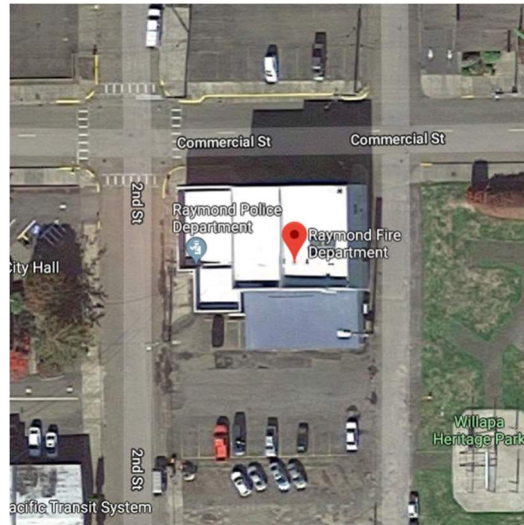


1. Raymond Fire Department, Fire Station

1.1 Building Description

Fire District:	Raymond Fire Department
Facility Name:	Fire Station
Latitude:	46.685
Longitude:	-123.734
ASCE 41 Bldg Type:	C2a
Gross Sq. Ft.:	Unknown
Year Built:	Unknown
Number of Stories:	2
S _{XS} BSE-1E:	0.756
S _{X1} BSE-1E:	0.470
ASCE 41 Level of Seismicity:	High
Site Class:	E
V _{S30} (m/s):	171
Structural Drawings	No
Evaluating Firm:	WRK Engineers



Raymond Fire Station is a two-story reinforced concrete structure constructed on level ground and located in Raymond, Washington. The building is mostly rectangular in plan, roughly 55 feet by 90 feet, with a maximum roof height of around 26 feet. There is a rectangular wood-framed garage bay addition at the south end, roughly 30 feet by 60 feet. The building construction consists of concrete exterior walls with a mixture of concrete and wood-framed interior walls. The second level floor system is a flexible diaphragm composed of diagonal sheathing over wood joists and beams. The ground floor is a concrete slab-on-grade. The roof system is assumed to be diagonal sheathing over wood framing. The garage bay addition is composed of exterior wood shear walls with metal siding and a flexible wood-framed roof system. The building is in downtown Raymond across from the Raymond City Hall and Willapa Heritage Park.

1.1.1 Building Use

The Raymond Fire Station building includes garage bays and storage space on the lower level. The upper level includes a kitchen, a bathroom, offices, and living spaces. The Raymond Police Department is attached to the building on the west side.

1.1.2 Structural System

Table 1.1-1. Structural System Description of Raymond Fire Station

Structural System	Description
Structural Roof	The roof system of the original building is assumed to be flexible with diagonal sheathing over wood joists and beams. The roof system of the garage bay addition is assumed to be plywood sheathing over wood joists.
Structural Floor(s)	The second level floor system is flexible with diagonal sheathing supported by wood floor joists and wood beams. The ground floor is a concrete slab-on-grade.
Foundations	The foundation is assumed to be a conventional shallow foundation with continuous wall footings and spread footings.
Gravity System	The roof and floor framing spans between exterior concrete walls and wood beams. Wood beams are supported by concrete columns in the original building and wood posts in the garage bay addition.
Lateral System	Lateral forces are resisted by the exterior concrete shear walls in both the longitudinal and transverse directions.

1.1.3 Structural System Visual Condition

Table 1.1-2. Structural System Condition Description of Raymond Fire Station

Structural System	Description
Structural Roof	No visible signs of corrosion, damage, or deterioration.
Structural Floor(s)	No visible signs of corrosion, damage, or deterioration.
Foundations	Unknown.
Gravity System	Spalling and cracks observed in interior concrete walls. Minor cracking in observed in wood beams and posts.
Lateral System	No visible signs of corrosion, damage, or deterioration.

1.2 Seismic Evaluation Findings

1.2.1 Structural Seismic Deficiencies

The structural seismic deficiencies identified during the Tier 1 evaluation are summarized below. Commentary for each deficiency is also provided based on this evaluation.

Table 1-3. Identified Structural Seismic Deficiencies for Raymond Fire Station

Deficiency	Description
Vertical Irregularities	Vertical elements resisting shear wall overturning are discontinuous. Lateral system strengthening or the addition of new shear walls may be appropriate to mitigate seismic risk.
Torsion	Eccentricity in stiffness due to walls with mostly openings at north and south ends. Further investigation is required to determine torsional effects on the lateral system. Strengthening may be appropriate to mitigate seismic risk.
Redundancy	Only one line at second level in east-west direction. Three-sided diaphragm at south garage.
Diagonally Sheathed and Unblocked Diaphragms	Diagonally sheathed, unblocked. Diaphragm strengthening may be appropriate to mitigate seismic risk.
Overturning	Some concrete walls appear to have aspect ratio greater than 4-to-1.

1.2.2 Structural Checklist Items Marked as 'Unknown'

Where building structural component seismic adequacy was unknown due to lack of available information or limited observation, the structural checklist items were marked as “unknown”. These items require further investigation if definitive determination of compliance or noncompliance is desired. The unknown structural checklist items identified during the Tier 1 evaluation are summarized below. Commentary for each unknown item is also provided based on the evaluation.

Table 1-4. Identified Structural Checklist Items Marked as Unknown for Raymond Fire Station

Unknown Item	Description
Load Path	No drawings available. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
Liquefaction	Geotechnical report not available for review. Additional investigation recommended if definitive determination is desired.
Slope Failure	Geotechnical report not available for review. Additional investigation recommended if definitive determination is desired.
Reinforcing Steel	No drawings. Masonry wall reinforcement is unknown. This evaluation item requires further field investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
Wall Anchorage at Flexible Diaphragms	This evaluation item is unknown and is likely non-compliant due to the building's age. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
Transfer to Shear Walls	This evaluation item is unknown and is likely non-compliant due to the building's age. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
Foundation Dowels	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
Deep Foundations	Foundation conditions are unknown. Further evaluation is recommended if determination is desired.
Deflection Compatibility	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
Coupling Beams	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.

Confinement Reinforcing	This evaluation item is unknown due to lack of original construction drawings. However, based on the age of the building, it is unlikely there is a presence of boundary reinforcements.
Wall Reinforcing at Openings	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
Wall Thickness	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
Plan Irregularities	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
Cross Ties	There are no continuous cross ties between diaphragm chords. Diaphragm strengthening may be appropriate to mitigate seismic risk.
Uplift at Pile Caps	Foundation conditions are unknown. Further evaluation is recommended if determination is desired.

1.3.1 Nonstructural Seismic Deficiencies

The nonstructural seismic deficiencies identified during the Tier 1 evaluation are summarized below. Commentary for each deficiency is also provided based on this evaluation. Some nonstructural deficiencies may be able to be mitigated by school district staff. Other nonstructural components that require more substantial mitigation may be more appropriately included in a long-term mitigation strategy. Some typical conceptual details for the seismic upgrade of nonstructural components can be found in the FEMA E-74 Excerpts appendix.

Table 1-5. Identified Nonstructural Seismic Deficiencies for Raymond Fire Station

Deficiency	Description
LSS-1 Fire Suppression Piping	No fire sprinklers.
CG-8 Overhead Glazing	Further investigation is required to verify detailing of glazing panes.
MC-1 URM Chimneys	Concrete chimney.
CF-2 Tall Narrow Contents	Anchorage is required for tall narrow contents more than six feet high to provide overturning restraint.

1.3.2 Nonstructural Checklist Items Marked as 'Unknown'

Where building nonstructural component seismic adequacy was unknown due to lack of available information or limited observation, the nonstructural checklist items were marked as “unknown”. These items require further investigation if definitive determination of compliance or noncompliance is desired. The unknown nonstructural checklist items identified during the Tier 1 evaluation are summarized below. Commentary for each unknown item is also provided based on the evaluation.

Some nonstructural deficiencies may be able to be mitigated by school district staff. Other nonstructural components that require more substantial mitigation may be more appropriately included in a long-term mitigation strategy. Some typical conceptual details for the seismic upgrade of nonstructural components can be found in the FEMA E-74 Excerpts appendix.

Table 1-6. Identified Nonstructural Checklist Items Marked as Unknown for Raymond Fire Station

Unknown Item	Description
LS-6 Emergency Lighting	Bracing of emergency and egress lighting equipment is unknown. Further investigation is recommended to determine if mitigation is recommended.
HM-3 Hazardous Material Distribution	Further investigation is required to review piping/ductwork for bracing or other protection to prevent damage allowing release of hazardous material.
HM-4 Shutoff Valves	Further investigation is required to locate shutoff valves or spill/leak protection for hazardous material piping.
HM-5 Flexible Couplings	Further investigation is required to locate flexible couplings on hazardous material ductwork/piping.
P-4 Light Partitions Supported by Ceilings	Partition walls support unknown.
LF-1 Independent Support	Further investigation is required to review the support system for light fixtures.
CG-8 Overhead Glazing	Further investigation is required to verify detailing of glazing panes.
S-2 Stair Details	Further investigation is required to verify stair connections.
PP-3 Clamps	Not observable during site visit.
D-2 Duct Support	Not observable during site visit.

Photos:



Figure 1-1. North West Exterior



Figure 1-2. South Exterior



Figure 1-3. East Exterior



Figure 1-4. Typical Garage Bay

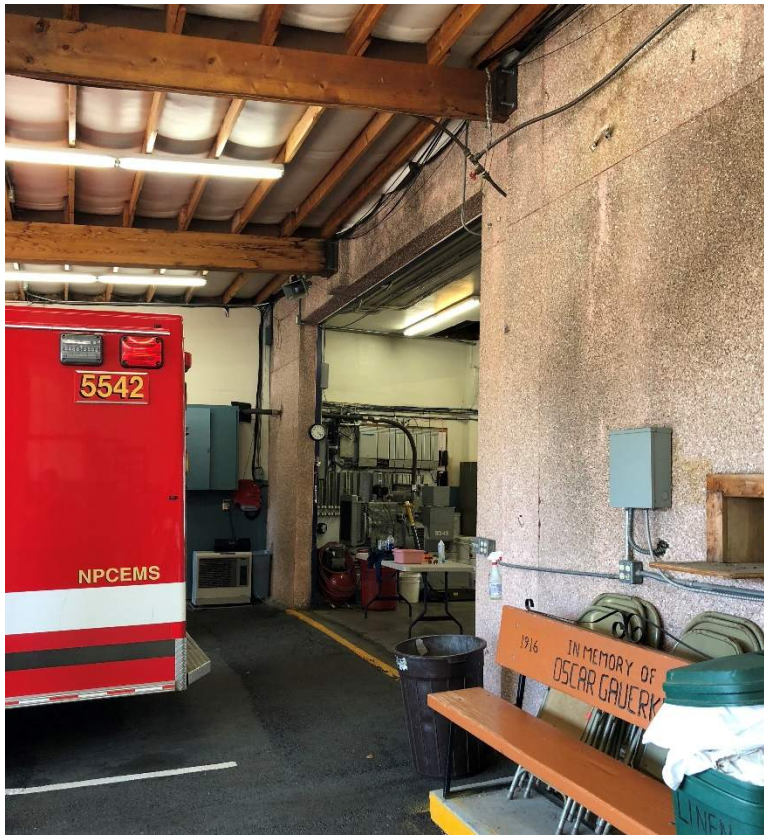


Figure 1-5. Original South Exterior Wall at Wood-Framed Garage Bay Addition

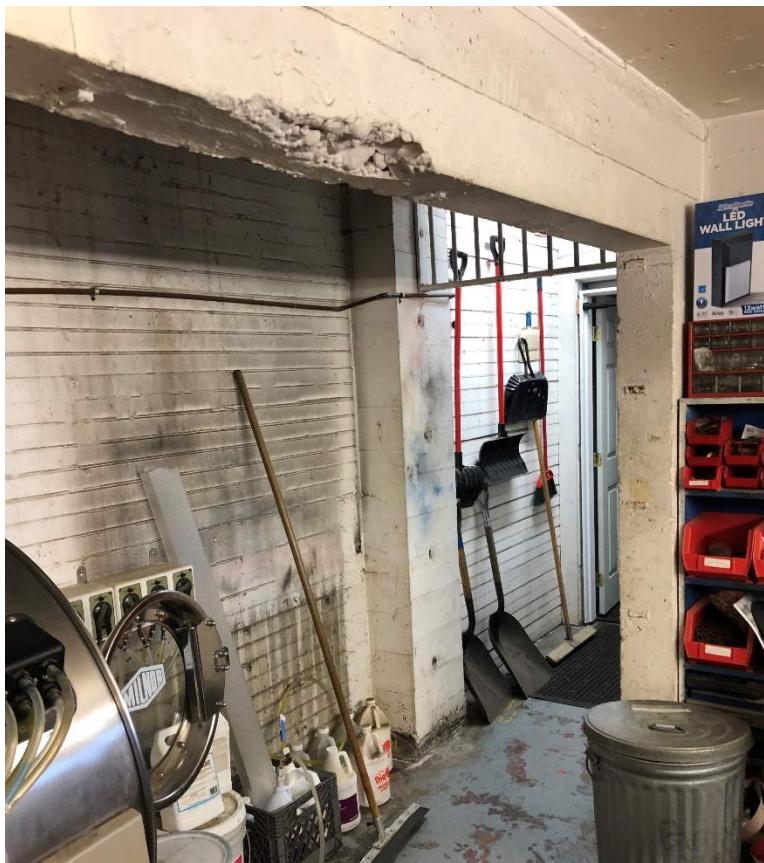


Figure 1-6. Interior Showing Spalling Concrete



Figure 1-7. Flexible Floor Diaphragm with Diagonal Sheathing and Wood Framing



Figure 1-8. Second Level Interior



Figure 1-9. Upstairs Hallway with Unbraced Tall, Narrow Contents – Typical Throughout

Raymond Fire Department, Fire Station

17-3 Immediate Occupancy Basic Configuration Checklist

Building record drawings have been reviewed, when available, and a non-destructive field investigation has been performed for the subject building. Each of the required checklist items are marked Compliant (C), Noncompliant (NC), Not Applicable (N/A), or Unknown (U). Items marked Compliant indicate conditions that satisfy the performance objective, whereas items marked Noncompliant or Unknown indicate conditions that do not. Certain statements might not apply to the building being evaluated.

Very Low Seismicity

Building System - General

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
			X	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. (<i>Tier 2: Sec. 5.4.1.1; Commentary: Sec. A.2.1.1</i>)	No drawings available. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
X				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. (<i>Tier 2: Sec. 5.4.1.2; Commentary: Sec. A.2.1.2</i>)	
		X		MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (<i>Tier 2: Sec. 5.4.1.3; Commentary: Sec. A.2.1.3</i>)	

Building System – Building Configuration

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
X				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. (<i>Tier 2: Sec. 5.4.2.1; Commentary: Sec. A.2.2.2</i>)	
X				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. (<i>Tier 2: Sec. 5.4.2.2; Commentary: Sec. A.2.2.3</i>)	
	X			VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (<i>Tier 2: Sec. 5.4.2.3; Commentary: Sec. A.2.2.4</i>)	Vertical elements resisting shear wall overturning are discontinuous. Lateral system strengthening or the addition of new shear walls may be appropriate to mitigate seismic risk.

Raymond Fire Department, Fire Station

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
X				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. (<i>Tier 2: Sec. 5.4.2.4; Commentary: Sec. A.2.2.5</i>)	
X				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. (<i>Tier 2: Sec. 5.4.2.5; Commentary: Sec. A.2.2.6</i>)	
	X			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. (<i>Tier 2: Sec. 5.4.2.6; Commentary: Sec. A.2.2.7</i>)	Eccentricity in stiffness due to walls with mostly openings at north and south ends. Further investigation is required to determine torsional effects on the lateral system. Strengthening may be appropriate to mitigate seismic risk.

Raymond Fire Department, Fire Station

Low Seismicity

(Complete the Following Items in Addition to the Items for Very Low Seismicity)

Geologic Site Hazards

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
			X	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. (Tier 2: Sec. 5.4.3.1; Commentary: Sec. A.6.1.1)	Geotechnical report not available for review. Additional investigation recommended if definitive determination is desired.
			X	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. (Tier 2: Sec. 5.4.3.1; Commentary: Sec. A.6.1.2)	Geotechnical report not available for review. Additional investigation recommended if definitive determination is desired.
X				SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Tier 2: Sec. 5.4.3.1 ; Commentary: Sec.A.6.1.3)	Geotechnical report not available for review.

Moderate and High Seismicity

(Complete the Following Items in Addition to the Items for Low Seismicity)

Foundation Configuration

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
X				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 $0.6S_a$. (Tier 2: Sec. 5.4.3.3; Commentary: Sec. A.6.2.1)	
		X		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. (Tier 2: Sec. 5.4.3.4; Commentary: Sec. A.6.2.2)	

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

Raymond Fire Department, Fire Station

17-25. Immediate Occupancy Structural Checklist for Building Types C2 and C2a

Building record drawings have been reviewed, when available, and a non-destructive field investigation has been performed for the subject building. Each of the required checklist items are marked Compliant (C), Noncompliant (NC), Not Applicable (N/A), or Unknown (U). Items marked Compliant indicate conditions that satisfy the performance objective, whereas items marked Noncompliant or Unknown indicate conditions that do not. Certain statements might not apply to the building being evaluated.

Very Low Seismicity

Seismic-Force-Resisting System

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
X				COMPLETE FRAMES: Steel or concrete frames classified as secondary components form a complete vertical-load-carrying system. (<i>Tier 2: Sec. 5.5.2.5.1; Commentary: Sec. A.3.1.6.1</i>)	
	X			REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (<i>Tier 2: Sec. 5.5.1.1; Commentary: Sec. A.3.2.1.1</i>)	Only one line at second level in east-west direction. Three-sided diaphragm at south garage.
X				SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the greater of 100 lb/in. ² (0.69 MPa) or $2\sqrt{f'_c}$. (<i>Tier 2: Sec. 5.5.3.1.1; Commentary: Sec. A.3.2.2.1</i>)	
			X	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area is not less than 0.0012 in the vertical direction and 0.0020 in the horizontal direction. The spacing of reinforcing steel is equal to or less than 18 in. (457 mm). (<i>Tier 2: Sec. 5.5.3.1.3; Commentary: Sec. A.3.2.2.2</i>)	No drawings. Wall reinforcement is unknown. This evaluation item requires further field investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.

Connections

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
			X	WALL ANCHORAGE AT FLEXIBLE DIAPHRAGMS: Exterior concrete or masonry walls that are dependent on flexible diaphragms 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 strength to resist the connection force calculated in the Quick Check procedure of Section 4.4.3.7. (<i>Tier 2: Sec. 5.7.1.1; Commentary: Sec. A.5.1.1</i>)	This evaluation item is unknown and is likely non-compliant due to the building's age. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
			X	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of loads to the shear walls, and the connections are able to develop the lesser of the shear strength of the walls or diaphragms. (<i>Tier 2: Sec. 5.7.2; Commentary: Sec. A.5.2.1</i>)	This evaluation item is unknown and is likely non-compliant due to the building's age. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.

Raymond Fire Department, Fire Station

			X	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation, and the dowels are able to develop the lesser of the strength of the walls or the uplift capacity of the foundation. <i>(Tier 2: Sec. 5.7.3.4; Commentary: Sec. A.5.3.5)</i>	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
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Foundation System

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
			X	DEEP FOUNDATIONS: Piles and piers are capable of transferring the lateral forces between the structure and the soil. <i>(Commentary: Sec.A.6.2.3)</i>	Foundation conditions are unknown. Further evaluation is recommended if determination is desired.
X				SLOPING SITES: The difference in foundation embedment depth from one side of the building to another does not exceed one story. <i>(Commentary: Sec. A.6.2.4)</i>	

Raymond Fire Department, Fire Station

Low, Moderate, and High Seismicity

(Complete the Following Items in Addition to the Items for Very Low Seismicity)

Seismic-Force-Resisting System

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
			X	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components and are compliant with the following items in Table 17-23: COLUMN-BAR SPLICES, BEAM-BAR SPLICES, COLUMN-TIE SPACING, STIRRUP SPACING, and STIRRUP AND TIE HOOKS. (Tier 2: Sec. 5.5.2.5.2; Commentary: Sec. A.3.1.6.2)	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
		X		FLAT SLABS: Flat slabs or plates not part of seismic-force-resisting system have continuous bottom steel through the column joints. (Tier 2: Sec. 5.5.2.5.3; Commentary: Sec. A.3.1.6.3)	
			X	COUPLING BEAMS: The ends of both walls to which the coupling beam is attached are supported at each end to resist vertical loads caused by overturning. Coupling beams have the capacity in shear to develop the uplift capacity of the adjacent wall. (Tier 2: Sec. 5.5.3.2.1; Commentary: Sec. A.3.2.2.3)	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
	X			OVERTURNING: All shear walls have aspect ratios less than 4-to-1. Wall piers need not be considered. (Tier 2: Sec. 5.5.3.1.4; Commentary: Sec. A.3.2.2.4)	Some concrete walls appear to have aspect ratio greater than 4-to-1.
			X	CONFINEMENT REINFORCING: For shear walls with aspect ratios greater than 2-to-1, the boundary elements are confined with spirals or ties with spacing less than $8d_b$. (Tier 2: Sec. 5.5.3.2.2; Commentary: Sec. A.3.2.2.5)	This evaluation item is unknown due to lack of original construction drawings. However, based on the age of the building, it is unlikely there is a presence of boundary reinforcements.
			X	WALL REINFORCING AT OPENINGS: There is added trim reinforcement around all wall openings with a dimension greater than three times the thickness of the wall. (Tier 2: Sec. 5.5.3.1.5; Commentary: Sec. A.3.2.2.6)	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
			X	WALL THICKNESS: Thicknesses of bearing walls are not less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4 in. (101 mm). (Tier 2: Sec. 5.5.3.1.2; Commentary: Sec. A.3.2.2.7)	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.

Raymond Fire Department, Fire Station

Diaphragms (Stiff or Flexible)

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
X				DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. <i>(Tier 2: Sec. 5.6.1.1; Commentary: Sec. A.4.1.1)</i>	
		X		OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 15% of the wall length. <i>(Tier 2: Sec. 5.6.1.3; Commentary: Sec. A.4.1.4)</i>	
			X	PLAN IRREGULARITIES: There is tensile capacity to develop the strength of the diaphragm at reentrant corners or other locations of plan irregularities. <i>(Tier 2: Sec. 5.6.1.4; Commentary: Sec. A.4.1.7)</i>	This evaluation item is unknown due to lack of original construction drawings. This item requires further investigation to make a final determination on its compliance and to develop a mitigation recommendation, if necessary.
		X		DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. <i>(Tier 2: Sec. 5.6.1.5; Commentary: Sec. A.4.1.8)</i>	No openings at roof diaphragm.

Flexible Diaphragms

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
			X	CROSS TIES: There are continuous cross ties between diaphragm chords. <i>(Tier 2: Sec. 5.6.1.2; Commentary: Sec. A.4.1.2)</i>	There are no continuous cross ties between diaphragm chords. Diaphragm strengthening may be appropriate to mitigate seismic risk.
		X		STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 1-to-1 in the direction being considered. <i>(Tier 2: Sec. 5.6.2; Commentary: Sec. A.4.2.1)</i>	
X				SPANS: All wood diaphragms with spans greater than 12 ft (3.6 m) consist of wood structural panels or diagonal sheathing. <i>(Tier 2: Sec. 5.6.2; Commentary: Sec. A.4.2.2)</i>	
	X			DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 30 ft (9.2 m) and aspect ratios less than or equal to 3-to-1. <i>(Tier 2: Sec. 5.6.2; Commentary: Sec. A.4.2.3)</i>	Diagonally sheathed, unblocked. Diaphragm strengthening may be appropriate to mitigate seismic risk.
		X		NONCONCRETE FILLED DIAPHRAGMS: Untopped metal deck diaphragms or metal deck diaphragms with fill other than concrete consist of horizontal spans of less than 40 ft (12.2 m) and have aspect ratios less than 4-to-1. <i>(Tier 2: Sec. 5.6.3; Commentary: Sec. A.4.3.1)</i>	No metal deck diaphragms.
X				OTHER DIAPHRAGMS: Diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing. <i>(Tier 2: Sec. 5.6.5; Commentary: Sec. A.4.7.1)</i>	

Raymond Fire Department, Fire Station

Connections

C	NC	N/A	U	EVALUATION STATEMENT	COMMENT
			X	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps; the pile cap reinforcement and pile anchorage are able to develop the tensile capacity of the piles. (<i>Tier 2: Sec. 5.7.3.5; Commentary: Sec. A.5.3.8</i>)	Foundation conditions are unknown. Further evaluation is recommended if determination is desired.

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

Raymond Fire Department, Fire Station

17-38. Nonstructural Checklist

Notes:

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

Performance Level: HR = Hazards Reduced, LS = Life Safety, and PR =

Position Retention. Level of Seismicity: L = Low, M = Moderate, and H = High

Life Safety Systems

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		HR—not required; LS—LMH; PR—LMH. FIRE SUPPRESSION PIPING: Fire suppression piping is anchored and braced in accordance with NFPA-13. (<i>Tier 2: Sec. 13.7.4; Commentary: Sec. A.7.13.1</i>)	No fire sprinklers.
		X		HR—not required; LS—LMH; PR—LMH. FLEXIBLE COUPLINGS: Fire suppression piping has flexible couplings in accordance with NFPA-13. (<i>Tier 2: Sec. 13.7.4; Commentary: Sec. A.7.13.2</i>)	
X				HR—not required; LS—LMH; PR—LMH. EMERGENCY POWER: Equipment used to power or control Life Safety systems is anchored or braced. (<i>Tier 2: Sec. 13.7.7; Commentary: Sec. A.7.12.1</i>)	
		X		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. (<i>Tier 2: Sec. 13.7.6; Commentary: Sec. A.7.14.1</i>)	
		X		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. (<i>Tier 2: Sec. 13.7.4; Commentary: Sec. A.7.13.3</i>)	
			X	HR—not required; LS—not required; PR—LMH. EMERGENCY LIGHTING: Emergency and egress lighting equipment is anchored or braced. (<i>Tier 2: Sec. 13.7.9; Commentary: Sec. A.7.3.1</i>)	Bracing of emergency and egress lighting equipment is unknown. Further investigation is recommended to determine if mitigation is recommended.

Hazardous Materials

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		HR—LMH; LS—LMH; PR—LMH. HAZARDOUS MATERIAL EQUIPMENT: Equipment mounted on vibration isolators and containing hazardous material is equipped with restraints or snubbers. (<i>Tier 2: Sec. 13.7.1; Commentary: Sec. A.7.12.2</i>)	No hazardous material equipment on vibration isolator.
X				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. (<i>Tier 2: Sec. 13.8.3; Commentary: Sec. A.7.15.1</i>)	

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C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
			X	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. (<i>Tier 2: Sec. 13.7.3, 13.7.5; Commentary: Sec. A.7.13.4</i>)	Further investigation is required to review piping/ductwork for bracing or other protection to prevent damage allowing release of hazardous material.
			X	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. (<i>Tier 2: Sec. 13.7.3, 13.7.5; Commentary: Sec. A.7.13.3</i>)	Further investigation is required to locate shutoff valves or spill/leak protection for hazardous material piping.
			X	HR—LMH; LS—LMH; PR—LMH. FLEXIBLE COUPLINGS: Hazardous material ductwork and piping, including natural gas piping, have flexible couplings. (<i>Tier 2: Sec. 13.7.3, 13.7.5; Commentary: Sec. A.7.15.4</i>)	Further investigation is required to locate flexible couplings on hazardous material ductwork/piping.
		X		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. (<i>Tier 2: Sec. 13.7.3, 13.7.5, 13.7.6; Commentary: Sec. A.7.13.6</i>)	

Partitions

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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. (<i>Tier 2: Sec. 13.6.2; Commentary: Sec. A.7.1.1</i>)	No URM partition walls.
		X		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. (<i>Tier 2: Sec. 13.6.2; Commentary: Sec. A.7.2.1</i>)	No URM partition walls.
		X		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. (<i>Tier 2: Sec. 13.6.2; Commentary: Sec. A.7.1.2</i>)	
			X	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. (<i>Tier 2: Sec. 13.6.2; Commentary: Sec. A.7.2.1</i>)	Partition walls support unknown.
		X		HR—not required; LS—not required; PR—MH. STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints. (<i>Tier 2: Sec. 13.6.2; Commentary: Sec. A.7.1.3</i>)	No structural separation exist.
		X		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). (<i>Tier 2: Sec. 13.6.2; Commentary: Sec. A.7.1.4</i>)	

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Ceilings

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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. (Tier 2: Sec. 13.6.4; Commentary: Sec. A.7.2.3)	
		X		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. (Tier 2: Sec. 13.6.4; Commentary: Sec. A.7.2.3)	
			X	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. (Tier 2: Sec. 13.6.4; Commentary: Sec. A.7.2.2)	
			X	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). (Tier 2: Sec. 13.6.4; Commentary: Sec. A.7.2.4)	
		X		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. (Tier 2: Sec. 13.6.4; Commentary: Sec. A.7.2.5)	No seismic joint exists.
			X	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. (Tier 2: Sec. 13.6.4; Commentary: Sec. A.7.2.6)	
		X		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. (Tier 2: Sec. 13.6.4; Commentary: Sec. A.7.2.7)	No seismic joint exists.

Light Fixtures

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
			X	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. (Tier 2: Sec. 13.6.4, 13.7.9; Commentary: Sec. A.7.3.2)	Further investigation is required to review the support system for light fixtures.

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C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
			X	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. (Tier 2: Sec. 13.7.9; Commentary: Sec. A.7.3.3)	
			X	HR—not required; LS—not required; PR—H. LENS COVERS: Lens covers on light fixtures are attached with safety devices. (Tier 2: Sec. 13.7.9; Commentary: Sec. A.7.3.4)	

Cladding and Glazing

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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) (Tier 2: Sec. 13.6.1; Commentary: Sec. A.7.4.1)	
		X		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. (Tier 2: Sec. 13.6.1; Commentary: Sec. A.7.4.3)	
		X		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. (Tier 2: Sec. 13.6.1; Commentary: Sec. A.7.4.4)	
		X		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. (Tier 2: Sec. 13.6.1; Commentary: Sec. A.7.4.9)	

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C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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. (<i>Tier 2: Sec. 13.6.1.4; Commentary: Sec. A.7.4.5</i>)	
		X		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. (<i>Tier 2: Sec. 13.6.1.4; Commentary: Sec. A.7.4.6</i>)	
		X		HR—MH; LS—MH; PR—MH. INSERTS: Where concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel. (<i>Tier 2: Sec. 13.6.1.4; Commentary: Sec. A.7.4.7</i>)	
			X	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. (<i>Tier 2: Sec. 13.6.1.5; Commentary: Sec. A.7.4.8</i>)	Further investigation is required to verify detailing of glazing panes.

Masonry Veneer

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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). (<i>Tier 2: Sec. 13.6.1.2; Commentary: Sec. A.7.5.1</i>)	No masonry veneer.
		X		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. (<i>Tier 2: Sec. 13.6.1.2; Commentary: Sec. A.7.5.2</i>)	No masonry veneer.
		X		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. (<i>Tier 2: Sec. 13.6.1.2; Commentary: Sec. A.7.5.3</i>)	No masonry veneer.
		X		HR—LMH; LS—LMH; PR—LMH. UNREINFORCED MASONRY BACKUP: There is no unreinforced masonry backup. (<i>Tier 2: Sec. 13.6.1.1, 13.6.1.2; Commentary: Sec. A.7.7.2</i>)	No masonry veneer.
		X		HR—not required; LS—MH; PR—MH. STUD TRACKS: For veneer with coldformed steel stud backup, stud tracks are fastened to the structure at a spacing equal to or less than 24 in. (610 mm) on center. (<i>Tier 2: Sec. 13.6.1.1, 13.6.1.2; Commentary: Sec. A.7.6.</i>)	No masonry veneer.

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		X		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. (Tier 2: Sec. 13.6.1.1, 13.6.1.2; Commentary: Sec. A.7.7.1)	No masonry veneer.
		X		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. (Tier 2: Sec. 13.6.1.2; Commentary: Sec. A.7.5.6)	No masonry veneer.
				HR—not required; LS—not required; PR—MH. OPENINGS: For veneer with cold-formed-steel stud backup, steel studs frame window and door openings. (Tier 2: Sec. 13.6.1.1, 13.6.1.2; Commentary: Sec. A.7.6.2)	

Parapets, Cornices, Ornamentation, and Appendages

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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. (Tier 2: Sec. 13.6.5; Commentary: Sec. A.7.8.1)	No parapet.
		X		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). (Tier 2: Sec. 13.6.6; Commentary: Sec. A.7.8.2)	No canopy.
		X		HR—H; LS—MH; PR—LMH. CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement. (Tier 2: Sec. 13.6.5; Commentary: Sec. A.7.8.3)	
		X		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. (Tier 2: Sec. 13.6.6; Commentary: Sec. A.7.8.4)	

Masonry Chimneys

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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. (Tier 2: Sec. 13.6.7; Commentary: Sec. A.7.9.1)	Concrete chimney.

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		X	HR—LMH; LS—LMH; PR—LMH. ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof. (<i>Tier 2: Sec. 13.6.7; Commentary: Sec. A.7.9.2</i>)	
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Stairs

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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. (<i>Tier 2: Sec. 13.6.2, 13.6.8; Commentary: Sec. A.7.10.1</i>)	
			X	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. (<i>Tier 2: Sec. 13.6.8; Commentary: Sec. A.7.10.2</i>)	Further investigation is required to verify stair connections.

Contents and Furnishings

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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. (<i>Tier 2: Sec. 13.8.1; Commentary: Sec. A.7.11.1</i>)	
	X			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. (<i>Tier 2: Sec. 13.8.2; Commentary: Sec. A.7.11.2</i>)	Anchorage is required for tall narrow contents more than six feet high to provide overturning restraint.
		X		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. (<i>Tier 2: Sec. 13.8.2; Commentary: Sec. A.7.11.3</i>)	
		X		HR—not required; LS—not required; PR—MH. ACCESS FLOORS: Access floors more than 9 in. (229 mm) high are braced. (<i>Tier 2: Sec. 13.6.10; Commentary: Sec. A.7.11.4</i>)	
		X		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. (<i>Tier 2: Sec. 13.7.7 13.6.10; Commentary: Sec. A.7.11.5</i>)	
			X	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. (<i>Tier 2: Sec. 13.8.2; Commentary: Sec. A.7.11.6</i>)	

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Mechanical and Electrical Equipment

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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. (Tier 2: Sec. 13.7.1 13.7.7; Commentary: Sec. A.7.12.4)	
		X		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. (Tier 2: Sec. 13.7.1; Commentary: Sec. A.7.12.5)	
		X		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. (Tier 2: Sec. 13.7.1 13.7.7; Commentary: Sec. A.7.12.6)	
			X	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. (Tier 2: Sec. 13.6.9; Commentary: Sec. A.7.12.7)	
			X	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. (Tier 2: Sec. 13.7.1, 13.7.7; Commentary: Sec. A.7.12.8)	
		X		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. (Tier 2: Sec. 13.7.1; Commentary: Sec. A.7.12.9)	No equipment on vibrator isolators.
		X		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. (Tier 2: Sec. 13.7.1, 13.7.7; Commentary: Sec. A.7.12.10)	
		X		HR—not required; LS—not required; PR—H. ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure. (Tier 2: Sec. 13.7.7; Commentary: Sec. A.7.12.11)	
		X		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. (Tier 2: Sec. 13.7.8; Commentary: Sec. A.7.12.12)	

Piping

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
			X	HR—not required; LS—not required; PR—H. FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings. (Tier 2: Sec. 13.7.3, 13.7.5; Commentary: Sec. A.7.13.2)	

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C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
			X	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. (<i>Tier 2: Sec. 13.7.3, 13.7.5; Commentary: Sec. A.7.13.4</i>)	
			X	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. (<i>Tier 2: Sec. 13.7.3, 13.7.5; Commentary: Sec. A.7.13.5</i>)	Not observable during site visit.
		X		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. (<i>Tier 2: Sec. 13.7.3, 13.7.5; Commentary: Sec. A.7.13.6</i>)	No seismic joints.

Ducts

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
	X			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). (<i>Tier 2: Sec. 13.7.6; Commentary: Sec. A.7.14.2</i>)	No duct bracing present.
			X	HR—not required; LS—not required; PR—H. DUCT SUPPORT: Ducts are not supported by piping or electrical conduit. (<i>Tier 2: Sec. 13.7.6; Commentary: Sec. A.7.14.3</i>)	Not observable during site visit.
		X		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. (<i>Tier 2: Sec. 13.7.6; Commentary: Sec. A.7.14.4</i>)	No seismic joints.

Elevators

C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		HR—not required; LS—H; PR—H. RETAINER GUARDS: Sheaves and drums have cable retainer guards. (<i>Tier 2: Sec. 13.7.11; Commentary: Sec. A.7.16.1</i>)	No elevator in the building.
		X		HR—not required; LS—H; PR—H. RETAINER PLATE: A retainer plate is present at the top and bottom of both car and counterweight. (<i>Tier 2: Sec. 13.7.11; Commentary: Sec. A.7.16.2</i>)	No elevator in the building.
		X		HR—not required; LS—not required; PR—H. ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored. (<i>Tier 2: Sec. 13.7.11; Commentary: Sec. A.7.16.3</i>)	No elevator in the building.

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C	NC	N/A	U	EVALUATION STATEMENT ^{a,b}	COMMENT
		X		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. (<i>Tier 2: Sec. 13.7.11; Commentary: Sec. A.7.16.4</i>)	No elevator in the building.
		X		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. (<i>Tier 2: Sec. 13.7.11; Commentary: Sec. A.7.16.5</i>)	No elevator in the building.
		X		HR—not required; LS—not required; PR—H. COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1. (<i>Tier 2: Sec. 13.7.11; Commentary: Sec. A.7.16.6</i>)	No elevator in the building.
		X		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. (<i>Tier 2: Sec. 13.7.11; Commentary: Sec. A.7.16.7</i>)	No elevator in the building.
		X		HR—not required; LS—not required; PR—H. SPREADER BRACKET: Spreader brackets are not used to resist seismic forces. (<i>Tier 2: Sec. 13.7.11; Commentary: Sec. A.7.16.8</i>)	No elevator in the building.
		X		HR—not required; LS—not required; PR—H. GO-SLOW ELEVATORS: The building has a go-slow elevator system. (<i>Tier 2: Sec. 13.7.11; Commentary: Sec. A.7.16.9</i>)	No elevator in the building.

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