building 8

Building 8 is a 1,400 square foot, single story structure. The roof consists of metal edge gypsum roof plank decking, spanning over wide flanged structural steel spandrels at approximately 3 to 4 feet on center. These steel spandrels are supported by wide flanged steel beams spanning approximately 20 feet on center between structural steel columns. On the north, the building is enclosed by a single-story concrete masonry unit (CMU) block wall, and unreinforced brick walls enclose the east, west and south portions of the building. The foundations are assumed to be concrete spread footings but could not be confirmed on site.

Photo 8: Building 8, looking southeast.

Building 9

Building 9 is a 1,000 square foot, single story structure. This building was inaccessible at the time of the site visits. Based on its proximity to the adjacent structures, it is assumed that the structural framing is like that of Building 2 (see *Building 2* on page 10).

2.3.2 South Building

The south building is comprised of thirteen separate buildings of varying structural systems presented below:

Building 10

Building 10 is an 86,700 gross square foot (including roof), three-story structure. The roof and floors consist of cast-in-place structural concrete slabs, supported by circular interior concrete columns and rectangular exterior concrete columns. The exterior building walls consist of multi-wythe unreinforced brick masonry infills between the rectangular building columns which support large bay windows. Above and below the windows are reinforced concrete beams spanning from column to column. Along the roof, unreinforced brick masonry parapets with reinforced concrete copings extend approximately four feet above the roof line. The foundation is assumed to be conventional concrete spread footings and wall footings but could not be confirmed while on site.

Photo 9: Building 10, third floor, looking east.

Building 11

Building 11 is a 24,450 gross square foot (including roof), two-story structure. The roof and floors consist of cast-in-place structural concrete slabs, supported by circular interior concrete columns and rectangular exterior concrete columns. The exterior building walls consist of multi-wythe unreinforced brick masonry infills between the rectangular building columns which supported large bay windows. Above and below the windows are reinforced concrete beams spanning from column to column. Along the roof, unreinforced brick masonry parapets with reinforced concrete copings extend approximately four feet above the roof line. The foundation is assumed to be conventional concrete spread footings and wall footings but could not be confirmed while on site.

Photo 10: Building 11, first floor, looking east.

Building 12

Building 12 is a 38,800 gross square foot (including roof), three-story structure. The roof and floors consist of cast-in-place structural concrete slabs, supported by circular interior concrete columns and rectangular exterior concrete columns. The exterior building walls consist of multi-wythe unreinforced brick masonry infills between the rectangular building columns which support large bay windows. Above and below the windows are reinforced concrete beams spanning from column to column. Along the roof, unreinforced brick masonry parapets with reinforced concrete copings extend approximately four feet above the roof line. The foundation is assumed to be conventional concrete spread footings and wall footings but could not be confirmed while on site.

Photo 11: Building 12, third floor, looking north.

Buildings 13/14

Buildings 13 and 14 are 34,080 gross square feet (including roof), three-story structures. The roof and floors consist of cast-in-place structural concrete slabs, supported by circular interior concrete columns and rectangular exterior concrete columns. The exterior building walls consist of multi-wythe unreinforced brick masonry infills between the rectangular building columns which support large bay windows. Above and below the windows are reinforced concrete beams spanning from column to column. Along the roof, unreinforced brick masonry parapets with reinforced concrete copings extend approximately four feet above the roof line. Building 14 transitions to a concrete beam and one-way-concrete structural slab for approximately 4,800 square feet. The foundation is assumed to be conventional concrete spread footings and wall footings but could not be confirmed while on site.

Photo 12: Building 13/14, second floor, looking north.

Buildings 15/16

Buildings 15 and 16 is a combined 8,100 gross square foot (including roof), single-story structure. The roof consists of cast-in-place structural concrete slabs, supported by circular interior concrete columns and rectangular exterior concrete columns. The exterior building walls consist of multi-wythe unreinforced brick masonry infills between the rectangular building columns which support large bay windows. Above and below the windows are reinforced concrete beams spanning from column to column. Along the roof, unreinforced brick masonry parapets with reinforced concrete copings extend approximately four feet above the roof line. Along the northwest corner of building 16, a steel hopper structure is located adjacent to but disconnected to the building structure.

Photo 13: Building 16, roof, looking north.

Building 17

Building 17 is an 8,700 gross square foot (including roof), three-story structure. The roof consists of cast-in-place structural concrete slabs, supported by circular interior concrete columns and rectangular exterior concrete columns. The exterior building walls consist of multi-wythe unreinforced brick masonry infills between the rectangular building columns which support large bay windows. Above and below the windows are reinforced concrete beams spanning from column to column. The foundations are assumed to be concrete spread footings but could not be confirmed on site. Along the roof, unreinforced brick masonry parapets with reinforced concrete copings extend approximately four feet above the roof line. Along the northwest corner of building 16, a steel hopper structure is located adjacent to but disconnected to the building structure.

Photo 14: Building 17, third floor, looking west.

Building 18

Building 18 is a 2,300 gross square foot (including roof), single-story structure. The roof consists of an assumed wood plank or plywood deck supported by sawn dimensional lumber roof joists. These joists are supported on the north by a continuous steel angle bolted to building 10, and by structural steel beams and posts along the mid span and along the southern edge of the roof. The foundations are assumed to be concrete spread footings but could not be confirmed on site. Directly to the south of this building is a partially collapsed timber structure, which is assumed will be fully demolished per conceptual renderings for the proposed future facility use provided to Bergmann.

Photo 15: Building 18, ground floor, looking west.

Photo 16: Partially collapsed timber building, looking southwest from building 18.

Building 19

Building 19 is a 5,000 gross square foot (including roof), single-story structure. The roof consists of a precast concrete channel slab spanning east to west between structural steel beam spandrels. These spandrel beams are supported by structural steel girders spanning east to west, which are supported by loadbearing brick masonry walls. Five (5) 6-foot by 10-foot skylights are located on the roof and are evenly spaced. The foundations are assumed to be concrete wall footings but could not be confirmed on site.

Photo 17: Building 19 roof and skylights, looking northeast.

Building 20

Building 20 is a 9,500 gross square foot (including roof), single-story structure. The building has two roof compositions; the first roof consists of corrugated metal deck supported by steel joists, where the second roof consists of concrete channel slab spanning east two west, supported by open web metal joists (see photo 18). It appears that there were originally skylights along the concrete portion of the roof, which were later infilled with wood framing (see photo 19) These joists are supported by structural steel girders spanning east to west, supported by structural steel columns. The exterior walls are a combination of unreinforced brick and CMU walls. The foundations are assumed to be concrete spread footings but could not be confirmed on site.

Photo 18: Building 20 roof deck transition, looking northeast.

Photo 19: Building 20 presumed skylight infill, looking west.

Building 21

Building 21 is an 11,835 gross square foot (including roof), single-story structure. The roof consists of metal edge gypsum roof plank (see Figure 2) decking, spanning over open web metal bar joists at approximately 3 to 4 feet on center. These joists are supported by wide flanged steel beams spanning approximately 20 feet on center between structural steel columns. The exterior walls are presumed unreinforced CMU walls along the east, northwest and southeast portions of the building, and unreinforced brick masonry walls along the remainder of the building. The foundations are assumed to be concrete spread footings but could not be confirmed on site.

Photo 20: Building 21 roof, looking northwest.

Building 22

Building 22 is a 4,500 gross square foot (including roof), single-story structure. The roof consists of metal edge gypsum roof plank (see Figure 2) decking, spanning over open web metal bar joists at approximately 3 to 4 feet on center. These joists are supported by wide flanged steel beams spanning approximately 20 feet on center between structural steel columns on the south, and pocket into the unreinforced brick masonry walls of Building 10 to the north. The foundations are assumed to be concrete spread footings but could not be confirmed on site.

Photo 21: Building 22 roof, looking west.

Brick Boiler Flue Stacks

On the campus there are two brick chimney stacks which consist of unreinforced brick masonry and steel plate banding at approximately 8 feet on center. The boiler flue stack located at the North Building stands approximately 75-feet tall, where the boiler stack located at the South Building stands approximately 98-feet tall.

Photo 22: 75-foot-tall Boiler Flue Stack.

Photo 23: 98-foot-tall Boiler Flue Stack.

3.0 Structural Condition Observations

3.1 GENERAL (ALL BUILDINGS)

- Exterior Concrete Elements (columns, column capitals, concrete beams, etc.) exhibit varying levels of deterioration. Cracking, staining, and spalling of structural elements were observed on interior and exterior faces of the concrete members. Concrete members along the roof level of the buildings exhibit the most severe deterioration.

Photo 24: South elevation of Building 1. Deteriorated concrete lintels, columns, column capitals and parapet copings.

Photo 25: Building 1 South parapet wall; deteriorated column capitals.

Photo 26: North Elevation Building 10, Third Floor. Deteriorated concrete columns, lintels, copings.

Photo 27: East Elevation Building 10, Third Floor. Deteriorated concrete columns, lintels, copings.

- Staining along the interior and exterior faces of most walls were observed. Sources of staining consist mostly of graffiti and organics (algae, vines, etc.). Along the exterior faces of the brick masonry walls, efflorescence (white residue formed from soluble salts) was observed primarily along the roof parapet level and 2nd floor levels, with some instances along the first floor.

Photo 28: North Elevation Building 9. Typical occurrence of organic staining (algae, vines) and graffiti.

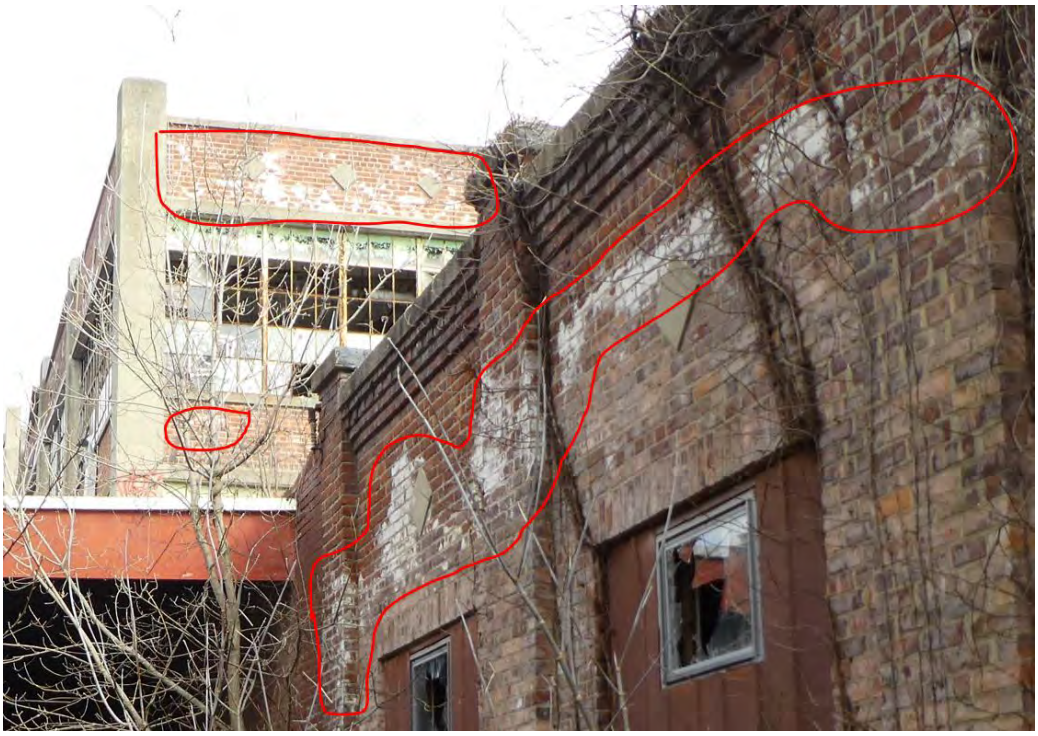


Photo 29: South Elevation Building 1/West Elevation Building 2. Typical occurrence of efflorescence in masonry walls.

- Although not structural, majority of the roofs observed exhibit some form of failure. The existing membrane roofs on majority of the buildings have open seams, have blown off portions of the roof, have flashing failures where terminated at parapets, and failures along through-wall flashings between coping stones and parapets. All locations of failed roofing are sources of moisture which directly and indirectly impacts structural elements.

Photo 30: Building 14, existing membrane roof pulled from roof deck and parapet.

Photo 31: Building 1, existing membrane roof with open seams and pulled back from existing parapet.

- There are structural roof deck failures along several of the buildings, likely due to moisture infiltration through the failed roofing. The following buildings were observed to have structural roof deck failures:
    - Building 2 (metal edged gypsum plank).
    - Building 3 (metal edged gypsum plank).
    - Building 4 flat roofs and sawtooth valleys (wood tongue-and-groove plank).
    - Building 5 sawtooth valleys and portion of collapsed roof (wood tongue-and-groove plank).
    - Building 6 (poured gypsum deck on steel bulb tees).
    - Building 7 (wood tongue-and-groove plank).
    - Building 8 sawtooth valleys (wood tongue-and-groove plank).
    - Building 21 (metal edged gypsum plank).

Photo 32: Building 2, gypsum plank deck failure.

Photo 33: Building 3, gypsum plank deck failure.

Photo 34: Building 4, wood plank deck failure.

Photo 35: Building 5, wood plank deck failure.

Photo 36: Building 6, poured gypsum deck failure.

Photo 37: Building 7, wood plank deck failure.

Photo 38: Building 21, gypsum plank deck failure.

- The buildings consisting of cast-in-place concrete floor slabs and concrete columns contain wood flooring, which is saturated with moisture and organic material, likely from moisture infiltration from the roof (photo 39). This moisture is trapped within the wood flooring and is permeating down into the lower floor levels, which can be seen by the numerous calthemite straw stalactites (photo 40) observed from the ceilings. Additionally, mineral deposits can be seen permeating through the column/slab interface (photo 41).

Photo 39: Typical concrete deck with wood plank flooring; organic growth.

Photo 40: Typical concrete deck with calthemite straw stalactites along ceilings.

Photo 41: Typical concrete deck with calthemite straw stalactites along ceilings.

- Structural steel elements (joists, spandrels, girders, columns) supporting the various roofs within the buildings exhibit varying levels of corrosion, likely due to the infiltration of moisture from various points of entry (roof, wall fenestrations, etc.).


Photo 42 (left): Typical structural steel spandrel beam corrosion (Building 8); Photo 43 (right): Typical open web metal joist corrosion (Building 21).

3.2 NORTH BUILDING (*REFER TO APPENDIX C FOR COMPLETE KEYNOTED PLANS*)

- Along the west side of Building 1, an approximately 10-foot-long section of parapet coping stone has fallen off the roof and onto a lower corrugated roof deck and open web metal joist system. This has caused local failure of both the roof deck and the metal joists. Based on the dimensions and weight of the stone, this was likely caused by human intervention (vandalism). A similar instance was observed at the next adjacent coping stone, which is at risk of falling onto the lower structure.

Photo 44: Building 1, west wall missing roof parapet coping stone.

Photos 45 and 46: Lower roof west of Building 1, images of fallen coping stone and structural damage to roof deck and joists.

Photo 47: Building 1, west wall; coping stone at risk of falling onto lower roof.

- Within the stair towers at building 1, there is cracking of concrete landing beams and exposed, corroded reinforcing bar at the third floor.


Photos 48 and 49: cracked 3rd floor landing beam and exposed, corroded reinforcing bar.

- On the second floor of Building 1, several exterior concrete columns have exposed reinforcing bar and large vertical and diagonal cracks indicative of spalling caused by the corrosion of steel reinforcing.


Photos 50 and 51: Building 1, cracks and exposed reinforcing in exterior concrete columns.

- Along Building 7, the lower two feet of brick masonry wall is deteriorated, with brick fragments and dust deposited along the ground of the building.

Photo 52: Building 7, brick fragments and deterioration along base of wall.

- At Building 7, the first floor and framing has collapsed in several areas, impeding entry into the building.

Photos 53 and 54: Building 7, images of floor collapse.

3.3 SOUTH BUILDING (*REFER TO APPENDIX E FOR COMPLETE KEYNOTED PLANS*)

- Soot and smoke staining on concrete structural elements (slab, beams, columns) were observed on the third floor of Building 10 and on the second floor of Buildings 12 through 14. Additionally, burnt debris was observed throughout the area. Concrete beams and slab components exhibit varying degrees of cracking and spalling, specifically along building 14 concrete beams (see photo 55).

Photos 55 (above): Building 14 second floor, staining from fire damage (looking north) and Photo 56 (below): Building 12 second floor, staining from fire damage (looking north).

Photos 57 (above): Building 10 third floor, staining from fire damage (looking northeast) and Photo 58 (below): Building 10 third floor, building debris from fire at freight elevator (looking north).

- Stored materials, such as storage rack components, textiles, and other raw materials are stored in various areas of the building leading to impassible conditions. On the third floor of Building 12, the concentrated storage of materials is causing floor sagging and spalling of the concrete, as observed from the ceiling of the second floor.

Photos 59 (above): Building 12 third floor, concentrated stored materials (looking southwest) and Photo 60 (below): Building 12 second floor looking at third floor bottom of slab, spalling, exposed rebar and sagging of slab under stored materials (looking southeast).

- A 12-inch-thick CMU wall on at Building 21 is missing a lintel for an approximately 10-foot-wide opening, presumably used for an existing garage door. This is an unsafe condition and may result in collapse of the wall above the opening.

Photo 61: Building 7, brick fragments and deterioration along base of wall.

- The coping stones on the west wall of Building 14 are loose and are in danger of falling onto the sidewalk.

Photo 62: Building 14 parapet coping stone loose.

3.4 EXISTING BOILER STACKS

- The 74-foot-tall brick boiler flue stack is leaning to the north approximately 0.72 degrees, or approximately 11.25 inches. This may be under or overconservative and should be verified using a surveyor. Additionally, the head and bed joints along the upper third of the stack are severely deteriorated.

- The 98-foot-tall brick boiler flue stack is leaning to the north approximately 0.43 degrees, or approximately 8.75 inches. This may be under or overconservative and should be verified using a surveyor. Additionally, the head and bed joints along the upper third of the stack are severely deteriorated.

Photos 63 and 64: 74-foot-tall Boiler stack

Photos 65 and 66: 98-foot-tall Boiler stack

4.0 Recommendations

Based on visual observations, condition of the buildings ranged from fair to unsafe condition. A summary of recommendations, by priority items are presented below.

4.1 ALL BUILDINGS

High Priority Items (Address within One Year)

4.1.1 The roofing material, although not structural, is beyond its service life and all roofs should be replaced as soon as possible to prevent the continued infiltration of water into the building enclosure.

Low Priority Items (Address within Three to Five Years)

4.1.2 All graffiti, paint and organic material should be removed from the existing masonry by gentlest means possible.

4.1.3 The masonry varies from fair to poor condition. Masonry which are missing or deteriorated should be replaced in kind.

4.1.4 All exterior faces of masonry should be repointed with mortar of similar composition to existing conditions. For brick masonry, mortar sampling should be provided for laboratory analysis for purposes of mix proportioning.

4.1.5 Building debris should be removed from all buildings to reduce the risk of additional structure fires.

4.2 NORTH BUILDING

High Priority Items (Address within One Year)

4.2.1 Building 6 is in unsafe condition due to the failure of the poured gypsum roof and the southern entry canopy, as well as the extent of deterioration of the floor. Building 6 should be demolished

4.2.2 Building 7 is in unsafe condition due to the failure of the wood framed floor and roof and the extent of masonry deterioration. Building 7 should be demolished. The fire escape access points should be blocked to protect the public from utilizing this stair.

4.2.3 The steel fire escape located on the north face of Building 1 is unsafe and should be removed and replaced with a fire escape that complies with current building code standards for means of egress.

4.2.4 Based on the extent of roof structural deterioration and/or failure, the following building roofs decks should be removed and replaced as soon as possible to prevent further failure:

- Building 2 (metal edged gypsum plank).
- Building 3 (metal edged gypsum plank).
- Building 4 flat roofs and sawtooth valleys (wood tongue-and-groove plank).
- Building 5 sawtooth valleys and portion of collapsed roof (wood tongue-and-groove plank).
- Building 7 (wood tongue-and-groove plank).
- Building 8 sawtooth valleys (wood tongue-and-groove plank).

4.2.5 The roofing material, although not structural, is beyond its service life and all roofs should be replaced as soon as possible to prevent the continued infiltration of water into the building enclosure.

4.2.6 All masonry parapets are in poor condition and should be repointed and damaged bricks be replaced. All damaged or missing coping stones along with their respective through wall flashings should be re-built or replaced. **The coping stones on the west wall of Building 1 are loose and are in danger of falling onto a lower roof. These should be re-set as soon as possible.**

Medium Priority Items (Address within One to Three Years)

4.2.7 There are several concrete column caps on top of the exterior masonry columns on Building 1 are in poor condition and should be removed or replaced.

4.2.8 The concrete stair landing and concrete landing beam in Building 1 south stair should be repaired.

4.2.9 All the concrete slabs at Building 1 exhibit a concerning level of cracks, calcified stalactites along the bottoms of the slab, staining, and organic growth. These are all likely caused by repeated water infiltration into the building. Replacement of the roofing system and proper flashings should help with restricting the entry of moisture into the building, but broken windows and exposed masonry head and bed joints will all allow for the entry of wind driven rain and moisture. All built up wood plank flooring should be removed from all floors as that is a source for retaining moisture. Additionally, testing should be employed to ascertain the following information regarding the structural integrity of the slab prior to designing for and applying structural loads:

- Concrete Compressive Strength – Cores should be taken on each floor to determine its in-situ concrete strength.
- Petrographic analysis should be performed to determine alkali-silica reactivity and to determine the amount of freeze-thaw the existing concrete has been subject to.
- Chloride ion testing should be performed with the extracted concrete core samples to determine the estimated chloride ion content within each of the slabs. The concentration of chlorides in the concrete may be an indicator for concrete with a higher likelihood for slab reinforcement corrosion.
- Reinforcement size and spacing: GPR or Impulse-Response testing can be used to provide the slab reinforcement spacing and location within the slab but not the material information. This may also assist in locating areas of spalled concrete within the floor slab. Removing a portion of the concrete to expose the reinforcement will allow for verification of bar size, and a steel sample to be obtained for additional testing to confirm steel grade.

4.2.10 The concrete columns at Building 1 have condition varying in poor to good condition. Any columns that have crack widths exceeding 1/16 inches should be sounded to determine if the concrete has delaminated from the column. Concrete in the delaminated areas should be removed and re-poured. While this is occurring, the rebar in the cracked areas should also be inspected for rust and rust should be removed prior to pouring patching concrete. Any rebar that has lost more than 15% of its section should be removed and a new bar should be spliced to the existing.

4.2.11 The concrete lintels and sills enveloping Building 1's exterior should be repaired. This is particularly evident along the north face and wall faces that are above the lower roof and are exposed to freeze and thaw cycles.

4.2.12 Based on the extent of observed steel corrosion, the following building structural steel elements (joists, beams, girders, columns) should be cleaned of rust scale, treated with a corrosion inhibitor and re-painted. Any steel element with more than 15 percent of section loss should be reinforced:

- Building 2 – Spandrels, Girders, Columns.
- Building 3 – Open Web Joists, Girders, Columns.

- Building 4 – Sawtooth Trusses, Spandrels, Girders, Columns.
- Building 5 – Sawtooth Trusses, Girders, Columns.
- Building 8 – Sawtooth Trusses, Girders, Columns.

Low Priority Items (Address within Three to Five Years)

4.2.13 All organic growth and graffiti should be removed from the masonry using the gentlest means possible.

4.2.14 Remove peeled paint from existing masonry walls and concrete floors using the gentlest means possible. This paint appears to not be compatible and/or does not adequately allow for water to escape the structural elements.

4.2.15 The handrails serving Building 1's stairs are not code compliant and should be replaced with handrails that meet current building code standards.

4.2.16 Deteriorated masonry head and bed joints should be repointed through the entire North Building. Mortar sampling should be performed to determine the composition of aggregates and cements.

4.3 SOUTH BUILDING

High Priority Items (Address within One Year)

4.3.1 Building 18 is in unsafe condition due its roof structure being physically connected to the existing timber framed building south of it that is currently collapsing. Building 18, as well as the timber framed building should be demolished.

4.3.2 Building 19 is in unsafe condition due to the level of deterioration of the concrete channel plank roof, the condition of the structural steel elements, and the failure of the window lintel on the south face of the building. Building 19 should be demolished.

4.3.3 Building 20 is in unsafe condition due to the failure of the concrete plank roof as well as structural failure of at least four roof joists. Building 20 should be demolished.

4.3.4 The building north of and directly adjacent to Building 21, although not listed in the report, has partially collapsed and is in unsafe condition. This building should be demolished.

4.3.5 Building 22 is in unsafe condition due to the failure of at least three roof joists and its proximity to the existing timber framed building south of it that is currently collapsing. Building 22, as well as the timber framed building should be demolished.

4.3.6 The stairway located south of Building 13 is in poor to unsafe condition based on the extent of cracking along the walls and due to the partially collapsed condition of Building 20, which supports the first floor of the stair. This stair should be demolished and replaced.

4.3.7 The concrete lintel supports along the exterior faces of Building 10, 12, 13 and 14 are in unsafe condition and should be repaired immediately.

4.3.8 There is an overhead door opening on the east side of Building 21 which is currently not supported by a lintel. This is an unsafe condition, and the masonry wall should be temporarily shored until a lintel can be

provided.

4.3.9 The concrete beams located on Building 14's third floor framing plan should be repaired as soon as possible.

4.3.10 The third-floor slab of Building 13 has experienced significant deflection, spalling and corroded rebar in spalled concrete locations. Remove stored materials that are located above this slab to reduce structural load and repair the slab.

4.3.11 Based on the extent of roof structural deterioration and/or failure, the metal edged gypsum plank roof deck on Building 21 should be removed and replaced as soon as possible to prevent further failure.

4.3.12 The roofing material, although not structural, is beyond its service life and all roofs should be replaced as soon as possible to prevent the continued infiltration of water into the building enclosure.

4.3.13 All masonry parapets are in poor condition and should be repointed and damaged bricks be replaced. All damaged or missing coping stones along with their respective through wall flashings should be re-built or replaced. **The coping stones on the west wall of Building 14 are loose and are in danger of falling onto the sidewalk. These should be re-set as soon as possible.**

Medium Priority Items (Address within One to Three Years)

4.3.14 There are several concrete column caps on top of the exterior masonry columns on Building 10 through 17 are in poor condition and should be removed or replaced.

4.3.15 The steel stairs and landings located at Buildings 10 and 12 are beyond their useful life and should be replaced with stairs that meet current building code standards for means of egress.

4.3.16 All the concrete slabs at Buildings 10 through 17 exhibit a concerning level of cracks, calcified stalactites along the bottoms of the slab, staining, and organic growth. These are all likely caused by repeated water infiltration into the building. Replacement of the roofing system and proper flashings should help with restricting the entry of moisture into the building, but broken windows and exposed masonry head and bed joints will all allow for the entry of wind driven rain and moisture. All built up wood plank flooring should be removed from all floors as that is a source for retaining moisture. It should be noted that a structure fire on the 2nd floor of Buildings 12 through 15 may have directly impacted the strength of the concrete. Testing should be employed to ascertain the following information regarding the structural integrity of the slab prior to designing for and applying structural loads:

- Concrete Compressive Strength – Cores should be taken on each floor to determine its in-situ concrete strength.
- Petrographic analysis should be performed to determine alkali-silica reactivity and to determine the amount of freeze-thaw the existing concrete has been subject to.
- Chloride ion testing should be performed with the extracted concrete core samples to determine the estimated chloride ion content within each of the slabs. The concentration of chlorides in the concrete may be an indicator for concrete with a higher likelihood for slab reinforcement corrosion.
- Reinforcement size and spacing: GPR or Impulse-Response testing can be used to provide the slab reinforcement spacing and location within the slab but not the material information. Removing a portion of the concrete to expose the reinforcement will allow for verification of bar size, and a steel sample to be obtained for additional testing to confirm steel grade.

4.3.17 The concrete columns at Building 10 through 17 have condition varying in poor to good condition. Any columns that have crack widths exceeding 1/16 inches should be sounded to determine if the concrete has delaminated from the column. Concrete in the delaminated areas should be removed and re-poured. While this is occurring, the rebar in the cracked areas should also be inspected for rust and rust should be removed prior to pouring patching concrete. Any rebar that has lost more than 15% of its section should be removed and a new bar should be spliced to the existing.

4.3.18 Based on the extent of observed steel corrosion, the following building structural steel elements (joists, beams, girders, columns) should be cleaned of rust scale, treated with a corrosion inhibitor and re-painted. Any steel element with more than 15 percent of section loss should be reinforced:

- Building 19 – Spandrels, Girders, Columns.
- Building 21 – Open Web Joists, Girders, Columns.

Low Priority Items (Address within Three to Five Years)

4.3.19 All organic growth and graffiti should be removed from the masonry using the gentlest means possible.

4.3.20 Remove peeled paint from existing masonry walls and concrete floors using the gentlest means possible. This paint appears to not be compatible and/or does not adequately allow for water to escape the structural elements.

4.3.21 Deteriorated masonry head and bed joints should be repointed through the entire South Building. Mortar sampling should be performed to determine the composition of aggregates and cements.

4.4 BOILER FLUE STACKS

The 74-foot-tall brick boiler flue stack is leaning to the north approximately 0.72 degrees, or approximately 11.25 inches. This may be under or overconservative and should be verified using a surveyor. Additionally, the head and bed joints along the upper third of the stack are severely deteriorated, and vertical cracking and bulging of masonry may be an indication of failure due to hoop stresses. Based on these considerations, the 74-foot-tall brick boiler stack is in unsafe condition and should be demolished.

The 98-foot-tall brick boiler flue stack is leaning to the north approximately 0.43 degrees, or approximately 8.75 inches. This may be under or overconservative and should be verified using a surveyor Additionally, the head and bed joints along the upper third of the stack are severely deteriorated, and vertical cracking may be an indication of failure due to hoop stresses. Based on these considerations, the 98-foot-tall brick boiler stack is in unsafe condition and should be demolished.

4.5 STRUCTURAL CONSIDERATIONS FOR PROPOSED FUTURE USE

All proposed work for existing buildings must comply with the provisions of the Building Code of New York State (BCNYS) for new components/structural elements, and any work related to the existing building must comply to the Existing Building Code of New York State (EBCNYS) as applicable. Assuming that the buildings are re-purposed for commercial or multi-family use the scope of work is likely "Alteration Level 3" work as defined in the EBCNYS Chapter 6 where the work area (reconfigured space) exceeds 50 percent of the building occupiable space. Alteration Level 3 structural work is subject to Chapters 7 (Alteration Level 1 Work), 8 (Alteration Level 2 Work) and 9 (Alteration Level 3 Work) of the EBCNYS. With the larger alteration level work scope, additional structural elements may require further evaluation, such as unreinforced masonry elements (parapets, walls, partitions) and their respective attachments to floors. This is more predominant in areas of higher seismicity. Per the BCNYS,

Seismicity ranges from Seismic Design Category "A" [lowest seismic risk] to Seismic Design Category "E" [highest seismic risk], with most code-mandated evaluations/upgrades starting at Seismic Design Category "C" or higher. Based on local spectral response parameters, the Seismic Design Category for the Building is "B" for the buildings. Evaluation of unreinforced masonry parapets, unreinforced masonry partitions, and anchorage of unreinforced masonry walls to roofs are not applicable due the site being in a low seismic area.

An evaluation of the structural work scope will be required to determine if the work is considered "substantial structural alteration" work as defined in EBCNYS Chapter 2. If the proposed work is classified as "substantial structural alteration" work, then the existing building(s) will require evaluation for current building code level wind forces and reduced building code level seismic forces. If the work is less than "substantial structural alteration work," then the work is considered "limited structural alteration" work and will be subject to the provisions of Chapter 7 and 8 of the EBCNYS. This will be further developed as the intent of the building project scope is further developed.

The buildings on the Schatz Bearing Company campus may also be subject to and benefit from the provisions of EBCNYS Chapter 12- Historic Buildings. The buildings are noted as "eligible for listing" for historic designation by the New York State Historic Preservation Office (SHPO). Under the 2020 Existing Building Code of New York State (EBCNYS), definitions, a building is considered "historic" from a code contextual standpoint if it is listed as or is certified as *eligible for listing* by the State Historic Preservation Officer. Structures that are designated as "historic" are allowed to be repaired back to their pre-damaged condition without requiring additional building evaluations for current code-mandated wind and seismic forces. However, any portions of the building which are considered dangerous by the building official must be remedied.

5.0 Conclusion

The findings, conclusions and recommendations contained in this report are based on limited visual analysis. Other discipline assessments (architectural, mechanical/electrical/plumbing, fire protection, etc.) are not in the scope of work. This report is not to be used for purposes of obtaining construction or demolition permits; such documentation should be provided by a registered design professional licensed in the State of New York. The presence of regulated materials should be confirmed by a hazardous materials professional prior to any removals.

This report provides guidance on structural code-related items but is not an exhaustive code evaluation. A full code review should be provided by a registered design professional or professionals once the scope of work is fully understood.

This report is applicable only to the work scope proposed herein. Bergmann is not responsible for any claims, damages, or liability associated with work outside of this scope of work or not in accordance with the conclusions and recommendations.

This report and supporting documentation are instruments of service. The subject matter of this report is limited to the facts and matters stated herein.

Sincerely,

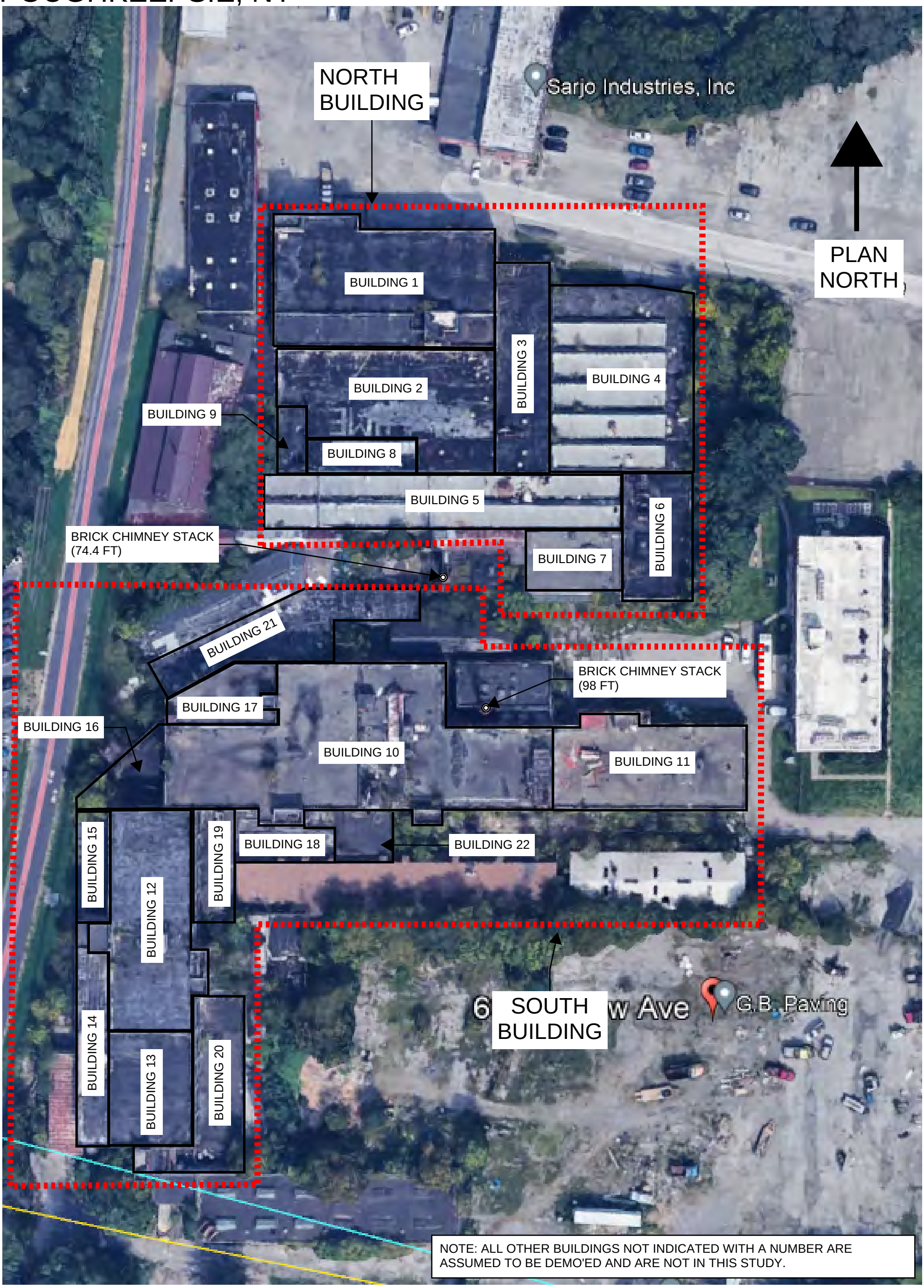
Paul M. Byrd

Paul M. Byrd, PE

TECHNICAL MANAGER, BUILDINGS/STRUCTURAL, COLLIERS ENGINEERING & DESIGN

APPENDIX A – BUILDING LOCATION AND ID PLAN

SCHATZ BOA CAMPUS OVERALL VIEW
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



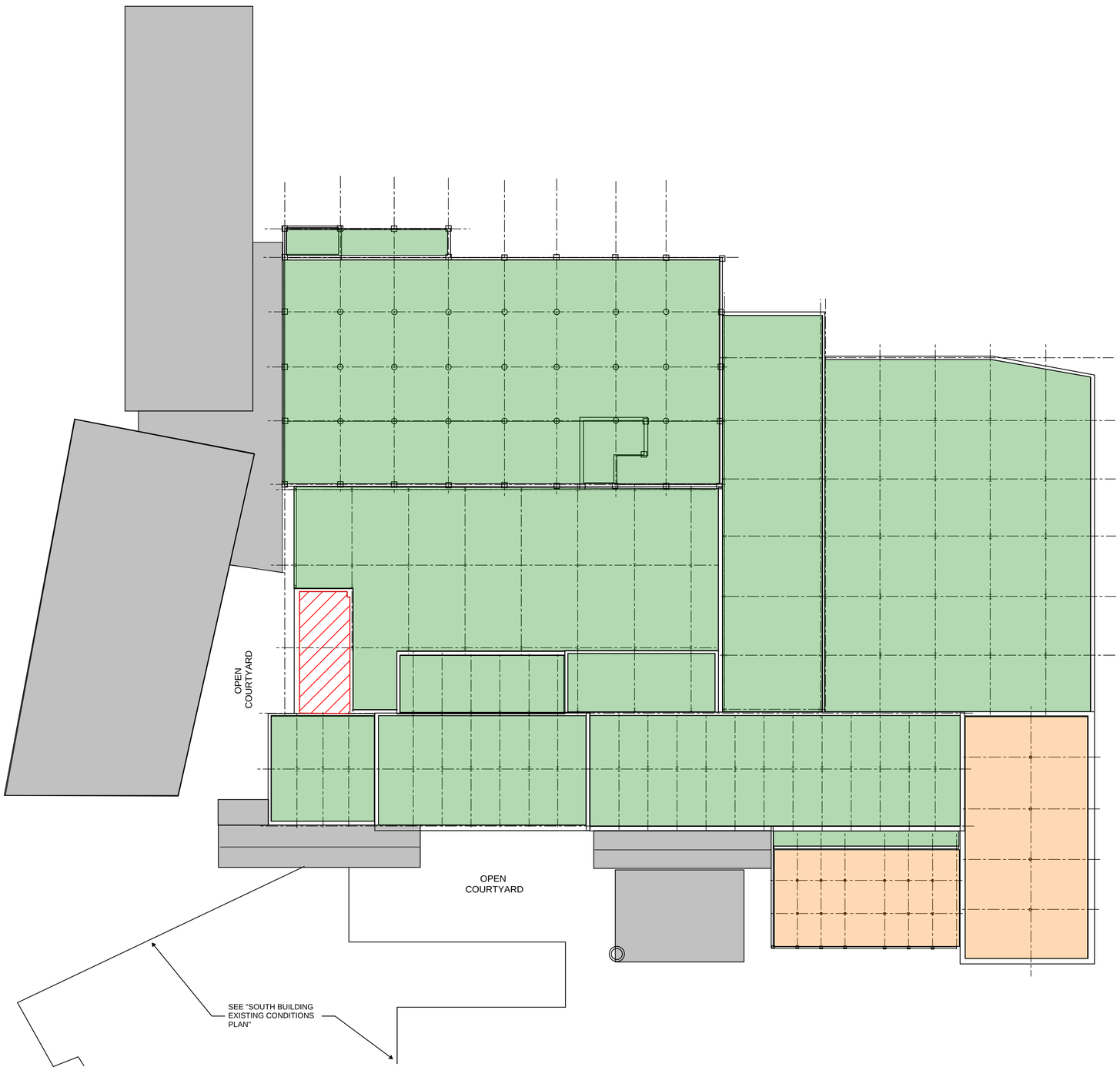
APPENDIX B – NORTH BUILDING EXISTING CONDITIONS PLAN

GROUND FLOOR PLAN
NORTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY

LEGEND:

- CONCRETE SLAB-ON-GROUND
- ASSUMED WOOD FRAMED FLOOR
- NOT IN SCOPE
- NOT ACCESSIBLE

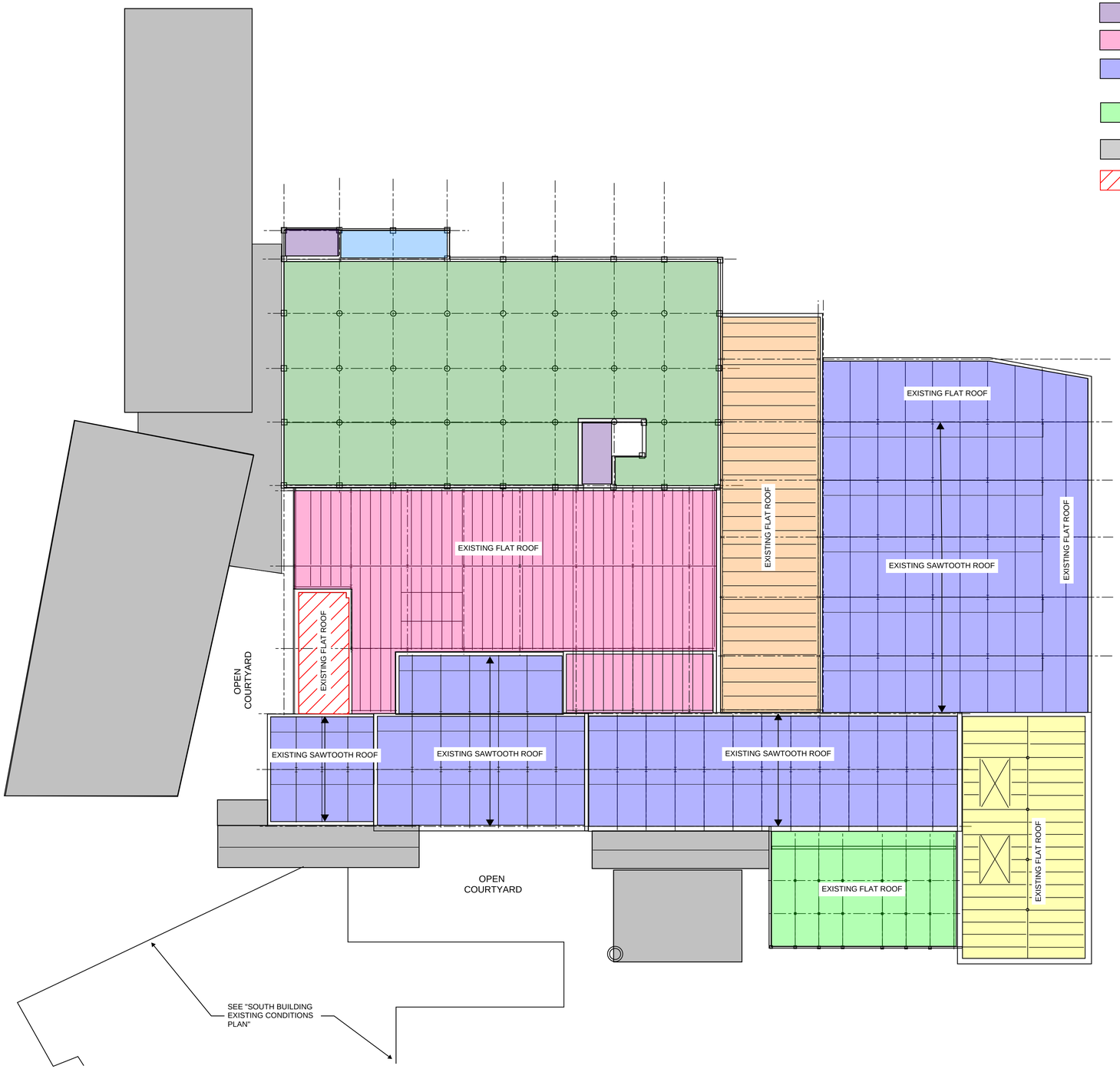


SECOND FLOOR/LOW ROOF FRAMING PLAN NORTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY

LEGEND:

- STRUCTURAL CONCRETE ONE-WAY SLAB
- STRUCTURAL CONCRETE TWO-WAY SLAB
- GYPSUM DECK ON BULB TEES ON STRUCTURAL STEEL
- METAL EDGE GYPSUM PLANK ON OPEN WEB METAL JOISTS
- CONCRETE STAIRS WITH CONCRETE LANDINGS
- METAL EDGE GYPSUM PLANK ON STRUCTURAL STEEL
- TONGUE AND GROOVE WOOD PLANK DECKING ON STRUCTURAL STEEL
- TONGUE AND GROOVE WOOD PLANK DECKING ON TIMBER FRAMING
- NOT IN SCOPE
- NOT ACCESSIBLE

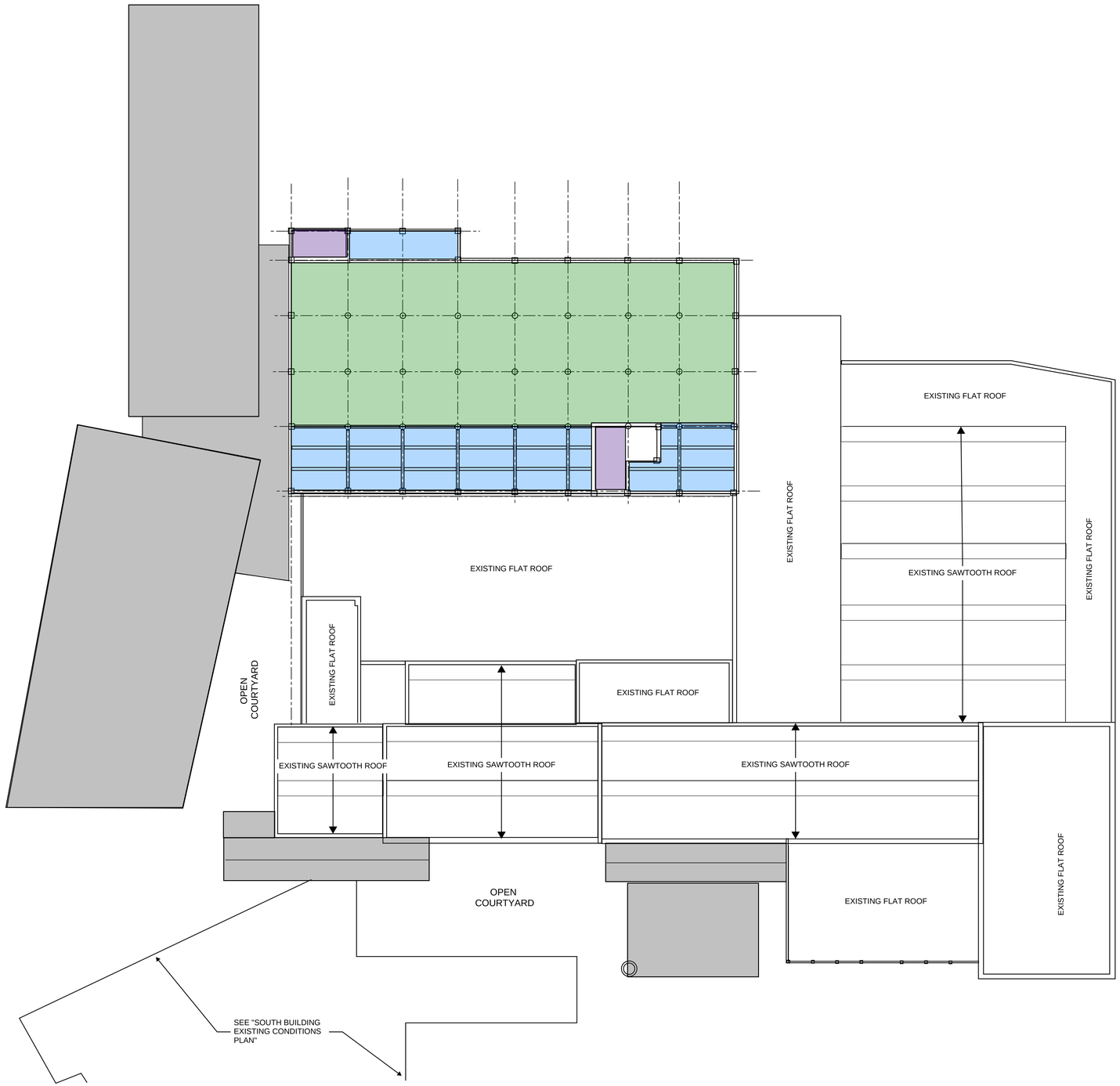


THIRD FLOOR FRAMING PLAN
NORTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY

LEGEND:

- STRUCTURAL CONCRETE ONE-WAY SLAB
- STRUCTURAL CONCRETE TWO-WAY SLAB
- CONCRETE CHANNEL PLANK DECK ON OPEN WEB METAL JOISTS
- METAL EDGE GYPSUM PLANK ON OPEN WEB METAL JOISTS
- STEEL DECK ON STEEL JOISTS
- STEEL STAIRS WITH CONCRETE LANDINGS
- PRECAST CHANNEL SLAB ON STRUCTURAL STEEL
- WOOD DECK ON WOOD FRAMING
- NOT IN SCOPE

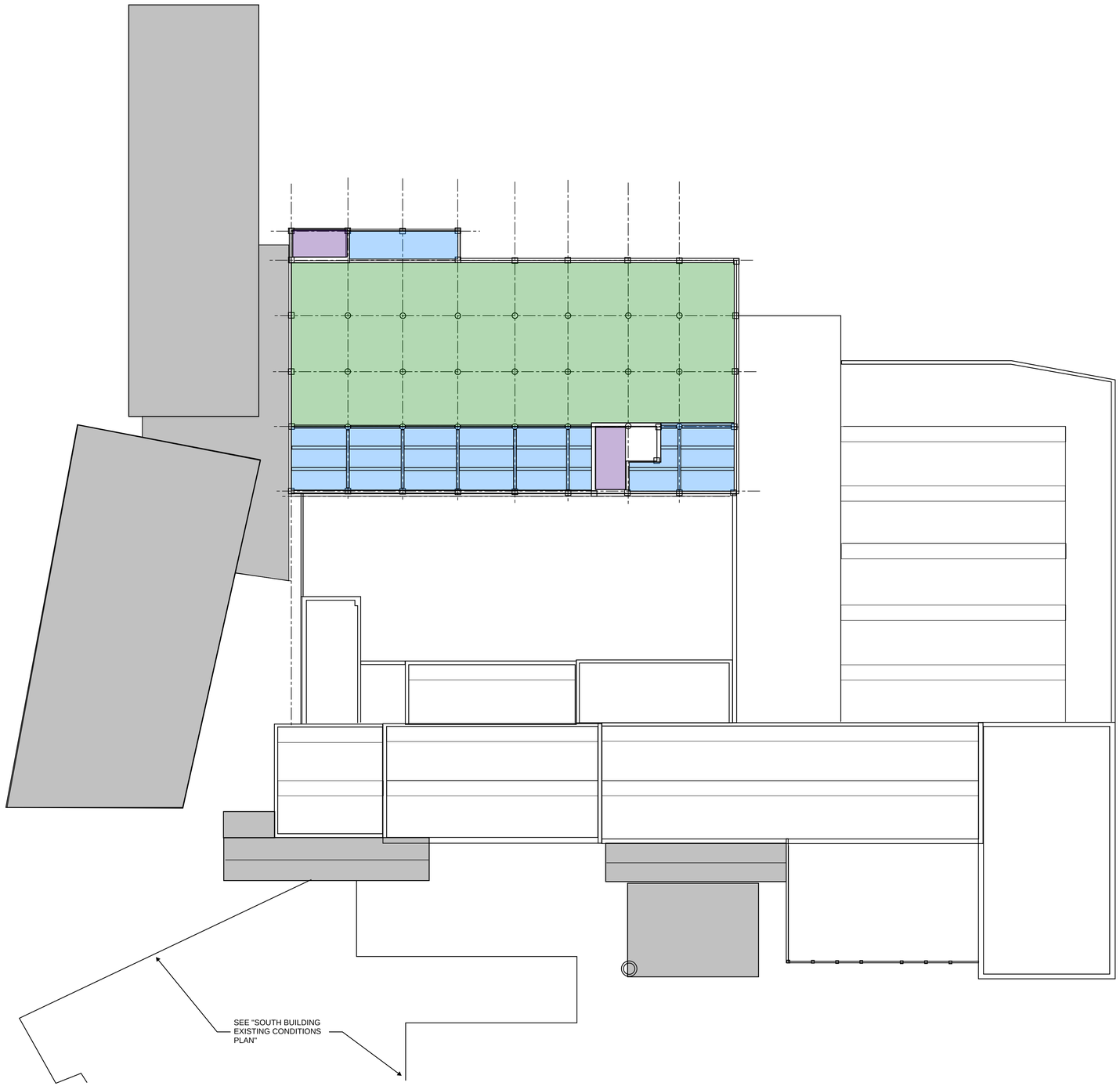


HIGH ROOF FRAMING PLAN
NORTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY

LEGEND:

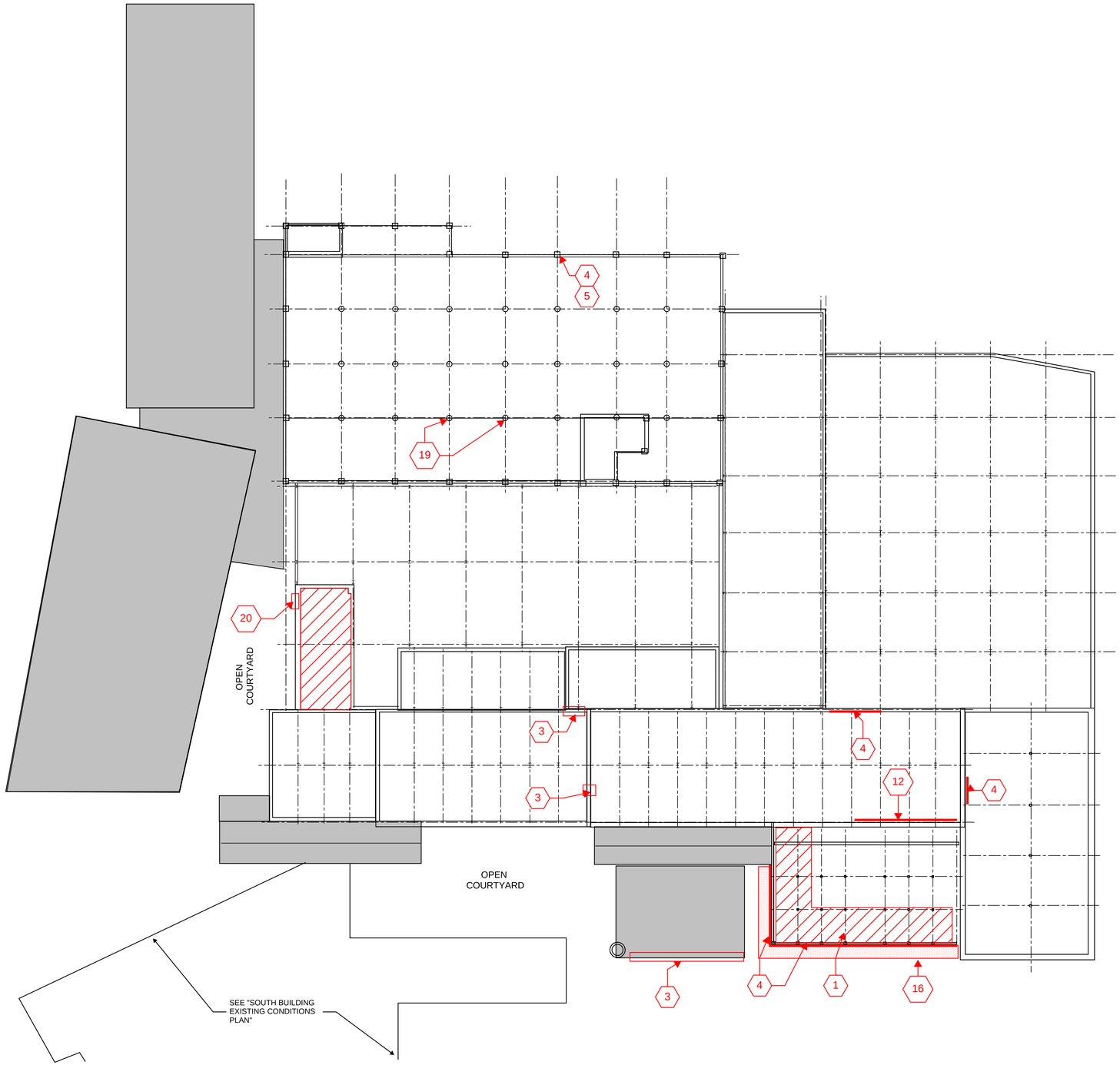
- STRUCTURAL CONCRETE ONE-WAY SLAB
- STRUCTURAL CONCRETE TWO-WAY SLAB
- CONCRETE CHANNEL PLANK DECK ON OPEN WEB METAL JOISTS
- METAL EDGE GYPSUM PLANK ON OPEN WEB METAL JOISTS
- STEEL DECK ON STEEL JOISTS
- STEEL STAIRS WITH CONCRETE LANDINGS
- PRECAST CHANNEL SLAB ON STRUCTURAL STEEL
- WOOD DECK ON WOOD FRAMING
- NOT IN SCOPE



APPENDIX C – NORTH BUILDING FIELD NOTES

GROUND FLOOR PLAN
NORTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY

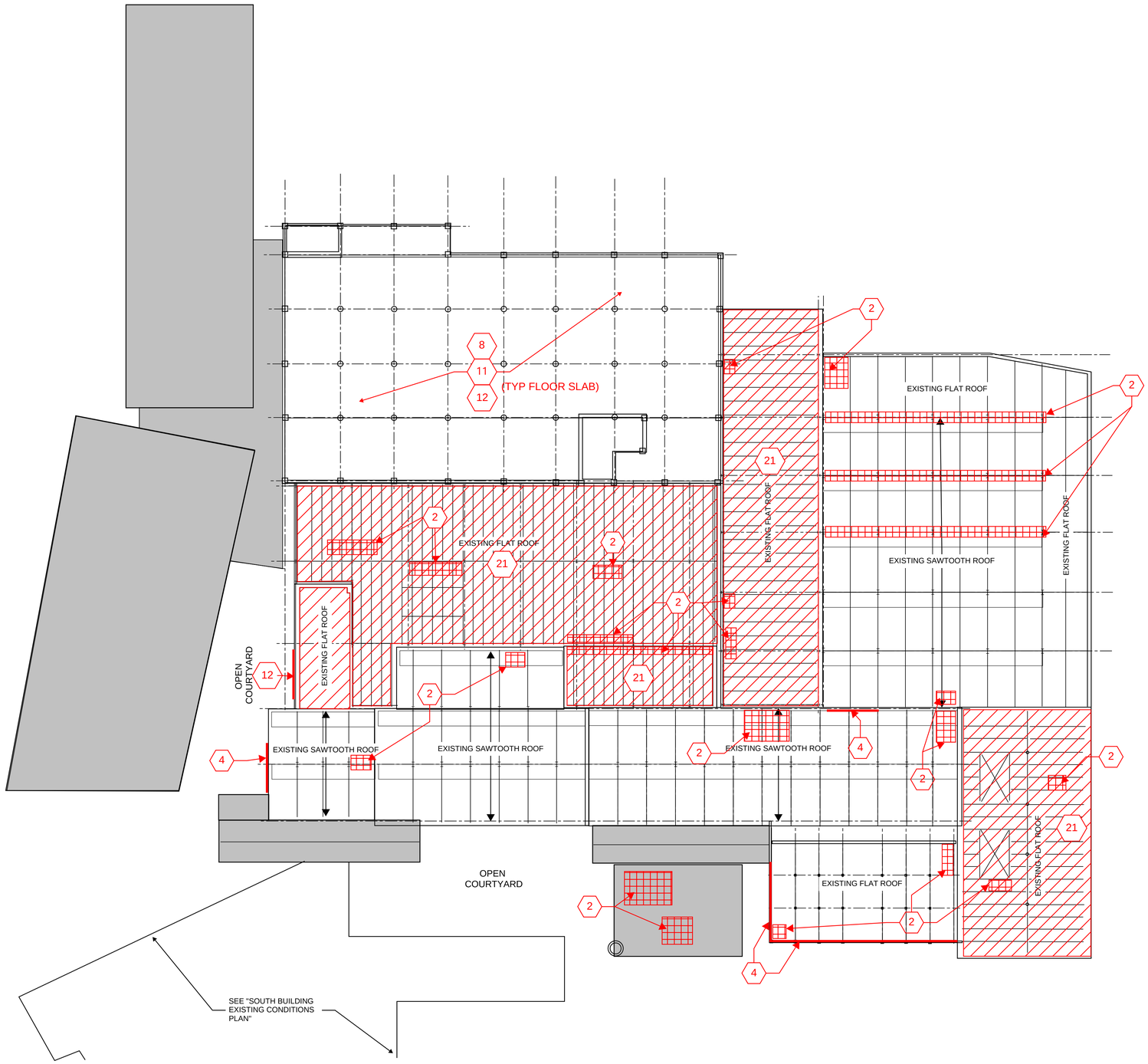


x KEYNOTES:

1. FLOOR COLLAPSE
2. ROOF COLLAPSE
3. WALL COLLAPSE
4. MASONRY DETERIORATION
5. MASONRY CRACKS (HORIZONTAL)
6. MASONRY CRACKS (VERTICAL)
7. MASONRY CRACKS (DIAGONAL)
8. CONCRETE FLOOR SLAB CRACKS/SPALLS
9. CONCRETE COLUMN CRACKING/SPALLING
10. CONCRETE BEAM CRACKING/SPALLING
11. EXPOSED REBAR
12. ORGANIC GROWTH ON STRUCTURAL ELEMENT
13. PARAPET DAMAGE
14. HEADER/LINTEL DAMAGE
15. CMU WALL DAMAGE
16. CRUMBLED BRICK FRAGMENTS
17. EFFLORESENCE
18. MISSING MASONRY UNITS (BRICK OR CMU)
19. FOUNDATION DETERIORATION
20. INACCESSIBLE AREAS (DEBRIS OR EXCESSIVE MATERIAL STORAGE)
21. DETERIORATED GYPSUM/CONC ROOF DECK
22. STEEL COLUMN DAMAGE/DETERIORATION
23. DAMAGED STEEL BEAM OR METAL JOIST
24. BLACK MOLD

SECOND FLOOR/LOW ROOF FRAMING PLAN NORTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



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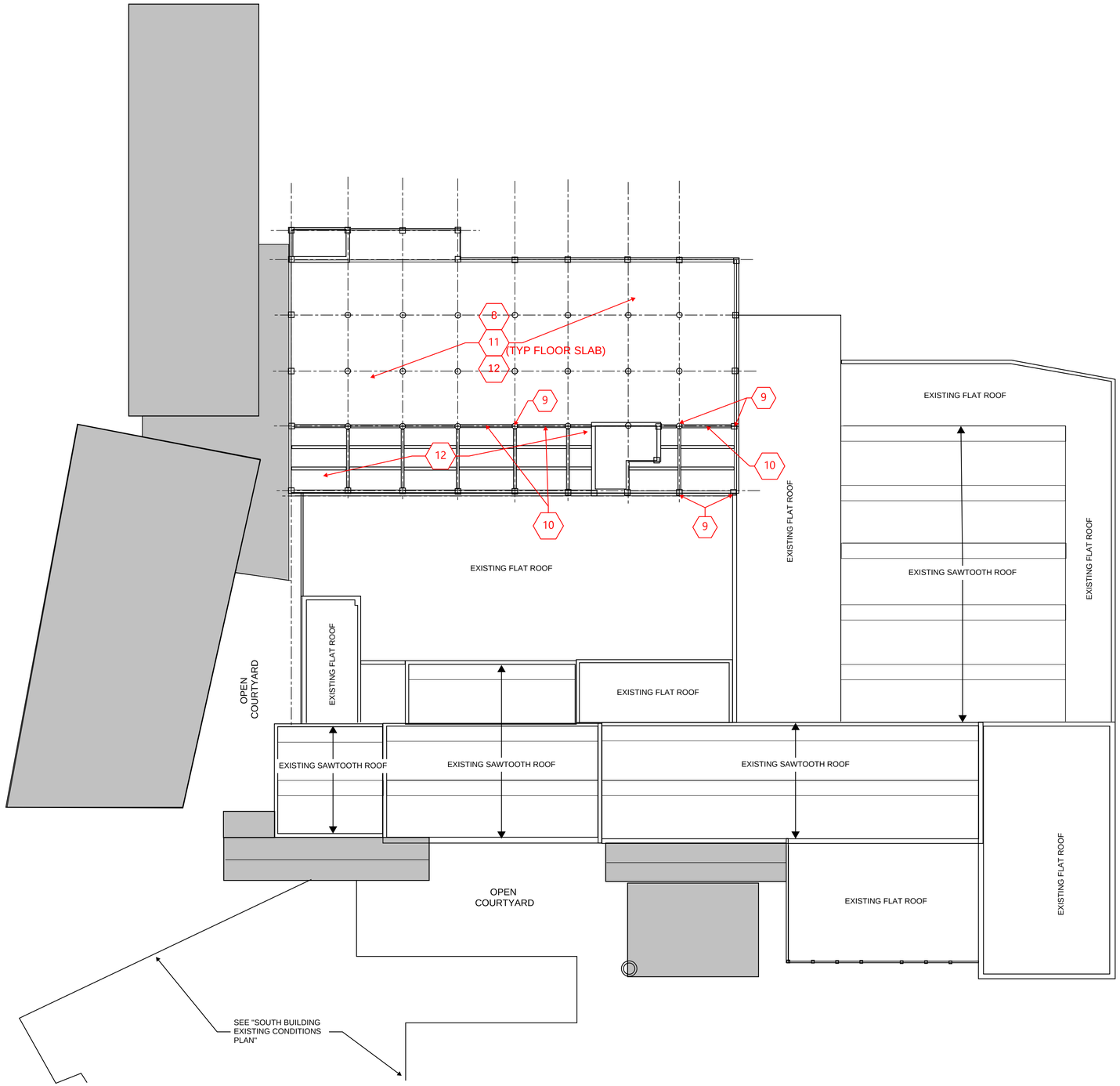
14. HEADER/LINTEL DAMAGE
15. CMU WALL DAMAGE
16. CRUMBLED BRICK FRAGMENTS
17. EFFLORESCENCE
18. MISSING MASONRY UNITS (BRICK OR CMU)
19. FOUNDATION DETERIORATION
20. INACCESSIBLE AREAS (DEBRIS OR EXCESSIVE MATERIAL STORAGE)
21. DETERIORATED GYPSUM/CONC ROOF DECK
22. STEEL COLUMN DAMAGE/DETERIORATION
23. DAMAGED STEEL BEAM OR METAL JOIST
24. BLACK MOLD

THIRD FLOOR FRAMING PLAN
NORTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



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18. MISSING MASONRY UNITS (BRICK OR CMU)
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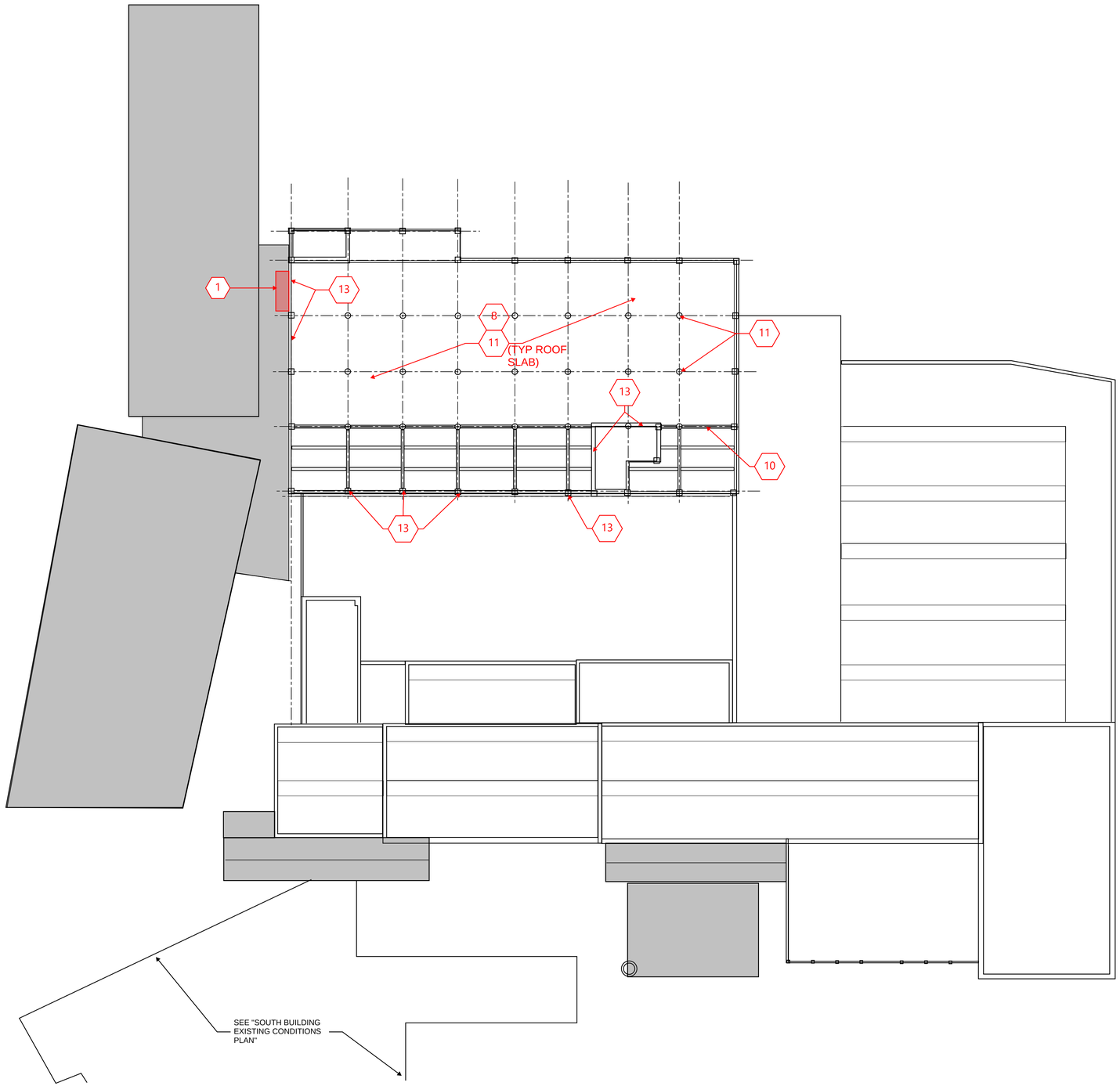
20. INACCESSIBLE AREAS (DEBRIS OR EXCESSIVE MATERIAL STORAGE)
21. DETERIORATED GYPSUM/CONC ROOF DECK
22. STEEL COLUMN DAMAGE/DETERIORATION
23. DAMAGED STEEL BEAM OR METAL JOIST
24. BLACK MOLD

HIGH ROOF FRAMING PLAN
NORTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



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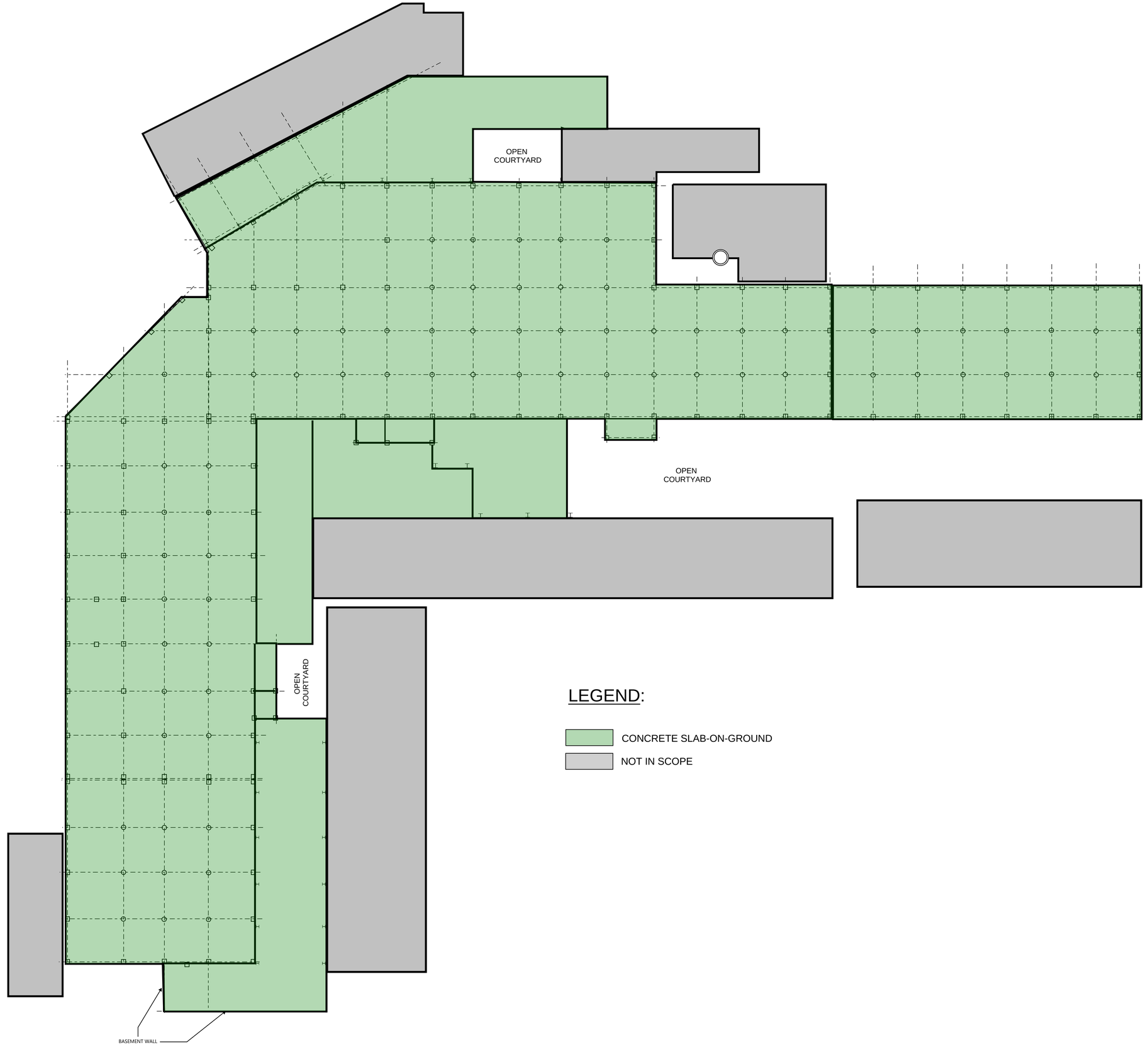
20. INACCESSIBLE AREAS (DEBRIS OR EXCESSIVE MATERIAL STORAGE)
21. DETERIORATED GYPSUM/CONC ROOF DECK
22. STEEL COLUMN DAMAGE/DETERIORATION
23. DAMAGED STEEL BEAM OR METAL JOIST
24. BLACK MOLD

APPENDIX D – SOUTH BUILDING EXISTING CONDITIONS PLAN

GROUND FLOOR PLAN
SOUTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



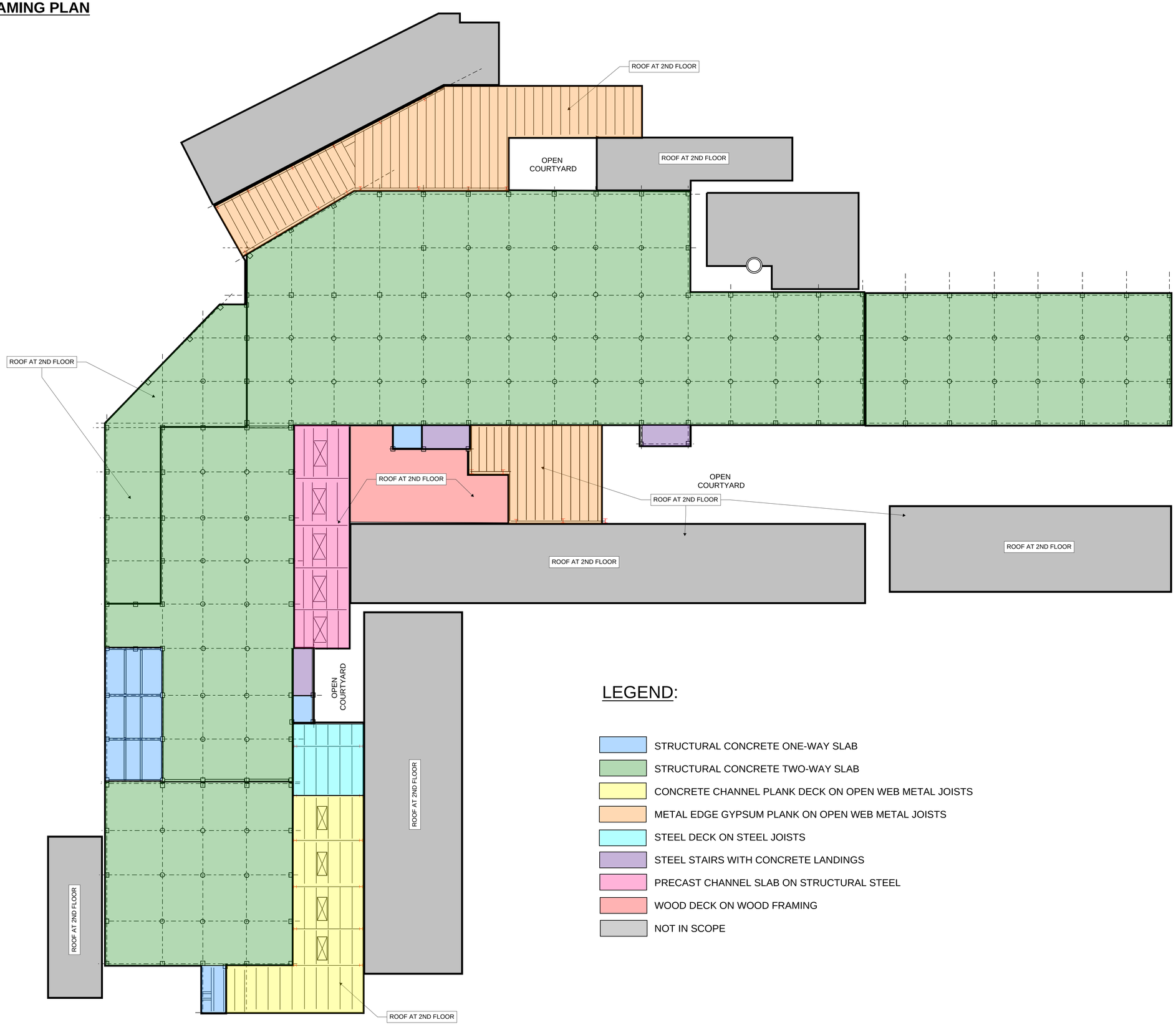
LEGEND:

CONCRETE SLAB-ON-GROUND

NOT IN SCOPE

SECOND FLOOR FRAMING PLAN
SOUTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY

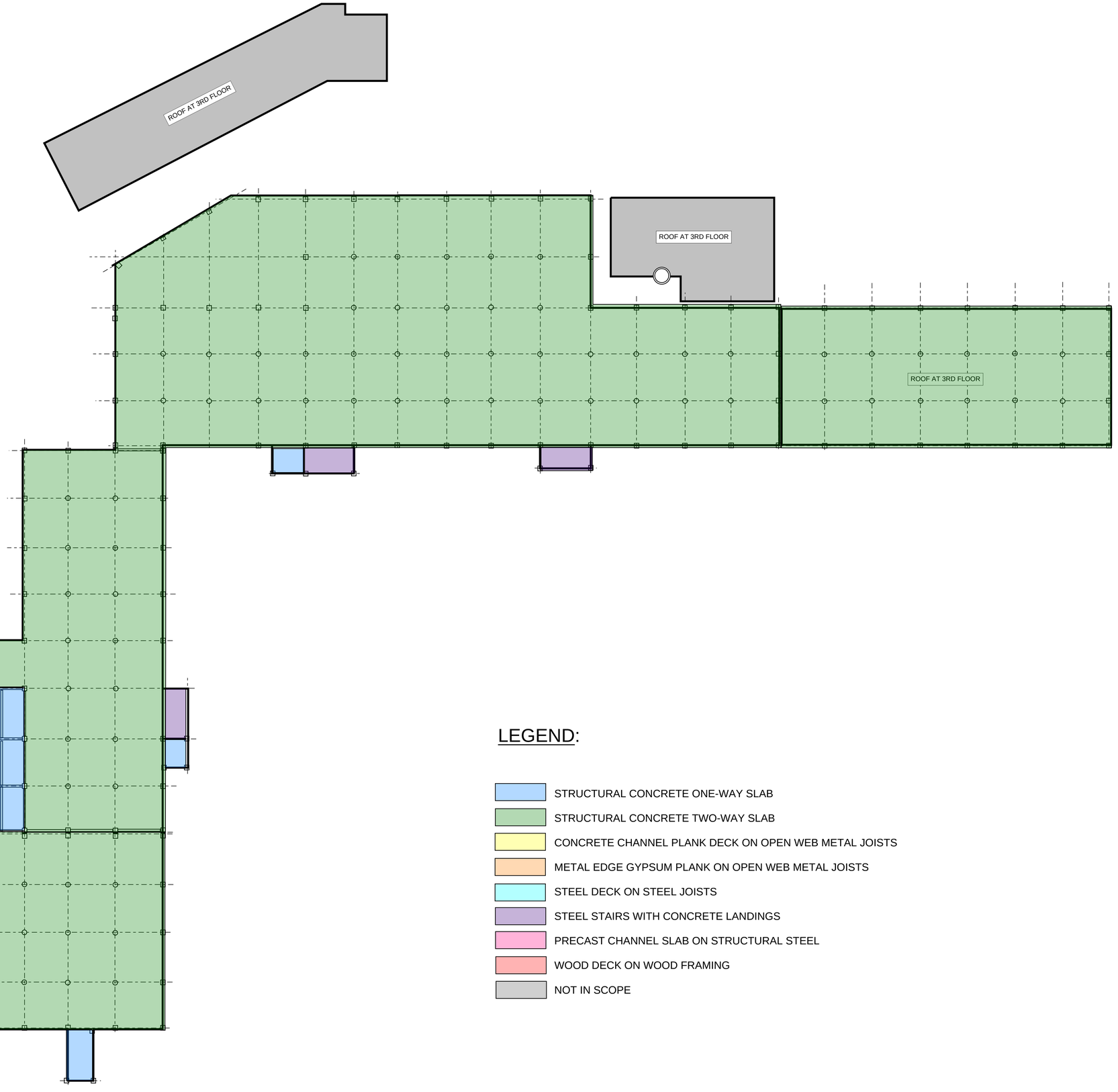


LEGEND:

- STRUCTURAL CONCRETE ONE-WAY SLAB
- STRUCTURAL CONCRETE TWO-WAY SLAB
- CONCRETE CHANNEL PLANK DECK ON OPEN WEB METAL JOISTS
- METAL EDGE GYPSUM PLANK ON OPEN WEB METAL JOISTS
- STEEL DECK ON STEEL JOISTS
- STEEL STAIRS WITH CONCRETE LANDINGS
- PRECAST CHANNEL SLAB ON STRUCTURAL STEEL
- WOOD DECK ON WOOD FRAMING
- NOT IN SCOPE

THIRD FLOOR FRAMING PLAN
SOUTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY

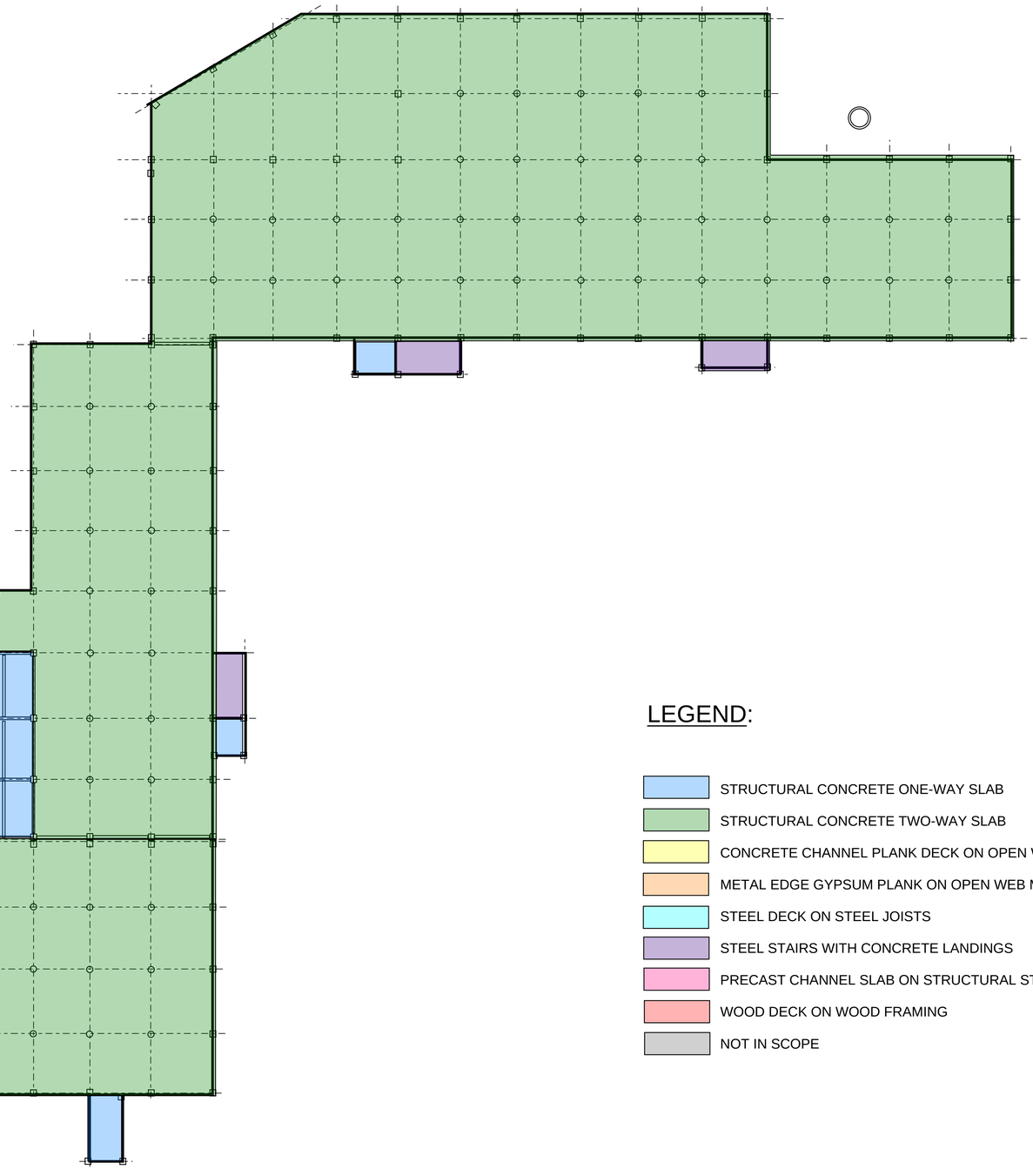


LEGEND:

- STRUCTURAL CONCRETE ONE-WAY SLAB
- STRUCTURAL CONCRETE TWO-WAY SLAB
- CONCRETE CHANNEL PLANK DECK ON OPEN WEB METAL JOISTS
- METAL EDGE GYPSUM PLANK ON OPEN WEB METAL JOISTS
- STEEL DECK ON STEEL JOISTS
- STEEL STAIRS WITH CONCRETE LANDINGS
- PRECAST CHANNEL SLAB ON STRUCTURAL STEEL
- WOOD DECK ON WOOD FRAMING
- NOT IN SCOPE

ROOF FRAMING PLAN
SOUTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



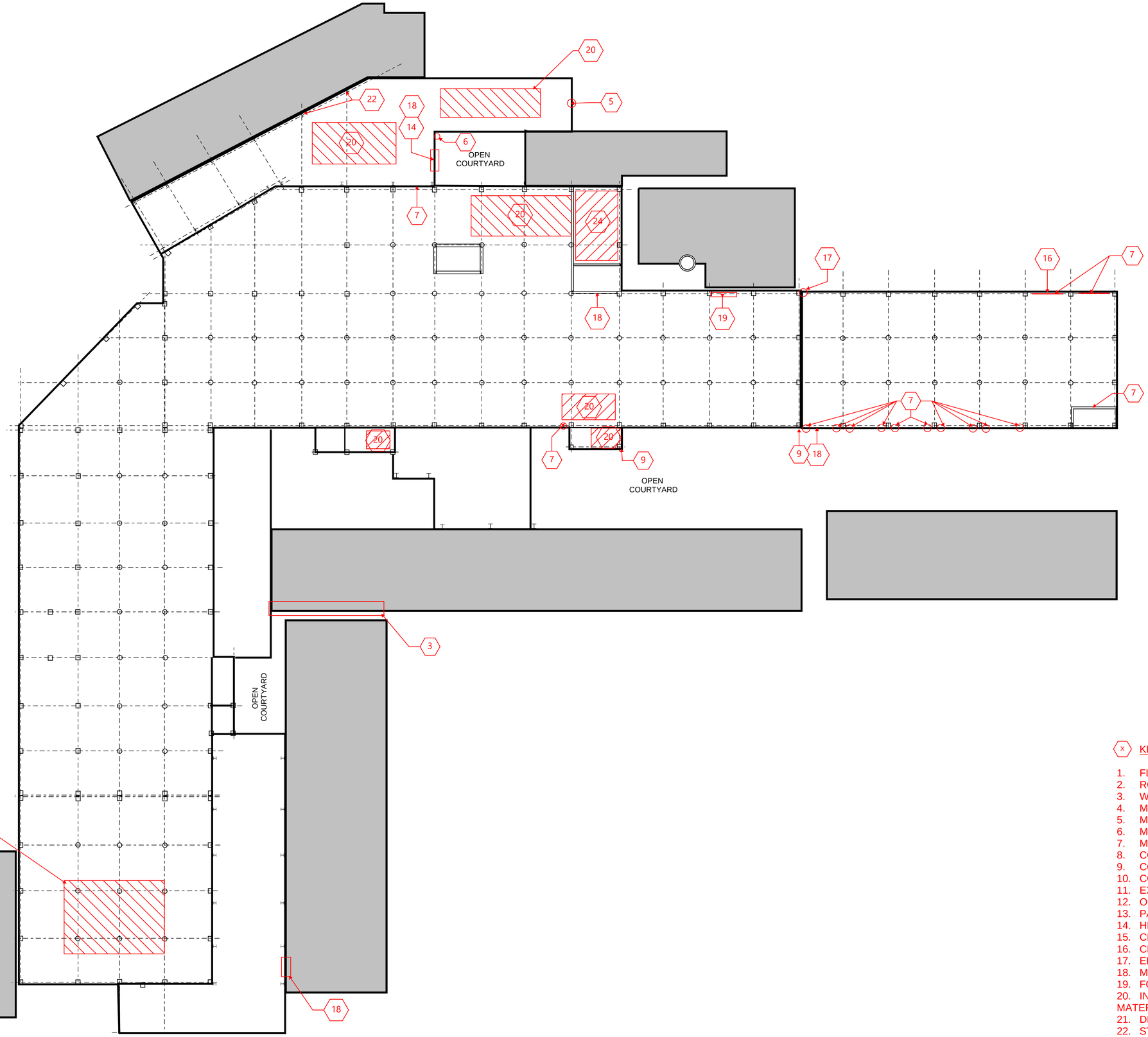
LEGEND:

- STRUCTURAL CONCRETE ONE-WAY SLAB
- STRUCTURAL CONCRETE TWO-WAY SLAB
- CONCRETE CHANNEL PLANK DECK ON OPEN WEB METAL JOISTS
- METAL EDGE GYPSUM PLANK ON OPEN WEB METAL JOISTS
- STEEL DECK ON STEEL JOISTS
- STEEL STAIRS WITH CONCRETE LANDINGS
- PRECAST CHANNEL SLAB ON STRUCTURAL STEEL
- WOOD DECK ON WOOD FRAMING
- NOT IN SCOPE

APPENDIX E – SOUTH BUILDING FIELD NOTES

GROUND FLOOR PLAN
SOUTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



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22. STEEL COLUMN DAMAGE/DETERIORATION
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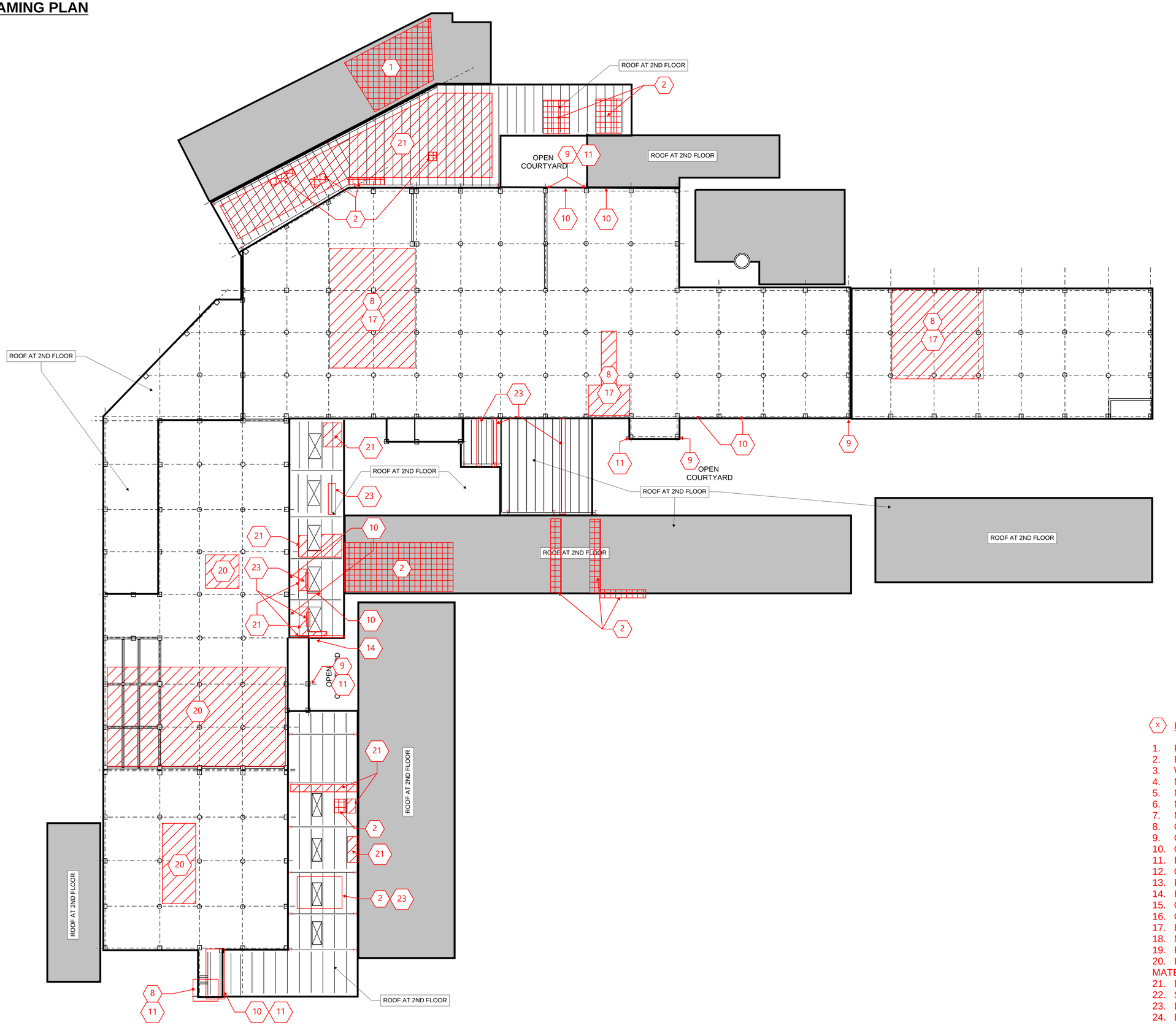
24. BLACK MOLD

SECOND FLOOR FRAMING PLAN
SOUTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



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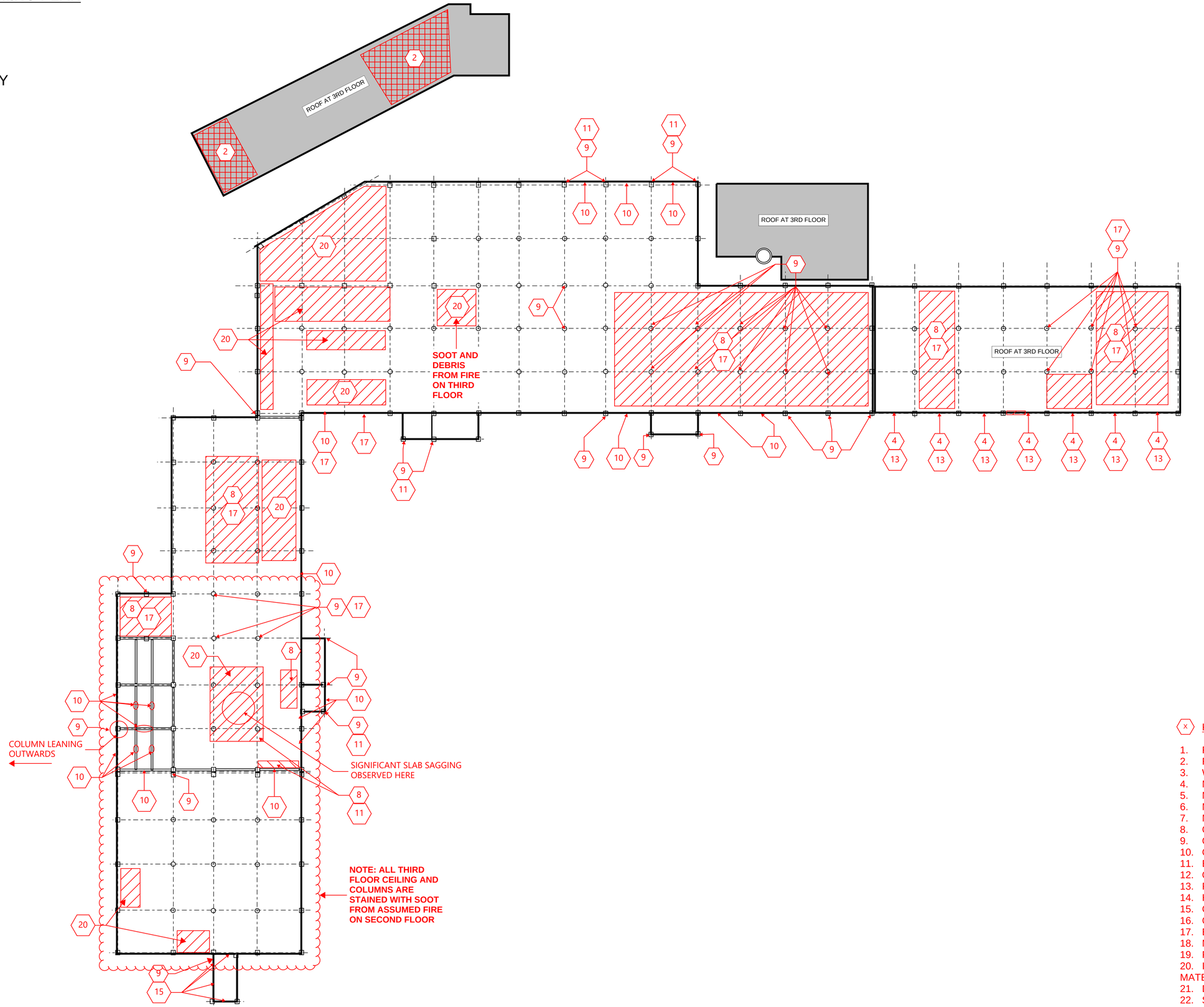
24. BLACK MOLD

THIRD FLOOR FRAMING PLAN
SOUTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



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21. DETERIORATED GYPSUM/CONC ROOF DECK
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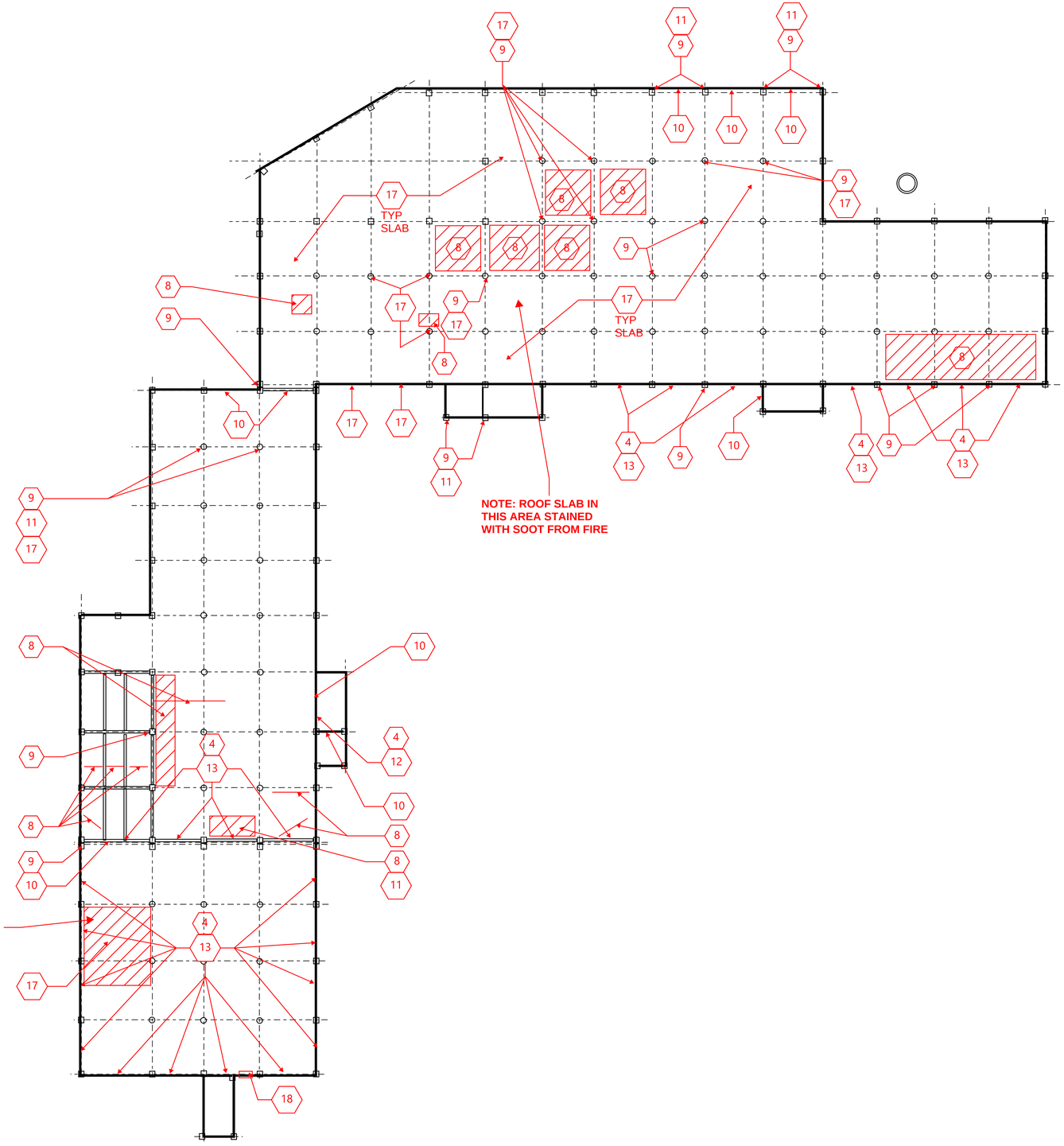
23. DAMAGED STEEL BEAM OR METAL JOIST
24. BLACK MOLD

ROOF FRAMING PLAN
SOUTH BUILDING

SCHATZ BOA
60 FAIRLAWN AVE
POUGHKEEPSIE, NY



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24. BLACK MOLD

APPENDIX F – BUILDING HISTORICAL INFORMATION

NEW YORK STATE OF OPPORTUNITY. Parks, Recreation, and Historic Preservation

Resource Evaluation

Date: 05/28/2020

Staff: Chelsea Towers

USN Number: 02714.000601

Name: Schatz Ball Bearing Co.

Location: 60 Fairview Ave, Poughkeepsie NY 12601

Resource Status:

1. **Determination:** Determined SR/NR eligible by the Commissioner of the Office of Parks, Recreation and Historic Preservation on the date noted above.
2. **Contributing:**

Criteria for Inclusion in the National Register:

A. [X] Associated with events that have made a significant contribution to the broad patterns in our history.

B. [ ] Associated with the lives of persons significant in our past.

C. [ ] Embodies the distinctive characteristics of a type, period or method of construction; or represents the work of a master; or possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.

D. [ ] Have yielded, or may be likely to yield information important in prehistory or history.

Summary Statement:

The Schatz Ball Bearing Co. property is eligible for the State and National Registers under Criterion A in the area of industry as an important manufacturing site for ball bearings and one of the largest employers in Poughkeepsie. The company was founded in 1895 by father and son, Adolf and Herrman Schaltz, in New Haven Connecticut. By 1910, the company purchased and moved to a single-story building on Fairview Ave in Poughkeepsie with 75 employees. Five years later Schatz organized Federal Bearing Co to manufacture high grade ball bearings, and for the next four decades the company continued to expand. Significant additions to the facility were completed in 1916, 1920, 1926, 1936, and 1942 as the employee count continued to rise. The company held competitive contracts in the automobile industry, including those with Ford and NAPA Auto Parts, and by the early 1940s a record 1,200 employees work at the Fairview Ave site. While the company continued to thrive through the 70s, a 15-month employee strike in late 1960s lost them their momentum and by 1979 the NAPA contract closed. After 70 years of operation at the Schatz Federal Bearing site, the company filed for bankruptcy and closed its doors in 1980. Today the Fairview Ave manufacturing site is a physical intact reminder of the Schatz Ball Bearing Corporation's growth and success.

Further study/documentation, unavailable at this time, may suggest additional areas of significance.

(77)

BUILDING-STRUCTURE INVENTORY FORM

NYS OFFICE OF PARKS, RECREATION
& HISTORIC PRESERVATION
DIVISION FOR HISTORIC PRESERVATION
(518) 474-0479

FOR OFFICE USE ONLY
UNIQUE SITE NO.
QUAD
SERIES
NEG. NO.

P.O. Box 88
Poughkeepsie, NY 12602
914-471-1630
Dutchess County Historical Society

DATE: _____

EPHONE: _____

* *

IDENTIFICATION

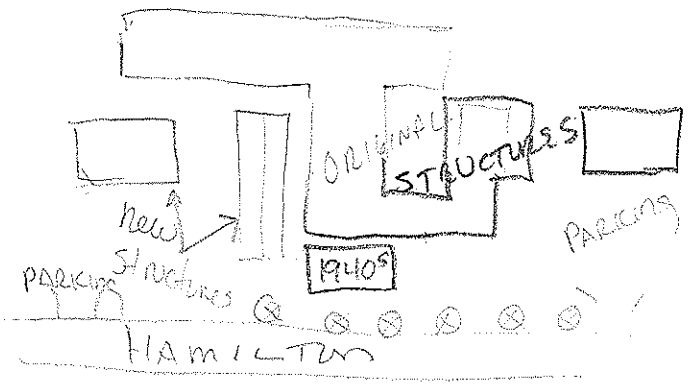
1. BUILDING NAME (S): _____
2. COUNTY: Dutchess TOWN/CITY: Poughk VILLAGE: _____
3. STREET LOCATION: HAMILTON ST
4. OWNERSHIP: a. public ☐ b. private ☒
5. PRESENT OWNER: _____ ADDRESS: _____
6. USE: Original: FACTORIES (BALLBEARINGS?) Present: [illegible] complex
7. ACCESSIBILITY TO PUBLIC: Exterior visible from public road: Yes ☒ No ☐
   Interior accessible: Explain _____

DESCRIPTION

8. BUILDING MATERIAL: a. clapboard ☐ b. stone ☐ c. brick ☒ d. board and batten ☐
   e. cobblestone ☐ f. shingles ☐ g. stucco ☐ other: _____
9. STRUCTURAL SYSTEM: (if known)
   a. wood frame with interlocking joints ☐
   b. wood frame with light members ☐
   c. masonry load bearing walls ☒
   d. metal (explain) _____
   e. other _____
10. CONDITION: a. excellent ☐ b. good ☐ c. fair ☒ d. deteriorated ☐
11. INTEGRITY: a. original site ☒ b. moved ☐ if so, when? _____
    c. list major alterations and dates (if known):
    MULTIPLE NEW ADDITIONS AND SEVERAL NEW BLDGS. HAVE BEEN ADDED

12. PHOTO:

13. MAP:



(79)

14. THREATS TO BUILDING: a. none known ☑ b. zoning ☐ c. roads ☐
d. developers ☐ e. deterioration ☐
f. other: _____

15. RELATED OUTBUILDINGS AND PROPERTY:
a. barn ☐ b. carriage house ☐ c. garage ☐
d. privy ☐ e. shed ☐ f. greenhouse ☐
g. shop ☐ h. gardens ☐
i. landscape features: multiple mobile homes
j. other: _____

16. SURROUNDINGS OF THE BUILDING (check more than one if necessary):
a. open land ☐ b. woodland ☐
c. scattered buildings ☐
d. densely built-up ☐ e. commercial ☐
f. industrial ☑ g. residential ☑
h. other: _____

17. INTERRELATIONSHIP OF BUILDING AND SURROUNDINGS:
(Indicate if building or structure is in an historic district)
to the east is residential and to the west is industrial zoning

18. OTHER NOTABLE FEATURES OF BUILDING AND SITE (including interior features if known):

SIGNIFICANCE

19. DATE OF INITIAL CONSTRUCTION: c1920 / 1980's / 1960's

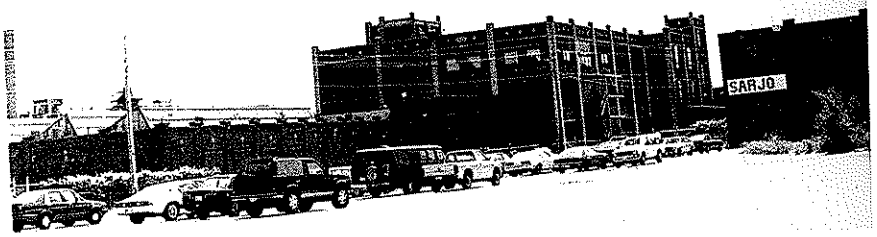
ARCHITECT: _____

BUILDER: _____

20. HISTORICAL AND ARCHITECTURAL IMPORTANCE:
Some Deco Styling

21. SOURCES:

22. THEME:


SARJO


AVAILABLE
FOR LEASE
120,000 SQ.FT.
WILL DIVIDE