

To: Casey McKenna, AIA
Studio Leader – Mixed Use / T.O.D.
Otak, Inc.

From: Jason Dhanens PE SE, Structural Manager
Harper Houf Peterson Righellis Inc. (HHPR)

Date: July 29, 2022

Re: Documentation of Existing Building Structures

Project: Gwendolyn Hotel HHPR Structural Project OTA-07
609, 611 and 619 NE 3rd Street McMinnville Oregon



**Harper
Houf Peterson
Righellis Inc.**

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Scope Summary:

As requested, HHPR has performed a site visit to document the existing conditions of the three building structures located and the above referenced addresses in McMinnville, Oregon. Note the following as it relates to our documentation efforts:

1. All documentation was visual and non-destructive in nature.
2. A Little Giant 13 ladder was used to access some areas, but not all overhead areas were able to be reached.
3. Some laser measurements were taken and provided to Scott Thayer from Otak, Inc.
4. The primary method of documentation was via digital images taken during the observation. Some images are provided as part of this report, and the remainder can be made available via digital file transfer.

609 NE 3rd Street:

Roof Framing

- Dimensional lumber roof decking spanning east west (straight boards, shiplap or tongue and groove) over the top of roof joists
- Roof joists are 2x dimensional lumber spanning north south from truss to truss or truss to exterior wall
- Heavy timber trusses spanning east west with parallel chords, heavy timber diagonal web members and vertical rod web members
- Pony walls on top of trusses that support roof joists
- Each pony wall decreases in height in the north south direction to allow for water drainage to the north
- The roof framing over the original 2nd level offices is significantly deteriorated in several locations (see Image 3 and 4)
- The south brick wall at the 2nd level offices is deteriorating and the mortar is no longer sound
- There are multiple diagonal cracks following the mortar lines at the 2nd level offices (see Image 5)
- The 1st truss from the south elevation is displaced over 6 inches horizontally at the top which represents a significant structural concern (see Image 1 and 2)



Floor Framing

- Floor framing between the south wall and the 1st heavy timber truss is 2x dimensional material
- Stair access to this area is at the southeast corner of the building.
- This area is untouched and appears to have contained offices that are original to the building.
- Between the 1st and 2nd heavy timber truss is shallower 2x dimensional lumber that frames a ceiling and appears to not be intended as occupied space
- North of the 2nd heavy timber truss is high volume space over the AltWork office area

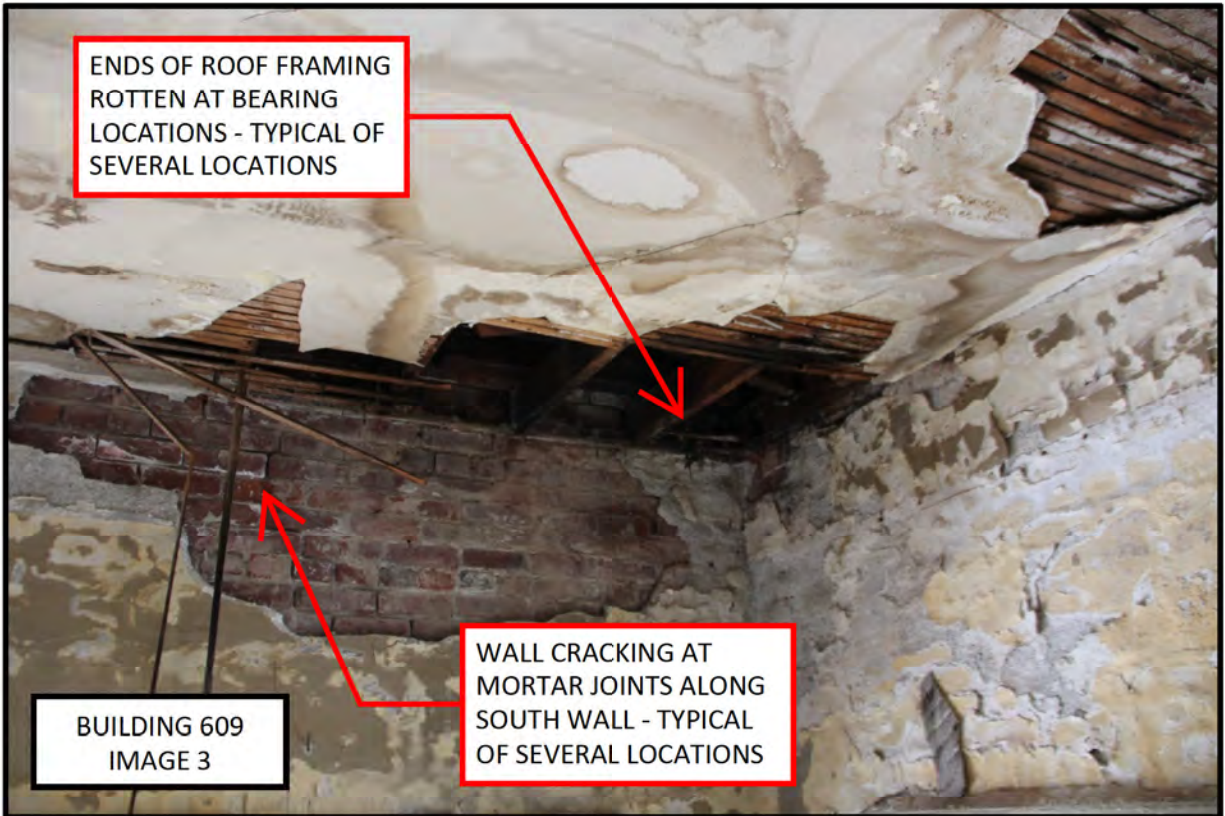
Ceiling Framing

- Between the 1st and 2nd heavy timber truss is shallower 2x dimensional lumber that frames a ceiling and appears to not be intended as occupied space
- North of the 2nd heavy timber truss is high-volume space over the AltWork office area

Perimeter Wall

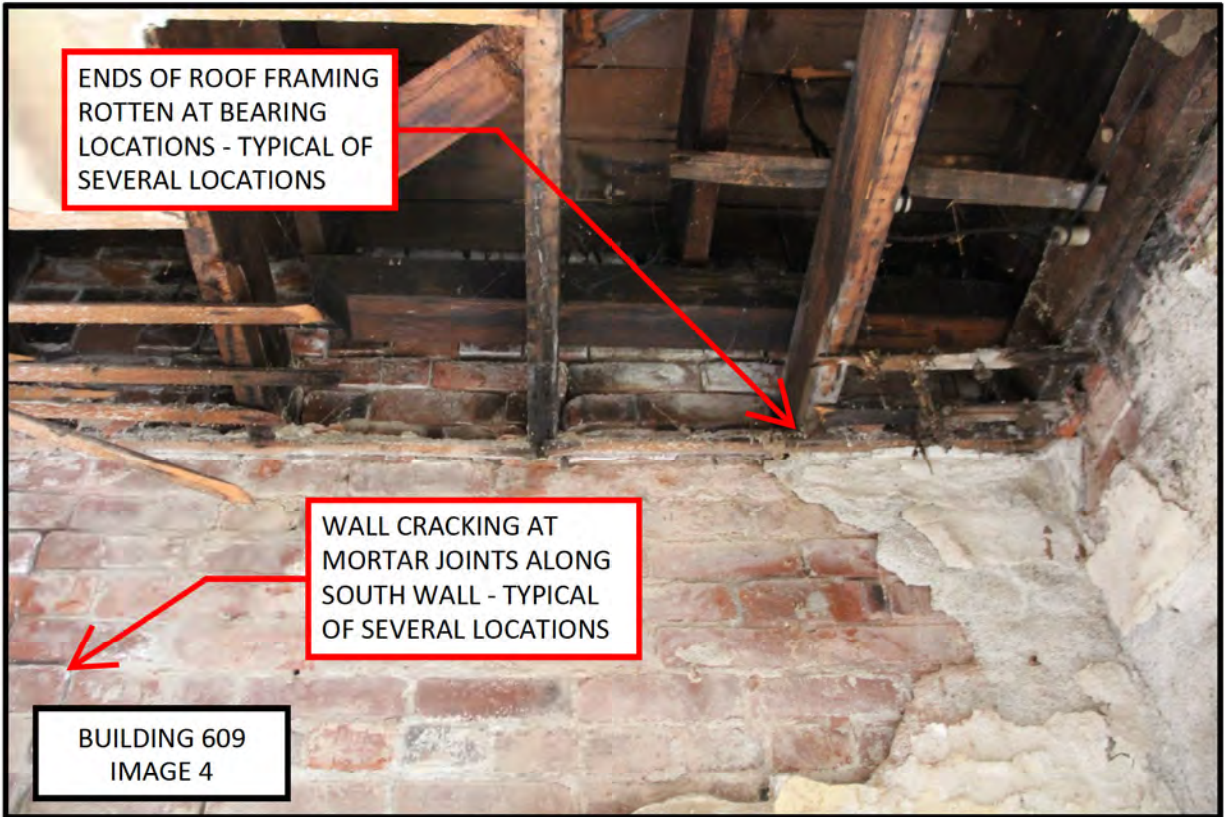
- The perimeter wall of the building consists of unreinforced brick
- There are typical storefront type openings at grade and smaller windows at the 2nd level and in the upper area of the high-volume space
- There appears to be a small addition on the north side of the building with a lower roof than the main roof

- Brick pilasters extend one wythe into the building to support the heavy timber trusses
- There are newer openings along the east wall into the adjacent building
- The walls in the AltWork space appear to be in good condition and well maintained
- The exterior finish is plastered, and which was applied over the top of the original brick work that is no longer visible
- The south elevation had one column removed for a time while the building functioned as an auto repair business
- The east wall is original to the building structure. It appears to have been increased in height to support the building to the east and appears to be a shared structural wall.



Foundation

- No information is available regarding the foundations, but are assumed to be conventional to the time of construction and shallow in nature
- To our knowledge there is no basement or other below grade structures



611 NE 3rd Street

Roof Framing

- Dimensional lumber roof decking spanning north south (straight boards, shiplap or tongue and groove) over the top of roof joists
- Dimensional lumber roof joists spanning in the east west direction support by pony walls
- Pony walls of decreasing height extending in the north south direction bearing on structural ceiling joists
- Dimensional structural ceiling joists spanning in the east west direction supported by built up laminated beams below
- Built up beams spanning in the north south direction supported by round pipe columns bearing on built up laminate beams to spread the load across the floor below
- At north and south walls the roof beams are supported by the perimeter brick walls
- In some cases, the built-up laminated beams across the floor have been cut and removed. This condition compromises the structure's ability to spread the concentrated roof load across the floor below (see Image 6)
- The built-up beams across the floor do not appear to align with the beam lines in the floor below, which would complicate any future work
- Along the east wall is a truss that spans 40 to 50 in the north south direction that appears to frame over an original wall opening that has since been filled in



Floor Framing

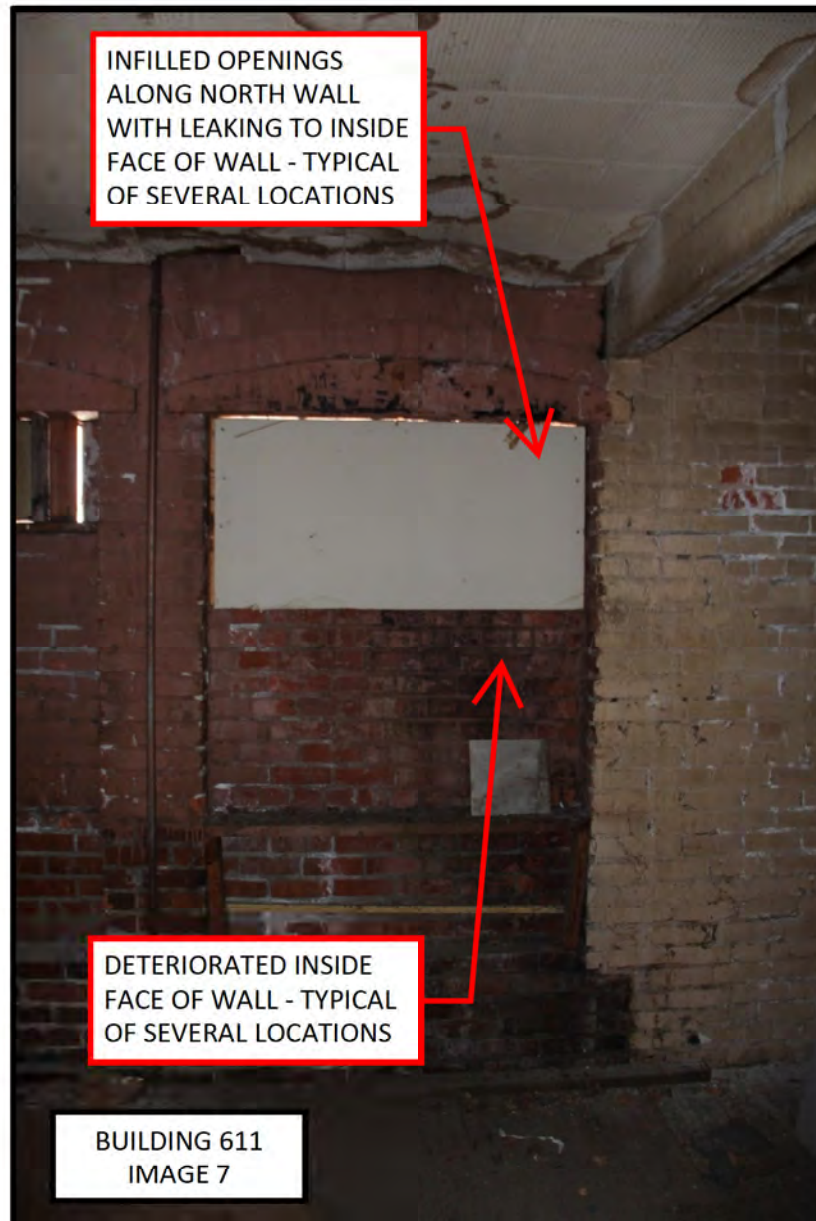
- Access to the 2nd level is from stairs that exit to the sidewalk through an exterior door
- Floor surface is a combination of finished hard woods and laminate flooring
- Subfloor is dimensional lumber spanning in the north south direction
- Floor joists are dimensional lumber spanning in the east west direction
- Floor beams are heavy timber spanning in the north south direction. The beams are strengthened by steel rods that are below the beams creating an external post tension condition
- Floor beams are supported by columns below that are obscured from view by partition walls and box outs
- At north and south walls the floor beams are supported by the perimeter brick walls

Ceiling Framing

- At the ground level is a non-structural drop ceiling

Perimeter Wall

- The perimeter wall of the building consists of unreinforced brick
- The south elevation has a series of typical windows along the 2nd level and new storefront windows at street level
- The street level windows are newer and appears to have been remodeled in the 1970s
- The north elevation has a series of old window openings along the 2nd level that have been filled in, however the condition of the wall and infill is poor with a significant amount of water entering the building and debris from bird nests (see Image 7)
- The north elevation at the ground level has two door openings into the neighboring building to the north along with a heavy timber header over an infilled opening
- The west elevation at the second level has an opening filled with plywood and dimensional lumber that accesses the lower roof at the north end of the 609 building
- The west elevation at the ground level has door openings that access the AltWork space at the 609 building
- The east elevation at the 2nd level has newer brick atop a concrete sill. This area appears to have been filled in below and existing roof truss that spans in the north south direction. There are a series of openings along this elevation with windows and glass blocks
- The east elevation at the ground level appears to be a solid brick wall
- The west wall is original to the 609 Building with the 611 Building framed onto this wall.
- The east wall is specific to the 611 Building and not supporting the 619 Building
- The north wall is original to the 611 Building with the possibility of providing support for the existing building to the north



Foundation

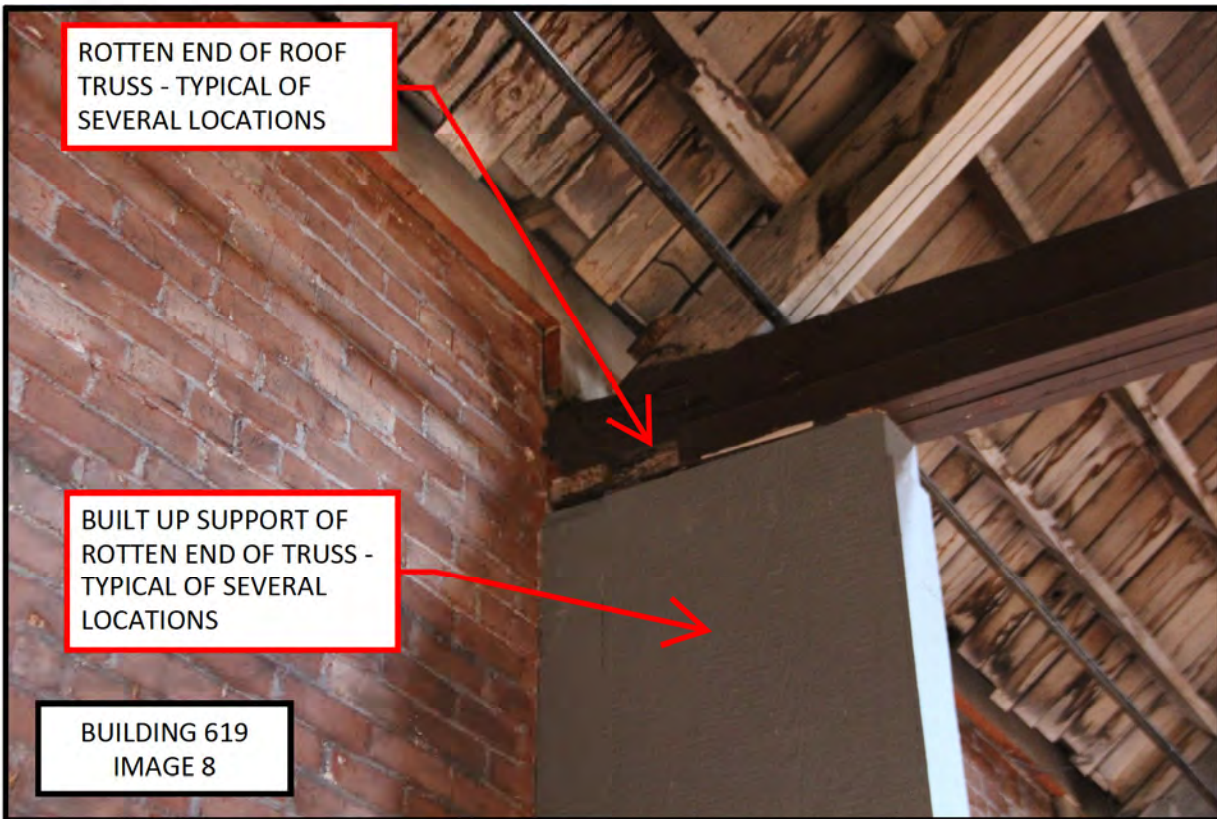
- No information is available regarding the foundations, but are assumed to be conventional to the time of construction and shallow in nature
- To our knowledge there is no basement or other below grade structures

619 NE 3rd Street

Roof Framing

- Dimensional lumber roof decking spanning east west (straight boards, shiplap or tongue and groove) over the top of roof joists
- Roof joists are 2x dimensional lumber spanning north south from truss to truss or truss to exterior wall

- Trusses constructed of 2x spanning east west, diagonal web members appear to be 4x or 6x dimensional members, vertical web members are steel rods
- Top chord is sloped steeply at then ends and then modestly sloped to the center of the truss at the ridge, the bottom chord of the truss is horizontal
- The bearing points of the trusses are deteriorated along the west wall and supplemental support has been framed under the trusses (see Image 8 and 9)
- This condition exists at the connection to the 611 Building and is the result of water penetration along the north south valley between the building



Floor Framing

- There appears to be a low ceiling and mezzanine framing near the middle of the building along the east wall
- The framing of the mezzanine is a tongue and groove decking over 4x spaced beams

Ceiling Framing

- There exist dimensional lumber framed ceilings over the existing retail space
- In the common areas between the retail spaces is a high-volume space where the trusses and roof joists are visible



Perimeter Wall

- The perimeter wall of the building consists of unreinforced brick
- The brick at south elevation continues up to form a parapet with framing on the north side of the same wall to match the profile of the roof
- The brick at the north elevation continues up to at least the roof profile but is not visible from the exterior due to the building to the north
- The north wall has window openings, the 619 Building may have been built before the building to the north
- The north wall is part of the 619 Building
- The west wall is part of the 611 Building
- The front entrance has been modified with the addition of a steel coiling roll up door
- The brick and mortar at south elevation show signs of deterioration and diagonal cracks along the mortar lines
- The east wall exterior has significant deterioration and is exposed due to the separation between the 619 Building and the recently constructed building to the east (see Image 10)

Foundation

- No information is available regarding the foundations, but are assumed to be conventional to the time of construction and shallow in nature
- To our knowledge there is no basement or other below grade structures



Conclusion

It is our understanding that there are four options moving forward. Note that Option A is not being addressed within this document. They are:

- Option A – remove the existing buildings and construct a new hotel with underground parking
- Option B – retain existing buildings and construct a new hotel over the top of the existing buildings
- Option C – retain and maintain the existing buildings
- Option D – relocate existing buildings

General Considerations

- Unreinforced buildings are difficult to modernize and bring into compliance with current structural codes
- Given the nature of their construction, while it may be possible to make them code compliant, such buildings will never offer, in our view, the structural performance of a modern building
- Complete compliance with current code would effectively require building a new building inside the existing building, this is, briefly, a result of the following:
 - ✓ The existing foundations are likely undersized and not reinforced and therefore would not be compliant with current code
 - ✓ Current code does not allow for unreinforced brick buildings; therefore, the existing brick would need to be treated as a veneer and have a new structure built inside to provide the needed support

- ✓ Due to a lack of ductility from the brick in lateral (wind and seismic) event, a new lateral force resisting system would need to be constructed inside
- ✓ Heavy timber roof framing is often overstressed when analyzed using current code requirements, therefore strengthening the existing roof framing would be required
- ✓ The roof diaphragm for resisting lateral loads (wind and seismic) would need to be upgraded with plywood and blocking and properly anchored to the new structural framing at the perimeter of the building
- ✓ All these items are based upon the current Oregon Structural Specialty Code (OSSC), the International Existing Building Code (IEBC) and ASCE 7-16.
- Because of the shared walls and physical contact with the adjacent buildings, special consideration would be required relative to building pounding and whether the buildings could be made to act together in a seismic event.
- Designing the buildings to act together (be connected in some way) will be problematic relative to future building ownership
- Each of the three buildings has portions of brick wall that are in poor condition that would require significant work to remediate including new mortar and the replacement of bricks
- Each of the three buildings has portions of the roof structure that are rotting and are in poor condition. While it may be that the roofing has been repaired, it does not appear that in certain areas the supporting structure has been repaired. These areas also coincide with areas of the brick wall that are in poor condition
- The most southern roof truss in the 609 Building has a top chord node that is out of plane by over 6 inches. This represents a significant structural concern and should be evaluated further with possible remedial actions should the building remain. The remedial action includes installing a new girder and columns to support the truss thereby removing mezzanine and roof loading from the truss
- The removed floor beams distributing roof load in the 611 Building represent a significant structural concern and should be evaluated further with possible remedial actions should the building remain.
- The rotting bearing points of the roof trusses in the 619 Building represent a significant structural concern and should be evaluated further with possible remedial actions should the building remain.
- Any work would be governed by any local city or county codes, the current Oregon Structural Specialty Code (OSSC), the currently in effect International Building Code (IEBC) and the currently in effect ASCE 41 Seismic Evaluation and Retrofit of Existing Buildings
- In general, any structural upgrades to an existing building are generated by:
 - ✓ General maintenance items of the existing structural elements required to maintain the life safety functions of the building
 - ✓ Upgrades required because of building remodels, additions to be building, installation of new equipment or other non-structural items, etc.
 - ✓ Changes in use, occupancy, or relative hazard of the building. Unless dictated by local codes, the IEBC governs when upgrades are required because of changes. Hotels and restaurants may fall into this category of increasing these items and would require occupant load calculations
 - ✓ Voluntary upgrades by the building owner intended to improve the structural performance of the building

Option B – retain existing buildings and construct a new hotel over the top of the existing buildings

- Would require complete seismic upgrade of existing building structures

- May require upgrade of existing roof structure to accommodate increased snow loading
- Given the different roof elevations of the existing buildings, the floor elevations of the new hotel would need to change from east to west to accommodate the different roof elevations
- The columns of the new hotel would need to penetrate the roof framing of the existing buildings and the hotel would need to float over the existing buildings
- Given the different column lengths for the new hotel building and the tall columns, it may be that special seismic considerations such as weak story or soft story will be required
- Previously mentioned repairs noted in the General Conditions section to all existing buildings will be required

Option C – retain and maintain the existing buildings

- As noted in the General Conditions section, a seismic upgrade is not required unless there is a change in occupancy or risk category
- Absent a seismic upgrade, then any work on the buildings would revert to maintenance and repair considerations
- The 2nd level of the 609 Building would require repair and remediation should that space be occupied
- The 2nd level of the 611 Building would require repair and remediation should that space be occupied
- As noted in the General Conditions section each of the three buildings have structural conditions that we recommend be further analyzed for possible remedial actions should they remain.
- This includes the roof truss node that is out of plane in the 609 Building, the removed built up floor beam in the 611 Building, and the rotten truss bearing in the 619 Building.
- Additionally, all three buildings have sections of the roof framing that is deteriorated and requires repair

Option D – relocate existing buildings

- The relocation of unreinforced brick buildings, while possible, should be considered highly impractical in this case
- The footprint of the building would require clearing a travel path to the building's destination. This includes, but is not limited to, trees, signs, traffic signals and may also require the building of temporary roads
- The equipment required to move the building is specialty in nature with only a few companies in the northwest capable of the work
- To prevent damage to the buildings during the move, significant bracing of the structure would be required
- Planning, engineering, and executing a move of this type can easily take years

Emergent Concerns

- Building 609 – previously noted truss node that is out of plane over 6 inches
- Building 611 – previously noted missing beams intended to spread load across floor below
- Building 619 – previously noted rotten bearing condition at truss
- All Buildings – previously noted overall condition of brick and mortar in locations in each building

Summary of the 2018 International Existing Building Code (IEBC)

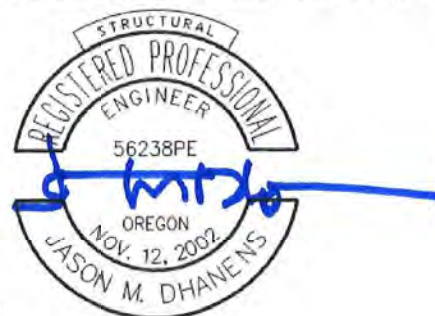
The 2018 IEBC governs the approach to the existing buildings. Presented below is Broadly, this code presents the following for existing buildings:

- Chapter 7 Alterations – Level 1
 - ✓ Allows for a 5% increase in gravity load on existing members
 - ✓ Requires the bracing of the parapet when reroofing more than 25% of the roof in Seismic Design Category D, E, or F
 - ✓ Requires attachment of the roof diaphragm to the walls when reroofing more than 50% of the roof under some conditions in high wind regions
 - ✓ When upgrades are triggered the Oregon Structural Specialty Code shall be used
- Chapter 8 Alterations – Level 2
 - ✓ Allows for a 5% increase in gravity load on existing members
 - ✓ Allows for a 10% increase in lateral load on existing load resisting systems
 - ✓ Where alterations affect the lateral load resisting system is greater than 10%, then upgrades to the lateral load resisting system are required
 - ✓ When upgrades are triggered the Oregon Structural Specialty Code shall be used
- Chapter 9 Alterations – Level 3
 - ✓ Additional requirements for the lateral load resisting systems of unreinforced masonry buildings are provided
 - ✓ The additional requirements relate to alternations to buildings in Seismic Design Category F, anchorage of the walls to the diaphragms, the bracing of parapets and the bracing of partition walls
- Chapter 10 Change of Occupancy
 - ✓ Triggers from a change in occupancy that may require upgrades to the gravity and lateral systems of the building per the Oregon Structural Specialty Code
 - ✓ Where an occupancy change results in a higher risk category then upgrades using the Oregon Structural Specialty Code are required
 - ✓ Change from a B or M Group to an A (restaurant or meeting space) or R1 (hotel) with an occupant load of 300 or greater would trigger a seismic upgrade per the Oregon Structural Specialty Code
- Chapter 12 Historic Buildings
 - ✓ Work shall comply with applicable structural provisions of Chapters 4 and 5
 - ✓ Alterations shall comply with applicable structural provisions of Chapters 6, 7 and 8
 - ✓ Change of Occupancy shall comply with applicable structural provisions of Chapter 10

Should there be any questions regarding this document, please contact me at your convenience.

Harper Houf Peterson Righellis, Inc.

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EXPIRES: 12-31-2023

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