

SEISMIC ASSESSMENTS FOR THE BEAVERTON SCHOOL DISTRICT

(VOLUME 3 OF 4)

KPFF PROJECT No. 10021800125

APRIL 12, 2019



SUBMITTED TO:

AARON BOYLE, CONSTRUCTION OPERATIONS SUPERVISOR
BEAVERTON SCHOOL DISTRICT – FACILITIES
16550 SW MERLO ROAD
BEAVERTON, OR 97003

SUBMITTED BY:

NATHAN INGRAFFEA, PRINCIPAL
KPFF CONSULTING ENGINEERS
111 SW FIFTH AVENUE, SUITE 2500
PORTLAND, OR 97204-3628

SEISMIC ASSESSMENTS FOR THE BEAVERTON SCHOOL DISTRICT

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Middle Schools - ASCE 41-13 Checklists

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ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	35_Cedar Park Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

MIDDLE
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OPTION
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SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
Building System
General

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	

ELEMENTARY
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Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
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High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

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ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	35_Cedar Park Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
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16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be non compliant with the narrow shear walls in the classroom wings.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	

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C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	

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C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	
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Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

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C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	Tectum in the gymnasium

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	Walls are not connected to the foundation
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	

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ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	36_Conestoga Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
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16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
Building System
General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	Likely non-compliant as there are no seismic joints between wings.

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	Likely not an issue. This criterion should be further explored in the future.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	The site does not slope - non issue.

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	Likely not an issue. This criterion should be further explored in the future.
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High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

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ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	36_Conestoga Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.3LS Life Safety Structural Checklist for Building Type W2: Wood Frames, Commercial and Industrial

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the following values (Commentary: Sec. A.3.2.7.1. Tier 2: Sec. 5.5.3.1.1): Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft	Assumed to be in compliance
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building. (Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)	

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	Some wall segments exceed allowable aspect ratios and may leave other lateral elements undersized. With further analysis, this potential deficiency may prove to be adequate.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec.5.5.3.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec. A.3.2.7.7. Tier 2: Sec. 5.5.3.6.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	
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Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec. A.5.3.3. Tier 2: Sec. 5.7.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

High Seismicity

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. Wood commercial and industrial buildings may have rod-braced systems. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	Some areas of the roof diaphragm may be insufficient based on diaphragm span. With further analysis, this potential deficiency may prove to be adequate.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less, with proper edge and end distance provided for wood and concrete. (Commentary: A.5.3.7. Tier 2: Sec. 5.7.3.3)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	36_Conestoga Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
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REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be in compliance.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

ELEMENTARY
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C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
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Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	Some areas of the roof diaphragm may be insufficient based on diaphragm span. With further analysis, this potential deficiency may prove to be adequate.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	37_Five Oaks Middle School
SEISMICITY LEVEL:	HIGH
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	Load path for adequate bracing of walls out-of-plane and connection of shear walls to foundation elements does not exist.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
 Building System
 General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	Likely compliant
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	Center of stiffness and mass not calculated as a part of this assessment. Assumed to be in compliance.

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Slabs are not directly connected to foundations.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	37_Five Oaks Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Joist pockets don't show out of plane connection for diaphragm to wall. connection grouted in, so some resistance is provided, but not through weld to anchor plates.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	Wall shear stress calculations not completed as a part of this assessment. Assumed to be in compliance.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	Details are inconsistent in showing direct transfer of in plane loads to shear walls. some elements grouted into place only, some utilize anchors in continuous angles. Non-compliant for in-plane and out-of-plane loading.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	
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Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

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SCHOOLS

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SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	Tectum roof over the gymnasium.

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	37_Five Oaks Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be in compliance.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	Slabs not precast
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Joist pockets don't show out of plane connection for diaphragm to wall. connection grouted in, so some resistance is provided, but not through weld to anchor plates. Assumed to be insufficient.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

ELEMENTARY
SCHOOLS

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

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SCHOOLS

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SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	38_Highland Park Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

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SCHOOLS

OPTION
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
Building System
General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
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High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	38_Highland Park Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

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SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be non compliant with the narrow shear walls in the classroom wings.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
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SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	
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Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	Tectum in the gymnasium

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	Walls are not connected to the foundation
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	

ELEMENTARY
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SUPPORT
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	35_Meadow Park Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
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High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	39_Meadow Park Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be non compliant with the narrow shear walls in the classroom wings.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	
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Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	Tectum in the gymnasium

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	Walls are not connected to the foundation
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	

ELEMENTARY
SCHOOLS

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	40_Mountain View Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

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SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
Building System
General

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

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SCHOOLS

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SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	Assumed to be compliant. Further investigation by a geotechnical engineer will need to be conducted.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	Assumed to be compliant. Further investigation by a geotechnical engineer will need to be conducted.

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

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SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	Assumed to be compliant. Further investigation by a geotechnical engineer will need to be conducted.
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High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Not explicitly checked, assumed to be in compliance as there are long shear walls relative to the height of the building.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	The tilt up panels are not tied into the strip footings. There are no ties between the slab on grade and the surrounding strip footing.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	40_Mountain View Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

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SUPPORT
FACILITIES

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16.3LS Life Safety Structural Checklist for Building Type W2: Wood Frames, Commercial and Industrial

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the following values (Commentary: Sec. A.3.2.7.1. Tier 2: Sec. 5.5.3.1.1): Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building. (Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec.5.5.3.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec. A.3.2.7.7. Tier 2: Sec. 5.5.3.6.4)	

ELEMENTARY
SCHOOLS

MIDDLE
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SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	
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Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec. A.5.3.3. Tier 2: Sec. 5.7.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

High Seismicity

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

ELEMENTARY
SCHOOLS

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SUPPORT
FACILITIES

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. Wood commercial and industrial buildings may have rod-braced systems. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	Tectum at the gymnasium

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less, with proper edge and end distance provided for wood and concrete. (Commentary: A.5.3.7. Tier 2: Sec. 5.7.3.3)	Assumed to be compliant

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	40_Mountain View Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

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16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be in compliance as there are a lot of shear walls.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	The concrete shear walls in the gym do not meet this criterion.

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	

ELEMENTARY
SCHOOLS

MIDDLE
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HIGH
SCHOOLS

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SCHOOLS

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	
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Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

ELEMENTARY
SCHOOLS

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	There is tectum in the gymnasium.

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	There is no positive connection between the foundation and the tilt up panels.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	The quick check procedure was not performed.

ELEMENTARY
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SCHOOLSSUPPORT
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	40_Mountain View Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
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REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be compliant as there are a lot of shear walls.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	Horizontal reinforcement is not called out in the plans. Vertical reinforcement meets the minimum ratio and spacing.

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	The diaphragm is not connected directly to the CMU shear walls in some locations.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
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Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	There is tectum in the gymnasium.

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	Assumed to be in compliance.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	42_Stoller Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	No ties between foundation elements
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Assumed to be in compliance for the quick check procedure.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
 Building System
 General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	No ties between foundation elements
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	Assumed to be in compliance. The buildings are separated with a seismic joint.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	2001 addition does not have ties between foundation elements.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	42_Stoller Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.3LS Life Safety Structural Checklist for Building Type W2: Wood Frames, Commercial and Industrial

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the following values (Commentary: Sec. A.3.2.7.1. Tier 2: Sec. 5.5.3.1.1): Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building. (Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec.5.5.3.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)	Not applicable for the 2001 addition.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec. A.3.2.7.7. Tier 2: Sec. 5.5.3.6.4)	

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	
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Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec. A.5.3.3. Tier 2: Sec. 5.7.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

High Seismicity

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

ELEMENTARY
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SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. Wood commercial and industrial buildings may have rod-braced systems. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	2001 roof diaphragm is not blocked but with further analysis, this potential deficiency may prove to be adequate.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less, with proper edge and end distance provided for wood and concrete. (Commentary: A.5.3.7. Tier 2: Sec. 5.7.3.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	43_Whitford Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
 Building System
 General

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
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High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	43_Whitford Middle School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be non compliant with the narrow shear walls in the classroom wings.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	
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Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	Tectum in the gymnasium

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	Walls are not connected to the foundation
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

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Appendix C

High Schools - ASCE 41-13 Checklists

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ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Southridge High School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	5/21/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Wall anchorage is present however connection strength has not be checked against Quick Check procedure yet.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Southridge High School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	5/18/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.5LS Life Safety Structural Checklist for Building Types S2: Steel Braced Frames with Stiff Diaphragms and S2A: Steel Braced Frames with Flexible Diaphragms

Low Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than $0.10F_y$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30F_y$. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	Calculation not complete.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	BRACE AXIAL STRESS CHECK: The axial stress in the diagonals, calculated using the Quick Check procedure of Section 4.5.3.4, is less than $0.50F_y$. (Commentary: Sec. A.3.3.1.2. Tier 2: Sec. 5.5.4.1)	Calculation not complete.

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO STEEL FRAMES: Diaphragms are connected for transfer of seismic forces to the steel frames. (Commentary: Sec. A.5.2.2. Tier 2: Sec. 5.7.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	STEEL COLUMNS: The columns in seismic-force-resisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of braced frames in each principal direction is greater than or equal to 2. The number of braced bays in each line is greater than 2. (Commentary: Sec. A.3.3.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	CONNECTION STRENGTH: All the brace connections develop the buckling capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	COMPACT MEMBERS: All brace elements meet compact section requirements set forth by AISC 360, Table B4.1. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
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SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	K-BRACING: The bracing system does not include K-braced bays. (Commentary: Sec. A.3.3.2.1. Tier 2: Sec. 5.5.4.6)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

High Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	COLUMN SPLICES: All column splice details located in braced frames develop 50% of the tensile strength of the column. (Commentary: Sec. A.3.3.1.3. Tier 2: Sec. 5.5.4.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	SLENDerness OF DIAGONALS: All diagonal elements required to carry compression have Kl/r ratios less than 200. (Commentary: Sec. A.3.3.1.4. Tier 2: Sec. 5.5.4.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	CONNECTION STRENGTH: All the brace connections develop the yield capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPACT MEMBERS: All brace elements meet section requirements set forth by AISC 341, Table D1.1, for moderately ductile members. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	7x7x5/16 do not met criteria	ELEMENTARY SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CHEVRON BRACING: Beams in chevron, or V-braced, bays are capable of resisting the vertical load resulting from the simultaneous yielding and buckling of the brace pairs. (Commentary: Sec. A.3.3.2.3. Tier 2: Sec. 5.5.4.6)		MIDDLE SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CONCENTRICALLY BRACED FRAME JOINTS: All the diagonal braces shall frame into the beam-column joints concentrically. (Commentary: Sec. A.3.3.2.4. Tier 2: Sec. 5.5.4.8)		HIGH SCHOOLS

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT FRAMES: Diaphragm openings immediately adjacent to the braced frames extend less than 25% of the frame length. (Commentary: Sec. A.4.1.5. Tier 2: Sec. 5.6.1.3)		OPTION SCHOOLS
						SUPPORT FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
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SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Southridge High School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	5/21/17
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Quick check calc not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or 2√f _c . (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	Calculation not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	7" tilt-up panel does not limit at south entry (29ft height requires 8.7"). 7" tilt-up panel does not limit at gym (25.5ft height requires 7.7")

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	

ELEMENTARY
SCHOOLSMIDDLE
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SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	
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Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
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SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Southridge High School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	5/21/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Calculation not complete.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Quick check calc not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity**Stiff Diaphragms**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	No cross-ties at sector G
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Sunset High School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	05/16/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Supplemental wall anchorage added in 2014. Quick Check calculation not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	No seismic separation between main building (W2/PC1a) and attached auditorium structure (C2/C2a).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

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C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Site Class D assumed.

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ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Sunset High School
SEISMICITY LEVEL:	
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	05/16/18
REVIEWED BY:	
REVIEW DATE:	

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16.3LS Life Safety Structural Checklist for Building Type W2: Wood Frames, Commercial and Industrial

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	Long window lines create weak lines of lateral support.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the following values (Commentary: Sec. A.3.2.7.1. Tier 2: Sec. 5.5.3.1.1): Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft	Not calculated.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
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. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building. (Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	Narrow shear walls present at east wall of 1962 shop addition.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec.5.5.3.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec. A.3.2.7.7. Tier 2: Sec. 5.5.3.6.4)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	
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Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec. A.5.3.3. Tier 2: Sec. 5.7.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

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High Seismicity**Diaphragms**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	Pop-ups in diaphragm occur at study hall/library, student center
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. Wood commercial and industrial buildings may have rod-braced systems. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	2014 Re-roof plans indicate that Tectum roofs at gym were replaced with plywood in 1995, VIF
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	See note above.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less, with proper edge and end distance provided for wood and concrete. (Commentary: A.5.3.7. Tier 2: Sec. 5.7.3.3)	

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FIRM:	KPFF
PROJECT NAME:	Sunset High School
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REVIEWED BY:	
REVIEW DATE:	

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16.10LS Life Safety Structural Checklist for Building Types C2: Concrete Shear Walls with Stiff Diaphragms and C2A: Concrete Shear Walls with Flexible Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPLETE FRAMES: Steel or concrete frames classified as secondary components form a complete vertical-load-carrying system. (Commentary: Sec. A.3.1.6.1. Tier 2: Sec. 5.5.2.5.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.2.1. Tier 2: Sec. 5.5.3.1.1)	Calculation not complete.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.2.2. Tier 2: Sec. 5.5.3.1.3)	

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Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	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 adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Out-of-plane anchors provided per 2014 re-roof drawings. Quick Check not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation with vertical bars equal in size and spacing to the vertical wall reinforcing immediately above the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	Concrete walls appears to be anchored to footing at pilasters only and not intermittently along wall.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

High Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	Calculation not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints. (Commentary: Sec. A.3.1.6.3. Tier 2: Sec. 5.5.2.5.3)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COUPLING BEAMS: The stirrups in coupling beams over means of egress are spaced at or less than $d/2$ and are anchored into the confined core of the beam with hooks of 135 degrees or more. The ends of both walls to which the coupling beam is attached are supported at each end to resist vertical loads caused by overturning. (Commentary: Sec. A.3.2.2.3. Tier 2: Sec. 5.5.3.2.1)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	

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C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	Occurs at Auditorium south walls.
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Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Out-of-plane wall ties provided per 2014 re-roof drawings but continuation from chord to chord not provided.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

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C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	Unblocked diaphragms greater than 40ft at cafeteria and commons.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

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ASCE 41-13 Tier 1 Checklists

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16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	Calculation not completed.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

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C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	6" and 8" gym tilt-up at 37ft height (need 11" min). Verify that tilt-up is used in gym. Tilt-up or cast in place was an option per drawings.

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	

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C	NC	N/A	U	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	No continuous cross ties present per 2014 Re-roof drawings.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	Tilt-up wall appears to be anchored to footing at pilasters only and not intermittently along wall.

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	Quick Check calc not complete.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Westview High School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	1800125
COMPLETED BY:	RP
DATE COMPLETED:	5/18/19
REVIEWED BY:	
REVIEW DATE:	

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16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Anchors present but calculation not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

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Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	Shear wall and braced frame locations are not evenly distributed at west class wings.

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Westview High School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	1800125
COMPLETED BY:	RP
DATE COMPLETED:	05/18/18
REVIEWED BY:	
REVIEW DATE:	

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16.5LS Life Safety Structural Checklist for Building Types S2: Steel Braced Frames with Stiff Diaphragms and S2A: Steel Braced Frames with Flexible Diaphragms

Low Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than $0.10F_y$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30F_y$. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	Calculation not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	BRACE AXIAL STRESS CHECK: The axial stress in the diagonals, calculated using the Quick Check procedure of Section 4.5.3.4, is less than $0.50F_y$. (Commentary: Sec. A.3.3.1.2. Tier 2: Sec. 5.5.4.1)	Calculation not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TRANSFER TO STEEL FRAMES: Diaphragms are connected for transfer of seismic forces to the steel frames. (Commentary: Sec. A.5.2.2. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	STEEL COLUMNS: The columns in seismic-force-resisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of braced frames in each principal direction is greater than or equal to 2. The number of braced bays in each line is greater than 2. (Commentary: Sec. A.3.3.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	CONNECTION STRENGTH: All the brace connections develop the buckling capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	Calculation not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	COMPACT MEMBERS: All brace elements meet compact section requirements set forth by AISC 360, Table B4.1. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	EBF braces meet compaction limits. However, tension rod systems may not be an approved LFRS.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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C	NC	N/A	U	K-BRACING: The bracing system does not include K-braced bays. (Commentary: Sec. A.3.3.2.1. Tier 2: Sec. 5.5.4.6)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

High Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	COLUMN SPLICES: All column splice details located in braced frames develop 50% of the tensile strength of the column. (Commentary: Sec. A.3.3.1.3. Tier 2: Sec. 5.5.4.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	SLENDerness OF DIAGONALS: All diagonal elements required to carry compression have Kl/r ratios less than 200. (Commentary: Sec. A.3.3.1.4. Tier 2: Sec. 5.5.4.3)	EBF braces meet compaction limits. However, tension rod systems may not be an approved LFRS.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	CONNECTION STRENGTH: All the brace connections develop the yield capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	Calculation not complete, although connections seem robust.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

<div>ELEMENTARY SCHOOLS</div> <div>MIDDLE SCHOOLS</div> <div>HIGH SCHOOLS</div> <div>OPTION SCHOOLS</div> <div>SUPPORT FACILITIES</div>	C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPACT MEMBERS: All brace elements meet section requirements set forth by AISC 341, Table D1.1, for moderately ductile members. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	
	C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CHEVRON BRACING: Beams in chevron, or V-braced, bays are capable of resisting the vertical load resulting from the simultaneous yielding and buckling of the brace pairs. (Commentary: Sec. A.3.3.2.3. Tier 2: Sec. 5.5.4.6)	Calculation not complete.
	C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CONCENTRICALLY BRACED FRAME JOINTS: All the diagonal braces shall frame into the beam-column joints concentrically. (Commentary: Sec. A.3.3.2.4. Tier 2: Sec. 5.5.4.8)	
Diaphragms (Flexible or Stiff)						
RATING				DESCRIPTION		COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT FRAMES: Diaphragm openings immediately adjacent to the braced frames extend less than 25% of the frame length. (Commentary: Sec. A.4.1.5. Tier 2: Sec. 5.6.1.3)		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Continuity of ties (beams) interrupted throughout.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Westview High School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	1800125
COMPLETED BY:	RP
DATE COMPLETED:	05/18/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.10LS Life Safety Structural Checklist for Building Types C2: Concrete Shear Walls with Stiff Diaphragms and C2A: Concrete Shear Walls with Flexible Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPLETE FRAMES: Steel or concrete frames classified as secondary components form a complete vertical-load-carrying system. (Commentary: Sec. A.3.1.6.1. Tier 2: Sec. 5.5.2.5.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.2.1. Tier 2: Sec. 5.5.3.1.1)	Calculation not complete.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.2.2. Tier 2: Sec. 5.5.3.1.3)	

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Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	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 adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Deck anchored to wall with shear connections. Unclear anchors are adequate for out-of-plane forces. Quick Check calc not complete.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation with vertical bars equal in size and spacing to the vertical wall reinforcing immediately above the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	

High Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	Compatibility of steel gravity columns throughout and conc columns in student center are unknown.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints. (Commentary: Sec. A.3.1.6.3. Tier 2: Sec. 5.5.2.5.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COUPLING BEAMS: The stirrups in coupling beams over means of egress are spaced at or less than $d/2$ and are anchored into the confined core of the beam with hooks of 135 degrees or more. The ends of both walls to which the coupling beam is attached are supported at each end to resist vertical loads caused by overturning. (Commentary: Sec. A.3.2.2.3. Tier 2: Sec. 5.5.3.2.1)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
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Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Continuity of ties (beams) interrupted throughout in E-W direction.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Westview High School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	1800125
COMPLETED BY:	RP
DATE COMPLETED:	05/18/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Calculation not complete.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	(2) #5 horiz at 48" oc in 12" CMU = 0.00107. Wall is likely in adequate for shear loads.

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Deck anchored to wall with shear connections. Unclear anchors are adequate for out-of-plane forces. Quick Check calc not complete.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)		ELEMENTARY SCHOOLS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)		MIDDLE SCHOOLS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)		HIGH SCHOOLS

High Seismicity**Stiff Diaphragms**

RATING				DESCRIPTION	COMMENTS	OPTION SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)		SUPPORT FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Unknown if joists to wall connections can handle out-of-plane loads in E-W direction at auditorium and gym roofs. No ties provided in N-S direction.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)		ELEMENTARY SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)		MIDDLE SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)		HIGH SCHOOLS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)		OPTION SCHOOLS
						SUPPORT FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Appendix D

Option Schools - ASCE 41-13 Checklists

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ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	51_Capital Center
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	There is a vague load path which is assumed to be non compliant. The connection of the 1977 addition is vague and is assumed to not work.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	The load path is not complete and well defined. The roof diaphragm does not attach to the wall and the walls do not connect to the foundations.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	There are no close adjacent buildings.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	Likely not an issue. Assumed to be in compliance. Should be confirmed by a geotechnical engineer
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	Likely not an issue. Assumed to be in compliance. Should be confirmed by a geotechnical engineer

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	Likely not an issue. Assumed to be in compliance. Should be confirmed by a geotechnical engineer
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	The building is very large in plan and is only 1 story tall. This criterion is assumed to be compliant.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	There are no ties in the original 1970 building anchoring the shear walls to the foundation.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	51_Capital Center
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	The load path is vague and it is assumed that the connection is not structurally acceptable.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		The connection of the 1977 addition is vague and it is assumed to not work.

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	The wall stress check was not checked, but is assumed to be compliant.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	Wall reinforcing is in compliance per this criterion.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	The wall thickness to unsupported height ratio is greater than 1/40 in the original building. The wall thickness to unsupported height is non compliant in the 1977 addition.

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	Cross grain bending in 1977 separate building

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	Compliant in the 1977 separate building.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	Flexible diaphragm.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	plywood diaphragm.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
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SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	Diaphragm is blocked and has a span larger than 40ft.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	Precast wall panels are not connected to the foundation.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	There are no piles or pile caps in the building.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	Assumed to be compliant

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	kpff
PROJECT NAME:	52_International School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.3LS Life Safety Structural Checklist for Building Type W2: Wood Frames, Commercial and Industrial

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the following values (Commentary: Sec. A.3.2.7.1. Tier 2: Sec. 5.5.3.1.1): Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft	Assumed to be in compliance
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
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. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building. (Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec.5.5.3.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec. A.3.2.7.7. Tier 2: Sec. 5.5.3.6.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	
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Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec. A.5.3.3. Tier 2: Sec. 5.7.3.3)	Wood posts in the 1988 Modular are non-compliant.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	The connection of the wood shear wall to the foundation is not shown in the construction drawings. It is assumed that it is not connected and is non-compliant.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

High Seismicity

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	The diaphragms are non continuous where the classroom sections of the main building meet the cafeteria and the gymnasium sections of the main building.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	The roof elevation varies depending on the building addition construction year. this elevation change makes the roof chords discontinuous.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	It is unknown what the roof diaphragm material is constructed of. It is assumed that it is non-compliant.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. Wood commercial and industrial buildings may have rod-braced systems. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less, with proper edge and end distance provided for wood and concrete. (Commentary: A.5.3.7. Tier 2: Sec. 5.7.3.3)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	52_International School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.5LS Life Safety Structural Checklist for Building Types S2: Steel Braced Frames with Stiff Diaphragms and S2A: Steel Braced Frames with Flexible Diaphragms

Low Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than $0.10F_y$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30F_y$. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	Assumed to be ok
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	BRACE AXIAL STRESS CHECK: The axial stress in the diagonals, calculated using the Quick Check procedure of Section 4.5.3.4, is less than $0.50F_y$. (Commentary: Sec. A.3.3.1.2. Tier 2: Sec. 5.5.4.1)	Assumed to be ok

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO STEEL FRAMES: Diaphragms are connected for transfer of seismic forces to the steel frames. (Commentary: Sec. A.5.2.2. Tier 2: Sec. 5.7.2)	

ELEMENTARY
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C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	STEEL COLUMNS: The columns in seismic-force-resisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)	
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Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of braced frames in each principal direction is greater than or equal to 2. The number of braced bays in each line is greater than 2. (Commentary: Sec. A.3.3.1.1. Tier 2: Sec. 5.5.1.1)	There are also CMU shear walls in the building addition.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the buckling capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	Assumed to be ok
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COMPACT MEMBERS: All brace elements meet compact section requirements set forth by AISC 360, Table B4.1. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	Assumed to be ok

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	K-BRACING: The bracing system does not include K-braced bays. (Commentary: Sec. A.3.3.2.1. Tier 2: Sec. 5.5.4.6)	
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High Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COLUMN SPLICES: All column splice details located in braced frames develop 50% of the tensile strength of the column. (Commentary: Sec. A.3.3.1.3. Tier 2: Sec. 5.5.4.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLENDerness OF DIAGONALS: All diagonal elements required to carry compression have Kl/r ratios less than 200. (Commentary: Sec. A.3.3.1.4. Tier 2: Sec. 5.5.4.3)	Assumed to be ok.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the yield capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	Assumed to be ok.

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COMPACT MEMBERS: All brace elements meet section requirements set forth by AISC 341, Table D1.1, for moderately ductile members. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	Assumed to be ok.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CHEVRON BRACING: Beams in chevron, or V-braced, bays are capable of resisting the vertical load resulting from the simultaneous yielding and buckling of the brace pairs. (Commentary: Sec. A.3.3.2.3. Tier 2: Sec. 5.5.4.6)	Assumed to be ok.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CONCENTRICALLY BRACED FRAME JOINTS: All the diagonal braces shall frame into the beam-column joints concentrically. (Commentary: Sec. A.3.3.2.4. Tier 2: Sec. 5.5.4.8)	

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	OPENINGS AT FRAMES: Diaphragm openings immediately adjacent to the braced frames extend less than 25% of the frame length. (Commentary: Sec. A.4.1.5. Tier 2: Sec. 5.6.1.3)	Assumed to be ok.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	52_International School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	Non compliant in the 1988 modular.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Assumed to be ok.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
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Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	Assumed to be in compliance.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	52_International School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
Building System
General

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	Assumed to be in compliance.

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
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High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Assumed to be in compliance as there are lot of shear walls in the building
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Assumed to be in compliance.

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	53_Merlo Station
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	There are no foundation ties connecting the strip footing and the concrete shear walls together.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	The strength requirement for this item is assumed to be compliant.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	This building is rectangular in plan and is constructed of tilt up concrete walls all around the perimeter.

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	The concrete tilt up shear walls are very long in plan and have a very high base/height ratio. This criterion was assumed to be in compliance.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Ties are not shown in the drawings. Assumed to be non-compliant.

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	kpff
PROJECT NAME:	53_Merlo Station
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.12LS Life Safety Structural Checklist for Building Types PC1: Precast or Tilt-Up Concrete Shear Walls with Flexible Diaphragms and PC1A: Precast or Tilt-Up Concrete Shear Walls with Stiff Diaphragms

Low Seismicity

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	The wall is supported for out of plane loading. It is assumed that this criterion is in compliance.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be compliant since the concrete tilt up walls are around the entire perimeter of the building and are very long.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.3.2. Tier 2: Sec. 5.5.3.1.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL THICKNESS: Thicknesses of bearing walls shall not be less than 1/40 the unsupported height or length, whichever is shorter, nor less than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. 5.5.3.1.2)	

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab with a minimum thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	Connections are through a wood plate on top of the wall.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	Nailing called out in the gen notes on the cover page. Assumed to be in compliance.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DEFLECTION COMPATIBILITY FOR RIGID DIAPHRAGMS: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	The diaphragm is flexible.

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than 75% of the length of any perimeter wall when the wall piers have aspect ratios of less than 2-to-1. (Commentary: Sec. A.3.2.3.3. Tier 2: Sec. 5.5.3.3.1)	Assumed to be compliant.
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Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Glulam beams serve as the continuous cross ties in the EW direction and OWJ are the cross ties in the NS direction.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)	The unblocked diaphragm is longer than 40ft.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	The existing drawings do not show a connection of the shear walls to the foundation.

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	There are no pile caps or piles in this building.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDERS: Girders supported by walls or pilasters have at least two ties securing the anchor bolts unless provided with independent stiff wall anchors with adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.4.2. Tier 2: Sec. 5.7.4.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	54_Terra Nova School of Science & Sustainability
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
DATE COMPLETED:	8/1/18
REVIEWED BY:	
REVIEW DATE:	

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16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	Foundation elements are not tied together.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Assumed to be ok for the quick check.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
 Building System
 General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	Assumed to be ok

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
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High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Assumed to be ok.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	The foundation elements are not tied together in the original, 1955 and 1958 addition.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	54_Terra Nova School of Science & Sustainability
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
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ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.3LS Life Safety Structural Checklist for Building Type W2: Wood Frames, Commercial and Industrial

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the following values (Commentary: Sec. A.3.2.7.1. Tier 2: Sec. 5.5.3.1.1): Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft	Assumed to be ok
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building. (Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec.5.5.3.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)	It is assumed to be in compliance, however further exploration should be conducted by a geotechnical engineer.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec. A.3.2.7.7. Tier 2: Sec. 5.5.3.6.4)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	
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Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec. A.5.3.3. Tier 2: Sec. 5.7.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

High Seismicity

Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	The diaphragm at the roof level are not continuous between building additions.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. Wood commercial and industrial buildings may have rod-braced systems. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	Gym diaphragm is not blocked.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less, with proper edge and end distance provided for wood and concrete. (Commentary: A.5.3.7. Tier 2: Sec. 5.7.3.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	Kpff
PROJECT NAME:	54_Terra Nova School of Science & Sustainability
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NMS
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Assumed to be in compliance.
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	The reinforcement is less than 0.002 overall and the 0.0007 ratio for the horizontal direction.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Assumed to be in compliance for the quick check procedure.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
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Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Non compliant for overall building.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	plywood decking in the gymnasium is unblocked and spans more than 40'
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	Assumed to be in compliance.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

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Appendix E

Support Facilities - ASCE 41-13 Checklists

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ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Administration Building
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	8-26-18
REVIEWED BY:	
REVIEW DATE:	

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16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Quick check not performed.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

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Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Administration Building
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	8-26-18
REVIEWED BY:	
REVIEW DATE:	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.3LS Life Safety Structural Checklist for Building Type W2: Wood Frames, Commercial and Industrial

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the following values (Commentary: Sec. A.3.2.7.1. Tier 2: Sec. 5.5.3.1.1): Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft	Calc not performed
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building. (Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	ELEMENTARY SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec.5.5.3.6.2)	MIDDLE SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)	HIGH SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec. A.3.2.7.7. Tier 2: Sec. 5.5.3.6.4)	OPTION SCHOOLS
					SUPPORT FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	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. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	
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Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec. A.5.3.3. Tier 2: Sec. 5.7.3.3)	interior posts not positively connected to footing
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

High Seismicity**Diaphragms**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	Pop-up roof at addition
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. (Commentary: Sec. A.4.1.8. Tier 2: Sec. 5.6.1.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. Wood commercial and industrial buildings may have rod-braced systems. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less, with proper edge and end distance provided for wood and concrete. (Commentary: A.5.3.7. Tier 2: Sec. 5.7.3.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Administration Building
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	08-26-18
REVIEWED BY:	
REVIEW DATE:	

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16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Calc not performed
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Calc not performed
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	Cross grain at ledger of addition's cmu
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity**Stiff Diaphragms**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	See ledger note above
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Maintenance Building Carpentry Shop
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Rich Poirier
DATE COMPLETED:	11/29/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Maintenance Building Carpentry Shop
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Rich Poirier
DATE COMPLETED:	11/29/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.4LS Life Safety Structural Checklist for Building Types S1: Steel Moment Frames with Stiff Diaphragms and S1A: Steel Moment Frames with Flexible Diaphragms

Low Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	DRIFT CHECK: The drift ratio of the steel moment frames, calculated using the Quick Check procedure of Section 4.5.3.1, is less than 0.025. (Commentary: Sec. A.3.1.3.1. Tier 2: Sec. 5.5.2.1.2)	Quick check not performed.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than $0.10F_y$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30F_y$. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	Quick check not performed.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	FLEXURAL STRESS CHECK: The average flexural stress in the moment frame columns and beams, calculated using the Quick Check procedure of Section 4.5.3.9, is less than F_y . Columns need not be checked if the strong column-weak beam checklist item is compliant. (Commentary: Sec. A.3.1.3.3. Tier 2: Sec. 5.5.2.1.2)	Quick check not performed.

ELEMENTARY
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SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TRANSFER TO STEEL FRAMES: Diaphragms are connected for transfer of seismic forces to the steel frames. (Commentary: Sec. A.5.2.2. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	STEEL COLUMNS: The columns in seismic-force-resisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Moderate Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	REDUNDANCY: The number of lines of moment frames in each principal direction is greater than or equal to 2. The number of bays of moment frames in each line is greater than or equal to 2. (Commentary: Sec. A.3.1.1.1. Tier 2: Sec. 5.5.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	INTERFERING WALLS: All concrete and masonry infill walls placed in moment frames are isolated from structural elements. (Commentary: Sec. A.3.1.2.1. Tier 2: Sec. 5.5.2.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	MOMENT-RESISTING CONNECTIONS: All moment connections are able to develop the strength of the adjoining members based on the specified minimum yield stress of steel. (Commentary: Sec. A.3.1.3.4, Tier 2: Sec. 5.5.2.2.1). Note: more restrictive requirements for High Seismicity.	
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High Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	MOMENT-RESISTING CONNECTIONS: All moment connections are able to develop the strength of the adjoining members or panel zones based on 110% of the expected yield stress of the steel per AISC 341, Section A3.2. (Commentary: Sec. A.3.1.3.4, Tier 2: Sec. 5.5.2.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	PANEL ZONES: All panel zones have the shear capacity to resist the shear demand required to develop 0.8 times the sum of the flexural strengths of the girders framing in at the face of the column. (Commentary: Sec. A.3.1.3.5, Tier 2: Sec. 5.5.2.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COLUMN SPLICES: All column splice details located in moment-resisting frames include connection of both flanges and the web. (Commentary: Sec. A.3.1.3.6, Tier 2: Sec. 5.5.2.2.3)	

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	STRONG COLUMN-WEAK BEAM: The percentage of strong column–weak beam joints in each story of each line of moment frames is greater than 50%. (Commentary: Sec. A.3.1.3.7. Tier 2: Sec. 5.5.2.1.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COMPACT MEMBERS: All frame elements meet section requirements set forth by AISC 341 Table D1.1, for moderately ductile members. (Commentary: Sec. A.3.1.3.8. Tier 2: Sec. 5.5.2.2.4)	

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT FRAMES: Diaphragm openings immediately adjacent to the moment frames extend less than 25% of the total frame length. (Commentary: Sec. A.4.1.5. Tier 2: Sec. 5.6.1.3)	

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)		ELEMENTARY SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)		MIDDLE SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)		HIGH SCHOOLS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)		OPTION SCHOOLS
						SUPPORT FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Maintenance Building Carpentry Shop
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Rich Poirier
DATE COMPLETED:	11/29/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.5LS Life Safety Structural Checklist for Building Types S2: Steel Braced Frames with Stiff Diaphragms and S2A: Steel Braced Frames with Flexible Diaphragms

Low Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than $0.10F_y$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30F_y$. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	Quick check not performed.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	BRACE AXIAL STRESS CHECK: The axial stress in the diagonals, calculated using the Quick Check procedure of Section 4.5.3.4, is less than $0.50F_y$. (Commentary: Sec. A.3.3.1.2. Tier 2: Sec. 5.5.4.1)	Quick check not performed.

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO STEEL FRAMES: Diaphragms are connected for transfer of seismic forces to the steel frames. (Commentary: Sec. A.5.2.2. Tier 2: Sec. 5.7.2)	

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	STEEL COLUMNS: The columns in seismic-force-resisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)	
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Moderate Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of braced frames in each principal direction is greater than or equal to 2. The number of braced bays in each line is greater than 2. (Commentary: Sec. A.3.3.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the buckling capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPACT MEMBERS: All brace elements meet compact section requirements set forth by AISC 360, Table B4.1. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	K-BRACING: The bracing system does not include K-braced bays. (Commentary: Sec. A.3.3.2.1. Tier 2: Sec. 5.5.4.6)	
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High Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COLUMN SPLICES: All column splice details located in braced frames develop 50% of the tensile strength of the column. (Commentary: Sec. A.3.3.1.3. Tier 2: Sec. 5.5.4.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SLENDERNESS OF DIAGONALS: All diagonal elements required to carry compression have Kl/r ratios less than 200. (Commentary: Sec. A.3.3.1.4. Tier 2: Sec. 5.5.4.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the yield capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	

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C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPACT MEMBERS: All brace elements meet section requirements set forth by AISC 341, Table D1.1, for moderately ductile members. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CHEVRON BRACING: Beams in chevron, or V-braced, bays are capable of resisting the vertical load resulting from the simultaneous yielding and buckling of the brace pairs. (Commentary: Sec. A.3.3.2.3. Tier 2: Sec. 5.5.4.6)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CONCENTRICALLY BRACED FRAME JOINTS: All the diagonal braces shall frame into the beam-column joints concentrically. (Commentary: Sec. A.3.3.2.4. Tier 2: Sec. 5.5.4.8)	

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT FRAMES: Diaphragm openings immediately adjacent to the braced frames extend less than 25% of the frame length. (Commentary: Sec. A.4.1.5. Tier 2: Sec. 5.6.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Maintenance Building Print Shop
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Rich Poirier
DATE COMPLETED:	11/29/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
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16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	No braces in short direction of building.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	No braces in short direction of building.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Maintenance Building Print Shop
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Rich Poirier
DATE COMPLETED:	11/29/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
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16.5LS Life Safety Structural Checklist for Building Types S2: Steel Braced Frames with Stiff Diaphragms and S2A: Steel Braced Frames with Flexible Diaphragms

Low Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than $0.10F_y$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30F_y$. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	Quick check not performed.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	BRACE AXIAL STRESS CHECK: The axial stress in the diagonals, calculated using the Quick Check procedure of Section 4.5.3.4, is less than $0.50F_y$. (Commentary: Sec. A.3.3.1.2. Tier 2: Sec. 5.5.4.1)	Quick check not performed.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TRANSFER TO STEEL FRAMES: Diaphragms are connected for transfer of seismic forces to the steel frames. (Commentary: Sec. A.5.2.2. Tier 2: Sec. 5.7.2)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	STEEL COLUMNS: The columns in seismic-force-resisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)	
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Moderate Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of braced frames in each principal direction is greater than or equal to 2. The number of braced bays in each line is greater than 2. (Commentary: Sec. A.3.3.1.1. Tier 2: Sec. 5.5.1.1)	No braced frames in short direction.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the buckling capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPACT MEMBERS: All brace elements meet compact section requirements set forth by AISC 360, Table B4.1. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	K-BRACING: The bracing system does not include K-braced bays. (Commentary: Sec. A.3.3.2.1. Tier 2: Sec. 5.5.4.6)	
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High Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COLUMN SPLICES: All column splice details located in braced frames develop 50% of the tensile strength of the column. (Commentary: Sec. A.3.3.1.3. Tier 2: Sec. 5.5.4.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SLENDerness OF DIAGONALS: All diagonal elements required to carry compression have Kl/r ratios less than 200. (Commentary: Sec. A.3.3.1.4. Tier 2: Sec. 5.5.4.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the yield capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPACT MEMBERS: All brace elements meet section requirements set forth by AISC 341, Table D1.1, for moderately ductile members. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CHEVRON BRACING: Beams in chevron, or V-braced, bays are capable of resisting the vertical load resulting from the simultaneous yielding and buckling of the brace pairs. (Commentary: Sec. A.3.3.2.3. Tier 2: Sec. 5.5.4.6)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CONCENTRICALLY BRACED FRAME JOINTS: All the diagonal braces shall frame into the beam-column joints concentrically. (Commentary: Sec. A.3.3.2.4. Tier 2: Sec. 5.5.4.8)	

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT FRAMES: Diaphragm openings immediately adjacent to the braced frames extend less than 25% of the frame length. (Commentary: Sec. A.4.1.5. Tier 2: Sec. 5.6.1.3)	

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Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Maintenance Building
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Rich Poirier
DATE COMPLETED:	11/29/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity
Building System
General

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

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ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Maintenance Building
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Rich Poirier
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REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.4LS Life Safety Structural Checklist for Building Types S1: Steel Moment Frames with Stiff Diaphragms and S1A: Steel Moment Frames with Flexible Diaphragms

Low Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	DRIFT CHECK: The drift ratio of the steel moment frames, calculated using the Quick Check procedure of Section 4.5.3.1, is less than 0.025. (Commentary: Sec. A.3.1.3.1. Tier 2: Sec. 5.5.2.1.2)	Quick check not performed.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than $0.10F_y$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30F_y$. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	Quick check not performed.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	FLEXURAL STRESS CHECK: The average flexural stress in the moment frame columns and beams, calculated using the Quick Check procedure of Section 4.5.3.9, is less than F_y . Columns need not be checked if the strong column-weak beam checklist item is compliant. (Commentary: Sec. A.3.1.3.3. Tier 2: Sec. 5.5.2.1.2)	Quick check not performed.

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO STEEL FRAMES: Diaphragms are connected for transfer of seismic forces to the steel frames. (Commentary: Sec. A.5.2.2. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	STEEL COLUMNS: The columns in seismic-force-resisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)	

Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of moment frames in each principal direction is greater than or equal to 2. The number of bays of moment frames in each line is greater than or equal to 2. (Commentary: Sec. A.3.1.1.1. Tier 2: Sec. 5.5.1.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	INTERFERING WALLS: All concrete and masonry infill walls placed in moment frames are isolated from structural elements. (Commentary: Sec. A.3.1.2.1. Tier 2: Sec. 5.5.2.1.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	MOMENT-RESISTING CONNECTIONS: All moment connections are able to develop the strength of the adjoining members based on the specified minimum yield stress of steel. (Commentary: Sec. A.3.1.3.4, Tier 2: Sec. 5.5.2.2.1). Note: more restrictive requirements for High Seismicity.	
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High Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	MOMENT-RESISTING CONNECTIONS: All moment connections are able to develop the strength of the adjoining members or panel zones based on 110% of the expected yield stress of the steel per AISC 341, Section A3.2. (Commentary: Sec. A.3.1.3.4, Tier 2: Sec. 5.5.2.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	PANEL ZONES: All panel zones have the shear capacity to resist the shear demand required to develop 0.8 times the sum of the flexural strengths of the girders framing in at the face of the column. (Commentary: Sec. A.3.1.3.5, Tier 2: Sec. 5.5.2.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COLUMN SPLICES: All column splice details located in moment-resisting frames include connection of both flanges and the web. (Commentary: Sec. A.3.1.3.6, Tier 2: Sec. 5.5.2.2.3)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	STRONG COLUMN-WEAK BEAM: The percentage of strong column–weak beam joints in each story of each line of moment frames is greater than 50%. (Commentary: Sec. A.3.1.3.7. Tier 2: Sec. 5.5.2.1.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COMPACT MEMBERS: All frame elements meet section requirements set forth by AISC 341 Table D1.1, for moderately ductile members. (Commentary: Sec. A.3.1.3.8. Tier 2: Sec. 5.5.2.2.4)	

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT FRAMES: Diaphragm openings immediately adjacent to the moment frames extend less than 25% of the total frame length. (Commentary: Sec. A.4.1.5. Tier 2: Sec. 5.6.1.3)	

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)		ELEMENTARY SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)		MIDDLE SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)		HIGH SCHOOLS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)		OPTION SCHOOLS
						SUPPORT FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Maintenance Building
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Rich Poirier
DATE COMPLETED:	11/29/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.5LS Life Safety Structural Checklist for Building Types S2: Steel Braced Frames with Stiff Diaphragms and S2A: Steel Braced Frames with Flexible Diaphragms

Low Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than $0.10F_y$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30F_y$. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	Quick check not performed.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	BRACE AXIAL STRESS CHECK: The axial stress in the diagonals, calculated using the Quick Check procedure of Section 4.5.3.4, is less than $0.50F_y$. (Commentary: Sec. A.3.3.1.2. Tier 2: Sec. 5.5.4.1)	Quick check not performed.

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO STEEL FRAMES: Diaphragms are connected for transfer of seismic forces to the steel frames. (Commentary: Sec. A.5.2.2. Tier 2: Sec. 5.7.2)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	STEEL COLUMNS: The columns in seismic-force-resisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)	
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Moderate Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of braced frames in each principal direction is greater than or equal to 2. The number of braced bays in each line is greater than 2. (Commentary: Sec. A.3.3.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the buckling capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPACT MEMBERS: All brace elements meet compact section requirements set forth by AISC 360, Table B4.1. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	K-BRACING: The bracing system does not include K-braced bays. (Commentary: Sec. A.3.3.2.1. Tier 2: Sec. 5.5.4.6)	
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High Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COLUMN SPLICES: All column splice details located in braced frames develop 50% of the tensile strength of the column. (Commentary: Sec. A.3.3.1.3. Tier 2: Sec. 5.5.4.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SLENDERNESS OF DIAGONALS: All diagonal elements required to carry compression have Kl/r ratios less than 200. (Commentary: Sec. A.3.3.1.4. Tier 2: Sec. 5.5.4.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the yield capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	COMPACT MEMBERS: All brace elements meet section requirements set forth by AISC 341, Table D1.1, for moderately ductile members. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CHEVRON BRACING: Beams in chevron, or V-braced, bays are capable of resisting the vertical load resulting from the simultaneous yielding and buckling of the brace pairs. (Commentary: Sec. A.3.3.2.3. Tier 2: Sec. 5.5.4.6)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CONCENTRICALLY BRACED FRAME JOINTS: All the diagonal braces shall frame into the beam-column joints concentrically. (Commentary: Sec. A.3.3.2.4. Tier 2: Sec. 5.5.4.8)	

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT FRAMES: Diaphragm openings immediately adjacent to the braced frames extend less than 25% of the frame length. (Commentary: Sec. A.4.1.5. Tier 2: Sec. 5.6.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Transportation Main
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	8/26/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Quick check calcs not performed
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Transportation Main
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	8/26/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.5LS Life Safety Structural Checklist for Building Types S2: Steel Braced Frames with Stiff Diaphragms and S2A: Steel Braced Frames with Flexible Diaphragms

Low Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than $0.10F_y$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than $0.30F_y$. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	Calc not performed.
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	BRACE AXIAL STRESS CHECK: The axial stress in the diagonals, calculated using the Quick Check procedure of Section 4.5.3.4, is less than $0.50F_y$. (Commentary: Sec. A.3.3.1.2. Tier 2: Sec. 5.5.4.1)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO STEEL FRAMES: Diaphragms are connected for transfer of seismic forces to the steel frames. (Commentary: Sec. A.5.2.2. Tier 2: Sec. 5.7.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	STEEL COLUMNS: The columns in seismic-force-resisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)	
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Moderate Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of braced frames in each principal direction is greater than or equal to 2. The number of braced bays in each line is greater than 2. (Commentary: Sec. A.3.3.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the buckling capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	COMPACT MEMBERS: All brace elements meet compact section requirements set forth by AISC 360, Table B4.1. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	K-BRACING: The bracing system does not include K-braced bays. (Commentary: Sec. A.3.3.2.1. Tier 2: Sec. 5.5.4.6)	
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High Seismicity***Seismic-Force-Resisting System***

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COLUMN SPLICES: All column splice details located in braced frames develop 50% of the tensile strength of the column. (Commentary: Sec. A.3.3.1.3. Tier 2: Sec. 5.5.4.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLENDerness OF DIAGONALS: All diagonal elements required to carry compression have Kl/r ratios less than 200. (Commentary: Sec. A.3.3.1.4. Tier 2: Sec. 5.5.4.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	CONNECTION STRENGTH: All the brace connections develop the yield capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

<div>C<input type="checkbox"/></div> <div>NC<input type="checkbox"/></div> <div>N/A<input type="checkbox"/></div> <div>U<input checked="" type="checkbox"/></div>					COMPACT MEMBERS: All brace elements meet section requirements set forth by AISC 341, Table D1.1, for moderately ductile members. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)		ELEMENTARY SCHOOLS	
<div>C<input type="checkbox"/></div> <div>NC<input type="checkbox"/></div> <div>N/A<input checked="" type="checkbox"/></div> <div>U<input type="checkbox"/></div>					CHEVRON BRACING: Beams in chevron, or V-braced, bays are capable of resisting the vertical load resulting from the simultaneous yielding and buckling of the brace pairs. (Commentary: Sec. A.3.3.2.3. Tier 2: Sec. 5.5.4.6)			MIDDLE SCHOOLS
<div>C<input checked="" type="checkbox"/></div> <div>NC<input type="checkbox"/></div> <div>N/A<input type="checkbox"/></div> <div>U<input type="checkbox"/></div>					CONCENTRICALLY BRACED FRAME JOINTS: All the diagonal braces shall frame into the beam–column joints concentrically. (Commentary: Sec. A.3.3.2.4. Tier 2: Sec. 5.5.4.8)			HIGH SCHOOLS
Diaphragms (Flexible or Stiff)								
RATING				DESCRIPTION	COMMENTS			
<div>C<input type="checkbox"/></div> <div>NC<input type="checkbox"/></div> <div>N/A<input checked="" type="checkbox"/></div> <div>U<input type="checkbox"/></div>				OPENINGS AT FRAMES: Diaphragm openings immediately adjacent to the braced frames extend less than 25% of the frame length. (Commentary: Sec. A.4.1.5. Tier 2: Sec. 5.6.1.3)				OPTION SCHOOLS

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Transportation Main
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	8/26/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Calc not performed
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	No reinf schedule found

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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Calc not performed
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity**Stiff Diaphragms**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)		ELEMENTARY SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)		MIDDLE SCHOOLS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)		HIGH SCHOOLS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)		OPTION SCHOOLS
						SUPPORT FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Transportation Allen
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	08/26/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
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FACILITIES

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16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	Incomplete original drawings
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Incomplete original drawings

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	Incomplete original drawings
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	Incomplete original drawings
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Incomplete original drawings

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Transportation Allen
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	08/26/18
REVIEWED BY:	
REVIEW DATE:	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	No Shear wall line on east side due to bay openings
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Calc not performed
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity**Stiff Diaphragms**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	No shear wall line on east elevation

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
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Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Transportation 5th St North
SEISMICITY LEVEL:	High
PROJECT NUMBER:	12800125
COMPLETED BY:	RP
DATE COMPLETED:	8/27/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	No as-built drawings of original building found.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Calc not performed.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

ELEMENTARY
SCHOOLSMIDDLE
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SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

ELEMENTARY
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity**Geologic Site Hazards**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity**Foundation Configuration**

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

ELEMENTARY
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Transportation 5th St North
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	8/27/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.10LS Life Safety Structural Checklist for Building Types C2: Concrete Shear Walls with Stiff Diaphragms and C2A: Concrete Shear Walls with Flexible Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COMPLETE FRAMES: Steel or concrete frames classified as secondary components form a complete vertical-load-carrying system. (Commentary: Sec. A.3.1.6.1. Tier 2: Sec. 5.5.2.5.1)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f_c}$. (Commentary: Sec. A.3.2.2.1. Tier 2: Sec. 5.5.3.1.1)	Calc not performed
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	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. (Commentary: Sec. A.3.2.2.2. Tier 2: Sec. 5.5.3.1.3)	

ELEMENTARY
SCHOOLSMIDDLE
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FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	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 adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Cross grain bending risk at wood ledgers.
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation with vertical bars equal in size and spacing to the vertical wall reinforcing immediately above the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	

High Seismicity**Seismic-Force-Resisting System**

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints. (Commentary: Sec. A.3.1.6.3. Tier 2: Sec. 5.5.2.5.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	COUPLING BEAMS: The stirrups in coupling beams over means of egress are spaced at or less than d/2 and are anchored into the confined core of the beam with hooks of 135 degrees or more. The ends of both walls to which the coupling beam is attached are supported at each end to resist vertical loads caused by overturning. (Commentary: Sec. A.3.2.2.3. Tier 2: Sec. 5.5.3.2.1)	

Connections

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5)	

Diaphragms (Flexible or Stiff)

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

ELEMENTARY
SCHOOLSMIDDLE
SCHOOLSHIGH
SCHOOLSOPTION
SCHOOLSSUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Transportation 5th St South
SEISMICITY LEVEL:	High
PROJECT NUMBER:	12800125
COMPLETED BY:	RP
DATE COMPLETED:	8/27/18
REVIEWED BY:	
REVIEW DATE:	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Calc not performed
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Building Configuration

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A.2.2.2. Tier 2: Sec. 5.4.2.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4)	

ELEMENTARY
SCHOOLS

MIDDLE
SCHOOLS

HIGH
SCHOOLS

OPTION
SCHOOLS

SUPPORT
FACILITIES

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	MASS: There is no change in effective mass more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)	
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High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

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ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	Transportation 5th St South
SEISMICITY LEVEL:	High
PROJECT NUMBER:	21800125
COMPLETED BY:	RP
DATE COMPLETED:	08/27/18
REVIEWED BY:	
REVIEW DATE:	

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16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input checked="" type="checkbox"/>	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in. ² . (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Calc not performed
C <input type="checkbox"/>	NC <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	

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Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Connections

RATING				DESCRIPTION	COMMENTS
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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	no apparent conn at parallel deck. Calc not performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
C	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	

High Seismicity

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

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C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	
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Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	
C <input checked="" type="checkbox"/>	NC <input type="checkbox"/>	N/A <input type="checkbox"/>	U <input type="checkbox"/>	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	

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C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C <input type="checkbox"/>	NC <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	U <input type="checkbox"/>	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

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Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

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