TIER 1 SEISMIC ASSESSMENT

prepared for

City of McMinnville
231 Northeast Fifth Street
McMinnville, Oregon 97128
Mike Bisset

TIER 1 SEISMIC ASSESSMENT

OF

COMMUNITY CENTER
600 NORTHEAST EVANS STREET
MCMINNVILLE, OREGON 97128

PREPARED BY:
EMG
10461 Mill Run Circle, Suite 1100
Owings Mills, Maryland 21117
800.733.0660
www.EMGcorp.com

EMG CONTACT:
P. Travis Sanders, S.E.
Seismic Program Manager
800.733.0660 x6512
tsanders@emgcorp.com

EMG PROJECT #:
132218.18R000-001.002

DATE OF REPORT:
October 16, 2018

ON SITE DATE:
September 19, 2018

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

EMG has completed a Tier 1 seismic assessment of the McMinnville Community Center on located at 600 Northeast Evans Street in McMinnville, Oregon 97128.

The site observations, structural assessment, and report preparation was completed by P. Travis Sanders, S.E.

ITEM	DESCRIPTION
Facility Name	Community Center
Facility Type	Community Center
Address	600 Northeast Evans Street, McMinnville, Oregon 97128
Construction type	Unreinforced masonry (URM)
Building area	54,592 SF
Year Built	1924
General Description of Structural Systems	Unreinforced, multi-wythe brick masonry bearing walls with wood framed floors and roof. A seismic retrofit of the building was completed in the late 1990s that improved the wall anchorage and includes some steel strong-backs to reinforce the masonry walls for out-of-plane bending.
General Description of Exterior Cladding	Brick masonry
Numbers of Levels	3 (including the basement level that extends above grade)
Overall Structural Condition	Good
Tier 1 Seismic Assessment	The Community Center does not meet the requirement for Immediate Occupancy per the Tier 1 assessment.

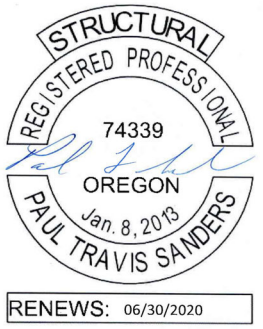
There are a number of both structural and non-structural items that are considered non-compliant with the Tier 1 criteria for Immediate Occupancy (see sections 5.3 and 5.4). Some of the structural items such as the presence of liquefaction hazard and the connections of columns to girders may be found compliant by further investigation. Other items warrant a more detailed engineering analysis to determine the extent of the issue and provide information on potential mitigation. The previous seismic retrofit addressed many issues and improved the performance of the structure.

If you have any questions regarding this report, please contact the Senior Engineering Consultant identified on the cover page of the report.

Prepared by:

P. Travis Sanders, S.E.

OR S.E. 74339



Reviewed by:

Matthew Anderson

Program Manager

2 PURPOSE

EMG was retained by the client to perform a Tier 1 seismic assessment and a visual structural assessment of the Community Center.

Based on the observations and document review outlined below, this report identifies any significant deferred maintenance issues and existing deficiencies which affect the use of the subject structure.

No destructive testing or invasive investigation was performed. The assessment included visual observation of the interior and exterior of the structure. Representative photos are provided as Appendix A at the back of this report.

Conditions:

The physical condition of the building structural elements and related components are typically defined as being in one of the five following categories:

Excellent = New asset, no visible defects.

Good = Asset showing minimal signs of wear; some slightly defective or deteriorated components.

Adequate = Asset has reached its mid-life; some moderately defective or deteriorated components.

Marginal = Asset reaching or just past the end of its useful life; increasing number of defective or deteriorating components.

Poor = Asset is past its useful life and is in need of immediate repair or replacement; may have critically damaged components.

3 STRUCTURAL SYSTEMS

SALIENT DATA SUMMARY	
Number of Buildings	1
Occupancy	Office and recreational gymnasium
Construction type	Unreinforced masonry (URM)
Building area	54,592 SF
Year Built	1924
General Description of Structural Systems	Unreinforced, multi-wythe brick masonry bearing walls with wood framed floors and roof. A seismic retrofit of the building was completed in the late 1990s that improved the wall anchorage and includes some steel strong-backs to reinforce the masonry walls for out-of-plane bending.
General Description of Exterior Cladding	Brick masonry
Numbers of Levels	3 (including the basement level that extends above grade)

3.1 DOCUMENT REVIEW

Relevant documentation was requested that could aid in the knowledge of the subject property's physical improvements, extent and type of use, and/or assist in identifying material discrepancies between reported information and observed conditions. The review of submitted documents does not include comment on the accuracy of such documents or their preparation, methodology, or protocol. The following documents were provided for review during the assessment:

- Partial building plans prepared by Winkler Associates for a renovation project, dated 1979.
- Seismic retrofit plans prepared by Miller Consulting Engineers, dated 1994.

3.2 STRUCTURAL SYSTEMS

3.2.1 GENERAL DESCRIPTION

The building was originally constructed in 1924 as an armory. In 1980 the building was renovated and repurposed as a community center. In 1994 a seismic retrofit was completed. The structure consists of 2 levels above a basement that extends above grade making the building act like a 3-story structure in the context of seismic performance.

The building houses a gymnasium that occupies a majority of the footprint. The gymnasium has some second level bleacher seating and a second level running track around the perimeter. The center of the track is open to the level below. A catwalk system is located above the second level throughout the gymnasium area that provides some support and access to lighting and other stage equipment.

The area to the west of the gymnasium is occupied primarily with office space and some meeting rooms. To the East of the gymnasium is a handball court. The handball court floor is above the elevation of the ground floor of the rest of the building and extends upward to the roof without an intermediate floor making the court the height of two levels.

3.2.2 FOUNDATION

The structure is founded on shallow reinforce concrete footings. The footings are likely continuous at the perimeter and interior bearing walls and isolated at interior columns.

The lowest floor at the basement is a concrete slab-on-grade.

3.2.3 VERTICAL LOAD SUPPORTING STRUCTURAL SYSTEM

The structure that supports the weight of the structure (dead load) and of the occupancy (live load, furniture and people) consists of the wood framed floors and roof supported by URM bearing walls and interior wood columns at the basement and office space.

The masonry walls are multi-wythe, meaning there are multiple layers of brick masonry. The 1994 drawings indicate a wall thickness of 13-inches. Header courses, bricks turned perpendicular to the wall to connect the wythes, were observed at every 7th course.

The wood columns were encased in gypsum board finishes as part of the typical building finishes or to serve as fire protection.

No destructive investigation was done to observe the collar joints (space between the wythes) or to test the capacity of the masonry.

3.2.4 LATERAL LOAD RESISTING SYSTEM

Lateral loads are those caused by earthquakes or wind. The lateral load resisting system of this structure is URM shear walls. In the north-south direction there are three primary shear wall lines. These walls are at the perimeter of the building and at the west side of the gymnasium. In the east-west direction the shear walls are primarily at the exterior of the building. There are some perimeter offsets that provide some small amount of shear wall that are not located on the primary wall lines. Some concrete masonry (CMU) block was observed in limited locations or to infill an old door or window opening.

The floor and roof diaphragms act as deep beams in the horizontal direction to deliver lateral loads to the shear walls. Both the roof and Second Floor were sheathed with ½-inch plywood over the original straight 2x sheathing in the 1979 renovation.

The seismic retrofit of the late 1990s included substantial upgrade to the out-of-plane wall anchorage and provided steel reinforcing on the face of some of the URM walls to provide out-of-plane bending strength. Out-of-plane wall anchorage is the connection of the heavy masonry walls to the wood floor and roof framing. When subject to strong ground shaking, heavy walls oriented perpendicular to the direction of shaking will experience inertial forces that cause them to pull away from the floor or roof. If the connection between the walls and floor or roof framing are insufficient, the walls can separate from the framing. This causes instability of the wall and loss of support for the floor and roof.

4 CONDITION OBSERVATIONS

4.1 STRUCTURE

Access to visually observe the roof and floor framing was limited by typical architectural finishes. In the office area there is a lath and plaster ceiling attached to wood ceiling joists that conceals the framing in most locations. Where the framing was visible we did not observe any significant material deterioration or damage. For a structure that is nearing 100 years old the structure appears to be in relatively good condition.

In the basement level there are some openings in the perimeter basement wall in the mechanical areas that are rough at the edges but do not appear to be deteriorating or at risk of causing deterioration.

The mortar joints of the masonry walls are in very good condition as they were repointed in approximately 2000.

5 TIER 1 SEISMIC EVALUATION

5.1 EVALUATION CRITERIA

A Tier 1 evaluation was completed per Seismic Evaluation and Retrofit of Existing Buildings, ASCE 41-13. The performance objective selected for this evaluation is Immediate Occupancy (IO) based on conversations with the City of McMinnville and the presence of critical information services infrastructure in the building. Immediate Occupancy is targeted to limit any required repairs to minor such that they allow for continued occupancy of the building following a design level seismic event. A structure meeting the IO performance level is expected to essentially retain its pre-earthquake strength and stiffness.

Tier 1 evaluation relies on checklists that contain items including known weakness or potential causes of damage to the specific construction type. EMG completed a summary data sheet, basic IO checklist, URM checklist, and a non-structural checklist. The completed checklists are included in the appendices.

5.2 SITE DESCRIPTION AND SEISMIC HAZARD

The building is in an area of high seismicity, approximately 13.3 miles from the Newberg Fault. In addition to local crustal faults, the seismicity of the site is significantly contributed to by the Cascadia Subduction Zone. The subduction zone is formed where the Juan De Fuca and North American tectonic plates meet. The Juan De Fuca plate is forced down under the North American plate. Subduction zones can produce massive, magnitude 9, earthquakes. The Cascadia Subduction Zone extends from northern California to Vancouver Island, Canada.

The seismic hazard level for the Tier 1 evaluation is the Basic Safety Earthquake 1 for Existing Buildings (BSE-1E) defined as an event having 20% chance of exceedance in 50 years. This level of hazard is less than that used for new building design or for retrofit of existing buildings. The concept is that if an existing building can meet the lower criteria then it will likely provide the targeted performance. Where if a building is going to be retrofit, the benefit of designing to a slightly higher hazard level is going to provide better performance for minimal difference in cost.

Per the USGS, Sxs is 0.428g and Sx1 is 0.251g for this site. Based on this, the spectral acceleration used for the evaluation is 0.43g. The site soil class is assumed to be D, stiff soil with a shear wave velocity in the top 100 feet of soil between 600 and 1,200 feet per second.

5.3 NONCOMPLIANT STRUCTURAL ITEMS

The following lists each of the structural items that was found to be noncompliant per the Tier 1 criteria or that could not be determined.

1. Liquefaction – The site is designated as having soils at moderate risk of liquefaction under high seismic ground motions. Liquefaction is the phenomenon where loose saturated soils loose strength or act like quicksand when subject to ground shaking. Liquefaction of the sols supporting a building can cause large differential settlement and large forces within the building structure. The designation of the hazard is from the Oregon Department of Geology and Mineral Industries. A site specific geotechnical investigation would provide more accurate information specific to this site and estimate the actual differential settlement expected.
2. Shear Stress Check – The masonry shear walls do not have sufficient shear strength to meet the IO performance goal. Additionally, they also do not meet the lower performance option of Life Safety. This indicates the walls may experience earthquake damage that would reduce the strength of the building such that it cannot be occupied until repairs are made. The Tier 1 criteria is based on a low allowable stress. A more detailed engineering analysis such as a Tier 2 evaluation may find that the walls have sufficient strength for the actual demands. The 1994 seismic upgrade did not strengthen the shear walls for in-plane forces. The available drawings do not state if the in-plane strength was evaluated at that time or to what criteria.
3. Girder/Column Connections – The connection of the floor framing to the tops of columns should have a positive connection that uses plates, straps, or other connection hardware. These connections could not be observed. The shape of the gypsum finishes at columns in the basement appear to have wood capitals at the tops of the columns. This condition, if unaltered, commonly does not have connection hardware. It is not uncommon for framing of this age to lack positive connection. The hazard is that under strong shaking the framing can be unseated from the column causing a loss of vertical support.

4. Masonry Layup – filled collar joints should have minimal voids. Collar joints are those between the wythes of the wall. These voids should be filled with mortar to give the wall some ability to act as a 13-inch thick wall as opposed to three, independent, 3-inch thick walls. No destructive exploration was done to expose any of the collar joints. In the areas of this building where this would be the most critical, tall sections of wall like the gable ends and the walls of the handball court, the 1994 seismic retrofit provided steel reinforcing. The retrofit at these areas effectively mitigate the issue in those locations. This item is considered of lower relative impact on the overall performance of this building compared to some of the other items listed here.
5. Cross Ties – Diaphragms (floors and roof) require continuous cross ties between the diaphragm chords. Much of the floor and roof framing were concealed by finishes. The bowstring trusses provide cross ties in the east-west direction at the gymnasium roof, but conditions did not allow confirmation if the presence or absence of connections between ends of joists in the other direction. Similarly, at the office area most conditions were concealed, preventing confirmation. Based on the age of construction there are likely framing elements that can serve as cross ties but are not likely connected to do so.
6. Beam, Girder, and Truss Supports – Beams, girders, and truss supports should have independent secondary column supports when the primary support is an unreinforced masonry wall. URM walls are known to be fragile. Providing a secondary support is intended to prevent loss of vertical support if the masonry is damaged. Some additional steel members were added to the upper level of the walls within the gymnasium, but those elements do not extend below the second level.

5.4 NONCOMPLIANT NON-STRUCTURAL ITEMS

The following is a summary of the non-structural items that do not meet the IO criteria.

1. Server Cabinets - The server cabinets for the information services were observed to be on casters and not anchored to the structure. Generally, to protect equipment such as server racks it is recommended that they be restrained from moving horizontally or tipping over. The most common method to achieve this is to anchor the cabinet to the floor near each of the corners.
2. Flexible Couplings in Fire Suppression Piping – flexible couplings are required by NFPA-13 at specific locations to allow the fire suppression piping to undergo some building movement without failure. No flexible couplings were observed but only limited portions of the fire suppression system were visible.
3. Integrated Ceilings – suspended ceilings with continuous areas larger than 144 square feet need to be restrained against lateral movement relative to the structure. Modern design includes diagonal braces from the suspended ceiling up to the structure. No bracing was observed.
4. Edge Clearance - suspended ceilings with continuous areas larger than 144 square feet need to have clearance at the edges between the ceiling and the walls. This is intended to allow for some differential lateral movement without damage or displacement of ceiling elements. The edges of the ceilings observed appear to have insufficient edge distances.
5. Tall Narrow Contents – There were only a few pieces of furniture or storage shelves taller than 6-ft. however, those observed were not restrained from tipping over.
6. Fall-Prone Contents – Equipment or stored items that weigh over 20 pounds located 4 feet or more above the floor should be restrained from falling off shelves. Items were not weighed for this evaluation but there were a few items observed that may exceed 20 lb. and be recommended to have some kind of restraint. A computer up on a shelf in the storage room, for example, could have a strap added or an edge to the shelf to prevent the computer from sliding off the shelf.
7. Suspended Equipment – mechanical, electrical, or plumbing equipment that is suspended should either be restrained against swinging or free to swing without damaging itself or adjacent components. In the mechanical room in the basement, two tanks were observed on supports hung from the floor above. No bracing was observed.
8. Fluid Piping – piping should be braced to the structure to limit displacement and potential for leaks or failures. The primary piping type observe in the building is domestic water. Piping was observed just above the suspended ceiling with no bracing. Water leaks due to earthquake shaking are common. To mitigate the risk, pipes should be supported by the structure in a manner that limits differential movement. Typically, hangers less than 1-foot in length or with periodic diagonal bracing is the method used to meet these criteria.
9. Elevator – there are several items related to the elevator that were not determined: presence of a seismic shut-off switch, anchorage of the shaft walls, adequacy of the brackets that tie the car to the rails, use of a spreader bracket, and the presence of a go-slow elevator. These items generally assume the elevators to be critical to occupancy of the building. For this building, the elevators may not be critical to the continued use of the facility for the city functions while the elevator was repaired. These items could be verified with the help of an elevator maintenance contractor.

6 CONCLUSIONS

The Community Center does not currently meet the Immediate Occupancy performance goal. There are several structural items that are considered non-compliant. Some items such as the liquefaction, column/girder connections, masonry layup, and cross ties may warrant more invasive investigation. The other items are sufficient to determine the building will not meet the IO performance goal. The non-compliant structural items are also included on the Life Safety checklist for unreinforced buildings.

A more detailed evaluation may be warranted to determine the full extent of the shear stress deficiency. A Tier 2 evaluation would provide more detailed information on the shear demand and capacity of the existing shear walls. Additional and more invasive investigation may change the results of some of the items.

The observed non-structural deficiencies are considered manageable. Most of the large mechanical equipment is anchored to the structure. The tall and narrow contents or those located on high shelves can be addressed by the addition of restraint or relocation. Addressing the issues with the suspended ceilings and piping are somewhat more involved. These issues could be integrated into future interior renovation projects and or done in phases as needed. Addressing the ceilings in exit corridors would be of higher priority than ceilings in lower traffic areas such as storage rooms. Damaged suspended ceilings can fall and block exits.

7 APPENDICES

APPENDIX A: PHOTOGRAPHIC DOCUMENTATION

APPENDIX B: TIER 1 CHECKLISTS

APPENDIX A:
PHOTOGRAPHIC DOCUMENTATION

#1	FRONT ELEVATION

#2	FRONT ELEVATION

#3	LEFT BUILDING ELEVATION

#4	RIGHT BUILDING ELEVATION

#5	REAR ELEVATION

#6	REAR ELEVATION

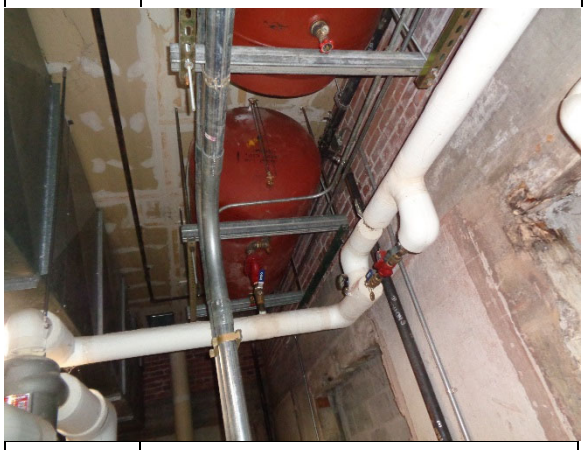
#7	ELEMENTS OF PRIOR RETROFIT

#8	MASONRY

#9	INTERIOR MASONRY SHEAR WALL

#10	BASEMENT COLUMNS

#11	INTERIOR RETROFIT ELEMENTS



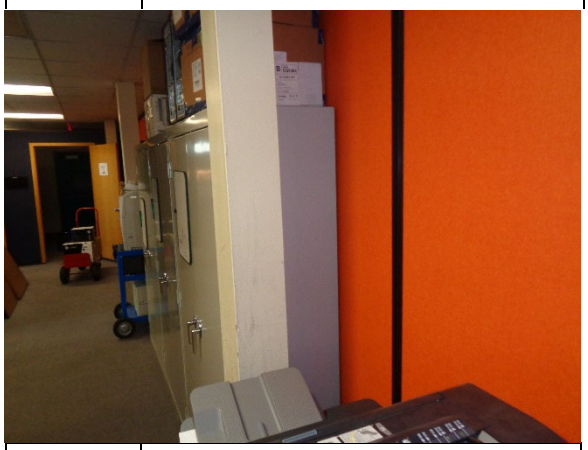
#12	SUSPENDED TANKS, UNBRACED

#13	RESTRAINED WATER HEATER

#14	UNRESTRAINED COMPUTER ON HIGH SHELF

#15	ABOVE CEILING SPACE WITH UNBRACED PIPING AT BOTTOM

#16	EMERGENCY EXIT LIGHTING SUPPORTED BY SUSPENDED CEILING



#17	TALL NARROW CONTENTS, UNBRACED

#18	BRACED FIRE SUPPRESSION PIPING

APPENDIX B:
TIER 1 CHECKLISTS

Building Name: **Community Center** Date: **Sept. 2018**

Building Address: **600 Northeast Evans Street, McMinnville, Oregon 97128** Page: **1** of **1**

Job Number: **132218.18R000-001.002** Job Name: **Community Center Tier 1** By: **PTS** Checked:

ASCE 41-13 TIER 1 SUMMARY DATA SHEET

BUILDING DATA

Latitude: 45.2125 Longitude: -123.1940

Year Built: 1924 Year(s) Remodeled: 1979/1980 and 1994 Original Design Code: Pre-code

Area (sf): Approx.. 60,000 Length (ft): 166 Width (ft): 144.5

No. Stories: 2 over a basement Story Height: 18 ft Total Height: 36 ft

USE ☐ Industrial ☐ Office ☐ Warehouse ☐ Hospital ☐ Residential ☐ Educational ☒ Other:

CONSTRUCTION DATA

Gravity Load Structural System: Masonry bearing walls and wood posts supporting wood framed floors and roof

Exterior Transverse Walls: Brick masonry Openings?: Yes

Exterior Longitudinal Walls: Brick masonry Openings?: Yes

Roof Materials/Framing: ½" plywd w/ 8d over 1-1/4x6 straigh sheathing; 3x10 @ 16" o.c and barrel trusses.

Intermediate Floors/Framing: Wood framed – details unknown

Ground Floor: S.O.G. at bottom of basement level

Columns: Approx. 6x6 wood Foundation: Shallow footings

General Condition of Structure: Good

Levels Below Grade?: Full basement level

Special Features and Comments:

LATERAL-FORCE-RESISTING SYSTEM

	Longitudinal	Transverse
System:	Brick masonry shear walls	Brick masonry shear walls
Vertical Elements:	Brick masonry shear walls	Brick masonry shear walls
Diaphragms:	½" plywd over 1x sheathing	½" plywd over 1x sheathing
Connections:		

EVALUATION DATA

Soil Factors: Class= D F_a= 1.584 F_v= 2.379

BSE-1E Spectral Response Accelerations: S_{XS}= 0.428g S_{X1}= 0.251g

Level of Seismicity: High Performance Level: Life Safety (LS)

Building Period: T= $C_t h_n^B$ = 0.29 sec

Spectral Acceleration: S_a = Sx1/T = 0.85 > Sxs = **0.43g**

Modification Factor: C= 1.0 Building Weight: W= 5,827 kips

Pseudo Lateral Force: $V=CS_aW$= 2,505 kips

BUILDING CLASSIFICATION: URM: Unreinforce masonry bearing walls with flexible diaphragms

REQUIRED TIER 1 CHECKLISTS

	YES	NO
Basic Configuration Checklist	☒	☐
Building Type URM Structural Checklist	☒	☐
Nonstructural Component Checklist	☒	☐

FURTHER EVALUATION REQUIREMENTS:

Building Name: **Community Center** Date: **Sept. 2018**

Building Address: **600 Northeast Evans Street, McMinnville, Oregon 97128** Page: **1** of **2**

Job Number: **132218.18R000-001.002** Job Name: **Community Center Tier 1** By: **PTS** Checked: _____

ASCE 41-13 Immediate Occupancy Basic Configuration Checklist

C	NC	N/A	U		Comments
				VERY LOW SEISMICITY	
				BUILDING SYSTEM	
☒	☐	☐	☐	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
☒	☐	☐	☐	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4 percent of the height of the shorter building. This statement shall not apply to the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
☒	☐	☐	☐	MEZZANINES: Interior mezzanine levels are braced independently from the main structure, or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
				BUILDING CONFIGURATION	
☒	☐	☐	☐	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
☒	☐	☐	☐	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
☒	☐	☐	☐	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
☒	☐	☐	☐	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	
☒	☐	☐	☐	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
☒	☐	☐	☐	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	
				LOW SEISMICITY (Complete the following items in addition to the items for Very Low Seismicity)	
				GEOLOGIC SITE HAZARDS	
☐	☒	☐	☐	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 feet under the building. (Commentary: Sec. A.6.1.1)	**MODERATE PER DOGOMI**
☒	☐	☐	☐	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2)	

ASCE 41-13 Immediate Occupancy Basic Configuration Checklist

C	NC	N/A	U		Comments
☒	☐	☐	☐	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site is not anticipated. (Commentary: Sec. A.6.1.3)	

MODERATE AND HIGH SEISMICITY **(Complete the following items in addition to the items for Low Seismicity)**

FOUNDATION CONFIGURATION

C	NC	N/A	U		Comments
☒	☐	☐	☐	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1 Tier 2: Sec. 5.4.3.3)	**0.6Sa = 0.26 b/h = 4.0**
☒	☐	☐	☐	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

ASCE 41-13 URM / URMA Immediate Occupancy Structural Checklist: Unreinforced Masonry Bearing Walls with Flexible or Stiff Diaphragms

C	NC	N/A	U		Comments
				VERY LOW SEISMICITY	
				Seismic-Force-Resisting System	
☒	☐	☐	☐	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
☐	☒	☐	☐	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 30 psi for clay units and 70 psi for concrete units. (Commentary: Sec. A.3.2.5.1. Tier 2: Sec. 5.5.3.1.1)	**Shear stress is approximately 91 psi in the N-S direction and 69 psi in the E-W direction**
				Connections	
☒	☐	☐	☐	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	**D/C = 0.81**
☒	☐	☐	☐	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	**1994 Retrofit added anchors and straps to sheathing**
☒	☐	☐	☐	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: 5.7.2)	
☐	☐	☐	☒	GIRDER / COLUMN CONNECTION: There is a positive connection utilizing plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	**All girder column connections were concealed.**
				Foundation System	
☐	☐	☒	☐	DEEP FOUNDATIONS: Piles and piers are capable of transferring the lateral forces between the structure and the soil. (Commentary: Sec. A.6.2.3)	
☒	☐	☐	☐	SLOPING SITES: The difference in foundation embedment depth from one side of the building to another shall not exceed one story high. (Commentary: Sec. A.6.2.4)	

ASCE 41-13 URM / URMA Immediate Occupancy Structural Checklist: Unreinforced Masonry Bearing Walls with Flexible or Stiff Diaphragms

C	NC	N/A	U		Comments
				LOW, MODERATE, AND HIGH SEISMICITY (Complete the following items in addition to the items for Low and Moderate Seismicity)	
				Seismic-Force-Resisting System	
☒	☐	☐	☐	PROPORTIONS: The height-to-thickness ratio of the shear walls at each story is less than the following (Commentary: Sec. A.3.2.5.2. Tier 2: Sec. 5.5.3.1.2): Top of multi-story bldg. – 9 First story of multi-story bldg. – 15 All other conditions - 13	**9'/13" = 8.3**
☐	☐	☐	☒	MASONRY LAYUP: Filled collar joints of multi-wythe masonry walls have negligible voids. (Commentary: Sec. A.3.2.5.3. Tier 2: Sec. 5.5.3.4.1)	
				Diaphragms (Stiff or Flexible)	
☐	☐	☒	☐	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 15% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
☒	☐	☐	☐	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 4 feet long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	**Compliant. Handball court is compliant due to the addition of steel strongbacks**
☐	☐	☒	☐	PLAN IRREGULARITIES: There is tensile capacity to develop the strength of the diaphragm at reentrant corners or other locations of plan irregularities. (Commentary: Sec. A.4.1.7. Tier 2: Sec. 5.6.1.4)	**No reentrant corners with projections larger than 15%.**
☒	☐	☐	☐	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)	**Condition only at mezzanine track.**
				Flexible Diaphragms	
☐	☐	☐	☒	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Gym roof is compliant in the E-W direction and possibly the N-S. Unable to observe the office roof or floor framing
☐	☐	☒	☐	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 1-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
☒	☐	☐	☐	SPANS: All wood diaphragms with spans greater than 12 feet consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
☐	☐	☒	☐	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 30 feet and aspect ratios less than or equal to 3-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
☐	☐	☒	☐	NONCONCRETE FILLED DIAPHRAGMS: Untopped metal deck diaphragms with fill other than concrete shall consists of horizontal spans of less than 40 feet and have aspect ratios less than 4-to-1. (Commentary: Sec. A.4.3.1. Tier 2: Sec. 5.6.3)	

ASCE 41-13 URM / URMA Immediate Occupancy Structural Checklist: Unreinforced Masonry Bearing Walls with Flexible or Stiff Diaphragms

C	NC	N/A	U		Comments
☒	☐	☐	☐	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
				Connections	
☒	☐	☐	☐	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 inch prior to engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	
☐	☒	☐	☐	BEAM, GIRDER, AND TRUSS SUPPORTS: Beams, girders, and trusses supported by unreinforced masonry walls or pilasters have independent secondary columns for support of vertical loads. (Commentary: Sec. A.5.4.5. Tier 2: Sec. 5.7.4.4)	

ASCE 41-13 Immediate Occupancy - High Seismicity - Nonstructural Checklist

C	NC	N/A	U		Comments
				LIFE SAFETY SYSTEMS	
☒	☐	☐	☐	FIRE SUPPRESSION PIPING: Fire suppression piping is anchored and braced in accordance with NFPA-13. (Commentary: Sec. A.7.13.1. Tier 2: Sec. 13.7.4)	
☐	☒	☐	☐	FLEXIBLE COUPLINGS: Fire suppression piping has flexible couplings in accordance with NFPA-13. (Commentary: Sec. A.7.13.2. Tier 2: Sec. 13.7.4)	**Flexible couplings were not observed**
☒	☐	☐	☐	EMERGENCY POWER: Equipment used to power or control life safety systems is anchored or braced. (Commentary: Sec. A7.12.1. Tier 2: Sec. 13.7.7)	
☐	☐	☒	☐	STAIR AND SMOKE DUCTS: Stair pressurization and smoke control ducts are braced and have flexible connections at seismic joints. (Commentary: Sec. A7.14.1. Tier 2: Sec. 13.7.6.1)	
☒	☐	☐	☐	SPRINKLER CEILING CLEARANCE: Penetrations through panelized ceilings for fire suppression devices provide clearances in accordance with NFPA-13. (Commentary: Sec. A7.13.3. Tier 2: Sec. 13.7.4)	
				HAZERDOUS MATERIALS	
☐	☐	☒	☐	HAZARDOUS MATERIAL EQUIPMENT: Equipment mounted on vibration isolators and containing hazardous material is equipped with restraints or snubbers. (Commentary: Sec.A.7.12.2 Tier 2: Sec. 13.7.1)	
☐	☐	☒	☐	HAZARDOUS MATERIAL STORAGE: Breakable containers that hold hazardous material, including gas cylinders, are restrained by latched doors, shelf lips, wires, or other methods. (Commentary: Sec. A7.15, Tier 2: Sec. 13.8.4)	
☐	☐	☒	☐	HAZARDOUS MATERIAL DISTRIBUTION: Piping or ductwork conveying hazardous materials is braced or otherwise protected from damage that would allow hazardous material release. (Commentary: Sec. A.7.13.4. Tier 2: Sec. 13.7.3 and 13.7.5)	
☐	☐	☒	☐	SHUT-OFF VALVES: Piping containing hazardous material, including natural gas, has shut-off valves or other devices to limit spills or leaks. (Commentary: Sec. A7.13.3. Tier 2: Sec. 13.7.3 and 13.7.5)	
☐	☐	☒	☐	FLEXIBLE COUPLINGS: Hazardous material ductwork and piping, including natural gas piping, has flexible couplings. (Commentary: Sec. A15.3.4, Tier2: Sec.13.7.3 and 13.7.5)	
☐	☐	☒	☐	PIPING OR DUCTS CROSSING SEISMIC JOINTS: Piping or ductwork carrying hazardous material that either crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements. (Commentary: Sec. A.7.13.6. Tier 2: Sec.13.7.3, 13.7.5, and 13.7.6)	
				PARTITIONS	
☐	☐	☒	☐	UNREINFORCED MASONRY: Unreinforced masonry or hollow clay tile partitions are braced at a spacing of at most 10 feet in areas of Low or Moderate seismicity, or at most 6 feet in areas or High seismicity. (Commentary: Sec. A.7.1.1. Tier 2: Sec. 13.6.2	

ASCE 41-13 Immediate Occupancy - High Seismicity - Nonstructural Checklist

C	NC	N/A	U		Comments
☐	☐	☒	☐	HEAVY PARTITIONS SUPPORTED BY CEILINGS: The tops of masonry or hollow clay tile partitions are not laterally supported by an integrated ceiling system. (Commentary: Sec. A.7.2.1. Tier 2: Sec. 13.6.2)	
☐	☐	☒	☐	DRIFT: Rigid cementitious partitions are detailed to accommodate the following drift ratios: in steel moment frame, concrete moment frame, and wood frame buildings, 0.02; in other buildings, 0.005. (Commentary: Sec. A.7.1.2. Tier 2: Sec. 13.6.2)	
☐	☐	☒	☐	LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops of gypsum board partitions are not laterally supported by an integrated ceiling system. (Commentary: Sec. A.7.2.1. Tier 2: Sec. 13.6.2)	
☐	☐	☒	☐	STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints. (Commentary: Sec. A.7.1.3. Tier 2: Sec. 13.6.2)	
☐	☐	☒	☐	TOPS: The tops of ceiling-high framed or panelized partitions have lateral bracing to the structure at a spacing equal to or less than 6 ft.. (Commentary: Sec. A.7.1.4. Tier 2: Sec. 13.6.2)	
				CEILINGS	
☐	☐	☒	☐	SUSPENDED LATH AND PLASTER: Suspended lath and plaster ceilings have attachments that resist seismic forces for every 12 square feet of area. (Commentary: Sec. A.7.2.4. Tier 2: Sec. *13.6.4)*	
☐	☐	☒	☐	SUSPENDED GYPSUM BOARD: Suspended gypsum board ceilings have attachments that resist seismic forces for every 12 square feet of area. (Commentary: Sec. A.7.2.4. Tier 2: Sec. *13.6.4)*	
☐	☒	☐	☐	INTEGRATED CEILINGS: Integrated suspended ceilings with continuous areas greater than 144 ft^2, and ceilings of smaller areas that are not surrounded by restraining partitions, are laterally restrained at a spacing no greater than 12 ft with members attached to the structure above. Each restraint location has a minimum of four diagonal wires and compression struts, or diagonal members capable of resisting compression. (Commentary: Sec. A.7.2.2. Tier 2: Sec. 13.6.4)	
☐	☒	☐	☐	EDGE CLEARANCE: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, ½ in.; in High Seismicity, ¾ in. (Commentary: Sec. A.7.2.4. Tier 2: Sec. 13.6.4)	
☐	☐	☒	☐	SESIMIC JOINTS: Acoustical tile or lay-in panels ceilings have seismic separation joints such that each continuous portion of the ceiling is no more than 2500 ft^2 and has a ratio of long-to-short dimension no more than 4-to-1. (Commentary: Sec. A.7.2.7. Tier 2: Sec. 13.6.4)	
				LIGHT FIXTURES	
☒	☐	☐	☐	INDEPENDENT SUPPORT: Light fixtures that weigh more per square foot than the ceiling they penetrate are supported independent of the grid ceiling suspension system by a minimum of two wires at diagonally opposite comers of each fixture. (Commentary: Sec. A.7.3.2. Tier 2: Sec. 13.6.4 and 13.7.9)	
☐	☐	☒	☐	PENDENT SUPPORTS: Light on pendent supports are attached at a spacing equal to or less than 6 ft. and, if rigidly supported, are free to move with the structure to which they are attached without damaging adjoining components. (Commentary: Sec. A.7.3.3. Tier 2: Sec. 13.7.9)	

ASCE 41-13 Immediate Occupancy - High Seismicity - Nonstructural Checklist

C	NC	N/A	U		Comments
☒	☐	☐	☐	LENS COVERS: Lens covers on light fixtures are attached with safety devices. (Commentary: Sec. A.7.3.4. Tier 2: Sec. 13.7.9)	
				CLADDING AND GLAZING	
☐	☐	☒	☐	CLADDING ANCHORS: Cladding components weighing more than 10 psf are mechanically anchored to the structure at a spacing equal to or less than the following: for Life Safety in areas of Moderate seismicity, 6 feet; for life Safety in areas of High seismicityand for Position Retention in any area, 4 feet. (Commentary: Sec. A.7.4.1. Tier 2: Sec. 13.6.1)	
☐	☐	☒	☐	CLADDING ISOLATION: For steel or concrete moment frame buildings, panel connections are detailed to accommodate a story drift ratio of at least the following: for Life Safety in areas of Moderate seismicity, 0.01; for Life Safety in areas of High seismicity and for Position Retention in any area, 0.02. (Commentary: Sec. A.7.4.3. Tier 2: Section 13.6.1)	
☐	☐	☒	☐	MULTI-STORY PANELS: For multi-story panels attached at more than one floor level, panel connections are detailed to accommodate a story drift ratio of at least the following: for Life Safety in areas of Moderate seismicity, 0.01; for Life Safety in areas of High seismicity and for Position Retention in any area, 0.02. (Commentary: Sec.A.7.4.4. Tier2: Sec.13.6.1)	
☐	☐	☒	☐	PANEL CONNECTIONS: Cladding panels are anchored out-of-plane with a minimum number of connections for each wall panel, as follows: for Life Safety in areas of Moderate seismicity, 2 connections; for Life Safety in areas of High seismicity and for Position Retention in any area, 4 connections. (Commentary: Sec. A.7.4.5. Tier 2: Sec. 13.6.1.4)	
☐	☐	☒	☐	BEARING CONNECTIONS: Where bearing connections are used, there are a minimum of two bearing connections for each cladding panel. (Commentary: Sec. A.7.4.6. Tier 2: Sec. 13.6.1.4)	
☐	☐	☒	☐	INSERTS: Where concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel. (Commentary: Sec. A.7.4.7. Tier 2: Sec. 13.6.1.4)	
☒	☐	☐	☐	OVERHEAD GLAZING: Glazing panes of any size in curtain walls and individual interior or exterior panes over 16 square feet in area are laminated annealed or laminated heat- strengthened glass and are detailed to remain in the frame when cracked. (Commentary: Sec. A.7.4.8: Tier 2: Sec. 13.6.1.5)	
				MASONRY VENEER	
☐	☐	☒	☐	TIES: Masonry veneer is connected to the back- up with corrosion-resistant ties. There is a minimum of one tie for every 2-2/3 square feet, and the ties have spacing no greater than the following: for Life Safety in areas of Low or Moderate seismicity, 36 inches; for Life Safety in areas of High seismicity and for Position Retention in any area, 24 inches. (Commentary: Sec. A.7.5.1. Tier 2: Sec. 13.6.1.2)	
☐	☐	☒	☐	SHELF ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor. (Commentary: Sec. A.7.5.2. Tier 2: Sec. 13.6.1.2)	
☐	☐	☒	☐	WEAKENED PLANES: Masonry veneer is anchored to the back-up adjacent to weakened planes, such as at the locations of the flashing. (Commentary: Sec. A.7.5.2. Tier 2: Sec. 13.6.1.2)	

ASCE 41-13 Immediate Occupancy - High Seismicity - Nonstructural Checklist

C	NC	N/A	U		Comments
☐	☐	☒	☐	URM BACK-UP: There is no unreinforced masonry back-up (Commentary: Sec. A.7.7.2. Tier 2: Section 13.6.1.1 and 13.6.1.2)	
☐	☐	☒	☐	STUD TRACKS: For veneer with metal stud back- up, stud tracks are fastened to the structure at a spacing equal to or less than 24 inches on center. (Commentary: Sec. A.7.6:1. Tier 2: Section 13.6.1.1 and 13.6.1.2)	
☐	☐	☒	☐	ANCHORAGE: For veneer with concrete block or masonry back-up, the back-up is positively anchored to the structure at a horizontal spacing equal to or less than 4 feet along the floors and roof. (Commentary: Sec. A.7.7.1. Tier 2: Section 13.6.1.1 and 13.6.1.2)	
☐	☐	☒	☐	WEEP HOLES: In veneer anchored to stud walls, the venerr has functioning weep holes and base flashing. (Commentary: Sec. A.7.5.6. Tier 2: Sec. 13.6..1.2)	
☐	☐	☒	☐	OPENIGNS: For veneer with metal stud backup, steel studs frame window and door openings. (Commentary: Sec. A.7.6.2. Tier 2: Sec. 13.6.1.1 and 13.6.1.2)	
				PARAPETS, CORNICES, ORNAMENTATION, AND APPENDAGES	
☐	☐	☒	☐	URM PARAPETS OR CORNICES: Laterally unsupported unreinforced masonry parapets or cornices have height- to-thickness ratios no greater than the following: for Life Safety in areas of Low or Moderate seismicity, 2.5; for Life Safety in areas of High seismicity and for Position Retention in any area, 1.5. (Commentary: Sec. A.7.8.1. Tier2: Sec. 13.6.5)	**Parapets are laterally supported by the bracing added in the previous seismic retrofit.**
☐	☐	☒	☐	CANOPIES: Canopies at building exits are anchored to the structure at a spacing no greater than the following: for Life Safety in areas of Low or Moderate seismicity, 10 feet; for Life Safety in areas of High seismicity and for Position Retention in any area, 6 feet. (Commentary: Sec.A.7.8.2. Tier 2: Sec. 13.6.6)	
☐	☐	☒	☐	CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement. (Commentary: Sec.A.7.8.3. Tier 2: Sec. 13.6.5)	
☐	☐	☒	☐	APPENDAGES: Cornices, parapets, signs, and other ornamentation or appendages that extend above the highest point of anchorage to the structure or cantilever from components are reinforced and anchored to the structural system at a spacing equal to or less than 6 feet. This checklist item does not apply to parapets or cornices covered by other checklist items. (Commentary: Sec. A.7.8.4. Tier 2: Sec. 13.6.6)	
				MASONRY CHIMNEYS	
☐	☐	☒	☐	URM CHIMNEYS: Unreinforced masonry chimneys extend above the roof surface no more than the following: for Life Safety in areas of Low or Moderate seismicity, 3 times the least dimension of the chimney; for Life Safety in areas of High seismicity and for Position Retention in any area, 2 times the least dimension of the chimney. (Commentary: Sec. A.7.9.1. Tier 2: 13.6.7)	
☐	☐	☒	☐	ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof. (Commentary: Sec. A.7.9.2. Tier 2: 13.6.7)	

ASCE 41-13 Immediate Occupancy - High Seismicity - Nonstructural Checklist

C	NC	N/A	U		Comments
				STAIRS	
☐	☐	☒	☐	STAIR ENCLOSURES: Hollow clay tile or unreinforced masonry walls around stair enclosures are restrained out- of-plane and have height-to-thickness ratios not greater than the following: for Life Safety in areas of Low or Moderate seismicity, 15- to-1; for Life Safety in areas of High seismicity and for Position Retention in any area, 12-to-1. (Commentary: Sec. A7.10.1. Tier 2: Sec. 13.6.2 and 13.6.8)	
☐	☐	☒	☐	STAIR DETAILS: In moment frame structures, the connection between the stairs and the structure does not rely on shallow anchors in concrete. Alternatively, the stair details are capable of accommodating the drift calculated using the Quick Check procedure of Section 4.5.3.1 without including any lateral stiffness contribution from the stairs. (Commentary: Sec. A.7.10.2. Tier 2: Sec.13.6.8)	
				CONTENTS AND FURNISHINGS	
☐	☐	☒	☐	INDUSTRIAL STORAGE RACKS: Industrial storage racks or pallet racks over 12 feet in height meet the requirements of ANSVMH 16.1 as modified by ASCE 7 Chapter 15. (Commentary: Sec. A.7.11.1. Tier 2: Sec. 13.8.1)	
☐	☒	☐	☐	TALL NARROW CONTENTS: Contents over 6 feet in height with a height-to-depth or height-to-width ratio greater than 3-to-1 are anchored to the structure or to each other. (Commentary: Sec A.7.11.2. Tier 2: Sec. 13.8.l)	
☐	☒	☐	☐	FALL-PRONE CONTENTS: Equipment, stored items, or other contents weighing over 20 lb whose center of mass is more than 4 feet above the adjacent floor level are braced or otherwise restrained. (Commentary: Sec A.7.11.3. Tier 2: Sec. 13.8.2)	
☐	☐	☒	☐	ACCESS FLOORS: Access floors more than 9 in. high are braced. (Commentary: Sec A.7.11.4. Tier 2: Sec. 13.8.3)	
☐	☐	☒	☐	EQUIPMENT ON ACCESS FLOORS: Equipment and other contents supported by access floor systems are anchored or braced to the structure independent of the access floor. (Commentary: Sec A.7.11.5. Tier 2: Sec. 13.7.7 and 13.8.3)	
☒	☐	☐	☐	SUSPENDED CONTENTS: Items suspended without lateral bracing are free to swing from or move with the structure from which they are suspended without damaging themselves or adjoining components. (Commentary: Sec A.7.11.6. Tier 2: Sec. 13.8.2)	
				MECHANICAL AND ELECTRICAL EQUIPEMENT	
☐	☐	☒	☐	FALL-PRONE EQUIPMENT: Equipment weighing over 20 lb whose center of mass is more than 4 feet above the adjacent floor level, and which is not in-line equipment, is braced. (Commentary: A.7.12.4. Tier 2: 13.7.1)	
☐	☐	☒	☐	IN-LINE EQUIPMENT: Equipment installed in-line with a duct or piping system, with operating weight over 75 lb, is supported and laterally braced independent of the duct or piping system. (Commentary: Sec.A.7.12.5. Tier 2: Sec. 13.7.1)	
☒	☐	☐	☐	TALL NARROW EQUIPMENT: Contents over 6 feet in height with a height-to-depth or height-to-width ratio greater than 3-to-1 are anchored to the floor slab or adjacent structural walls. (Commentary: Sec A.7.12.6. Tier 2: Sec. 13.7.1 and 13.7.7)	

ASCE 41-13 Immediate Occupancy - High Seismicity - Nonstructural Checklist

C	NC	N/A	U		Comments
☐	☐	☐	☒	MECHANICAL DOORS: Mechanically operated doors are detailed to operate at a story drift ratio of 0.01. (Commentary: Sec.A.7.12.7. Tier 2: Sec. 13.6.9)	
☐	☒	☐	☐	SUSPENDED EQUIPMENT: Equipment suspended without lateral bracing is free to swing from or move with the structure from which it is suspended without damaging itself or adjoining components. (Commentary: Sec A.7.12.8. Tier 2: Sec. 13.7.1 and 13.7.7)	
☐	☐	☒	☐	VIBRATION ISOLATORS: Equipment mounted on vibration isolators is equipped with horizontal restraints or snubbers and with vertical restraints to resist overturning. (Commentary: Sec A.7.12.9. Tier 2: Sec. 13.7.1)	
☒	☐	☐	☐	HEAVY EQUIPMENT: Floor supported or platform-supported equipment weighing more than 400 lb is anchored to the structure. (Commentary: Sec A.7.12.10. Tier 2: Sec. 13.7.1 and 13.7.7)	
☐	☐	☐	☐	ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure. (Commentary: Sec A.7.12.11. Tier 2: Sec. 13.7.7)	
☐	☐	☒	☐	CONDUIT COUPLINGS: Conduit greater than 2.5 in. trade size that is attached to panels, cabinets, or other equipment and is subject to relative seismic displacement has flexible couplings or other connections. (Commentary: Sec A.7.12.6. Tier 2: Sec. 13.7.1 and 13.7.7)	
				PIPING	
☐	☐	☒	☐	FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings. (Commentary: Sec A.7.13.2. Tier 2: Sec. 13.7.3 and 13.7.5)	**No seismic joints (per commentary)**
☐	☒	☐	☐	FLUID AND GAS PIPING: Fluid and gas piping is anchored and braced to the structure to limit spills or leaks. (Commentary: Sec A.7.13.4. Tier 2: Sec. 13.7.3 and 13.7.5)	
☐	☐	☒	☐	C-CLAMPS: One-sided C-clamps that support piping larger than 2.5 in. in diameter are restrained. (Commentary: Sec A.7.13.5. Tier 2: Sec. 13.7.3 and 13.7.5)	
☐	☐	☒	☐	PIPING CROSSING SEISMIC JOINTS: Piping that crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements. (Commentary: Sec A.7.13.6. Tier 2: Sec. 13.7.3 and 13.7.5)	
				ELEVATORS	
☐	☐	☒	☐	RETAINER GUARDS: Sheaves and drums have cable retainer guards. (Commentary: Sec. A.7.16.1. Tier 2: 13.8.6)	
☐	☐	☒	☐	RETAINER PLATE: A retainer plate is present at the top and bottom of both car and counterweight. (Commentary: Sec. A.7.16.2. Tier2: 13.8.6)	
☒	☐	☐	☐	ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored. (Commentary: Sec. A.7.16.3. Tier2: 13.8.6)	
☐	☐	☐	☒	SEISMIC SWITCH: Elevators capable of operating at speeds of 150 ft/min or faster are equipped with seismic switches that meet the requirements of ASME A17.1 or have trigger levels set to 20% of the acceleration of gravity at the base of the structure and 50% of the acceleration of gravity in other locations. (Commentary: Sec. A.7.16.4. Tier2: 13.8.6)	

ASCE 41-13 Immediate Occupancy - High Seismicity - Nonstructural Checklist

C	NC	N/A	U		Comments
☐	☐	☐	☒	SHAFT WALLS: Elevator shaft walls are anchored and reinforced to prevent toppling into the shaft during strong shaking. (Commentary: Sec. A.7.16.5. Tier2: 13.8.6)	
☐	☐	☒	☐	COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1. (Commentary: Sec. A.7.16.6. Tier2: 13.8.6)	
☐	☐	☐	☒	BRACKETS: The brackets that tie the car rails and the counterweight rail to the structure are sized in accordance with ASME A17.1. (Commentary: Sec. A.7.16.7. Tier2: 13.8.6)	
☐	☐	☐	☒	SPREADER BRACKET: Spreader brackets are not used to resist seismic forces. (Commentary: Sec. A.7.16.8. Tier2: 13.8.6)	
☐	☐	☐	☒	GO-SLOW ELEVATORS: The building has a go-slow elevator system. (Commentary: Sec. A.7.16.9. Tier2: 13.8.6)	