

STRUCTURAL BUILDING EVALUATION

Date: September 20, 2024

To: Housing Opportunities of Southwest Washington
Longview, WA

Attn: Jennifer Westerman, CEO

From: Mark Speidel, P.E., S.E.
I.L. Gross Structural Engineers, LLC

Re: Raymond Manor Apartments Evaluation

This report is intended to summarize our findings, observations, and recommendations regarding the Raymond Manor Apartments located at 434 6th Street in Raymond, WA. These recommendations and findings are based on our visual observations from our visit to the site on September 6, 2024, our review of the available original construction drawings from 1972, and the supplemental information that we have received from previous work on the building with SMR Architects. The primary focus of our review is to assess the overall condition of the existing building, with a specific focus on the timber pile foundations. We have based our evaluation of the existing structure on the information we have received, and the accepted criteria for the lateral stability of existing structures, as recommended in ASCE Standard 41-17, *The Seismic Evaluation and Retrofit of Existing Buildings* published in 2017 by the American Society of Civil Engineers.

Executive Summary

Based on our evaluation of the Raymond Manor Apartments, currently the most significant issue with the existing structural systems is the pile foundation system. The existing timber pile foundations need a significant amount of repair work, particularly around the perimeter of the building. Due to the advanced nature of the deterioration at many of the piles at the perimeter, this work will need to be completed in the near future to prevent additional problems with the related structural systems from developing at the floors above. Once the piles have been repaired, or otherwise remedied, the building should be able to continue to perform as originally intended. We did not identify any other major structural deficiencies that would require immediate attention.

Building Description

Raymond Manor is a three-story apartment style housing structure located in Raymond, Washington. The building contains 35 single bedroom apartment units, along with shared common spaces including laundry and community rooms, with an overall footprint of approximately 154 feet by 66 feet. The building is currently operated as an income-restricted housing property.



Based on the original construction plans, Raymond Manor is constructed with conventional light framing materials above the main floor. These include 2x8 floor and roof joists spanning across the individual units, typically in the North-South direction, and bearing on the interior unit walls as well as the exterior wood stud walls. At the main floor, the typical framing is supported on a system of Glu-Lam beams below each of the primary bearing walls. In turn, these beams are supported by a grid of timber piles driven into the native soils below the building.

Because the main floor of the building is located approximately 36" above grade, the primary access to the building consists of a pair of wood framed decks and stairs at the front (East) and rear (West) sides of the building. At this time, the main stair at the front of the building is in the process of being replaced with a new deck, stairs, and ramp. My understanding is that the rear deck will also be replaced with a new deck once the front deck replacement is completed. In addition to these two entrances, there are also interior stairs with emergency exits at the ground level at the north and South ends of the building.

Areas of Structural Concern:

During our visit to Raymond manor, and our subsequent evaluations, we found the following areas of concern with the structure of the building. These deficiencies should be addressed as soon as is reasonably possible, as they either are already significantly below the required capacity that we would reasonably expect, or continued neglect will lead to increasing deterioration in a short period of time.

Main Floor Framing

Similar to the upper floors and the roof above, the main floor is framed with typical 2x8 floor joists. However, in place of the bearing walls supporting the upper floors, the main floor is supported on a system of Glu-Laminated beams bearing on the timber pile foundations. In the majority of the areas we were able to observe, these beams appear to be sound and in good condition, but in the



areas around the main entrance adjacent to 6th Street, there are several beams that are damaged or deteriorated. At a minimum, these beams should be treated with a fungal growth inhibitor product to stop the spread of dry rot fungus in the wood, and any beam that has lost more than 10% of it's area should be repaired based per the details attached to this report or replaced with a new beam of an equivalent size.

In addition to the beams with deterioration around the entrance, we also noted several locations where the beams and piles are offset, in some cases by several inches. It is not clear at this time if these beams were originally constructed with this offset, or if the beams and/or piles have shifted over time. In either case, additional bearing supports or hardware should be installed to ensure that the beams are adequately supported where they bear on the timber piles, and that further movement does not occur in the future.

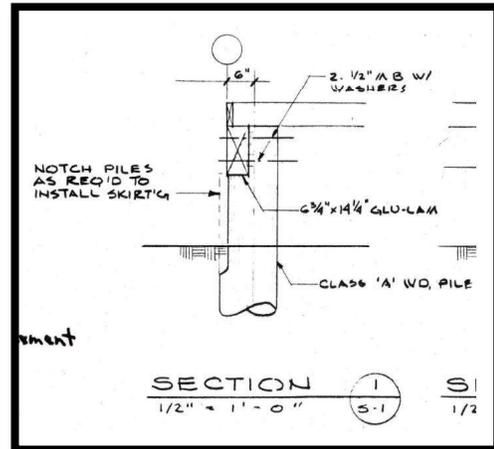
Pile Foundation Concerns

The primary area of concern at Raymond Manor is the existing timber pile foundation system. The building is supported on a series of 96 timber piles, approximately 12" in diameter, driven into the native soils below the building. Although a recent geotechnical evaluation has not been performed for this project site, evaluations completed recently for Willapa Center



(approximately ½ mile away) indicated several feet of loose fill soils below the existing grade, and we would expect to find similar soils below Raymond Manor. Because of this, replacing the deteriorated piles with new conventional foundations is likely not a feasible option.

Details in the original construction drawings indicate that the piles at the exterior of the building had their faces notched in order to accommodate the installation of the siding and skirting around the exterior of the building. Unfortunately, at the majority of the piles where this detail was used, the exposure of the un-treated material at the face of the notch has let to significant rot and deterioration. Fortunately, we did not find the same level of deterioration at the piles supporting the interior of the building, which were not notched, so no significant repairs are necessary in the shallow space below the main floor structure. We have attempted to identify which piles are deteriorated on the attached copy of the existing foundation plan, and they should be repaired as follows, based on the severity of the deterioration.



- In more moderate cases, the damaged pile may be treated in place to prevent additional deterioration. This treatment should include cutting away all deteriorated portions of the existing pile and treating the existing wood with a fungal growth inhibitor to prevent additional deterioration. Piles with more than 1.5" of deterioration at any face should have supplemental framing installed to replace the deteriorated sections of the pile (see SK-2). The supplemental framing should consist of pressure treated wood, not less than 3.5" thick (4x material), and should be securely attached to the existing pile material.
- Piles with more significant deterioration (more than 4" deep at any face), but where the rot does not extend below the existing exterior grade may be repaired by replacing the rotten pile cap with a new treated timber member of the same size, as shown in SK-3. All of the cut ends of the new and existing piles should be treated with a rot inhibitor, and the joint between the two piles should be sealed with a silicone based sealant to prevent moisture accumulation between the two segments of pile.
- In locations where the deterioration at the pile extends to or below the existing exterior grade, the soil around the pile will need to be excavated in

order to locate the extent of the rot and find sound bearing material in the pile. Then a new concrete cap can be poured around the top of the pile and extended up above grade as shown in SK-4. A new PT 8x10 post will need to be installed to adequately support the existing beams at the main floor.

Building Seismic Performance

Because the Pacific coast area of Washington is located between two active geological zones, specifically the Seattle Fault Zone, and the Cascadia Plate Subduction Zone, buildings in this area are potentially subject to severe lateral forces in the event of an earthquake. Typically, conventionally framed residential structures such as the Raymond Manor Apartments are evaluated based on the "Life Safety" criteria set forth in ASCE 41-17, but specific portions of the building may also be evaluated with the Immediate Occupancy criteria to ensure additional safety. The Immediate Occupancy criteria are typically only applied to the primary means of egress at the main floor of multi-story buildings of this type. In no case should a portion of the structural system that does not satisfy the criteria for collapse prevention be left unmitigated. A copy of the completed building checklists for this building is attached to the end of this report for reference.

Although we have not completed a full seismic evaluation of the building and its components as part of this evaluation, the components of the existing building lateral system appear to be in relatively good condition, with the exception of the damaged foundations noted in the previous section. Based on our observations, and the information from the original construction drawings, the lateral forces in the building are resisted by the shear walls between floors, eventually delivering these loads to the piles at the foundation level. While the exterior walls appear to be sheathed with horizontal wood sheathing below the building siding, the interior walls are only sheathed with gypsum wallboard sheathing (GWB). Unfortunately, gypsum wall sheathing typically does not perform well in repetitive motion events, such as earthquakes. Due to the brittle nature of GWB, shear walls with only GWB sheathing tend to fail suddenly and have only minimal residual strength remaining once the wallboard has cracked. Because of this, ASCE 41 does not recommend relying on GWB sheathed shear walls as a primary lateral resistance system beyond the uppermost floor of a building in a high-risk seismic area, such as the Washington coast.

Although the building is relying on these GWB walls for lateral support, due to the number and length of the walls, we do not expect that this will be a major concern in anything other than a significant seismic event. We would recommend

completing a full lateral analysis of the building to determine where upgrading the interior walls with additional sheathing would be the most effective.

I trust that this evaluation and the attached calculations are sufficient for your current needs with this project. If you have any further questions or areas of concern, please feel free to contact me.



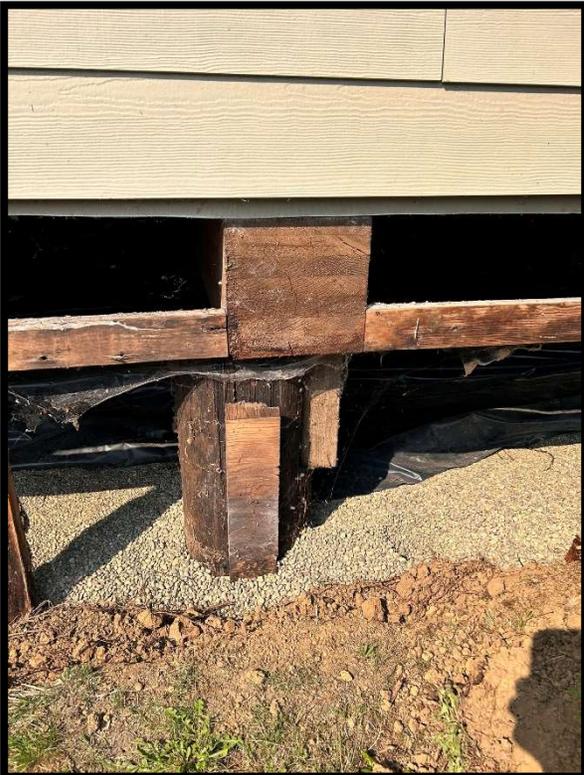
Mark Speidel, P.E., S.E.
I.L. Gross Structural Engineers, LLC



REFERENCE PHOTOGRAPHS



Picture 1 Corner Column at North-East



Picture 2 Intermediate Pile at East Side of Raymond Manor



Picture 3 Pile Near East Entry with Rotten Beam



Picture 4 Rotten beam next to East Entrance



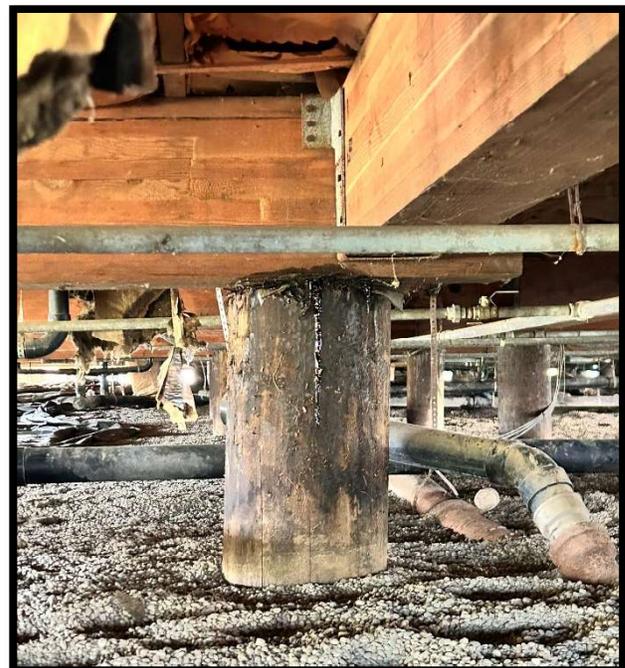
Picture 1 Rotten Beam and Pile at South side of East Entry



Picture 6 Rotten Pile along South-East Side



Picture 7 Rot at Back Deck Beams



Picture 8 Interior Pile and Beams

APPENDIX C SUMMARY DATA SHEET

BUILDING DATA

Building Name: RAYMOND MANOR Date: 7/6/2014
 Building Address: 434 6th ST Raymond, WA
 Latitude: _____ Longitude: _____ By: MCS
 Year Built: 1972 Year(s) Remodeled: - Original Design Code: 1970 UBC
 Area [ft² (m²):] 24638 Length [ft (m)]: 154 Width [ft (m)]: 60
 No. of Stories: 3 Story Height: ~8' Total Height: 30'

USE Industrial Office Warehouse Hospital Residential Educational Other: _____

CONSTRUCTION DATA

Gravity Load Structural System: 2x8 Joists onto Ceoed Stud Walls
 Exterior Transverse Walls: 2x4 Studs w/ siding Openings? Yes
 Exterior Longitudinal Walls: 2x4 studs w/ siding Openings? Yes
 Roof Materials/Framing: 2x8 @ 24" o/c
 Intermediate Floors/Framing: 2x8 @ 16" o/c
 Ground Floor: 2x8 @ 16" o/c
 Columns: Wood Posts Foundation: Timber Piles
 General Condition of Structure: Moderate
 Levels Below Grade? 0
 Special Features and Comments: _____

LATERAL-FORCE-RESISTING SYSTEM — W1a

	Longitudinal	Transverse
System:	<u>Wood Sheathed Shear Walls</u>	
Vertical Elements:	<u>Wood walls w/ wood sheathing @ Ext & GWB & Interior</u>	
Diaphragms:	<u>diagonal wood sheathing</u>	
Connections:	<u>Nails w/ Framing Anchors</u>	

EVALUATION DATA

BSE-1N Spectral Response Accelerations: $S_{DS} =$ 1.164 $S_{D1} =$ 1.794
 Soil Factors: Class = E (Based on nearby Soils Report) $F_a =$ 1.3 $F_w =$ 4.2
 BSE-1E Spectral Response Accelerations: $S_{DS} =$ 0.735 $S_{D1} =$ 0.455
 Level of Seismicity: High Performance Level: LS
 Building Period: $T =$ 1.6s
 Spectral Acceleration: $S_a =$ _____
 Modification Factor: $C_m C_1 C_2 =$ _____ Building Weight: $W =$ _____
 Pseudolateral Force: $V =$ _____
 $C_m C_1 C_2 S_a W =$ _____

BUILDING CLASSIFICATION:

REQUIRED TIER 1 CHECKLISTS

	Yes	No
Basic Configuration Checklist	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Building Type <u>W1</u> Structural Checklist	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Nonstructural Component Checklist	<input checked="" type="checkbox"/>	<input type="checkbox"/>

FURTHER EVALUATION REQUIREMENT:

Table 17-1. Very Low Seismicity Checklist

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Structural Components			
C NC N/A U	LOAD PATH: The structure contains 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.	5.4.1.1	A.2.1.1
C NC N/A U	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 have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.4.3.7.	5.7.1.1	A.5.1.1

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

Table 17-2. Collapse Prevention Basic Configuration Checklist

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Low Seismicity			
Building System—General			
C NC N/A U	LOAD PATH: The structure contains 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.	5.4.1.1	A.2.1.1
C NC N/A U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 0.25% of the height of the shorter building in low seismicity, 0.5% in moderate seismicity, and 1.5% in high seismicity.	5.4.1.2	A.2.1.2
C NC N/A U	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure.	5.4.1.3	A.2.1.3
Building System—Building Configuration			
C NC N/A U	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.	5.4.2.1	A.2.2.2
C NC N/A U	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.	5.4.2.2	A.2.2.3
C NC N/A U	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation.	5.4.2.3	A.2.2.4
C NC N/A U	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.	5.4.2.4	A.2.2.5
C NC N/A U	MASS: There is no change in effective mass of more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered.	5.4.2.5	A.2.2.6
C NC N/A U	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.	5.4.2.6	A.2.2.7

continues

Table 17-2 (Continued). Collapse Prevention Basic Configuration Checklist

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Moderate Seismicity (Complete the Following Items in Addition to the Items for Low Seismicity)			
Geologic Site Hazards			
C NC N/A U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance do not exist in the foundation soils at depths within 50 ft (15.2 m) under the building.	5.4.3.1	A.6.1.1
C NC N/A U	SLOPE FAILURE: The building site is located away from potential earthquake-induced slope failures or rockfalls so that it is unaffected by such failures or is capable of accommodating any predicted movements without failure.	5.4.3.1	A.6.1.2
C NC N/A U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated.	5.4.3.1	A.6.1.3
High Seismicity (Complete the Following Items in Addition to the Items for Moderate Seismicity)			
Foundation Configuration			
C NC N/A U	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 $0.6S_a$.	5.4.3.3	A.6.2.1
C NC N/A U	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.	5.4.3.4	A.6.2.2

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

Table 17-3. Immediate Occupancy Basic Configuration Checklist — Not Evaluated for IO

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Very Low Seismicity			
Building System—General			
C NC N/A U	LOAD PATH: The structure contains 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.	5.4.1.1	A.2.1.1
C NC N/A U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 0.5% of the height of the shorter building in low seismicity, 1.0% in moderate seismicity, and 3.0% in high seismicity.	5.4.1.2	A.2.1.2
C NC N/A U	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure.	5.4.1.3	A.2.1.3
Building System—Building Configuration			
C NC N/A U	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.	5.4.2.1	A.2.2.2
C NC N/A U	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.	5.4.2.2	A.2.2.3
C NC N/A U	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation.	5.4.2.3	A.2.2.4
C NC N/A U	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.	5.4.2.4	A.2.2.5
C NC N/A U	MASS: There is no change in effective mass of more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered.	5.4.2.5	A.2.2.6

continues

Table 17-3 (Continued). Immediate Occupancy Basic Configuration Checklist

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
C NC N/A U	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.	5.4.2.6	A.2.2.7
Low Seismicity (Complete the Following Items in Addition to the Items for Very Low Seismicity)			
Geologic Site Hazards			
C NC N/A U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance do not exist in the foundation soils at depths within 50 ft (15.2 m) under the building.	5.4.3.1	A.6.1.1
C NC N/A U	SLOPE FAILURE: The building site is located away from potential earthquake-induced slope failures or rockfalls so that it is unaffected by such failures or is capable of accommodating any predicted movements without failure.	5.4.3.1	A.6.1.2
C NC N/A U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated.	5.4.3.1	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	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 $0.6S_a$.	5.4.3.3	A.6.2.1
C NC N/A U	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.	5.4.3.4	A.6.2.2

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

Table 17-4. Collapse Prevention Structural Checklist for Building Types W1 and W1a

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Low and Moderate Seismicity			
Seismic-Force-Resisting System			
C NC N/A U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2.	5.5.1.1	A.3.2.1.1
C NC N/A U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the following values:	5.5.3.1.1	A.3.2.7.1
	Structural panel sheathing 1,000 lb/ft (14.6 kN/m)		
	Diagonal sheathing 700 lb/ft (10.2 kN/m)		
	Straight sheathing 100 lb/ft (1.5 kN/m)		
	All other conditions 100 lb/ft (1.5 kN/m)		
C NC N/A U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system.	5.5.3.6.1	A.3.2.7.2
C NC N/A U	GYPSON WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used for shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building.	5.5.3.6.1	A.3.2.7.3
C NC N/A U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces.	5.5.3.6.1	A.3.2.7.4
C NC N/A U	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor.	5.5.3.6.2	A.3.2.7.5
C NC N/A U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1.	5.5.3.6.3	A.3.2.7.6

continues

Table 17-4 (Continued). Collapse Prevention Structural Checklist for Building Types W1 and W1a

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
C NC (N/A) U	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels.	5.5.3.6.4	A.3.2.7.7
C NC (N/A) U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces.	5.5.3.6.5	A.3.2.7.8
Connections			
C NC (N/A) U	WOOD POSTS: There is a positive connection of wood posts to the foundation.	5.7.3.3	A.5.3.3
C NC (N/A) U	WOOD SILLS: All wood sills are bolted to the foundation.	5.7.3.3	A.5.3.4
C NC (N/A) U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support.	5.7.4.1	A.5.4.1
High Seismicity (Complete the Following Items in Addition to the Items for Low and Moderate Seismicity)			
Connections			
C NC (N/A) U	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less with acceptable edge and end distance provided for wood and concrete.	5.7.3.3	A.5.3.7
Diaphragms			
C NC (N/A) U	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints.	5.6.1.1	A.4.1.1
C NC (N/A) U	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation.	5.6.1.1	A.4.1.3
C NC (N/A) U	STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered.	5.6.2	A.4.2.1
C NC (N/A) U	SPANS: All wood diaphragms with spans greater than 24 ft (7.3 m) consist of wood structural panels or diagonal sheathing.	5.6.2	A.4.2.2
C NC (N/A) U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft (12 m) and have aspect ratios less than or equal to 4-to-1.	5.6.2	A.4.2.3
C NC (N/A) U	OTHER DIAPHRAGMS: The diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing.	5.6.5	A.4.7.1

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

Table 17-5. Immediate Occupancy Checklist for Building Types W1 and W1a

— Not Evaluated for IO

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Very Low Seismicity			
Seismic-Force-Resisting System			
C NC (N/A) U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2.	5.5.1.1	A.3.2.1.1
C NC (N/A) U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the following values:	5.5.3.1.1	A.3.2.7.1
	Structural panel sheathing	1,000 lb/ft	
	Diagonal sheathing	700 lb/ft	
	Straight sheathing	100 lb/ft	
	All other conditions	100 lb/ft	
C NC (N/A) U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system.	5.5.3.6.1	A.3.2.7.2
C NC (N/A) U	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used for shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building.	5.5.3.6.1	A.3.2.7.3

continues

Table 17-38. Nonstructural Checklist

Status	Evaluation Statement ^{a,b}	Tier 2 Reference	Commentary Reference
Life Safety Systems			
C NC N/A U	HR—not required; LS—LMH; PR—LMH. FIRE SUPPRESSION PIPING: Fire suppression piping is anchored and braced in accordance with NFPA-13.	13.7.4	A.7.13.1
C NC N/A U	HR—not required; LS—LMH; PR—LMH. FLEXIBLE COUPLINGS: Fire suppression piping has flexible couplings in accordance with NFPA-13.	13.7.4	A.7.13.2
C NC N/A U	HR—not required; LS—LMH; PR—LMH. EMERGENCY POWER: Equipment used to power or control Life Safety systems is anchored or braced.	13.7.7	A.7.12.1
C NC N/A U	HR—not required; LS—LMH; PR—LMH. STAIR AND SMOKE DUCTS: Stair pressurization and smoke control ducts are braced and have flexible connections at seismic joints.	13.7.6	A.7.14.1
C NC N/A U	HR—not required; LS—MH; PR—MH. SPRINKLER CEILING CLEARANCE: Penetrations through panelized ceilings for fire suppression devices provide clearances in accordance with NFPA-13.	13.7.4	A.7.13.3
C NC N/A U	HR—not required; LS—not required; PR—LMH. EMERGENCY LIGHTING: Emergency and egress lighting equipment is anchored or braced.	13.7.9	A.7.3.1
Hazardous Materials			
C NC N/A U	HR—LMH; LS—LMH; PR—LMH. HAZARDOUS MATERIAL EQUIPMENT: Equipment mounted on vibration isolators and containing hazardous material is equipped with restraints or snubbers.	13.7.1	A.7.12.2
C NC N/A U	HR—LMH; LS—LMH; PR—LMH. HAZARDOUS MATERIAL STORAGE: Breakable containers that hold hazardous material, including gas cylinders, are restrained by latched doors, shelf lips, wires, or other methods.	13.8.3	A.7.15.1
C NC N/A U	HR—MH; LS—MH; PR—MH. HAZARDOUS MATERIAL DISTRIBUTION: Piping or ductwork conveying hazardous materials is braced or otherwise protected from damage that would allow hazardous material release.	13.7.3 13.7.5	A.7.13.4
C NC N/A U	HR—MH; LS—MH; PR—MH. SHUTOFF VALVES: Piping containing hazardous material, including natural gas, has shutoff valves or other devices to limit spills or leaks.	13.7.3 13.7.5	A.7.13.3
C NC N/A U	HR—LMH; LS—LMH; PR—LMH. FLEXIBLE COUPLINGS: Hazardous material ductwork and piping, including natural gas piping, have flexible couplings.	13.7.3 13.7.5	A.7.15.4
C NC N/A U	HR—MH; LS—MH; PR—MH. 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.	13.7.3 13.7.5 13.7.6	A.7.13.6
Partitions			
C NC N/A U	HR—LMH; LS—LMH; PR—LMH. UNREINFORCED MASONRY: Unreinforced masonry or hollow-clay tile partitions are braced at a spacing of at most 10 ft (3.0 m) in Low or Moderate Seismicity, or at most 6 ft (1.8 m) in High Seismicity.	13.6.2	A.7.1.1
C NC N/A U	HR—LMH; LS—LMH; PR—LMH. HEAVY PARTITIONS SUPPORTED BY CEILINGS: The tops of masonry or hollow-clay tile partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C NC N/A U	HR—not required; LS—MH; PR—MH. 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.	13.6.2	A.7.1.2
C NC N/A U	HR—not required; LS—not required; PR—MH. LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops of gypsum board partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C NC N/A U	HR—not required; LS—not required; PR—MH. STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints.	13.6.2	A.7.1.3

continues

Table 17-38 (Continued). Nonstructural Checklist

Status	Evaluation Statement ^{a,b}	Tier 2 Reference	Commentary Reference
C NC N/A U	HR—not required; LS—not required; PR—MH. 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 (1.8 m).	13.6.2	A.7.1.4
Cellings			
C NC N/A U	HR—H; LS—MH; PR—LMH. SUSPENDED LATH AND PLASTER: Suspended lath and plaster ceilings have attachments that resist seismic forces for every 12 ft ² (1.1 m ²) of area.	13.6.4	A.7.2.3
C NC N/A U	HR—not required; LS—MH; PR—LMH. SUSPENDED GYPSUM BOARD: Suspended gypsum board ceilings have attachments that resist seismic forces for every 12 ft ² (1.1 m ²) of area.	13.6.4	A.7.2.3
C NC N/A U	HR—not required; LS—not required; PR—MH. INTEGRATED CEILINGS: Integrated suspended ceilings with continuous areas greater than 144 ft ² (13.4 m ²) and ceilings of smaller areas that are not surrounded by restraining partitions are laterally restrained at a spacing no greater than 12 ft (3.6 m) 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.	13.6.4	A.7.2.2
C NC N/A U	HR—not required; LS—not required; PR—MH. EDGE CLEARANCE: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft ² (13.4 m ²) have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, 1/2 in. (13 mm); in High Seismicity, 3/4 in. (19 mm).	13.6.4	A.7.2.4
C NC N/A U	HR—not required; LS—not required; PR—MH. CONTINUITY ACROSS STRUCTURE JOINTS: The ceiling system does not cross any seismic joint and is not attached to multiple independent structures.	13.6.4	A.7.2.5
C NC N/A U	HR—not required; LS—not required; PR—H. EDGE SUPPORT: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft ² (13.4 m ²) are supported by closure angles or channels not less than 2 in. (51 mm) wide.	13.6.4	A.7.2.6
C NC N/A U	HR—not required; LS—not required; PR—H. SEISMIC JOINTS: Acoustical tile or lay-in panel ceilings have seismic separation joints such that each continuous portion of the ceiling is no more than 2,500 ft ² (232.3 m ²) and has a ratio of long-to-short dimension no more than 4-to-1.	13.6.4	A.7.2.7
Light Fixtures			
C NC N/A U	HR—not required; LS—MH; PR—MH. 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 corners of each fixture.	13.6.4 13.7.9	A.7.3.2
C NC N/A U	HR—not required; LS—not required; PR—H. PENDANT SUPPORTS: Light fixtures on pendant supports are attached at a spacing equal to or less than 6 ft. Unbraced suspended fixtures are free to allow a 360-degree range of motion at an angle not less than 45 degrees from horizontal without contacting adjacent components. Alternatively, if rigidly supported and/or braced, they are free to move with the structure to which they are attached without damaging adjoining components. Additionally, the connection to the structure is capable of accommodating the movement without failure.	13.7.9	A.7.3.3
C NC N/A U	HR—not required; LS—not required; PR—H. LENS COVERS: Lens covers on light fixtures are attached with safety devices.	13.7.9	A.7.3.4
Cladding and Glazing			
C NC N/A U	HR—MH; LS—MH; PR—MH. CLADDING ANCHORS: Cladding components weighing more than 10 lb/ft ² (0.48 kN/m ²) are mechanically anchored to the structure at a spacing equal to or less than the following: for Life Safety in Moderate Seismicity, 6 ft (1.8 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 ft (1.2 m)	13.6.1	A.7.4.1

continues

Table 17-38 (Continued). Nonstructural Checklist

Status	Evaluation Statement ^{a,b}	Tier 2 Reference	Commentary Reference
C NC (N/A) U	HR—not required; LS—MH; PR—MH. CLADDING ISOLATION: For steel or concrete moment-frame buildings, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.3
C NC (N/A) U	HR—MH; LS—MH; PR—MH. MULTI-STORY PANELS: For multi-story panels attached at more than one floor level, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.4
C NC (N/A) U	HR—not required; LS—MH; PR—MH. THREADED RODS: Threaded rods for panel connections detailed to accommodate drift by bending of the rod have a length-to-diameter ratio greater than 0.06 times the story height in inches for Life Safety in Moderate Seismicity and 0.12 times the story height in inches for Life Safety in High Seismicity and Position Retention in any seismicity.	13.6.1	A.7.4.9
C NC (N/A) U	HR—MH; LS—MH; PR—MH. 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 Moderate Seismicity, 2 connections; for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 connections.	13.6.1.4	A.7.4.5
C NC (N/A) U	HR—MH; LS—MH; PR—MH. BEARING CONNECTIONS: Where bearing connections are used, there is a minimum of two bearing connections for each cladding panel.	13.6.1.4	A.7.4.6
C NC (N/A) U	HR—MH; LS—MH; PR—MH. INSERTS: Where concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel.	13.6.1.4	A.7.4.7
C NC (N/A) U	HR—not required; LS—MH; PR—MH. OVERHEAD GLAZING: Glazing panes of any size in curtain walls and individual interior or exterior panes more than 16 ft ² (1.5 m ²) in area are laminated annealed or laminated heat-strengthened glass and are detailed to remain in the frame when cracked.	13.6.1.5	A.7.4.8
Masonry Veneer			
C NC (N/A) U	HR—not required; LS—LMH; PR—LMH. TIES: Masonry veneer is connected to the backup with corrosion-resistant ties. There is a minimum of one tie for every 2-2/3 ft ² (0.25 m ²), and the ties have spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 36 in. (914 mm); for Life Safety in High Seismicity and for Position Retention in any seismicity, 24 in. (610 mm).	13.6.1.2	A.7.5.1
C NC (N/A) U	HR—not required; LS—LMH; PR—LMH. SHELF ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor.	13.6.1.2	A.7.5.2
C NC (N/A) U	HR—not required; LS—LMH; PR—LMH. WEAKENED PLANES: Masonry veneer is anchored to the backup adjacent to weakened planes, such as at the locations of flashing.	13.6.1.2	A.7.5.3
C NC (N/A) U	HR—LMH; LS—LMH; PR—LMH. UNREINFORCED MASONRY BACKUP: There is no unreinforced masonry backup.	13.6.1.1 13.6.1.2	A.7.7.2
C NC (N/A) U	HR—not required; LS—MH; PR—MH. STUD TRACKS: For veneer with cold-formed steel stud backup, stud tracks are fastened to the structure at a spacing equal to or less than 24 in. (610 mm) on center.	13.6.1.1 13.6.1.2	A.7.6.1

continues

Table 17-38 (Continued). Nonstructural Checklist

Status	Evaluation Statement ^{a,b}	Tier 2 Reference	Commentary Reference
C NC N/A U	HR—not required; LS—MH; PR—MH. ANCHORAGE: For veneer with concrete block or masonry backup, the backup is positively anchored to the structure at a horizontal spacing equal to or less than 4 ft along the floors and roof.	13.6.1.1 13.6.1.2	A.7.7.1
C NC N/A U	HR—not required; LS—not required; PR—MH. WEEP HOLES: In veneer anchored to stud walls, the veneer has functioning weep holes and base flashing.	13.6.1.2	A.7.5.6
C NC N/A U	HR—not required; LS—not required; PR—MH. OPENINGS: For veneer with cold-formed-steel stud backup, steel studs frame window and door openings.	13.6.1.1 13.6.1.2	A.7.6.2
Parapets, Cornices, Ornamentation, and Appendages			
C NC N/A U	HR—LMH; LS—LMH; PR—LMH. 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 Low or Moderate Seismicity, 2.5; for Life Safety in High Seismicity and for Position Retention in any seismicity, 1.5.	13.6.5	A.7.8.1
C NC N/A U	HR—not required; LS—LMH; PR—LMH. CANOPIES: Canopies at building exits are anchored to the structure at a spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 10 ft (3.0 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 6 ft (1.8 m).	13.6.6	A.7.8.2
C NC N/A U	HR—H; LS—MH; PR—LMH. CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement.	13.6.5	A.7.8.3
C NC N/A U	HR—MH; LS—MH; PR—LMH. 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 ft (1.8 m). This evaluation statement item does not apply to parapets or cornices covered by other evaluation statements.	13.6.6	A.7.8.4
Masonry Chimneys			
C NC N/A U	HR—LMH; LS—LMH; PR—LMH. URM CHIMNEYS: Unreinforced masonry chimneys extend above the roof surface no more than the following: for Life Safety in Low or Moderate Seismicity, 3 times the least dimension of the chimney; for Life Safety in High Seismicity and for Position Retention in any seismicity, 2 times the least dimension of the chimney.	13.6.7	A.7.9.1
C NC N/A U	HR—LMH; LS—LMH; PR—LMH. ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof.	13.6.7	A.7.9.2
Stairs			
C NC N/A U	HR—not required; LS—LMH; PR—LMH. 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 Low or Moderate Seismicity, 15-to-1; for Life Safety in High Seismicity and for Position Retention in any seismicity, 12-to-1.	13.6.2 13.6.8	A.7.10.1
C NC N/A U	HR—not required; LS—LMH; PR—LMH. STAIR DETAILS: The connection between the stairs and the structure does not rely on post-installed anchors in concrete or masonry, and the stair details are capable of accommodating the drift calculated using the Quick Check procedure of Section 4.4.3.1 for moment-frame structures or 0.5 in. for all other structures without including any lateral stiffness contribution from the stairs.	13.6.8	A.7.10.2
Contents and Furnishings			
C NC N/A U	HR—LMH; LS—MH; PR—MH. INDUSTRIAL STORAGE RACKS: Industrial storage racks or pallet racks more than 12 ft high meet the requirements of ANSI/RMI MH 16.1 as modified by ASCE 7, Chapter 15.	13.8.1	A.7.11.1

continues

Table 17-38 (Continued). Nonstructural Checklist

Status	Evaluation Statement ^{a,b}	Tier 2 Reference	Commentary Reference
C NC N/A U	HR—not required; LS—H; PR—MH. TALL NARROW CONTENTS: Contents more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 are anchored to the structure or to each other.	13.8.2	A.7.11.2
C NC N/A U	HR—not required; LS—H; PR—H. FALL-PRONE CONTENTS: Equipment, stored items, or other contents weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level are braced or otherwise restrained.	13.8.2	A.7.11.3
C NC N/A U	HR—not required; LS—not required; PR—MH. ACCESS FLOORS: Access floors more than 9 in. (229 mm) high are braced.	13.6.10	A.7.11.4
C NC N/A U	HR—not required; LS—not required; PR—MH. 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.	13.7.7 13.6.10	A.7.11.5
C NC N/A U	HR—not required; LS—not required; PR—H. 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.	13.8.2	A.7.11.6
Mechanical and Electrical Equipment			
C NC N/A U	HR—not required; LS—H; PR—H. FALL-PRONE EQUIPMENT: Equipment weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level, and which is not in-line equipment, is braced.	13.7.1 13.7.7	A.7.12.4
C NC N/A U	HR—not required; LS—H; PR—H. IN-LINE EQUIPMENT: Equipment installed in line with a duct or piping system, with an operating weight more than 75 lb (34.0 kg), is supported and laterally braced independent of the duct or piping system.	13.7.1	A.7.12.5
C NC N/A U	HR—not required; LS—H; PR—MH. TALL NARROW EQUIPMENT: Equipment more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 is anchored to the floor slab or adjacent structural walls.	13.7.1 13.7.7	A.7.12.6
C NC N/A U	HR—not required; LS—not required; PR—MH. MECHANICAL DOORS: Mechanically operated doors are detailed to operate at a story drift ratio of 0.01.	13.6.9	A.7.12.7
C NC N/A U	HR—not required; LS—not required; PR—H. 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.	13.7.1 13.7.7	A.7.12.8
C NC N/A U	HR—not required; LS—not required; PR—H. VIBRATION ISOLATORS: Equipment mounted on vibration isolators is equipped with horizontal restraints or snubbers and with vertical restraints to resist overturning.	13.7.1	A.7.12.9
C NC N/A U	HR—not required; LS—not required; PR—H. HEAVY EQUIPMENT: Floor-supported or platform-supported equipment weighing more than 400 lb (181.4 kg) is anchored to the structure.	13.7.1 13.7.7	A.7.12.10
C NC N/A U	HR—not required; LS—not required; PR—H. ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure.	13.7.7	A.7.12.11
C NC N/A U	HR—not required; LS—not required; PR—H. CONDUIT COUPLINGS: Conduit greater than 2.5 in. (64 mm) trade size that is attached to panels, cabinets, or other equipment and is subject to relative seismic displacement has flexible couplings or connections.	13.7.8	A.7.12.12
Piping			
C NC N/A U	HR—not required; LS—not required; PR—H. FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings.	13.7.3 13.7.5	A.7.13.2

continues

Table 17-38 (Continued). Nonstructural Checklist

Status	Evaluation Statement ^{a,b}	Tier 2 Reference	Commentary Reference
C NC N/A U	HR—not required; LS—not required ; PR—H. FLUID AND GAS PIPING: Fluid and gas piping is anchored and braced to the structure to limit spills or leaks.	13.7.3 13.7.5	A.7.13.4
C NC N/A U	HR—not required; LS—not required ; PR—H. C-CLAMPS: One-sided C-clamps that support piping larger than 2.5 in. (64 mm) in diameter are restrained.	13.7.3 13.7.5	A.7.13.5
C NC N/A U	HR—not required; LS—not required ; PR—H. 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.	13.7.3 13.7.5	A.7.13.6
Ducts			
C NC N/A U	HR—not required; LS—not required ; PR—H. DUCT BRACING: Rectangular ductwork larger than 6 ft ² (0.56 m ²) in cross-sectional area and round ducts larger than 28 in. (711 mm) in diameter are braced. The maximum spacing of transverse bracing does not exceed 30 ft (9.2 m). The maximum spacing of longitudinal bracing does not exceed 60 ft (18.3 m).	13.7.6	A.7.14.2
C NC N/A U	HR—not required; LS—not required ; PR—H. DUCT SUPPORT: Ducts are not supported by piping or electrical conduit.	13.7.6	A.7.14.3
C NC N/A U	HR—not required; LS—not required ; PR—H. DUCTS CROSSING SEISMIC JOINTS: Ducts that cross seismic joints or isolation planes or are connected to independent structures have couplings or other details to accommodate the relative seismic displacements.	13.7.6	A.7.14.4
Elevators			
C NC N/A U	HR—not required; LS—H ; PR—H. RETAINER GUARDS: Sheaves and drums have cable retainer guards.	13.7.11	A.7.16.1
C NC N/A U	HR—not required; LS—H ; PR—H. RETAINER PLATE: A retainer plate is present at the top and bottom of both car and counterweight.	13.7.11	A.7.16.2
C NC N/A U	HR—not required; LS—not required ; PR—H. ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored.	13.7.11	A.7.16.3
C NC N/A U	HR—not required; LS—not required ; PR—H. SEISMIC SWITCH: Elevators capable of operating at speeds of 150 ft/min (0.30 m/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.	13.7.11	A.7.16.4
C NC N/A U	HR—not required; LS—not required ; PR—H. SHAFT WALLS: Elevator shaft walls are anchored and reinforced to prevent toppling into the shaft during strong shaking.	13.7.11	A.7.16.5
C NC N/A U	HR—not required; LS—not required ; PR—H. COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1.	13.7.11	A.7.16.6
C NC N/A U	HR—not required; LS—not required ; PR—H. BRACKETS: The brackets that tie the car rails and the counterweight rail to the structure are sized in accordance with ASME A17.1.	13.7.11	A.7.16.7
C NC N/A U	HR—not required; LS—not required ; PR—H. SPREADER BRACKET: Spreader brackets are not used to resist seismic forces.	13.7.11	A.7.16.8
C NC N/A U	HR—not required; LS—not required ; PR—H. GO-SLOW ELEVATORS: The building has a go-slow elevator system.	13.7.11	A.7.16.9

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

^a Performance Level: HR = Hazards Reduced, LS = Life Safety, and PR = Position Retention.

^b Level of Seismicity: L = Low, M = Moderate, and H = High.

1. Supporting members relied on for compliance have complete load paths to supporting structural members.
2. Bracing members, connecting members, and supporting structural or architectural components relied on for compliance are of materials and dimensions suitable to the application.
3. Fasteners and connectors relied on for compliance are of materials and sizes suitable to the application.

Items that are determined by the design professional to require further investigation shall be categorized as Noncompliant or

Unknown. For evaluation at the Life Safety Nonstructural Performance Level, an evaluation statement need not be marked Noncompliant if the noncompliance occurs only in locations where related damage would not cause severe injury or death to one or more people.

For the Hazards Reduced Nonstructural Performance Level, the evaluation statement is permitted to be found Compliant if it can be shown that the specific hazard will not endanger many people.