SEISMIC ASSESSMENTS FOR THE BEAVERTON SCHOOL DISTRICT

(VOLUME 2 OF 4)

KPFF PROJECT No. 10021800125

APRIL 12, 2019



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SEISMIC ASSESSMENTS FOR THE BEAVERTON SCHOOL DISTRICT

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Appendix A

Elementary Schools - ASCE 41-13 Checklists



ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	01_Aloha-Huber Park Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name Project Number 10021800125

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
C x	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)	
C x	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)	

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity Building System General

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	LOAD PATH: The structure shall contain a	
X	П		П	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)	
				3.1.11)	
С	NC	N/A	U	ADJACENT BUILDINGS: The clear distance	
			0	between the building being evaluated and any	
	Ш	X		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)	
<u> </u>				MEZZANINES: Interior mezzanine levels are	
C	NC	N/A	U	braced independently from the main structure or	
X				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)	
				5007.112.113. 1101 2. 500. 5. 111.3)	

Project Name 01_Aloha-Huber Park 1 10021800125

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	υ	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. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-story structure.
С	NC	N/A	υ	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-story structure.
C **	NC	N/A	U	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)	
С	NC	N/A X	⊃	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-story structure.

					Project Name Project Number	01_Aloha-Huber Park 10021800125	
С	NC	N/A	U	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)	1-story structure.		ELEMENTARY SCHOOLS
С	NC	N/A	U X	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No Calculations perfo	rmed.	MIDDLE SCHOOLS
Mode	erate	Seisn	nicity				
Geole	ogic S	ite Ha	azaro		COMMENTS		တ
C X	NC	N/A	U	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)	COMMENTS		SCHOOFS HIGH
							ح م
C X	NC	N/A	U	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)			OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name 01_Aloha-Huber Park 10021800125

C	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
X				not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
				5.4.3.1)	

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OVERTURNING: The ratio of the least horizontal	No calculations performed.
			X	dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6Sa. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
С	NC	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic	
X				forces where footings, piles, and piers are not	
				restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	01_Aloha-Huber Park Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 01_Aloha-Huber Park 1 10021800125

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	Low Seismicity								
	Seismic-Force-Resisting System								
RA	TING			DESCRIPTION	COMMENTS				
С	NC	N/A	U X	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than 0.10Fy. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than 0.30Fy. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)	No calculations completed.				
С	NC	N/A	U X	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 0.50Fy. (Commentary: Sec. A.3.3.1.2. Tier 2: Sec. 5.5.4.1)	No calculations completed.				
Conn	ectio	ns							
RA	TING			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)					

					Project Name 01_Aloha-Huber Park 10021800125	
C X	NC	N/A	U	STEEL COLUMNS: The columns in seismic-forceresisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)		ELEMENTARY SCHOOLS
		Seisr	-			
		orce-R	Resist	ing System	OOMMENTO	╢╝ざ
C x	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)	COMMENTS	MIDDLE
С	NC	N/A	U	CONNECTION STRENGTH: All the brace	No calculations completed but connections	HIGH
X				connections develop the buckling capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	appear to be properly designed for buckling.	T 2
] _ v
C X	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)	Braces were designed per AISC standards per general notes.	NOITAO
gend	: C = 0	Comp	liant.	NC = Noncompliant, $N/A = Not Applicable$, $U = Unk$	snown	SUPPORT FACILITIES

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С	NC	N/A	U	K-BRACING: The bracing system does not include K-braced bays. (Commentary: Sec. A.3.3.2.1. Tier 2:	
x				Sec. 5.5.4.6)	

High Seismicity

Seismic-Force-Resisting System

	TING			COMMENTS	
С	NC	N/A	U X	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)	No calculations completed.
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)	Calculations not completed but braced frames designed per AISC standards.
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)	No calculations completed but brace connections appear to be adequate.

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C x	NC	N/A	U	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)	Calculations not completed but braced frames designed per AISC standards.	ELEMENTARY SCHOOLS
C x	NC	N/A	U	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)	Calculations not completed but braced frames designed per AISC standards.	MIDDLE SCHOOLS
C X	NC	N/A	U	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)	Calculations not completed but braced frames designed per AISC standards.	SCHOOLS SCHOOLS
		ns (Fl	exible	e or Stiff)		
	TING	N1 / A	.,	DESCRIPTION OPENINGS AT FRAMES: Diaphragm openings	COMMENTS	
C X	NC	N/A	U	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
						SUPPORT FACILITIES

Project Name 01_Aloha-Huber Park 10021800125

Flexible Diaphragms

RA	TING			DESCRIPTION	COMMENTS
c	NC	N/A	υ	CROSS TIES: There are continuous cross ties	
				between diaphragm chords. (Commentary: Sec.	
X		Ш	Ш	A.4.1.2. Tier 2: Sec. 5.6.1.2)	
С	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed	
	INC	111/7	"	diaphragms have aspect ratios less than 2-to-1 in	
		X		the direction being considered. (Commentary:	
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
С	NC	N/A	U	SPANS: All wood diaphragms with spans greater	
	INC	111/7	"	than 24 ft consist of wood structural panels or	
X				diagonal sheathing. (Commentary: Sec. A.4.2.2.	
				Tier 2: Sec. 5.6.2)	
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
				DIAPHRAGMS: All diagonally sheathed or	
X				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)	

					Project Name	01_Aloha-Huber Park
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С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck,		
X				concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)		

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

MIDDLE SCHOOLS

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	01_Aloha-Huber Park Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

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	

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal	
X				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.	
				5.5.1.1)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using	No calculations completed.
			X	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	NC	N/A	U	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced	
X				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)	

Project Name 01_Aloha-Huber Park 1 10021800125

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	J	TOPPING SLAB: Precast concrete diaphragm	No precast slab.
		X		elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

Conn	Connections						
RA	TING			DESCRIPTION	COMMENTS		
C X	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)			
C **	NC	N/A	υ	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)			
C x	NC	N/A	υ	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)			

			Project Name Project Number	01_Aloha-Huber Park 📅 10021800125	
	X	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)		inforced concrete slab walls and foundations.	ELEMENTARY SCHOOLS
C NC N		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 NC N		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 Seismic Stiff Diaphra RATING C NC N	agms	DESCRIPTION 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)	COMMENTS		OPTION SCHOOLS
		NC = Noncompliant, N/A = Not Applicable, U = Unk y of Civil Engineers 4	known	Rev. 41-31.1	SUPPORT FACILITIES

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Project Name 01_Aloha-Huber Park 10021800125

С	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to	
x				exterior masonry shear walls are not greater than	
				8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec.	
				5.6.1.3)	

Flexible Diaphragms

riexii	Flexible Diaphragms						
RA	TING			DESCRIPTION	COMMENTS		
C X	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)			
С	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls			
X				are less than 25% of the wall length.			
				(Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)			
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to			
X				exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)			

					Project Number	10021800125	
С	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)			ELEMENTARY SCHOOLS
C X	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)			MIDDLE SCHOOLS
C X	NC	N/A	υ	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)			SCHOOLS SCHOOLS
C x	NC	N/A	U	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

Project Name 01_Aloha-Huber Park 1 10021800125

Connections

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of	
X				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)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	02_Barnes Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/31/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name Project Number 10021800125

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 in the original buildings and early additions do not have clear transfer elements.
С	NC x	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 at the 1953 addition is lacking proper lateral connections to restrain out of plane forces.

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity Building System General

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 in the original buildings and early additions do not have clear transfer elements.
С	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)	
С	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)	

Project Name 02_Barnes Elementary 10021800125

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	о <u></u>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	The original structure and subsequent additions had concrete foundation walls with wood walls above, the concrete walls provide more seismic restraint.
С	NC	N/A	υ	SOFT STORY: The stiffness of the seismic-forceresisting 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)	The original structure and subsequent additions had concrete foundation walls with wood walls above, the concrete walls provide more seismic restraint.
C	NC	N/A	U	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 **	NC	N/A	υ <u></u>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	

Project Name 02_Barnes Elementary 10021800125

С	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
			x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
				5.4.3.1)	

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at	
X				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)	
С	NC 🗶	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Covered play areas are only restrained with asphalt paving.

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	02_Barnes Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/31/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 02_Barnes Elementary 10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
C X	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)	
С	NC x	N/A	υ	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	No calculations but likely non compliant.
С	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)	Stucco used at exterior of multiple different additions.
С	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)	

Project Name Project Number 02_Barnes Elementary 10021800125

C NC N/A U OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)

Connections

Conn	Connections						
RA	TING			DESCRIPTION	COMMENTS		
c	NC	N/A	υ	WOOD POSTS: There is a positive connection of			
X				wood posts to the foundation. (Commentary: Sec. A.5.3.3. Tier 2: Sec. 5.7.3.3)			
				A.5.3.3. Her 2: Sec. 5.7.3.3)			
C	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the			
X				foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			
				GIRDER-COLUMN CONNECTION: There is a			
C	NC	N/A	U	positive connection using plates, connection			
X				hardware, or straps between the girder and the			
				column support. (Commentary: Sec. A.5.4.1. Tier 2:			
				Sec. 5.7.4.1)			
1	l	l	l	I .			

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
C X	NC	N/A	υ	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 x	NC	N/A	U	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	NC	N/A	U	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)	
		21/4		STRAIGHT SHEATHING: All straight sheathed	
С	NC X	N/A	υ	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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C X	NC	N/A	U	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)	
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
	IVC	14/7	U	DIAPHRAGMS: All diagonally sheathed or	
X				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)	
				Sec. 7	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not	
	INC	IN/ A	U	consist of a system other than wood, metal deck,	
X				concrete, or horizontal bracing. (Commentary:	
				Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
Connections					
RATING DESCRIPTION COMMENTS					
С	NC	N/A	U	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or	
			_	less, with proper edge and end distance provided	
X	Ш			for wood and concrete. (Commentary: A.5.3.7. Tier	

2: Sec. 5.7.3.3)

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	02_Barnes Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/31/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 02_Barnes Elementary 10021800125

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

L	٥v	٧	and	Mo	der	ate	Seis	mici	itv

Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
x	NC	N/A	о П	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)	
С	NC x	N/A	υ	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)	No calculations completed but not likely compliant based on shear walls location and size.
С	NC x	N/A	U	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)	Reinforcing does not have adequate spacing.

Project Name Project Number

02_Barne	es Elementary
1002180	0125

	Diaph TING	ragn	ıs	DESCRIPTION	COMMENTS	ARY S
С	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)		ELEMENT, SCHOOL
Conn	ectio	ns		DESCRIPTION	COMMENTS	MIDDLE SCHOOLS
С	NC X	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	CONNENTS	MID
				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)		HIGH SCHOOLS
X	NC	N/A	υ	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)		H
				TRANSFER TO SUFAR WALLS, Displays gross are		ION
x	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)		OPTIC

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

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С	NC	N/A	υ <u></u>	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	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is	
X		$ \Box $		doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a	
		x	П	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

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm	
		X		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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С	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)			ELEMENTARY SCHOOLS
Flovi	hla Di	iaphr.	aams				
	TING	-	ayıns	DESCRIPTION	COMMENTS		တ
С	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)			MIDDLE
С	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)			HIGH SCHOOLS
С	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)			OPTION SCHOOLS
							SUPPORT FACILITIES

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С	NC X	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)	Wood decking used at roof of 1958 addition.
c	NC	N/A	U	SPANS: All wood diaphragms with spans greater	
`	110	14//1		than 24 ft consist of wood structural panels or	
X				diagonal sheathing. (Commentary: Sec. A.4.2.2.	
				Tier 2: Sec. 5.6.2)	
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
				DIAPHRAGMS: All diagonally sheathed or	
				unblocked wood structural panel diaphragms	
X	Ш	Ш	ш		
X				have horizontal spans less than 40 ft and aspect	
X				have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary:	
X				have horizontal spans less than 40 ft and aspect	
X				have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary:	
X				have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary:	
X				have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary:	
X				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)	
x	NC	N/A	U	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) OTHER DIAPHRAGMS: The diaphragm shall not	
С	NC	N/A	U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck,	
	NC	N/A	U	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) OTHER DIAPHRAGMS: The diaphragm shall not	
С	NC	N/A	U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
С	NC	N/A	υ	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
С	NC	N/A	U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
С	NC	N/A	υ	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
С	NC	N/A	υ	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	

Project Name Project Number 10021800125

02_Barnes Elementary

Connections

RAI	ING			DESCRIPTION	COMMENTS
		N/A	U X	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)	

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

Project Name Project Number 10021800125

04_Bethany Elementary

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	04_Bethany Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

Rev. 41-31.1

Project Number 10021800125

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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)	Exterior foundation walls are not adequately anchored for out of plane forces.
С	NC X	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)	Exterior foundation walls are not adequately anchored for out of plane forces.

2

Project Name 04_Bethany Elementary
Project Number 10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
С	NC X	N/A	υ	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)	Exterior foundation walls are not adequately anchored for out of plane forces.
С	NC	N/A X	υ	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 adjacent buildings.
x	NC	N/A	υ	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)	Mechanical penthouse is tied into the main structure.

Project Name 04_Bethany Elementary

Project Number 10021800125

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
c	NC	N/A *	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-Story Structure.
С	NC	N/A	U	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-Story Structure.
C x	NC	N/A	U	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)	All lateral components appear to be continuous to foundations.
С	NC	N/A	υ	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-Story Structure.

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

Project Name 04_Bethany Elementary
Project Number 10021800125

С	NC	N/A	U	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)	1-Story Structure.
С	NC	N/A	U X	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No calculations performed.

Moderate Seismicity

Geologic Site Hazards

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could	
			X	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)	
С	NC	N/A	U	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope	
			X	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)	

					Project Name Project Number	04_Bethany Elementary	
						10021800123	
С	NC	N/A	V	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)			ELEMENTARY SCHOOLS
	Soice	nicity	,				
_				ration			၂၂ တု
	TING		9-	DESCRIPTION	COMMENTS		P.E.
С	NC	N/A	U X	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculation perforr	ned.	MIDDLE
							OLS
с П	NC X	N/A	υ	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)	Foundations are tied t asphalt floor at the co		SCHOOLS HIGH
							ے ₀
							OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name Project Number 10021800125

04_Bethany Elementary

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	04_Bethany Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	07/18/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 04_Bethany Elementary

Project Number 10021800125

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

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	and.	1/1/1	Inrata	Colen	nicitv
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			lerate		<u>J</u>

	TING	isiiiic-	TOICE	DESCRIPTION	COMMENTS	冒。
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.	COMMENTS	
				5.5.1.1) SHEAR STRESS CHECK: The shear stress in the		MIDDLE
C	NC	N/A	U x	shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the	No calculations performed likely compliant for overall building, but shear wall locations NC for diaphragm span (address later in	
				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	checklist)	HIGH
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)		OPTION SCHOOLS
C X	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.	Gypsum board is used as sheathing in the structure but not in all areas	08
				(Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)		SUPPORT FACILITIES

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

Project Name 04_Bethany Elementary Project Number 10021800125

C	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood	
X				shear walls with an aspect ratio greater than 2- to-1 are not used to resist seismic forces.	
			Ш	(Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
				(Commentary, Sec. 71.5.2.7.4. Her 2. Sec. 5.5.5.6.1)	
	NC	NI/A	U	WALLS CONNECTED THROUGH FLOORS: Shear	
C	NC	N/A	U	walls have an interconnection between stories to	
X				transfer overturning and shear forces through the	
				floor. (Commentary: Sec. A.3.2.7.5. Tier 2:	
				Sec.5.5.3.6.2)	
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at	
С _	NC		U	least one side by more than one-half story	
С	NC	N/A	U		
С	NC		U	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.	
с П	NC		υ	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-	
С <u></u>	NC		U	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.	
С	NC		υ	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.	
С	NC		υ	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.	
С	NC		U	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)	
С	NC		υ	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) CRIPPLE WALLS: Cripple walls below first-floor-	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	
		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	

					Project Name Project Number	04_Bethany Elementary 10021800125	
C X	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)			ELEMENTARY SCHOOLS
Conn	ectio	ns					
RA	TING			DESCRIPTION	COMMENTS		LS E
С	NC X	N/A	U	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 ad positive connections		MIDDLE
С	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec.			HIGH SCHOOLS
X				5.7.3.3))HOS
C x	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			OPTION SCHOOLS
			l:-u-e	NC - Noncompliant N/A - Not Applicable II - Unl	(no)Un		SUPPORT FACILITIES

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
C X	NC	N/A	U	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)	Roof diaphragm has a pop-up in the center of the addition. Raised portion is detailed with plywood sheathing on the vertical faces and is likely ok with additional strapping.
С	NC	N/A	U x	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	NC	N/A	> _	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	NC	N/A X	о П	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)	

					Project Name Project Number	10021800125	
C x	NC	N/A	U	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)	Plywood diaphragm		ELEMENTARY SCHOOLS
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			MIDDLE SCHOOLS
C x	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)			SCHOOLS HIGH
	ectio TING			DESCRIPTION	COMMENTS		
C X	NC	N/A	U	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)	Most wood sills are bo	olted at 48" o.c.	OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name Project Number 10021800125

04_Bethany Elementary

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	04_Bethany Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/31/2018
REVIEWED BY:	
REVIEW DATE:	

Note: This checklist applies to the original structure and all subsequent additions.

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

RA	TING			DESCRIPTION	COMMENTS
C X	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)	
С	NC	N/A	U X	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)	No calculations completed.
С	NC x	N/A	U	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)	Vertical reinforcement is typically spaced at 48" o.c.

Project Name 04_Bethany Elementary Project Number 10021800125

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous	No precast Diaphragm.
		x		reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
				Sec. A.4.5.1. Het 2: Sec. 5.0.4)	

Connections

COIIII	connections					
RA	TING			DESCRIPTION	COMMENTS	
С	NC x	N/A	υ	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)	Foundation drawings for the original structure are unclear if a connection is made from the floor diaphragm to the exterior shear walls and foundation system. No calculations completed.	
С	NC x	N/A	⊃ <u></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 bending in wood ledgers in 1970 an 1977 areas.	
С	NC x	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)	Diaphragm connection not clearly shown, likely non compliant due to nail spacing.	

	No precast diaphragm, grade appears to tie inte	but reinforced slab on	>
	and foundations system	o exterior shear walls	ELEMENTAR SCHOOLS
C NC N/A U 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 NC N/A U GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			SCHOOLS SCHOOLS
High Seismicity			
Stiff Diaphragms RATING DESCRIPTION	COMMENTS		_ ഗ
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)	- COMMENTO		NOIL40
Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unki	nown	Rev. 41-31.1	SUPPORT FACILITIES

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Project Name 04_Bethany Elementary Project Number 10021800125

С	NC	N/A	\supset	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS:	
X				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)	

Flexi	Flexible Diaphragms					
RA	TING			DESCRIPTION	COMMENTS	
С	NC x	N/A	>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Cross ties will likely need strengthening.	
C **	NC	N/A	⊃	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 **	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)		

					Project Name 04_Bethany Elementa Project Number 10021800125	ry 	
С	NC x	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)	1970 Panel decking is likely straight sheathin and does not have the complaint aspect ratio		ELEMENTARY SCHOOLS
С	NC X	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)	1970 Appears to be areas of the roof diaphragm which span more then 24'. 1977 - plywood diaphragms		MIDDLE SCHOOLS
C X	NC	N/A	υ	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)	1977 - blocked plywood diaphragm		HIGH SCHOOLS
C X	NC	N/A	υ	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
							TS SE

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

Project Name 04_Bethany Elementary
Project Number 10021800125

Connections

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)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	05_Bonny Slope Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 05_Bonny Slope Element 10021800125

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
C x	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)	
C x	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)	

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity Building System General

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including	
X				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 X	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)	
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)	

Project Name 05_Bonny Slope Element 10021800125

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in	
X				each direction is not less than 80% of the strength	
				in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	
				A2.2.2. Her 2. Sec. 3.4.2.1)	
С	NC	N/A	U	SOFT STORY: The stiffness of the seismic-force-	
X				resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in	
				an adjacent story above or less than 80% of the	
				average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec.	
				A.2.2.3. Tier 2: Sec. 5.4.2.2)	
_				VERTICAL IRREGULARITIES: All vertical elements in	
C	NC	N/A	U	the seismic-force-resisting system are continuous	
X		Ш		to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3)	
				2. 3cc. 3. 1.2.3)	
С	NC	N/A	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-	
X				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)	

					Project Name Project Number	05_Bonny Slope Elem	
C x	NC	N/A	U	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)			ELEMENTARY SCHOOLS
С	NC	N/A	U	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No Calculations perfo	rmed.	MIDDLE SCHOOLS
Mode	 erate	Seisn	nicity	<u> </u>			
Geolo	ogic S	Site Ha	-	ds			ပ ု
	TING	П		DESCRIPTION LIQUEFACTION: Liquefaction-susceptible,	COMMENTS		ᆢᆼ
С	NC	N/A	x	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)	1		SCHOOFS HIGH
							S
С	NC	N/A	U	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)			OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name 05_Bonny Slope Element 10021800125

С	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
			x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
				5.4.3.1)	

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at	No Calculations performed.
			X	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)	
С	NC	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic	
X				forces where footings, piles, and piers are not	
				restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	05_Bonny Slope Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 05_Bonny Slope Element 10021800125

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								
COMMENTS								
No calculation performed.								
No calculation performed.								
COMMENTS								

					Project Name 05_Bonny Slope Elem Project Number 10021800125	
C X	NC	N/A	U	STEEL COLUMNS: The columns in seismic-forceresisting frames are anchored to the building foundation. (Commentary: Sec. A.5.3.1. Tier 2: Sec. 5.7.3.1)		ELEMENTARY SCHOOLS
		Seisr -	-			
	NC	N/A	esist U	Ing System DESCRIPTION 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)	COMMENTS	MIDDLE
C X	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)	No calculations completed but connections appear to be properly designed for buckling.	HIGH
C	NC	N/A	U	COMPACT MEMBERS: All brace elements meet	Due and work Als Contained and a new	NC NC
×				compact section requirements set forth by AISC 360, Table B4.1. (Commentary: Sec. A.3.3.1.7. Tier 2: Sec. 5.5.4)	Braces were designed per AISC standards per general notes.	OPTION
gend	: C = 0	Comp	o l iant.	NC = Noncompliant, N/A = Not Applicable, U = Unk	known	SUPPORT

Project Name 05_Bonny Slope Element 10021800125

С	NC	N/A	U	K-BRACING: The bracing system does not include K-braced bays. (Commentary: Sec. A.3.3.2.1. Tier 2:	
X				Sec. 5.5.4.6)	

High Seismicity

Seismic-Force-Resisting System

36	Seismic-Force-Resisting System							
F	RAT	ING			DESCRIPTION	COMMENTS		
		NC	N/A	U X	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)	No calculations completed.		
[3		NC	N/A	⊃ <u></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)	Calculations not completed but braced frames designed per AISC standards.		
	₹	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)	No calculations completed but brace connections appear to be adequate.		

					Project Name 05_Bonny Slope Element 10021800125	
C X	NC	N/A	U	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)	Calculations not completed but braced frames designed per AISC standards.	ELEMENTARY SCHOOLS
C X	NC	N/A	U	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)	Calculations not completed but braced frames designed per AISC standards.	MIDDLE SCHOOLS
C **	NC	N/A	U	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)	Calculations not completed but braced frames designed per AISC standards.	HIGH SCHOOLS
		ns (Fl	exible	e or Stiff)		
C	NC	N/A	U	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)	COMMENTS	OPTION SCHOOLS
						SUPPORT FACILITIES

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

Project Name 05_Bonny Slope Element 10021800125

Flexible Diaphragms

RA	ATING DESCRIPTION				COMMENTS
С	NC	N/A	U	CROSS TIES: There are continuous cross ties	
	110	' ' ' '		between diaphragm chords. (Commentary: Sec.	
X				A.4.1.2. Tier 2: Sec. 5.6.1.2)	
C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed	
		l		diaphragms have aspect ratios less than 2-to-1 in	
X				the direction being considered. (Commentary:	
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
С	NC	N/A	U	SPANS: All wood diaphragms with spans greater	
	INC	13/7		than 24 ft consist of wood structural panels or	
		X		diagonal sheathing. (Commentary: Sec. A.4.2.2.	
				Tier 2: Sec. 5.6.2)	
-				DIACONALI V SHEATHED AND LINDI OCVED	
C	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or	
		X		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)	

					Project Name	05_Bonny Slope Elem
					Project Number	10021800125
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck,		
X				concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)		

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

MIDDLE SCHOOLS

Project Name Project Number 10021800125

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	07_Chehalem Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	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)	Exterior walls do not have adequate out of plane connections between foundations and roof diaphragm.
С	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)	Exterior walls are not adequately anchored into the foundations. No calculations completed.

Project Name 07_Chehalem Elemen 10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING			DESCRIPTION	COMMENTS	
C	NC x	N/A	⊃	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)	Exterior walls do not have adequate out of plane connections between foundations and roof diaphragm.
С	NC	N/A X	υ	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 adjacent buildings.
С	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)	Mechanical penthouse is tied into the main structure.

Project Name Project Number 10021800125

07_Chehalem Elemen

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
c	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-story structure.
c	NC	N/A	U	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-story structure.
C X	NC	N/A	U	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)	All lateral components appear to be continuous to foundations.
С	NC	N/A	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-Story Structure.

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

Project Name 07_Chehalem Elemen 10021800125

О	NC	N/A x	υ	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)	1-story structure.
С	NC	N/A	U X	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No Calculation performed.

Moderate Seismicity

Geologic Site Hazards

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could	
			X	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)	
С	NC	N/A	U	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope	
			X	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)	

					Project Name Project Number	07_Chehalem Elemen	
					Project Number	10021800125	
С	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture			\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
			-	and surface displacement at the building site are			Z Z
Ш	Ш		X	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1)			
				[5.4.5.1 <i>)</i>			CHE
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High	Seisr	nicity	,				
_		-		ration			၂ ၂ ဟု
	TING			DESCRIPTION	COMMENTS		MIDDLE SCHOOLS
С	NC	N/A	U	OVERTURNING: The ratio of the least horizontal	No Calculation perfor	mod	I트운
	INC	111/7		dimension of the seismic-force-resisting system at	No Calculation perior	med.	⊠ິΩ
			X	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)			
							ဟ
							SCHOOLS
c	NC	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The			HGH
	[1			foundation has ties adequate to resist seismic			 エ
	X		Ш	forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as			တ
				Site Class A, B, or C. (Commentary: Sec. A.6.2.2.			
				Tier 2: Sec. 5.4.3.4)			
							(0
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							SUPPORT FACILITIES
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							SI FA

Project Name Project Number 10021800125

07_Chehalem Elemen

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	07_Chehalem Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name
Project Number

07_Chehalem Elemen
10021800125

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

Low and Moderate Seismicity

Lateral	l Seismic-l	Force-Res	isting S	ystem
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	TING		7 07 00	DESCRIPTION	COMMENTS	
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal	COMMENTS	
X				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)		MIDDLE
c	NC	N/A	U x	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	No calculations completed.	
				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		HIGH SCHOOLS
X	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)		
						OPTION
C X	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)	Gypsum board is used as sheathing in the structure but not in all areas	S
				(Commentary: Sec. A.S.Z.7.3. Her Z: Sec. S.S.3.6.1)		SUPPORT FACILITIES

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

Project Name 07_Chehalem Elemen 10021800125

C	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood	
X				shear walls with an aspect ratio greater than 2- to-1 are not used to resist seismic forces.	
			Ш	(Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
				(Commentary, Sec. 71.5.2.7.4. Her 2. Sec. 5.5.5.6.1)	
	NC	NI/A	U	WALLS CONNECTED THROUGH FLOORS: Shear	
C	NC	N/A	U	walls have an interconnection between stories to	
X				transfer overturning and shear forces through the	
				floor. (Commentary: Sec. A.3.2.7.5. Tier 2:	
				Sec.5.5.3.6.2)	
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at	
С _	NC		U	least one side by more than one-half story	
С	NC	N/A	U		
С	NC		U	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.	
с П	NC		υ	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-	
С <u></u>	NC		U	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.	
С	NC		υ	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.	
С	NC		υ	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.	
С	NC		U	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)	
С	NC		υ	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) CRIPPLE WALLS: Cripple walls below first-floor-	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	
		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	

					Project Name Project Number	07_Chehalem Elemen 10021800125	
C x	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)			ELEMENTARY SCHOOLS
Conn	ectio	ns ens					
	TING			DESCRIPTION	COMMENTS		ဟု
	NC X	N/A	U	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)			MIDDLE SCHOOLS
C X	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			HIGH SCHOOLS
							SC
C x	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			OPTION SCHOOLS
			liana	NC - Negropoliant N/A - Net Applicable II - IInk			SUPPORT FACILITIES

Project Name

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	DIAPHRAGM CONTINUITY: The diaphragms are	
				not composed of split-level floors and do not	
X	Ш	Ш	Ш	have expansion joints. (Commentary: Sec. A.4.1.1.	
				Tier 2: Sec. 5.6.1.1)	
C	NC	N/A	U	ROOF CHORD CONTINUITY: All chord elements	
x				are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec.	
	Ш			5.6.1.1)	
С	NC	N/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS:	
	IVC	IN/ A		There is reinforcing around all diaphragm	
X				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)	
				CTDAICHT CHEATHING AT A CLARACTER AT	
C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in	
		X		the direction being considered. (Commentary:	
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

					Project Name Project Number	07_Chehalem Elemen 10021800125	
С	NC x	N/A	υ	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)	There appears to be s that are longer then 2	pans of the diaphragm 24'.	ELEMENTARY SCHOOLS
C **	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			MIDDLE SCHOOLS
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)			SCHOOLS SCHOOLS
Conn		ns		DESCRIPTION	COMMENTS		
C	NC	N/A	U	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)	- COMMENTS		OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name Project Number 10021800125

07_Chehalem Elemen

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	07_Chehalem Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

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

	,	J	
Low and Moderate Seismicity			
Seismic-Force-Resisting System			

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal	
X				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.	
				5.5.1.1)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using	No calculations completed.
			x	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 **	NC	N/A	υ	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)	Reinforcement is spaced at 24" and 32" o.c. typically, as noted on 1970 and 1971 drawings.

07_Chehalem Elemen Project Number 10021800125

Project Name

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	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)	No precast Diaphragm.

Connections

	Joiniections						
RA	TING			DESCRIPTION	COMMENTS		
С	NC x	N/A	υ	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)	Foundation drawings for the original structure are unclear if a connection is made from the floor diaphragm to the exterior shear walls and foundation system. No calculations completed.		
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)			
C X	NC	N/A	> _	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)			

					Project Name Project Number	07_Chehalem Elemen	
C x	NC	N/A	U	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)	No precast diaphragn grade appears to tie in and foundations syste		ELEMENTARY SCHOOLS
C **	NC	N/A	U	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 x	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			SCHOOLS
Stiff	Seisi Diaph TING NC	-		DESCRIPTION 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)	COMMENTS		OPTION SCHOOLS
_				NC = Noncompliant, $N/A = Not Applicable$, $U = Unk$	nown	Rev. 41-31.1	SUPPORT FACILITIES

Project Name 07_Chehalem Elemen 10021800125

c	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS:	
				Diaphragm openings immediately adjacent to	
X				exterior masonry shear walls are not greater than	
				8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec.	
				5.6.1.3)	

Flexible Diaphragms

Flexible Diaphragms					
RA	TING			DESCRIPTION	COMMENTS
С	NC X	N/A	υ 	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Cross ties will likely need strengthening.
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)	
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)	

					Project Name Project Number	07_Chehalem Elemen 10021800125	
С	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)			ELEMENTARY SCHOOLS
С	NC x	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)	Appears to be areas of which span more then		MIDDLE
x	NC	N/A		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 x	NC	N/A	U	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)			NOILAO NOILON
							ORT TIES

Project Name 07_Chehalem Elemen
Project Number 10021800125

Connections

RA	TING			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)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	09_Elmonica Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/21/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name Project Number 10021800125

09_Elmonica Element

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 positive connection between lateral pre-cast concrete shear walls and foundations.
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)	Anchorage appears acceptable into concrete slab on grade floor diaphragm, no anchorage into foundation system. No calculations performed.

SCHOOL S

MIDDLE

HIGH SCHOOLS

CHOOLS

SUPPORI FACILITIES

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
С	NC X	N/A	υ <u></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 positive connection between lateral pre-cast concrete shear walls and foundations.
С	NC	N/A *	υ <u></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 adjacent buildings.
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)	Mechanical Penthouses are included in main seismic-force resisting system.

Project Name 09_Elmonica Element 10021800125

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	υ	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. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-story structure.
С	NC	N/A	υ	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-story structure.
C **	NC	N/A	U	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)	
С	NC	N/A X	⊃	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-story structure.

Project Name 09_Elmonica Element 10021800125

С	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
			x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
				5.4.3.1)	

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U x	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculations performed but foundations appear to be acceptable for conditions.
С	NC x	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Covered play area foundations only braced by black top surface.

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	09_Elmonica Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

Note: This checklist is for for the addition areas (1988 and 1992) as they are laterally braced with wood shear walls.

Project Name 09_Elmonica Element 10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls	
				in each principal direction is greater than or equal	
X		Ш	Ш	to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.	
				5.5.1.1)	
C	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check	No calculation performed but likely
	X			procedure of Section 4.5.3.3, is less than the	non-compliant at additions as shear walls are
				following values (Commentary: Sec. A.3.2.7.1. Tier	only at the exterior.
				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	
				All other conditions Too b/it	
С	NC	N/A	U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS:	All shear walls are plywood sheathing.
]			Multi-story buildings do not rely on exterior	7 iii shear walls are ply wood sheathing.
X		Ш	Ш	stucco walls as the primary seismic-force-resisting	
				system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
				3.3.3.0.1)	
	NC	N1 / A	11	GYPSUM WALLBOARD OR PLASTER SHEAR	All I
C	NC	N/A	U	WALLS: Interior plaster or gypsum wallboard is	All shear walls are plywood sheathing.
X				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)	

					Project Name Project Number	09_Elmonica Element 10021800125	
C X	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)			ELEMENTARY SCHOOLS
C X	NC	N/A	U	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
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)			SCHOOLS HIGH
С	NC	N/A	υ <u></u>	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)	No walls below first fl wood posts and beam		OPTION SCHOOLS

Project Name 09_Elmonica Element Project Number 10021800125

С	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural
X				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)
				A.S.2.7.6. Het 2. Sec. 3.3.3.0.3)

Connections

COIII	Connections								
RA	RATING DESCRIPTION COMMENTS								
c	NC X	N/A	U	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 additions do not have positive connections to the foundations.				
С	NC	N/A	U [WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec.					
X				5.7.3.3)					
C X	NC	N/A	>	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

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
C x	NC	N/A	U	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 x	NC	N/A	U	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 x	NC	N/A	U	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 X	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary:	2010 roofing upgrade fixed this issue.
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

Project Name 09_Elmonica Element 10021800125

C X	NC	N/A	U	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)	
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
	110	1 1 / / \	O	DIAPHRAGMS: All diagonally sheathed or	
X				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	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not	
X				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

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	J	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or	Most wood sills are bolted at 48" o.c.
X				less, with proper edge and end distance provided for wood and concrete. (Commentary: A.5.3.7. Tier 2: Sec. 5.7.3.3)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	09_Elmonica Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/21/2018
REVIEWED BY:	
REVIEW DATE:	

Note: This checklist is for the main structure only (original building), the additions are purely wood framed.

Project Name 09_Elmonica Elementario 10021800125

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

RA	RATING			DESCRIPTION	COMMENTS	
C X	NC	N/A	υ	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)	Anchorage appears acceptable into concrete slab on grade floor diaphragm, no anchorage into foundation system. No calculations performed.	

Moderate Seismicity

Seismic-Force-Resisting System

00.0	ocisimo-i orco-nesisting oystem							
RA	TING			DESCRIPTION	COMMENTS			
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls				
				in each principal direction is greater than or equal				
X	Ш	Ш		to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)				
				3.3.1.1)				
С	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in	No calculations performed.			
			X	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)				

					Project Number 10021800125	
C X	NC	N/A	U	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)		ELEMENTARY SCHOOLS
С	NC X	N/A	U	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)	Gym Walls are 6" thick with a height of 26'-6" making the ratio 1/53 < 1/40.	MIDDLE SCHOOLS
Diaph	_	ns		DECOMPTION	COMMENTO	
	ING	N 1/0		DESCRIPTION TOPPING SLAB: Precast concrete diaphragm	COMMENTS	ဟု
X	NC	N/A	υ 	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)	No precast diaphragm; The floor diaphragm is a 4" reinforced concrete slab that connects directly to the exterior tilt-up walls.	HIGH
Conne RAT	ectio ING	ns		DESCRIPTION	COMMENTS	$\frac{1}{2}$
	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)		OPTION
gend:	C = 0	Comp	liant,	NC = Noncompliant, $N/A = Not Applicable$, $U = Unk$	nown	SUPPORT FACILITIES

Project Name 09_Elmonica Element 10021800125

C X	NC	N/A	υ	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)	
С	NC	N/A	U	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)	
С	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection	
X				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

R/	TING			DESCRIPTION	COMMENTS
C	NC	N/A	U	DEFLECTION COMPATIBILITY FOR RIGID	
			X	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)	
				2. 300. 3.3.2.3.2)	

					Project Name Project Number	09_Elmonica Element 10021800125	
C X	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)			ELEMENTARY SCHOOLS
Dian	hragn	me.					
-	TING	113		DESCRIPTION	COMMENTS		တ
C x	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)	2010 roof upgrades fi	xed this issue.	WIDDLE SCHOOLS
C X	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)	2010 roof upgrades fi	xed this issue.	STOOHOS HIGH
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or			STC NC
X				diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)			OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name 09_Elmonica Element 10021800125

С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or	
X				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)	
				3cc. 7t. 112.3. Her 2. 3cc.3.3.2/	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not	
X				consist of a system other than wood, metal deck,	
^	ш			concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
				,	
			1		

Connections

DΛ	RATING DESCRIPTION COMMENTS							
С	NC	N/A	U	MINIMUM NUMBER OF WALL ANCHORS PER PANEL: There are at least two anchors from each	- COMMENTS			
X				precast wall panel into the diaphragm elements. (Commentary: Sec. A.5.1.3. Tier 2: Sec. 5.7.1.4)				
С	NC x	N/A	U	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	No positive connection between lateral pre-cast concrete shear walls and foundations.			

					Project Name	09_Elmonica Element
					Project Number	10021800125
С	NC	N/A x	U	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)		
С <u></u>	NC	N/A	U X	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)	No calculation perform	med.

Project Name Project Number 10021800125

10_Errol Hassell Element

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	10_Errol Hassell Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/22/2018
REVIEWED BY:	
REVIEW DATE:	

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 positive connection between lateral pre-cast concrete shear walls and foundations.
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)	Anchorage appears acceptable into concrete slab on grade, typically no anchorage directly into foundation. Roof anchorage strengthened during 2009 roof diaphragm strengthening. No calculations performed.

Project Name 10_Errol Hassell Element 10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
C	NC x	N/A	υ	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 positive connection between lateral pre-cast concrete shear walls and foundations.
С	NC	N/A X	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 adjacent buildings. Addition is seismically connected to original building.
C x	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)	Mechanical penthouses are included in main seismic-force resisting systems.

10_Errol Hassell Elemε Project Name

Project Number 10021800125

Building Configuration

	TING	omig		DESCRIPTION	COMMENTS
c	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-story structure.
С	NC	N/A	U	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-story structure.
C X	NC	N/A	U	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)	
С	NC	N/A	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-story structure.

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

Project Name 10_Errol Hassell Element 10021800125

С	NC	N/A X	υ	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)	1-story structure.
С	NC	N/A	U x	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No direct calculations performed. Based on experience and layout of shear walls in the building, this item is compliant.

Moderate Seismicity

Geologic Site Hazards

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	LIQUEFACTION: Liquefaction-susceptible,	
			X	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)	
С	NC	N/A	U	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope	
			X	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)	

					Project Name Project Number	10_Errol Hassell Eleme 10021800125	
С	NC	N/A	U x	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)			ELEMENTARY SCHOOLS
High	Seisr	 micity	,				
Foun	datio	n Cor		ration			щ S
C	NC	N/A	U	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Based on the wall lengitem is likely compliant performed.	gth and height - this nt. No calculations were	MIDDLE SCHOOLS
С	NC x	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Slab on grade is prese Play shelter does not s but has asphalt.	nt for most foundations. show a slab on grade	SCHOOLS HIGH
							OPTION SCHOOLS

Project Name Project Number 10021800125

10_Errol Hassell Element

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	10_Errol Hassell Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	7/18/2018
REVIEWED BY:	
REVIEW DATE:	

Note: This checklist is for for the 1985 addition as it is laterally braced with wood shear walls.

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

Low	and	Mod	lerate	Seism	iicity
	4			00.0	

	TING	isiiiic-	TOICE	DESCRIPTION	COMMENTS	
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal	COMMENTS	
X				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)		MIDDLE
c	NC	N/A	U x	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	No calculations performed likely compliant for overall building, but shear wall locations	
			•	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	NC for diaphragm span (address later in checklist)	HIGH
X	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	All exterior shear walls use plywood sheathing.	
				system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)		OPTION SCHOOLS
C X	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.	All shear walls use plywood sheathing.	08
				(Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)		SUPPORT FACILITIES

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

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c	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood	
X				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)	
				(commentary, see, 71.5.2.7.1. Her 2, see, 5.5.5.6.1)	
	NIC	N1/A		WALLS CONNECTED THROUGH FLOORS: Shear	
C	NC	N/A	U	walls have an interconnection between stories to	
X				transfer overturning and shear forces through the	
				floor. (Commentary: Sec. A.3.2.7.5. Tier 2:	
				Sec.5.5.3.6.2)	
				HILLSIDE SITE: For structures that are taller on at	
C	NC	N/A	U		
C	NC		U	least one side by more than one-half story	
С	NC	N/A		least one side by more than one-half story because of a sloping site, all shear walls on the	
С П	NC			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-	
С	NC			least one side by more than one-half story because of a sloping site, all shear walls on the	
С	NC			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.	
с П				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.	
С				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.	
С				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.	
		X		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.	All walls below first floor are constant
C	NC		U	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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	All walls below first floor are concrete foundation stem walls. Wood gravity framing
		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	All walls below first floor are concrete foundation stem walls. Wood gravity framing posts also below 1st floor framing.
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	foundation stem walls. Wood gravity framing
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	foundation stem walls. Wood gravity framing
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	foundation stem walls. Wood gravity framing
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	foundation stem walls. Wood gravity framing
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	foundation stem walls. Wood gravity framing
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	foundation stem walls. Wood gravity framing

					Project Name Project Number	10_Errol Hassell Element 10021800125	
C x	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)			ELEMENTARY SCHOOLS
Conn	ectio	ns					
	TING			DESCRIPTION	COMMENTS		၂ တု
С	NC X	N/A	U	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 adopositive connections		MIDDLE
C x	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			SCHOOLS SCHOOLS
C x	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			OPTION SCHOOLS
							SUPPORT FACILITIES

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Project Name

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
C	NC x	N/A	⊃	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)	Roof diaphragm has a pop-up in the center of the building. Raised portion is detailed with plywood sheathing on the vertical faces and is likely ok with additional strapping.
C	NC	N/A	U X	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)	Chord detailing is unclear in drawings
C	NC	N/A X	υ	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)	
С	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)	

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C x	NC	N/A	U	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)	Plywood diaphragm	ELEMENTARY SCHOOLS
С	NC x	N/A	U	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)	Blocking not shown on drawings. Spans could be less than 40ft if collectors are added at the roof diaphragm.	MIDDLE
C x	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)		HIGH
Conn		ns				
C	NC	N/A	U	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)	Most wood sills are bolted at 48" o.c.	OPTION SCHOOLS
						SUPPORT FACILITIES

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

Project Name Project Number 10021800125

10_Errol Hassell Element

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	10_Errol Hassell Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/22/2018
REVIEWED BY:	
REVIEW DATE:	

Note: This checklist is for the main structure only (original 1979 building), the additions are purely wood framed.

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

RA	TING			DESCRIPTION	COMMENTS
C **	NC	N/A	υ	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)	Anchorage appears acceptable into concrete slab on grade floor diaphragm, no anchorage into foundation system. 2009 roof anchorage was seismically retrofitted. No calculations performed.

Moderate Seismicity

Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS	I
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)		
С	NC	N/A	U X	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√fc. (Commentary: Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)	No calculations performed. Likely compliant based on length of wall in the building.	

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C x	NC	N/A	U	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	NC x	N/A	U	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)	Gym Walls are 6" thick with a height of 26'-6" making the ratio 1/53 < 1/40.
Diapl	_	ns		DECODINE	OOMBRENTS
KA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	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)	
Conn		ns		DECODINE	OOMBATNITO
	TING			DESCRIPTION	COMMENTS
x	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)	Strengthened in 2009.

					Project Number 10021800125	
C x	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)	Strengthened in 2009.	ELEMENTARY SCHOOLS
С	NC	N/A	υ	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)		MIDDLE
C x	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)		HIGH SCHOOLS
		•		ing System DESCRIPTION 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)	COMMENTS Flexible diaphragms.	OPTION SCHOOLS
egend	: C = 0	Comp	liant,	NC = Noncompliant, $N/A = Not Applicable$, $U = Unk$	known	SUPPORT FACILITIES

Project Name

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C	NC	N/A	J	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than	
x				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)	

Diaphragms

игар	Diaphragms							
RA	TING			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)	2009 roof upgrades fixed this issue.			
С	NC	N/A	υ <u></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)	Play shelter contains 3x straight sheathing.			
С	NC x	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)	Play shelter contains 3x straight sheathing. Other roof areas contain plywood.			

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С	NC X	N/A	U	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 diaphragms are only blocked in certain areas per 2009 retrofit drawings. Diaphragm spans exceed 40ft.	ELEMENTARY SCHOOLS
C X	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)		MIDDLE
Conn	ectio	ns				
RA	TING			DESCRIPTION	COMMENTS	
C X	NC	N/A	U	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)		STOOHDS HIGH
С	NC x	N/A	υ	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	No positive connection between lateral pre-cast concrete shear walls and foundations. There is a connection to the slab on grade when not directly to the foundation.	
egend	· C = 0	Comp	liant	NC = Noncompliant, $N/A = Not Applicable$, $U = Unk$	gnown	SUPPORT FACILITIES

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С	NC	N/A X	υ	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)	
С	NC	N/A	U X	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)	No calculations performed. Likely compliant. Connections do not contain ties securing anchor bolts but do contain headed studs. Capacity is likely adequate for out of plane forces.

Project Name 11_Findley Elementary

Project Number 10021800125

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	11_Findley Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

MIDDLE SCHOOLS

Project Name 11_Findley Elementary
Project Number 10021800125

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			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 well defined from the roof diaphragm to the foundations. The existing drawings are well documented.
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 appears to be adequate for the out of plane forces. No calculations performed.

Project Name 11_Findley Elementary Project Number 10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity Building System General

RA	TING			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 well defined from the roof diaphragm to the foundations. The existing drawings are well documented.
C x	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)	
С	NC	N/A X	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)	

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

Project Name 11_Findley Elementary
Project Number 10021800125

Building Configuration

	RATING DESCRIPTION COMMENTS								
C X	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	No calculations completed. Likely complaint as no significant changes occur between levels.				
C X	NC	N/A	U	SOFT STORY: The stiffness of the seismic-forceresisting 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)	No calculations completed. Likely complaint as no significant changes occur between levels.				
C X	NC	N/A	O \square	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 **	NC	N/A	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)					

					Project Name Project Number	11_Findley Elementary 10021800125	
C X	NC	N/A	U	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)			ELEMENTARY SCHOOLS
С	NC	N/A	U X	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No calculations comp	leted.	MIDDLE SCHOOLS
		Seisn	•				
	o <i>gic</i> S TING	Site Ha	3Zaru	DESCRIPTION	COMMENTS		_ S]
С	NC	N/A	U X	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)			SCHOOFS HIGH
С	NC	N/A	U	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope			OPTION SCHOOLS
			X	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)			OP. SCH
		Comr	diant	, NC = Noncompliant, N/A = Not Applicable, U = Unk	gnown		SUPPORT FACILITIES

Project Name Project Number 11_Findley Elementary 10021800125

C NC N/A U 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)

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OVERTURNING: The ratio of the least horizontal	No calculations completed.
			X	dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6Sa. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	
С	NC	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic	
X				forces where footings, piles, and piers are not	
				restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	11_Findley Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	07/18/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 11_Findley Elementary
Project Number 10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls	
				in each principal direction is greater than or equal	
X				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.	
				5.5.1.1)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the	No salaulationa manfanna al Libalu sananliant
	INC	IN/A	U	shear walls, calculated using the Quick Check	No calculations performed. Likely compliant due to numerous shear walls present.
			X	procedure of Section 4.5.3.3, is less than the	ade to Hamerous shear wans present.
				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	
				Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft	
				All other conditions 100 lb/ft	
С	NC	N/A	J	STUCCO (EXTERIOR PLASTER) SHEAR WALLS:	
				Multi-story buildings do not rely on exterior	
X		Ш		stucco walls as the primary seismic-force-resisting	
				system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
				3.3.3.0.1)	
				CVDCLIMA WALL DOADD OD DI ACTED CLIEAD	
C	NC	N/A	U	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is	
X				not used as shear walls on buildings more than	
ت ا		ш		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)	

					Project Name Project Number	11_Findley Elementary 10021800125	
C x	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)			ELEMENTARY SCHOOLS
C X	NC	N/A	U	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 X	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)	Aspect ratios appear t	to meet the 1-to-1 limit	HIGH SCHOOLS
С	NC	N/A	U	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)	No walls below the sla	ab on grade floor.	OPTION SCHOOLS
							ORT FIES

C NC N/A U OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)

Connections

	Connections							
RATING DESCRIPTION COMMENTS								
С	NC	N/A	U	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec.				
X				A.5.3.3. Tier 2: Sec. 5.7.3.3)				
С	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the				
X			П	foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)				
C	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a				
		IN/A	0	positive connection using plates, connection				
X	Ш	Ш	Ш	hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2:				
				Sec. 5.7.4.1)				

Project Name

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
C	NC x	N/A		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)	Diaphragms have discontinuous areas across roof level.
C x	NC	N/A	υ <u></u>	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 x	NC	N/A	υ	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)	
С	NC	N/A *	υ	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)	

Project Name Project Number 11_Findley Elementary 10021800125

gms with spans greater structural panels or

X	NC	N/A	□	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)	
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
x				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)	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not	
x				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

R A	TING			DESCRIPTION	COMMENTS
C	NC	N/A	U	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)	COMMENTS

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	12_Fir Grove Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/18/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name Project Number 10021800125

12_Fir Grove Elementan

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC X	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)	Connections between the concrete floor diaphragm and foundations appear to be lacking at older areas.
С	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)	Did not perform calculations. Anchorage most likely not adequate at older areas.

Project Number

12_Fir Grove Elementa

Project Number 10021800125

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MIDDLE

HIGH

CHOOLS

SUPPORI FACILITIES

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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)	Connections between the concrete floor diaphragm and foundations appear to be lacking at older areas.
С	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 adjacent buildings.
С	NC	N/A X	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)	Single story structure with no interior mezzanines.

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-story structure.
С	NC	N/A x	υ <u></u>	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	1-story structure.
C **	NC	N/A	υ	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)	
С	NC	N/A X	υ	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-story structure.

					Project Name Project Number	12_Fir Grove Elementa 10021800125	
С	NC	N/A x	U	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)	1-Story structure		ELEMENTARY SCHOOLS
С	NC	N/A	U x	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	Calculations not perfo non-compliant at nort		MIDDLE SCHOOLS
Mode	erate	Seisn	nicity	,			
Geole	ogic S	ite Ha	•	ls			S
RA	TING			DESCRIPTION	COMMENTS		모
С	NC	N/A	U X	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)			STOOHDS HIGH
							S
С	NC	N/A	U X	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)			OPTION SCHOOLS
							SUPPORT FACILITIES

	C	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
				x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
					5.4.3.1)	
ı						

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U X	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculation performed.
С	NC x	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	1953/1954 areas do not appear to have adequate connections per the drawings.

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	12_Fir Grove Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/31/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 12_Fir Grove Elementa 10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	υ	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.	Classroom wing of 1954 addition has only one shear wall in east-west direction.
				5.5.1.1)	
С	NC x	N/A	>	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	No calculations completed but likely non compliant due to lack of shear walls.
С	NC	N/A X	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)	
C X	NC	N/A	υ	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)	

					Project Name Project Number	12_Fir Grove Elementa 10021800125	
C X	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)			ELEMENTARY SCHOOLS
С	NC	N/A	U	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
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)			SCHOOLS HIGH
С	NC	N/A X	U	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
							PPORT ILITIES

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

Connections

X

	Sonnections						
RA	TING			DESCRIPTION	COMMENTS		
c	NC	N/A	U	WOOD POSTS: There is a positive connection of			
				wood posts to the foundation. (Commentary: Sec.			
X				A.5.3.3. Tier 2: Sec. 5.7.3.3)			
С	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the	Wood shear walls require hold downs in one		
				foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec.	direction.		
	X	Ш	Ш	5.7.3.3)			
c	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a			
				positive connection using plates, connection			
X		Ш	Ш	hardware, or straps between the girder and the			
				column support. (Commentary: Sec. A.5.4.1. Tier 2:			
				Sec. 5.7.4.1)			

A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
C X	NC	N/A	U	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)	
				ROOF CHORD CONTINUITY: All chord elements	
X	NC	N/A	U	are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	
	NC	NI/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS:	
С		N/A		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)	
С	NC X	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)	Straight sheathing (wood decking) is used prominently at the 1954 addition.

С	NC *	N/A	U	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)	Wood decking can span further then 24' in some areas.
C X	NC	N/A	υ	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)	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck,	
X				concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
Conn		ns			
RA	TING			DESCRIPTION	COMMENTS
x	NC	N/A	υ	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)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	12_Fir Grove Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/18/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 12_Fir Grove Elementa 10021800125

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

L	٥v	٧	and	Mo	der	ate	Seis	mici	itv

Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
x	NC	N/A	υ	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	NC	N/A	U x	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)	No Calculation performed but additional shear walls are likely required.
С	NC x	N/A	U	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)	Masonry reinforcement is spaced greater then what is required.

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Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS	
С	NC	N/A	υ	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)	No precast diaphragm.	ELEMENTA SCHOOLS
	nectio	ns				MIDDLE SCHOOLS
RA	TING		ı	DESCRIPTION	COMMENTS	I 트 오
C	NC X	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	Wall anchorage likely cannot provide support for out of plane forces. No calculations completed.	N SS
				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)		HE SIO
С	NC x	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)	Wood ledgers are in cross grain bending.	HOHOS
						NC S IC
с П	NC X	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)	Out of Plane connections are not adequate.	SCHOOLS

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

С	NC	N/A x	U	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)	No precast diaphragm.
С	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec.	
x				A.5.3.5. Tier 2: Sec. 5.7.3.4)	
С	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a	
x				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

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm	
X				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)	
				(Commentary, Sec. 7th 1.711, 11cl 2, Sec. 3.0.113)	

					Project Name 12_Fir Grove Elementa 10021800125	
C X	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)		ELEMENTARY SCHOOLS
Flexi	ble Di	iaphra	agms	<u> </u>		
RA	TING			DESCRIPTION	COMMENTS	LS E
С	NC X	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)	The 2004 Re-roofing appears to have adequately provided support for this, but the other classroom areas have not.	MIDDLE
				ODENINGS AT SUFAD WALLS Disables on		၂
x	NC	N/A	υ	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)		HIGH
C x	NC	N/A	о П	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)		OPTION
						4
						SUPPORT FACILITIES

С	NC	N/A X	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)	
c	NC	N/A	U	SPANS: All wood diaphragms with spans greater	
			_	than 24 ft consist of wood structural panels or	
X	Ш	Ш	Ш	diagonal sheathing. (Commentary: Sec. A.4.2.2.	
				Tier 2: Sec. 5.6.2)	
				DIA CONTACTOR AND UNDO COED	
C	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or	
x				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)	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm shall not	
X				consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
🗀	Ш			Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
				2.32.3.3.3	
1		1	l		

Rev. 41-31.1

Connections

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of	
X				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)	

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

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Project Name Project Number 10021800125

13_Greenway Elemen

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	13_Greenway Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/22/2018
REVIEWED BY:	
REVIEW DATE:	

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 positive connection between lateral tilt-up pre-cast concrete shear walls and foundations.
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)	Anchorage appears acceptable into concrete slab on grade floor diaphragm, no anchorage into foundation system. No calculations performed.

Project Name
Project Number
13_Greenway Elemen
10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
C	NC x	N/A	υ	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 positive connection between lateral tilt-up pre-cast concrete shear walls and foundations.
С	NC	N/A X	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 adjacent buildings
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)	Mechanical penthouses are included in main seismic-force resisting system.

Project Name
Project Number
13_Greenway Elemen
10021800125

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
c	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-story building.
С	NC	N/A	U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	1-story building.
C X	NC	N/A	υ	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)	
С	NC	N/A x	υ	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-story building.

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

Project Name 13_Greenway Elemen 10021800125

С	NC	N/A X	υ <u></u>	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)	1-story building.
С	NC	N/A	U x	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No calculations performed.

Moderate Seismicity

Geologic Site Hazards

TING			DESCRIPTION	COMMENTS
NC	N/A	U	LIQUEFACTION: Liquefaction-susceptible,	
		X	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)	
NC	N/A	U	SLOPE FAILURE: The building site is sufficiently	
		X	failures or rockfalls to be unaffected by such	
			predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)	
		NC N/A	NC N/A U RC N/A U NC N/A U	NC N/A U 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) NC N/A U 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.

					Project Name Project Number	13_Greenway Elemen*—	
С	NC	N/A	U X	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)	,		ELEMENTARY SCHOOLS
High	Seisr	nicity	1				
	datio TING	n Con	figui	ration DESCRIPTION	COMMENTS		OLS
С	NC	N/A	U X	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)			MIDDLE
							S
С	NC X	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	No positive connection pre-cast concrete shew foundations.	on between lateral tilt-up ar walls and	SCHOOLS HIGH
							W
							OPTION SCHOOLS
							۲۲ ES
							SUPPORT FACILITIES

Project Name Project Number 10021800125

13_Greenway Elemen

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	13_Greenway Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

HENTARY (172)

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

_	RATINO		-1 01 0	DESCRIPTION	COMMENTS	田の
			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)		MIDDLE
(N/A	U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check	No calculations performed.	
			X	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		HIGH SCHOOLS
(NC	N/A	U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior	All shear walls are plywood sheathing.	
				stucco walls as the primary seismic-force-resisting system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)		OPTION SCHOOLS
	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.	All shear walls are plywood sheathing.	0
				(Commentary: Sec. A.3.2.7.3. Tier 2: Sec. 5.5.3.6.1)		
						SUPPORT
						ls ₹

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

Project Name 13_Greenway Elemen 10021800125

С	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-	
X				to-1 are not used to resist seismic forces.	
				(Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
				WALLS CONNECTED THROUGH FLOORS: Shear	
C	NC	N/A	U	walls have an interconnection between stories to	
X				transfer overturning and shear forces through the floor. (Commentary: Sec. A.3.2.7.5. Tier 2:	
				Sec.5.5.3.6.2)	
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at	
		X		least one side by more than one-half story because of a sloping site, all shear walls on the	
			Ш		
				downhill slope have an aspect ratio less than 1-	
				to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec.	
				to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec.	
				to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec.	
С	NC	N/A	U	to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3) CRIPPLE WALLS: Cripple walls below first-floor-	Wood posts are used below the wood floor
C X	NC	N/A	U	to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	Wood posts are used below the wood floor level.
	NC	N/A	U	to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	
	NC	N/A	U	to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
	NC	N/A	U	to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
	NC	N/A	υ	to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	

					Project Name Project Number	13_Greenway Elemen 10021800125	
C x	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)			ELEMENTARY SCHOOLS
Conn	ectio	ons	<u> </u>				
	TING			DESCRIPTION	COMMENTS		ဟု
С	NC X	N/A	U	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 add positive connections t		MIDDLE SCHOOLS
С	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the			H DLS
	x			foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			100H2S
					1		
C X	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name 13_Greenway Elemen
Project Number 10021800125

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC X	N/A	U	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)	Most wood sills are bolted at 48" o.c.
C **	NC	N/A	U	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 **	NC	N/A	U	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 **	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)	Roof upgrade in 2009 fixed this issue.

					Project Name	10021800125	
C X	NC	N/A	U	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)			ELEMENTARY SCHOOLS
C x	NC	N/A	υ	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)			MIDDLE SCHOOLS
C x	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)			SCHOOLS HIGH
Conn	ectio	ns					
RA	TING			DESCRIPTION	COMMENTS		
C X	NC	N/A	υ 	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)			OPTION SCHOOLS
egend	. C = (Comp	liant	NC = Noncompliant, N/A = Not Applicable, U = Unki	nown		SUPPORT FACILITIES

Project Name Project Number 10021800125

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	13_Greenway Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/22/2018
REVIEWED BY:	
REVIEW DATE:	

Note: This checklist is for the main structure only (original building), the additions are purely wood framed.

t or 21A:

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	Seism	icity
	0010111	

Connections

RA	RATING DESCRIPTION				COMMENTS
C **	NC	N/A	υ	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)	Anchorage appears acceptable into concrete slab on grade floor diaphragm, no anchorage into foundation system. No calculations performed.

Moderate Seismicity

Seismic-Force-Resisting System

RA	TING			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)	
С	NC	N/A	U x	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)	No calculations performed.

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

Project Name 13_Greenway Element Project Number 10021800125 REINFORCING STEEL: The ratio of reinforcing steel NC N/A U area to gross concrete area is not less than 0.0012 X 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 THICKNESS: Thicknesses of bearing walls NC U C N/A Gym walls are 6" thick with a height of 26'-6" shall not be less than 1/40 the unsupported making the ratio 1/53 < 1/40 X 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 TOPPING SLAB: Precast concrete diaphragm C NC N/A U The floor system is a 4" reinforced concrete elements are interconnected by a continuous slab with connection directly into the lateral X reinforced concrete topping slab with a minimum exterior tilt-up walls. thickness of 2 in. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4) Connections

R/	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	WOOD LEDGERS: The connection between the	
X				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)	

					Project Name Project Number	13_Greenway Elemen + 10021800125	
x	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)			ELEMENTARY SCHOOLS
C X	NC	N/A	υ	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)			MIDDLE SCHOOLS
C X	NC	N/A	υ <u></u>	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)			STOOH2S HIGH
•		nicity					
		rce-R	esisti	ing System	COMMENTS		
С	NC	N/A	U X	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)	Bearing elements such most likely do not hav capacity.	n as columns and walls e sufficient shear	OPTION SCHOOLS
gend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown							[문]

Project Name 13_Greenway Elemen 10021800125

С	NC	N/A	U	WALL OPENINGS: The total width of openings along any perimeter wall line constitutes less than	
X				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)	

Diaphragms

Diaphragms						
RA	TING			DESCRIPTION	COMMENTS	
C **	NC	N/A	υ	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)	Roof upgrades in 2009 fixed this issue.	
C	NC	N/A	>	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)	Roof upgrades in 2009 fixed this issue.	
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)		

					Project Name Project Number	13_Greenway Elemen 10021800125	
K	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)			ELEMENTARY SCHOOLS
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)			MIDDLE SCHOOLS
Conn	ectio	ns					
RA	TING			DESCRIPTION	COMMENTS		
C x	NC	N/A	U	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)			SCHOOLS HIGH
С	NC x	N/A	U	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	No positive connection pre-cast concrete sheet foundations.		OPTION SCHOOLS
egend	l: C = (Comp		, NC = Noncompliant, N/A = Not Applicable, U = Unk	known		SUPPORT FACILITIES

Project Name 13_Greenway Elemen 10021800125

С	NC	N/A X	U	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)	
С	NC	N/A	U X	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)	No calculations performed.

FIRM:	KPFF
PROJECT NAME:	15_Hiteon Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/23/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name Project Number 10021800125

15_Hiteon Elementary

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			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 well defined as shown through the existing drawings.
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)	Exterior walls are anchored to the floor concrete diaphragm and the foundations. No calculations completed.

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity Building System General

RA	TING			DESCRIPTION	COMMENTS
x	NC	N/A	υ	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 well defined as shown through the existing drawings.
С	NC	N/A *	υ <u></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 adjacent buildings.
С	NC	N/A *	υ	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)	

Project Name 15_Hiteon Elementary 10021800125

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-story structure.
С	NC	N/A	υ	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-story structure.
С	NC x	N/A	υ	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)	The lateral elements at the mechanical penthouses are not continuous to the foundations.
С <u></u>	NC	N/A X	υ	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-story structure.

Project Name 15_Hiteon Elementary 10021800125

С	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
			x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
				5.4.3.1)	

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U x	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculation performed.
С	NC x	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Foundations at the covered play area are not properly braced by the asphalt surface.

FIRM:	KPFF
PROJECT NAME:	15_Hiteon Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 15_Hiteon Elementary 10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
C x	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)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check	No calculation performed.
			X	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	
				STUCCO (EXTERIOR PLASTER) SHEAR WALLS:	
X	NC	N/A	U	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)	
С	NC	N/A	U	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is	
X				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)	

					Project Name Project Number	15_Hiteon Elementary 10021800125	
C X	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)			ELEMENTARY SCHOOLS
C X	NC	N/A	U	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
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)			HIGH SCHOOLS
С	NC	N/A *	υ	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)	Slab on grade used al cripple walls below.	l areas of building, no	OPTION SCHOOLS
							. (0

Project Name Project Number

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)

Connections

	onnections						
RA	TING			DESCRIPTION	COMMENTS		
С	NC	N/A	U	WOOD POSTS: There is a positive connection of wood posts to the foundation. (Commentary: Sec.			
X				A.5.3.3. Tier 2: Sec. 5.7.3.3)			
С	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec.			
X				5.7.3.3)			
C	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection			
X				hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			

15_	Hiteon Elementary
100	21800125

Project Name Project Number

High Seismicity

Diaphragms

-	ларіі аўніз						
RA	TING			DESCRIPTION	COMMENTS		
C X	NC	N/A	υ	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)			
x	NC	N/A	υ	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 x	NC	N/A	υ	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)			
С	NC	N/A x	υ	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

Project Name 15_Hiteon Elementary 10021800125

С	NC X	N/A	о _П	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)	Some wood decking spans are greater then 24'.			
c	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED				
				DIAPHRAGMS: All diagonally sheathed or				
X	Ш		Ш	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)				
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not				
				consist of a system other than wood, metal deck,				
X			Ш	concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)				
				3cc.74.1.711. Her 2. 3cc. 3.0.37				
Connections								
RA	TING			DESCRIPTION	COMMENTS			
С	NC	N/A	U	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or				
X				less, with proper edge and end distance provided for wood and concrete. (Commentary: A.5.3.7. Tier				
				2: Sec. 5.7.3.3)				

FIRM:	KPFF
PROJECT NAME:	15_Hiteon Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/23/2018
REVIEWED BY:	
REVIEW DATE:	

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
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Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
x	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)	
с П	NC	N/A	U x	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)	No calculation performed.
С	NC x	N/A	U	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)	Vertical reinforcement spaced at 48 in o.c.

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Stiff Diaphragms

R A	TING			DESCRIPTION	COMMENTS	< = 0.
С	NC	N/A	>	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)	No Precast diaphragm.	ELEMENT
	nectio			DESCRIPTION	COMMENTS	MIDDLE SCHOOLS
C X	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) WOOD LEDGERS: The connection between the		HIGH SCHOOLS
X	NC	N/A	υ	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)		1 CO
						NO S
C x	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)		OPTI
						ZT FS

C X	NC	N/A	U	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)	No precast diaphragm, but reinforce concrete s.o.g. is connected to exterior masonry wall.
С	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is	
x				doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection	
x				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

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm	
X				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)	

					Project Name Project Number	15_Hiteon Elementary 10021800125	
C x	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)			ELEMENTARY SCHOOLS
Flexi	LL. hle D	iaphra	aams	<u> </u>			
	TING		agiii s	DESCRIPTION	COMMENTS		v
C x	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)			MIDDLE SCHOOLS
C x	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)			HIGH SCHOOLS
				(Commentary, Sec. 78, 17.11, 11cl 2, Sec. 3.57.13)			S
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)			OPTION SCHOOLS
				NC - Negropoliant N/A - Net Applicable II - Held			SUPPORT FACILITIES

С	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in	
		x		the direction being considered. (Commentary:	
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
С	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or	Spans greater then 24' at locations with wood
	X			diagonal sheathing. (Commentary: Sec. A.4.2.2.	decking.
				Tier 2: Sec. 5.6.2)	
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or	
x				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)	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck,	
X				concrete, or horizontal bracing. (Commentary:	
				Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

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Connections

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural	
X				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)	

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

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Project Name Project Number 10021800125

16_Jacob Wismer Elen

FIRM:	KPFF
PROJECT NAME:	16_Jacob Wismer Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name	16_Jacob Wismer Elen		
Project Number	10021800125		

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
C x	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)	
C x	NC	N/A	υ	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

Project Name
Project Number
16_Jacob Wismer Elen
10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	LOAD PATH: The structure shall contain a complete, well-defined load path, including	
X				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)	
				3.4.1.1)	
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any	No adjacent buildings.
		X		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)	
С	NC	N/A	U	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or	No interior mezzanines.
		X		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)	

SCHOOLS

MIDDLE

HIGH SCHOOLS

CHOOLS

SUPPORI ACILITIES

Building Configuration

Building Configuration						
RATING		DESCRIPTION	COMMENTS	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
C NC	N/A U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	No calculations completed but the symmetrical stories appear to make this compliant.			
C NC	N/A U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	No calculations completed but the symmetrical stories appear to make this compliant.			
C NC	N/A U	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 NC	N/A U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)				

Project Name 16_Jacob Wismer Elen Project Number 10021800125

C x	NC	N/A	U	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)	No calculations completed and second story does have large open areas but not enough to make a 50% difference.
C x	NC	N/A	U	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No calculations completed, likely compliant due to amount and locations of shear walls.

Moderate Seismicity

Geologic Site Hazards

DΛ	RATING DESCRIPTION COMMENTS				
- NA	HING				COMMINICIALIS
C	NC	N/A	U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could	
			X	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)	
				Sec. A.o.1.1. Her 2: 5:4.5.1)	
C	NC	N/A	U	SLOPE FAILURE: The building site is sufficiently	
	NC	IN/A	_	remote from potential earthquake-induced slope	
			X	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)	
				•	

					Drainet Nama	16 Jacob Wiene ou Flores	
					Project Name Project Number	16_Jacob Wismer Elen 10021800125	
С	NC	N/A	U x	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)	<u>,</u>		ELEMENTARY SCHOOLS
_		nicity					၂
	uauo TING		nigui	ration DESCRIPTION	COMMENTS		6 5
C X	NC	N/A	U	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	COMMENTS		MIDDLE
С	NC	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The			HIGH SCHOOLS
×				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)			HOS
							OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name Project Number 10021800125

16_Jacob Wismer Elen

FIRM:	KPFF
PROJECT NAME:	16_Jacob Wismer Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 16_Jacob Wismer Elen Project Number 10021800125

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		
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal			
x				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)			
C x	2	N /A	>	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	No calculations completed, but the amount of shear walls likely means this is compliant.		
C x	NC	N/A	υ	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 x	NC	N/A	υ <u></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)	Gypsum board is present, but plywood is used for main system.		

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

Project Name 16_Jacob Wismer Elen 10021800125

С	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood	
X				shear walls with an aspect ratio greater than 2- to-1 are not used to resist seismic forces.	
	Ш			(Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
				(Commentary, Sec. 7.5.2.7.4. Her 2. Sec. 5.5.5.0.1)	
	NC	NI/A	U	WALLS CONNECTED THROUGH FLOORS: Shear	
C	NC	N/A	U	walls have an interconnection between stories to	
X				transfer overturning and shear forces through the	
				floor. (Commentary: Sec. A.3.2.7.5. Tier 2:	
				Sec.5.5.3.6.2)	
				LINE CIDE CITE E	
C	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story	
x			П	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)	
С	NC	N/A	U	CRIPPLE WALLS: Cripple walls below first-floor-	
			1	level shear walls are braced to the foundation	
		X			
		X		with wood structural panels. (Commentary: Sec.	
		X			
		X		with wood structural panels. (Commentary: Sec.	
		X		with wood structural panels. (Commentary: Sec.	
		×		with wood structural panels. (Commentary: Sec.	
		X		with wood structural panels. (Commentary: Sec.	

					Project Name Project Number	16_Jacob Wismer Elen 10021800125	
C x	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)			ELEMENTARY SCHOOLS
Conn	ectio	ns					
	TING			DESCRIPTION	COMMENTS		့ ကု
x	NC	N/A	U	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)			MIDDLE SCHOOLS
K	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			HIGH SCHOOLS
C X	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2:			OPTION SCHOOLS
				Sec. 5.7.4.1)			S
			1.	NC - Nancampliant N/A - Nat Applicable II - IInk			SUPPORT FACILITIES

Project Name 16_Jacob Wismer Elen
Project Number 10021800125

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC x	N/A	U	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)	Many roof pop ups with large window placements that may cause discontinuities within diaphragm.
x	NC	N/A	υ	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 **	NC	N/A	U	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)	
С	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)	

					Project Name Project Number	16_Jacob Wismer Elen 10021800125	
C	NC	N/A	U	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)			ELEMENTARY SCHOOLS
C x	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			MIDDLE SCHOOLS
C x	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)			STOOHOS HIBH
	i <i>ectio</i> TING			DESCRIPTION	COMMENTS		
C X	NC	N/A	U	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)			OPTION SCHOOLS
agend	1: 6 - 4	Comp	diant	NC - Noncompliant N/A - Not Applicable II - Unkr	nown		SUPPORT FACILITIES

Project Name Project Number 10021800125

17_Kinnaman Elemen

FIRM:	KPFF
PROJECT NAME:	17_Kinnaman Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/24/2018
REVIEWED BY:	
REVIEW DATE:	

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	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)			
C x	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)	Exterior masonry walls are anchored to the diaphragm, not calculations were performed.		

Project Name 17_Kinnaman Elemen 10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING			DESCRIPTION	COMMENTS	
C x	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)	
C x	NC	N/A	υ	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 **	NC	N/A	υ	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)	Mechanical penthouses braced independently and tie into the main lateral system.

Project Name Project Number 10021800125

17_Kinnaman Elemen

Ruilding Configuration

	RATING DESCRIPTION COMMENTS							
RA	TING			DESCRIPTION	COMMENTS			
С	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-Story Structure.			
С	NC	N/A	U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec.	1-Story Structure.			
c	NC x	N/A	U	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)	Mechanical penthouse at original building is not continuous to foundations.			
c	NC	N/A	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-Story Structure.			
				, n.z.z.s. 1101 2. 300. 3. 1.2. tj				

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

Project Name 17_Kinnaman Elemen 10021800125

С	NC	N/A X	υ	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)	1-Story Structure.
С	NC	N/A	U x	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No calculation performed.

Moderate Seismicity

Geologic Site Hazards

DA	RATING DESCRIPTION COMMENTS						
KA	HING			DESCRIPTION	COMMENTS		
C	NC	N/A	U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could			
			X	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)			
С	NC	N/A	U	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope			
			X	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)			

С	NC	N/A	U X	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)	Project Name Project Number	17_Kinnaman Elemen 10021800125	ELEMENTARY SCHOOLS
Four				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)	COMMENTS No calculation perform	med.	MIDDLE SCHOOLS
C **	NC	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)			STOOH2S HIGH
							OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name Project Number 10021800125

17_Kinnaman Elemen

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	17_Kinnaman Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name
Project Number
17_Kinnaman Elemen
10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

	TING			DESCRIPTION	COMMENTS
C X	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)	
С	NC	N/A	U x	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	No calculation completed.
C X	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)	
C x	NC	N/A	> _	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)	Some gypsum board is used at interior shear walls, but not higher then the first story.

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

Project Name 17_Kinnaman Elemen 10021800125

С	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-	
X				to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
				(30)	
С	NC	N/A	U	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to	
x				transfer overturning and shear forces through the	
				floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec.5.5.3.6.2)	
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at	
		X		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)	
С	NC NC	N/A	U	CRIPPLE WALLS: Cripple walls below first-floor-	No walls below first floor, wood posts are used
С	NC	N/A	U	level shear walls are braced to the foundation	No walls below first floor, wood posts are used to support the plywood floor at the 1988
С	NC		U		
С	NC		U	level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	to support the plywood floor at the 1988
С	NC		U	level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	to support the plywood floor at the 1988
С	NC		U	level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	to support the plywood floor at the 1988

					Project Name Project Number	17_Kinnaman Elemen 10021800125	
C X	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)			ELEMENTARY SCHOOLS
Conn	ectio	ns					
RA	TING			DESCRIPTION	COMMENTS		,, ဟု
	NC X	N/A		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)	Some wood posts do connection, but many 1988 addition.	have a positive do not, primarily at the	SCHOOFS WIDDFE
				WOOD SILLS: All wood sills are bolted to the			ဟု
X	NC	N/A	υ	foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			NOOHOS HIGH
C X	NC	N/A	υ	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)			OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name 17_Kinnaman Elemen 10021800125

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
X	NC	N/A	U	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	NC X	N/A	U	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)	There are areas of the roof diaphragm that are split due to elevation changes in the roof.
C X	NC	N/A	U	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)	
С	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)	

					Project Name Project Number	17_Kinnaman Elemen 10021800125	
С	NC X	N/A	U	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)	Some diaphragms hav 24'.	ve a span greater then	ELEMENTARY SCHOOLS
C X	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			MIDDLE SCHOOLS
C x	NC	N/A	υ	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)			SCHOOLS HIGH
Conn	ectio	ns		DESCRIPTION	COMMENTS		
C X	NC	N/A	U	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)			OPTION SCHOOLS
							SUPPORT FACILITIES

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

Project Name Project Number 10021800125

17_Kinnaman Elemen

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	17_Kinnaman Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/24/2018
REVIEWED BY:	
REVIEW DATE:	

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 phragms

	RIVIZ: Reimforced IVI	asonry Bearing	wans with 5th bi	al
Low and Mo	derate Seismicity			
Seismic-Ford	e-Resisting System			

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal	
X				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.	
				5.5.1.1)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using	No calculation performed.
			X	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)	
С	NC	N/A	U	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced	Vertical reinforcement is not spaced less then
	X			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)	48" o.c.

Project Name 17_Kinnaman Elemen 10021800125

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous	No precast diaphragm.
		X		reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

	RATING DESCRIPTION COMMENTS							
RA	TING		COMMENTS					
С	NC	N/A	U	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for				
X				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)				
C	NC	N/A	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce				
X				cross-grain bending or tension in the wood				
				ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec.				
				5.7.1.3)				
С	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are				
X				connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec.				
				5.7.2)				

	Project Name 17_Kinnaman Elemen 10021800125	
C NC N/A U 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)	No precast diaphragm, but reinforced slab on grade is doweled into shear walls.	ELEMENTARY SCHOOLS
C NC N/A U 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 NC N/A U GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)		HIGH SCHOOLS
High Seismicity Stiff Diaphragms RATING 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)	COMMENTS	OPTION SCHOOLS
egend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unk		SUPPORT FACILITIES

4

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Project Name 17_Kinnaman Elemen 10021800125

С	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to	
X				exterior masonry shear walls are not greater than	
				8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec.	
				5.6.1.3)	

Flexible Diaphragms

riexii	Flexible Diaphragms						
RA	TING			DESCRIPTION	COMMENTS		
C X	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)			
С	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls			
X				are less than 25% of the wall length.			
				(Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)			
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to			
X				exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)			

					Project Name Project Number	17_Kinnaman Elemen 10021800125	
С	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)			ELEMENTARY SCHOOLS
С	NC x	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)	Some diaphragm spar	ns are longer then 24'.	MIDDLE
C **	NC	N/A	υ	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	NC	N/A	υ	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
							ORT ITIES

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

Project Name 17_Kinnaman Elemen
Project Number 10021800125

Connections

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of	
X				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)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	18_McKay Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/25/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name Project Number 10021800125

18_McKay Elementary

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 well documented throughout all of the different additions, many of the wood connections to the foundations do not have sufficient connections to provide positive support for the lateral forces.
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 calculations performed, but all masonry exterior walls appear to have anchorage into foundations and roof diaphragm.

Project Name Project Number 10021800125

18_McKay Elementary

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity Building System General

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 well documented throughout all of the different additions, many of the wood connections to the foundations do not have sufficient connections to provide positive support for the lateral forces.
C X	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)	Adjacent building is farther away then required.
С	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)	No interior mezzanines.

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

Project Name 18_McKay Elementary 10021800125

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-story structure.
С	NC	N/A	U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	1-story structure.
C **	NC	N/A	υ	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)	Vertical elements are all continuous to the foundation. Not all elements appear to be sufficiently attached to the foundations.
С	NC	N/A x	>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-story structure.

					Project Name Project Number	18_McKay Elementary 10021800125	
С	NC	N/A	U	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)	1-story structure.		ELEMENTARY SCHOOLS
C	NC	N/A	U	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No calculations perfor	rmed.	MIDDLE SCHOOLS
Mode	erate	Seisr	nicity	<u> </u>			
Geolo	ogic S		-	ls	COMMENTS		တ္
	TING	N1/A		DESCRIPTION LIQUEFACTION: Liquefaction-susceptible,	COMMENTS		HIGH CHOOL
С	NC	N/A	X	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)			SCHOOFS HIGH
							(0
С	NC	N/A	U	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)			OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name 18_McKay Elementary 10021800125

	C	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
				x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
					5.4.3.1)	
ı						

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U x	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculations performed.
С	NC x	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Foundation ties possibly not adequate at covered play area while using asphalt restraint.

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	18_McKay Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 18_McKay Elementary Project Number 10021800125

16.2LS Life Safety Structural Checklist for Building Types W1: Wood Light Frames and W1A: Multi-Story, Multi-Unit Residential Wood Frame

Low and Moderate Seismicity

Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
C X	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)	There are multiple wood framed shear walls in each primary direction.
				3.3.1.1)	
С	NC	N/A	V	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	No calculation performed but the amount of shear walls would appear to make this compliant.
С	NC	N/A X	υ <u></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)	1-story structure, but also no stucco shear walls.
x	NC	N/A		GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard are 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)	Gypsum board is used at shear walls throughout structure, however structure is only 1-story tall.

					Project Name Project Number	18_McKay Elementary 10021800125	
C x	NC	N/A	υ	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
С	NC	N/A	U	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)	1-story structure.		MIDDLE SCHOOLS
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)			STOOHOS HIGH
С	NC	N/A	U	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)	Entire structure is con	crete slab on grade.	OPTION SCHOOLS

C NC N/A U OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)

Connections

	Connections						
RA	TING			DESCRIPTION	COMMENTS		
С	NC X	N/A	U	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 did not have a positive connection to the foundations.		
С	NC x	N/A	>	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	Wood framed walls and foundations are missing positive connections in multiple areas.		
K	NC	N/A	υ <u></u>	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

C	Connections							
	RAT	ING			DESCRIPTION	COMMENTS		
	x	NC	N/A	U	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less with proper edge and end distance provided for wood and concrete. (Commentary: Sec. A.5.3.7. Tier 2: Sec. 5.7.3.3)		ELEMENT/	
							MIDDLE	
	iaphi RAT	_	ns		DESCRIPTION	COMMENTS	' ĕ;	
			N/A	U	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)	COMMENTS		
	C	NC	N/A	U	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof	Chord elements are continuous within each	HGH	
[X				elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	different addition, and corresponding diaphragm.		
							NOIL	
[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)		OPTIC	
							ORT	

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

Project Name 18_McKay Elementary 10021800125

υ <u></u>	NC	N/A	⊃	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)	There are numerous areas where the wood decking diaphragm spans greater then 24 feet.
c	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
				DIAPHRAGMS: All diagonally sheathed or	
X	Ш			unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and shall	
				have aspect ratios less than or equal to 4-to-1.	
				(Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
c	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragms do not	
				consist of a system other than wood, metal deck,	
X				concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
				Sec. 71. 11. 11cl 2. Sec. 5.0.5)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	19_McKinley Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/25/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name Project Number 10021800125

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 well documented throughout all of the different additions, many of the wood connections to the foundations do not have sufficient connections to provide positive support for the lateral forces.
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 calculations performed, but all masonry exterior walls appear to have anchorage into foundations and roof diaphragm.

Project Number

19_McKinley Elementa+

Project Number 10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 well documented throughout all of the different additions, many of the wood connections to the foundations do not have sufficient connections to provide positive support for the lateral forces.
C x	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)	Adjacent building is farther away then required.
С	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)	No interior mezzanines.

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

Project Name 19_McKinley Element 10021800125

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A X	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-story structure.
С	NC	N/A	U	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-story structure.
C X	NC	N/A	U	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)	Vertical elements are all continuous to the foundation. Not all elements appear to be sufficiently attached to the foundations.
С	NC	N/A	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-story structure.

Project Name 19_McKinley Element 10021800125

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U X	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculations performed.
С	NC x	N/A	υ	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)	Foundation ties possibly not adequate at covered play area while using asphalt restraint.

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	19_McKinley Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 19_McKinley Elementary
Project Number 10021800125

16.2LS Life Safety Structural Checklist for Building Types W1: Wood Light Frames and W1A: Multi-Story, Multi-Unit Residential Wood Frame

Low and Moderate Seismicity

Seismic-Force-Resisting System

RA	TING			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)	There are multiple wood framed shear walls in each primary direction.
С	NC	N/A	U x	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	No calculation performed but the amount of shear walls would appear to make this compliant.
С	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)	1-story structure, but also no stucco shear walls.
C **	NC	N/A	υ	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard are 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)	Gypsum board is used at shear walls throughout structure, however structure is only 1-story tall.

					Project Name Project Number	19_McKinley Elementa	
C x	NC	N/A	υ	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
С	NC	N/A	υ	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)	1-story structure.		MIDDLE SCHOOLS
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)			HIGH SCHOOLS
С	NC	N/A *	υ	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)	Entire structure is con	crete slab on grade.	OPTION SCHOOLS

Project Name 19_McKinley Element 10021800125

С	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural	
x				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)	

Connections

CUIII	onnections					
RA	TING			DESCRIPTION	COMMENTS	
с П	NC X	N/A	υ	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 did not have a positive connection to the foundations.	
С	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec.	Wood framed walls and foundations are missing positive connections in multiple	
	X			5.7.3.3)	areas.	
С	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection		
X				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

Conn	ectio	ns				
RA	TING			DESCRIPTION	COMMENTS	
С	NC	N/A	U	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less with proper edge and end distance provided		ELEMENT
X				for wood and concrete. (Commentary: Sec.		岀。
				A.5.3.7. Tier 2: Sec. 5.7.3.3)		
						Ш
						Ш
						v
Diap	hragı	ns				MIDDLE
RA	TING			DESCRIPTION	COMMENTS	
С	NC	N/A	U	DIAPHRAGM CONTINUITY: The diaphragms are		
X				not composed of split-level floors and do not		Ш
	Ш		Ш	have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1)		
				1101 2. 300. 3.0.1.1)		
						Ш
						1195
						HBH
С	NC	N/A	U	ROOF CHORD CONTINUITY: All chord elements	Chord elements are continuous within each	∐ σ.
				are continuous, regardless of changes in roof	different addition, and corresponding	Ш
X	Ш		Ш	elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	diaphragm.	Ш
				3.0.1.1)		
						Ш
						Ш
						IJĔĞ
С	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed		OPT
				diaphragms have aspect ratios less than 2-to-1 in		· · ·
		X		the direction being considered. (Commentary:		Ш
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)		
						IJöĒ

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

Project Name 19_McKinley Element 10021800125

С	NC x	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)	There are numerous areas where the wood decking diaphragm spans greater then 24 feet.
C x	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and shall have aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
C x	NC	N/A	υ	OTHER DIAPHRAGMS: The diaphragms do 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)	

LEMENTARY

MIDDLE

FIRM:	KPFF
PROJECT NAME:	20_Montclair Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/04/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name Project Number 10021800125

20_Montclair Element

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC X	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)	Exterior concrete foundation walls do not have a positive connection the footings below. Wood posts also do not have a positive connection.
С	NC X	N/A	⊃	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)	Exterior walls do not have a connection into the floor diaphragm or foundations.

Project Name
Project Number

20_Montclair Element
10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
С <u></u>	NC X	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	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)	Exterior concrete foundation walls do not have a positive connection the footings below. Wood posts also do not have a positive connection.
C x	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)	Adjacent building is far enough away to be compliant.
С	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)	No interior mezzanines.

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Rev. 41-31.1

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

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
C	NC	N/A X	>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-Story structure.
С	NC	N/A	υ	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-Story structure.
C	NC	N/A	υ	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)	All vertical lateral elements are continuous to foundations, connections are not adequate to support out-of-plane loads.
С	NC	N/A x	>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-Story structure.

					Project Name Project Number	20_Montclair Element 10021800125	
С	NC	N/A	U	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)	1-Story structure.		ELEMENTARY SCHOOLS
С	NC	N/A	U X	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No calculations perfor	rmed.	MIDDLE SCHOOLS
Mode	erate	Seisr	nicity				
Geolo	ogic S		-	ds			S
RA	TING			DESCRIPTION	COMMENTS		ᆢ잌
С	NC	N/A	X	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)			SCHOOFS HIGH
							(0
С	NC	N/A	U X	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)			OPTION SCHOOLS
							RT IES
							SUPPORT FACILITIES

	C	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
				x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
					5.4.3.1)	
ı						

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U X	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No Calculations performed.
С	NC x	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Foundations are not tied together at the covered play area with the asphalt paving.

LEMENTAR)

MIDDLE

HIGH CHOOLS

FIRM:	KPFF
PROJECT NAME:	20_Montclair Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/30/2018
REVIEWED BY:	
REVIEW DATE:	

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls	
				in each principal direction is greater than or equal	
X	Ш	Ш	Ш	to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.	
				5.5.1.1)	
C	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the	No Calculations completed, amount of shear
			X	shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the	walls should make this compliant.
	Ш			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	
С	NC	N/A	U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS:	
	INC	IN/ A		Multi-story buildings do not rely on exterior	
X				stucco walls as the primary seismic-force-resisting	
				system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)	
				3.3.3.0.1)	
				GYPSUM WALLBOARD OR PLASTER SHEAR	
C	NC	N/A	U	WALLS: Interior plaster or gypsum wallboard is	Gypsum board shear walls are present but the
X				not used as shear walls on buildings more than	building is only 1 story.
				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)	

					Project Name Project Number	20_Montclair Element	
C X	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)			ELEMENTARY SCHOOLS
С	NC	N/A	U	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)	One-Story structure.		MIDDLE SCHOOLS
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)			STOOHDS H9IH
С	NC	N/A *	U	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)	First floor is a concrete cripple walls below.	e slab on grade with no	OPTION SCHOOLS

Project Name 20_Montclair Element Project Number 10021800125

С	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural	
X				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)	

Connections

Com	DATING						
RA	TING			DESCRIPTION	COMMENTS		
с П	NC X	N/A	U	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 do not have a positive connection to the foundations.		
C X	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			
C X	NC	x/A	>	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

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC X	Z/A	⊃ □	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 west side of the original building has multiple different levels at the roof level (Gymnasium, Cafeteria, Covered Play Area).
C x	NC	N/A	U	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	NC	N/A	U	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)	
С	NC x	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary:	Straight sheathing is being used at the covered play area.
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

20_Montclair Element Project Name Project Number 10021800125

С	NC X	N/A	U	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)	Some wood decking diaphragm spans are greater then 24'.
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
X				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)	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not	
X				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)	
Conn		ns			
RA	TING			DESCRIPTION	COMMENTS
X	NC	N/A	U	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	Wood sills are bolted typically at 32" o.c.

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

2: Sec. 5.7.3.3)

LEMENTARY

MIDDLE

FIRM:	KPFF
PROJECT NAME:	20_Montclair Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/04/2018
REVIEWED BY:	
REVIEW DATE:	

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

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	uu		۵٠.	400	00.0		J. C.J	

Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
x	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)	
С	NC	N/A	U x	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)	No calculation completed.
C **	NC	N/A	U	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)	Reinforcing steel is spaced typically at 32" o.c.

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous	No precast slab but has slab on grade
		X		reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	concrete floor.

Connections

Conn		115				ı
RA	TING			DESCRIPTION	COMMENTS	ı
С	NC x	N/A	υ	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)	Exterior walls do not have a connection into the floor diaphragm or foundations.	_
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)		
C X	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)		

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

о <u></u>	NC X	N/A	U	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)	Concrete slab on grade does not have dowels or other elements connecting into walls.
C	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec.	Wall reinforcement is doweled into the foundation wall, but not into the footings.
	X			A.5.3.5. Tier 2: Sec. 5.7.3.4)	realitation wail, such occurs the resultings.
С	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a	
X				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

RA	TING		DESCRIPTION	COMMENTS
С	NC	N/A	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls	
X			are less than 25% of the wall length.	
			(Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)	

					Project Name Project Number	20_Montclair Element 10021800125	
C x	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)			ELEMENTARY SCHOOLS
Flexi	LL. hle D	iaphra	aams				
	TING		agiii s	DESCRIPTION	COMMENTS		v
C x	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)			MIDDLE SCHOOLS
C x	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length.			HIGH SCHOOLS
				(Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)			HOS
C x	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)			OPTION SCHOOLS
				NC - Noncompliant N/A - Not Applicable II - IInk			SUPPORT FACILITIES

C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in	
		X		the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
С	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or	Some diaphragm spans are greater then 24'
	X			diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	with wood decking.
				DIAGONALLY SHEATHED AND UNBLOCKED	
x	NC	N/A	U	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)	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck,	
X				concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
				,	

Rev. 41-31.1

Connections

R	ATINO			DESCRIPTION	COMMENTS
С	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)	

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

7

Project Name 21_Nancy Ryles ES
Project Number 10021800125

FIRM:	KPFF Consulting Engineers - Portland Structural
PROJECT NAME:	BSD - Seismic Risk Assessments - Nancy Ryles Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Tyler Williams
DATE COMPLETED:	05/24/2018
REVIEWED BY:	
REVIEW DATE:	

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U X	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)	Popup roof area at the library/atrium appears to lack shear walls and relies on pipe columns for lateral load transfer to low roof.
С	NC	N/A X	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 is anchored to gym roof diaphragm for out-of-plane support with mechanical anchors at 12" o.c. Anchors may lack adequate strength to support wall for out-of-plane forces.

Project Name 21_Nancy Ryles ES
Project Number 10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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 collectors shown on existing plans to drag covered play area roof into E-W shear wall at Grid J-16. Pop-up roof over library area lacks detailing showing how lateral load at the roof is supported by diaphragms below.
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 adjacent structures.
C x	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)	No mezzanines.

Building Configuration

	Building Configuration								
RA	TING			DESCRIPTION	COMMENTS	<			
С	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in	(2) story building with continuous shear walls.	V HIVLIVIL			
			X	each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	Pop-up over library appears to have inadequate lateral bracing.	L			
С	NC	N/A	U	SOFT STORY: The stiffness of the seismic-force-	(2) story building with continuous shear walls.				
			X	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)	Pop-up over library appears to have inadequate lateral bracing.				
C X	NC	N/A	U	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 X	NC	N/A	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)		MOITOO			

Project Name 21_Nancy Ryles ES __
Project Number 10021800125

С	NC	N/A	U x	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)	Unknown, though likely compliant.
С	NC	N/A	U x	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	The stiffness of the CMU shear wall along grid J may cause a torsional irregularity if the diaphragms are considered rigid.

Moderate Seismicity

Geologic Site Hazards

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	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)	No geotechnical information available.
С	NC	N/A	U X	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)	No geotechnical information available.

					Project Name Project Number	21_Nancy Ryles ES	
С	NC	N/A	U X	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)	No geotechnical infor	mation available.	ELEMENTARY SCHOOLS
High		-					m
	<i>datio</i> TING	n Cor	ifigui	ration DESCRIPTION	COMMENTS) OLS
C X	NC	N/A	U	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	Wide, short structure	with good distribution nout.	MIDDLE
							OLS
С	NC X	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	The steel column four together. Shear wall a foundations are strip	and bearing wall	SCHOOFS HIGH
							N N
							STOOHOS NOILAO
							RS ES

Project Name 21_Nancy Ryles ES
Project Number 10021800125

FIRM:	KPFF Consulting Engineers - Portland Structural
PROJECT NAME:	BSD - Seismic Risk Assessments - Nancy Ryles Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Tyler Williams
DATE COMPLETED:	07/26/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 21_Nancy Ryles ES 10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			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)	Shear walls are distributed throughout the building in each direction.
С	NC	N/A	U X	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	Calculations not performed as part of this assessment.
C x	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)	
С	NC x	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)	Interior shear wall Mark "S" uses 5/8" gypsum wall board for shear walls in several locations at main and upper levels.

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

Project Name 21_Nancy Ryles ES _ Project Number 10021800125

	NC	N/A	∪ x	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)	Large window openings at southwest elevation of building (Grid 1) leave narrow continuous shear wall sections.
С	NC x	N/A	U	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)	No details provided showing overturning tie-downs. Sill plates typically nailed to TJI blocking, which is in turn toe-nailed to double top plate of wall below.
C **	NC	N/A	o	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)	Lower-level walls have aspect ratios > 1.0.
C x	NC	N/A	U	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)	Exterior cripple walls shown with (1) layer of 1/2 plywood sheathing on exterior face.

					Project Name 21_Nancy Ryles ES Project Number 10021800125	
С	NC x	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	Walls along southwest elevation do not have straps or collectors to carry seismic forces into other walls. Large window openings leave minimal continuous shear walls along this elevation.	ELEMENTARY SCHOOLS
Conn	ectio	ns				
RA	TING			DESCRIPTION	COMMENTS	LS E
С	NC	N/A	υ	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 not used in this building. Steel posts are anchored to foundations with embedded bolts.	MIDDLE
C X	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)		SCHOOLS HIGH
C X	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	Glulam girders connected to steel columns with knife plate or column cap where occur.	OPTION
egend	: C = 0	Como	liant.	NC = Noncompliant, $N/A = Not Applicable$, $U = Unk$	nown	SUPPORT FACILITIES

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
O	NC X	N/A	U	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)	High roof pop-up over library/atrium breaks roof diaphragm of central building. Southwest classroom roof is discontinuous above the main corridor roof (Ref. 1/S9).
С <u></u>	NC X	N/A	U	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)	Chord is discontinuous at sloped roof pop-ups (Ref. 1/S9).
С	NC x	N/A	U	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)	Glulam girders around perimeter of library pop-up are not continuous and have not been strapped/tied to act as chords.
С	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)	No straight sheathing.

					Project Name Project Number	10021800125	
C x	NC	N/A	U	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)			ELEMENTARY SCHOOLS
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			MIDDLE SCHOOLS
C x	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)			HIGH SCHOOLS
Conn	ectio	ns					
RA	TING			DESCRIPTION	COMMENTS		
С	NC	N/A	U X	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)	5/8"Ø anchor bolts at adequate for seismic		OPTION SCHOOLS
egend	: C = 0	Comp	liant,	NC = Noncompliant, N/A = Not Applicable, U = Unk	nown		SUPPORT FACILITIES

Project Name 21_Nancy Ryles ES
Project Number 10021800125

FIRM:	KPFF Consulting Engineers - Portland Structural
PROJECT NAME:	BSD - Seismic Risk Assessments - Nancy Ryles Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	Tyler Williams
DATE COMPLETED:	07/26/2018
REVIEWED BY:	
REVIEW DATE:	

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

RA	TING			DESCRIPTION	COMMENTS
С	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)	Only one reinforced masonry shear wall in this building.
С	SC	N/A	U x	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)	The single reinforced masonry shear wall is likely OK for shear stress, but calculations were not performed as part of this assessment.
С	NC x	N/A	U	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)	Details show vertical bars stopping at bottom of covered play area beams (does not extend to top of wall).

Project Name 21_Nancy Ryles ES _ Project Number 10021800125

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous	
		X		reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

CUIIII	onnections							
RA	TING			DESCRIPTION	COMMENTS			
С	☐ Z	Z/A	∪ x	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 is anchored to gym roof diaphragm for out-of-plane support with mechanical anchors at 12" o.c. Anchors may be adequate, though load path does not meet LS requirements [see below] (Ref. 5/S7).			
С	NC x	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)	Diaphragm supported by wood ledger along masonry wall (Ref. 5/S7).			
С	NC x	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 covered play area roof extends beyond the end of masonry wall and no collector/drag strut or adequate connection to wall is present (Ref. 14/S12).			

					Project Number 21_Nancy Ryles ES_ 10021800125	-
С	NC	N/A	U	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
С	NC x	N/A	U	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	The majority of the wall has #5 at each cell on each face of the wall. Detail 5/S7 only shows a single row of dowels to foundation, i.e. half of the dowels required for LS.	MIDDLE
C X	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	Glulam girders connected to steel columns with knife plate or column cap where occur.	HIGH
·		nicity				
	D <i>iaph</i> TING	nragm	IS	DESCRIPTION	COMMENTS	
С	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)	Flexible diaphragm structure. No openings adjacent to masonry wall.	OPTION
egend	: C = (Comp	liant,	NC = Noncompliant, $N/A = Not Applicable$, $U = Unk$	nown	SUPPORT FACILITIES

Project Name 21_Nancy Ryles ES_ Project Number 10021800125

С	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to	riexible diaphragm structure. No openings
X				exterior masonry shear walls are not greater than	adjacent to masonry wall.
				8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec.	
				5.6.1.3)	

Flexible Diaphragms

FIEXI	Flexible Diaphragms								
RA	TING			DESCRIPTION	COMMENTS				
С	NC x	N/A	υ	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Cross tie connections impose cross grain bending on wood ledger at masonry wall.				
C **	NC	N/A	υ	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 openings adjacent to masonry wall.				
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)	No openings adjacent to masonry wall.				

Project Name 21_Nancy Ryles ES __
Project Number 10021800125

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural	Mechanical (expansion) anchors used to
			X	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)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	22_Oak Hills Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/05/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name Project Number 10021800125

22_Oak Hills Elementa

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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)	Exterior masonry walls do not tie into the concrete floor diaphragm.
С	NC x	N/A	υ	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)	Out of plane forces are not adequately restrained per existing diaphragm connections.

Project Name
Project Number

22_Oak Hills Elementa
10021800125

Rev. 41-31.1

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
С	NC X	Z ∕ A □	υ	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)	Exterior masonry walls do not anchor into the concrete floor diaphragm.
C x	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)	
С	NC	N/A X	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)	No interior mezzanines.

3

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

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
C	NC	N/A	>	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. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-Story structure.
С	NC	N/A	υ	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-Story structure.
C **	NC	N/A	υ <u></u>	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)	Lateral elements are continuous to the foundations.
С	NC	N/A x	>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-Story structure.

Project Name
Project Number
10021800125

С	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
			X	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
				5.4.3.1)	

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U x	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculations completed.
С	NC x	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Foundations are not tied together at the covered play areas with asphalt paving.

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	22_Oak Hills Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/30/2018
REVIEWED BY:	
REVIEW DATE:	

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls	
				in each principal direction is greater than or equal	
X	Ш	Ш	Ш	to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.	
				5.5.1.1)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the	No calculations completed but new shear
				shear walls, calculated using the Quick Check	walls are likely required to meet shear stress
Ш	X		Ш	procedure of Section 4.5.3.3, is less than the	requirements per current code.
				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	
				STUCCO (EXTERIOR PLASTER) SHEAR WALLS:	
C	NC	N/A	U	Multi-story buildings do not rely on exterior	
		X		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	NC	N/A	υ	GYPSUM WALLBOARD OR PLASTER SHEAR	 Some gypsum board shear walls are used but
				WALLS: Interior plaster or gypsum wallboard is	the structure is only one story.
X	Ш	Ш		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)	

С	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural	
X				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)	

CUIII	Connections						
RA	TING			DESCRIPTION	COMMENTS		
c	NC	N/A	U	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	NC X	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	Wood sills do not appear to have bolted connections to foundations prior to the 1992 addition.		
C **	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			

Project Name

High Seismicity

Diaphragms

	TING			DESCRIPTION	COMMENTS	ı
X	NC	N/A	U	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)		
x	NC	N/A	υ	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)		
				DIADUDAÇA DEINEODÇEMENT AT ODENINGS.		
x	NC	N/A	U	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)		
	NC X	N/A	□	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)	Covered play area has wood decking for roof diaphragm.	

C X	NC	N/A	U	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)	
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
-				DIAPHRAGMS: All diagonally sheathed or	
X	Ш	Ш	Ш	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)	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not	
×				consist of a system other than wood, metal deck,	
^	Ш	Ш	Ш	concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
				, in the second of the second	

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less, with proper edge and end distance provided	Sill bolts are spaced typically at 48" o.c.
X				for wood and concrete. (Commentary: A.5.3.7. Tier	
				2: Sec. 5.7.3.3)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	22_Oak Hills Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	1021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/05/2018
REVIEWED BY:	
REVIEW DATE:	

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
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Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
x	NC	N/A	υ 	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)	
с П	NC	N/A	U x	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)	No calculations completed.
о <u></u>	NC x	N/A	υ	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)	Steel reinforcing typically spaced at 48" o.c.

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous	No precast diaphragm.
		X		reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

	CONNECTION						
RA	TING			DESCRIPTION	COMMENTS		
С	NC x	N/A	⊃	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)	Exterior masonry walls do not anchor into the concrete floor diaphragm. No calculations completed.		
С	NC x	N/A	о _П	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)	Wood ledgers may be undergoing cross grain bending at joist connections to exterior walls.		
С	NC X	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)	Roof diaphragm has connections, floor diaphragm does not.		

С	NC x	N/A	υ	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)	No precast diaphragm, floor is a reinforced concrete slab on grade that does NOT tie into the exterior shear walls.
С	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is	
X				doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C	NC	N/A	J	GIRDER-COLUMN CONNECTION: There is a	
X				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

RA	TING			DESCRIPTION	COMMENTS
C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm	
X				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)	

					Project Name Project Number	22_Oak Hills Elementa 1021800125	
K	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)			ELEMENTARY SCHOOLS
Flexi	hle Di	iaphra	aams				
	TING	ш <i>р</i>	-9	DESCRIPTION	COMMENTS		၂၂ တု
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)			MIDDLE SCHOOLS
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)			STOOHDS HBH
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)			OPTION SCHOOLS
			liner	NC - Noncompliant N/A - Not Applicable II - Unk			SUPPORT FACILITIES

С	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)	
С	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or	Some diaphragm spans are a greater then 24'
	X			diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	at wood decking areas.
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or	
X				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)	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck,	
X				concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	

22_Oak Hills Elementa

Project Name Project Number 1021800125

R	ATING			DESCRIPTION	COMMENTS
С	NC	N/A	U X	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)	

Project Name Project Number 10021800125

23_Raleigh Hills Element

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	23_Raleigh Hills Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/30/2018
REVIEWED BY:	
REVIEW DATE:	

23_Raleigh Hills Element Project Name

Project Number 10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
C **	NC	N/A	υ	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)	Number of shear walls is enough for basic redundancy.
С	NC X	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	Likely non compliant based on amount of shear walls and new code loading, no calculations completed.
С	NC	N/A *	υ	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 x	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)	Gypsum board is used as sheathing but only at one story area.

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

Project Name 23_Raleigh Hills Element 10021800125

C X	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
С	NC x	N/A	υ	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)	Connections between concrete walls and wood walls at original building do not have adequate out-of-plane connections.
C *	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)	
С	NC	N/A	U	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)	

					Project Name Project Number	23_Raleigh Hills Element 10021800125	
	NC X	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	Some areas have large little surrounding sup	e overhead glazing with port.	ELEMENTARY SCHOOLS
	nnectio	nc					
	RATING			DESCRIPTION	COMMENTS		တ
	: NC	T	U	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)			MIDDLE SCHOOLS
(N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			SCHOOLS SCHOOLS
2		N/A	U	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)			OPTION SCHOOLS
	nd: (-	Comm	liant	NC - Noncompliant N/A - Not Applicable II - Unk	rnown		SUPPORT FACILITIES

23_Raleigh Hills Element

Project Name Project Number 10021800125

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	υ	DIAPHRAGM CONTINUITY: The diaphragms are	
			_	not composed of split-level floors and do not	
X	Ш		Ш	have expansion joints. (Commentary: Sec. A.4.1.1.	
				Tier 2: Sec. 5.6.1.1)	
С	NC	N/A	U	ROOF CHORD CONTINUITY: All chord elements	
			_	are continuous, regardless of changes in roof	
X		Ш	Ш	elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec.	
				5.6.1.1)	
C	NC	N/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS:	
X			$ \Box$	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)	
				,	
_				STRAIGHT SHEATHING: All straight sheathed	
C	NC	N/A	U	diaphragms have aspect ratios less than 2-to-1 in	Plywood sheathing likely added in 1997 and 1998 additions.
X				the direction being considered. (Commentary:	1998 additions.
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	

					Project Name Project Number	10021800125	
C X	NC	N/A	U	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)			ELEMENTARY SCHOOLS
C x	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			MIDDLE SCHOOLS
C x	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)			SCHOOLS HIGH
Conn	ectio	ns					
RA	TING			DESCRIPTION	COMMENTS		
C X	NC	N/A	υ	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)	Anchor bolts are typic	tally spaced at 48" o.c.	OPTION SCHOOLS
egend	· C = 1	Comp	liant	NC = Noncompliant, N/A = Not Applicable, U = Unk	nown		SUPPORT FACILITIES

Project Name Project Number 10021800125

24_Raleigh Park Elem

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	24_Raleigh Park Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/13/2018
REVIEWED BY:	
REVIEW DATE:	

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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)	Connections between the lateral system and foundations lack out-of-plane connections.
С	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)	Connections between the lateral system and foundations lack out-of-plane connections.

Project Name 24_Raleigh Park Element 10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING DESCRIPTION				DESCRIPTION	COMMENTS
	NC x	N/A	⊃	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)	Connections between the lateral system and foundations lack out-of-plane connections.
С	NC	N/A x	υ	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)	
С	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)	

Project Name Project Number 10021800125

24_Raleigh Park Elemen

Building Configuration

	RATING DESCRIPTION COMMENTS					ά
KA	IING	T	ı	DESCRIPTION	COMMENTS	< -
C	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in	One Story Structure.	TIVUL
		X		each direction is not less than 80% of the strength		2
_				in the adjacent story above. (Commentary: Sec.		
				A2.2.2. Tier 2: Sec. 5.4.2.1)		L
c	NC	N/A	U	SOFT STORY: The stiffness of the seismic-force-	One Story Structure.	
				resisting system in any story is not less than 70%	,	
		X		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)		
						H
С	NC	N/A	U	VERTICAL IRREGULARITIES: All vertical elements in	Lateral elements are split at mid level	
				the seismic-force-resisting system are continuous	between concrete block walls and wood	Ę
	X			to the foundation. (Commentary: Sec. A.2.2.4. Tier	walls.	
				2: Sec. 5.4.2.3)		ľ
С	NC	N/A	U	GEOMETRY: There are no changes in the net	One Story Structure.	
				horizontal dimension of the seismic-force-	one story structure.	Į
			Ш	resisting system of more than 30% in a story		OITGO
				relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec.		
				A.2.2.5. Tier 2: Sec. 5.4.2.4)		١
						L
						1

Project Name 24_Raleigh Park Element 10021800125

С	NC	N/A X	U	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)	One Story Structure.
С	NC x	N/A	U	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No calculations completed but likely non compliant due to shear wall locations.

Moderate Seismicity

Geologic Site Hazards

RA	RATING DESCRIPTION COMMENTS					
С	NC	N/A	U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could		
			X	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)		
С	NC	N/A	U	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope		
			X	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)		

					Project Name Project Number	24_Raleigh Park Element 10021800125	
С	NC	N/A	U X	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)			ELEMENTARY SCHOOLS
High		-					တ
	aatio TING	n Cor	ırıguı	ration DESCRIPTION	COMMENTS		
С	NC	N/A	U X	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculations but lil	kely compliant based on eight, and shear wall	MIDDLE
				TIES DETIMENT FOUNDATION SUSMENTS TO			iH SOLS
С	NC X	N/A	υ	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 between covered are only braced with a	l play area foundations asphalt paving.	SCHOOLS
							OPTION
							RT TES

Project Name Project Number 10021800125

24_Raleigh Park Elem

FIRM:	KPFF
PROJECT NAME:	24_Raleigh Park Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/31/2018
REVIEWED BY:	
REVIEW DATE:	

24_Raleigh Park Elem Project Name

Project Number 10021800125

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

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LUW	วบเนเง	loderate	2612111	IL.ILV

	ai sei TING		ruice	DESCRIPTION	COMMENTS	
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls	COMMENTS	
				in each principal direction is greater than or equal		
X				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)		
				33.111)		
						o
						MIDDLE
						[달문
						≥S
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the	No calculations completed but likely non	
				shear walls, calculated using the Quick Check	compliant based on shear walls.	
	X		Ш	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		1 ~
				Straight sheathing 100 lb/ft		H STC
				All other conditions 100 lb/ft		HIGH
						SCI_
С	NC	N/A	U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior		
		X		stucco walls as the primary seismic-force-resisting		
				system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec. 5.5.3.6.1)		
				3.3.3.0.1)		
						,,
						 ⊭¤
	NC	N1/A	U	GYPSUM WALLBOARD OR PLASTER SHEAR		OPTION
C	NC	N/A		WALLS: Interior plaster or gypsum wallboard is		"
X	Ш	Ш		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)		
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Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name 24_Raleigh Park Element 10021800125

C	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood	
				shear walls with an aspect ratio greater than 2-	
X				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	NC	N/A	υ	WALLS CONNECTED THROUGH FLOORS: Shear	
				walls have an interconnection between stories to	
ш	Ш	X	Ш	transfer overturning and shear forces through the	
				floor. (Commentary: Sec. A.3.2.7.5. Tier 2: Sec.5.5.3.6.2)	
				3ec.3.3.3.0.2)	
c	NC	N/A	lυ	HILLSIDE SITE: For structures that are taller on at	
_			_		
_				least one side by more than one-half story	
		X		because of a sloping site, all shear walls on the	
		x		because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-	
		x		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.	
		x		because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-	
		X		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.	
		x		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.	
		X		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.	
				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)	
С	□ NC	X N/A	U	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) CRIPPLE WALLS: Cripple walls below first-floor-	
	NC	N/A		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	
	NC			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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
	NC	N/A		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	
	NC	N/A		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
	NC	N/A		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
	NC	N/A		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
	NC	N/A		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
	NC	N/A		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	

					Project Name Project Number	24_Raleigh Park Elemen 10021800125	
C **	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)			ELEMENTARY SCHOOLS
Conn	ectio	ns					
	TING	113		DESCRIPTION	COMMENTS		ഗ
С	NC	N/A	U	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)			MIDDLE SCHOOLS
C X	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			HIGH SCHOOLS
C X	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			OPTION SCHOOLS
egand	· C = 1	Comp	liant	NC - Noncompliant N/A - Not Applicable II - Unk	nown		SUPPORT FACILITIES

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	υ	DIAPHRAGM CONTINUITY: The diaphragms are	
				not composed of split-level floors and do not	
X		Ш		have expansion joints. (Commentary: Sec. A.4.1.1.	
				Tier 2: Sec. 5.6.1.1)	
С	NC	N/A	U	ROOF CHORD CONTINUITY: All chord elements	
	IVC	13/7		are continuous, regardless of changes in roof	
	X			elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec.	
				5.6.1.1)	
С	NC	N/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS:	
	110	14//		There is reinforcing around all diaphragm	
X				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	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed	Play shelter still has wood decking, straight
			_	diaphragms have aspect ratios less than 2-to-1 in	sheathed, diaphragm.
Ш	X	Ш	Ш	the direction being considered. (Commentary:	
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
		1			

					Project Name Project Number	24_Raleigh Park Element 10021800125	
C X	NC	N/A	U	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)			ELEMENTARY SCHOOLS
C X	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			MIDDLE SCHOOLS
C X	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)			SCHOOLS HIGH
	nectio						
C	NC	N/A	U	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)	COMMENTS		OPTION SCHOOLS
egend	d: C = 1	Comr	bliant	NC = Noncompliant, N/A = Not Applicable, U = Unkn	nown		SUPPORT FACILITIES

Project Name Project Number 10021800125

24_Raleigh Park Elem

FIRM:	KPFF
PROJECT NAME:	24_Raleigh Park Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/13/2018
REVIEWED BY:	
REVIEW DATE:	

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	

RA	TING			DESCRIPTION	COMMENTS
C X	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)	
	NC X	N/A	o	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)	No calculations completed but likely not compliant based on existing shear walls.
C X	NC	N/A	υ	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)	

24_Raleigh Park Elem

Project Name Project Number 10021800125

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm	
		X		elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

CUIIII	connections							
RA	TING			DESCRIPTION	COMMENTS			
С	NC	N/A	U	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for				
	X			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)				
C	NC	N/A	U	WOOD LEDGERS: The connection between the	Wood ledgers are in cross grain bending at			
	X			wall panels and the diaphragm does not induce cross-grain bending or tension in the wood	some roof connections.			
				ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)				
С	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the				
X				shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)				

	Project Name 24_Raleigh Park Elemq Project Number 10021800125
C NC N/A U TOPPING SLAB TO WALLS OR FRA concrete topping slabs that inter precast concrete diaphragm eler doweled for transfer of forces int or frame elements. (Commentary 2: Sec. 5.7.2)	connect the sents are the shear wall
C NC N/A U FOUNDATION DOWELS: Wall rein doweled into the foundation. (Co	
C NC N/A U GIRDER-COLUMN CONNECTION positive connection using plates hardware, or straps between the column support. (Commentary: Sec. 5.7.4.1)	connection girder and the
High Seismicity Stiff Diaphragms	
RATING DESCRIPTION C NC N/A U OPENINGS AT SHEAR WALLS: Dia openings immediately adjacent are less than 25% of the wall leng (Commentary: Sec. A.4.1.4. Tier 2	o the shear walls th.
egend: C = Compliant, NC = Noncompliant, N/A = Not A 2014 American Society of Civil Engineers	aplicable, U = Unknown 4 Rev. 41-31.1

Project Name 24_Raleigh Park Element 10021800125

С	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to	
X				exterior masonry shear walls are not greater than	
				8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec.	
				5.6.1.3)	

Flexible Diaphragms

Flexi	Flexible Diaphragms							
RA	TING			DESCRIPTION	COMMENTS			
С	NC x	N/A	>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Cross ties at roof diaphragm will likely need to be strengthened			
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)				
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)				

					Project Name Project Number	24_Raleigh Park Element 10021800125	
C x	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)			ELEMENTARY SCHOOLS
C X	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)			MIDDLE SCHOOLS
C X	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			SCHOOLS HIGH
C X	NC	N/A	U	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

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

Project Name 24_Raleigh Park Element 10021800125

Connections

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)	

FIRM:	KPFF
PROJECT NAME:	25_Ridgewood Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/11/2018
REVIEWED BY:	
REVIEW DATE:	

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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)	Lateral elements are not tied into the foundations or floor diaphragm.
С	NC x	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)	Exterior masonry shear walls do not have adequate connections to provide out of plane support. No calculations completed.

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity Building System General

RA	RATING DESCRIPTION COMMENTS							
С	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)	Lateral elements are not tied into the foundations or floor diaphragm.			
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)				
C **	NC	N/A	υ	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)	Interior mezzanine at gymnasium area is tied into the lateral system.			

25_Ridgewood Eleme Project Number 10021800125

Project Name

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
С <u></u>	NC	N/A X	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-Story structure.
	NC	N/A	υ	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)	1-Story structure.
C X	NC	N/A	U	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)	Vertical lateral elements are continuous to foundations, they are not adequately tied into foundations or diaphragm as previously mentioned.
С	NC	N/A	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-Story structure.

С	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
			x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
				5.4.3.1)	

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U x	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculations completed.
С	NC	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Foundations are not tied together and soil information is unknown.

FIRM:	KPFF
PROJECT NAME:	25_Ridgewood Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/11/2018
REVIEWED BY:	
REVIEW DATE:	

16.2LS Life Safety Structural Checklist for Building Types W1: Wood Light Frames and W1A: Multi-Story, Multi-Unit Residential Wood Frame

Low and Moderate Seismicity

Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
C X	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)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check	
			X	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	
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)	
C x	NC	N/A	U	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard are 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)	Gypsum board and plaster shear walls were used original, but it would appear the 1998 lateral upgrade added plywood sheathing to all of the existing and new shear walls.

					Project Name Project Number	25_Ridgewood Eleme	
x	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)			ELEMENTARY SCHOOLS
С	NC	N/A *	υ	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)	1-story structure.		MIDDLE
С	NC	N/A X	υ <u></u>	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)			HIGH
С	NC	N/A	U	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)	No walls below floor s	ystem (slab on grade).	OPTION SCHOOLS

Project Name Project Number

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)

Connections

	Connections						
RA	TING			DESCRIPTION	COMMENTS		
С	NC	N/A	U	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 **	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			
C **	NC	N/A	υ	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

Conn	Connections							
RA	TING			DESCRIPTION	COMMENTS			
С	NC	N/A	U	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or				
X				less with proper edge and end distance provided for wood and concrete. (Commentary: Sec.				
				A.5.3.7. Tier 2: Sec. 5.7.3.3)				
Dian	Dianhragms							

	RATING DESCRIPTION COMMENTS								
C	NC	N/A	U	DIAPHRAGM CONTINUITY: The diaphragms are					
				not composed of split-level floors and do not					
X		Ш	Ш	have expansion joints. (Commentary: Sec. A.4.1.1.					
				Tier 2: Sec. 5.6.1.1)					
С	NC	N/A	U	ROOF CHORD CONTINUITY: All chord elements					
	NC	IN/A	U	are continuous, regardless of changes in roof					
X		П		elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec.					
				5.6.1.1)					
				, , , , , , , , , , , , , , , , , , , ,					
				STRAIGHT SHEATHING: All straight sheathed					
C	NC	N/A	U	diaphragms have aspect ratios less than 2-to-1 in					
		X		the direction being considered. (Commentary:					
		_	Ш						
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)					

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

С	NC X	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)	Some diaphragm spans are greater then 24'.
C	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and shall have aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	
x	NC	N/A	υ	OTHER DIAPHRAGMS: The diaphragms do 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)	

FIRM:	KPFF
PROJECT NAME:	25_Ridgewood Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/11/2018
REVIEWED BY:	
REVIEW DATE:	

16.16LS Life Safety Structural Checklist for Building Types URM: Unreinforced Masonry Bearing Walls with Flexible Diaphragms and URMA: Unreinforced Masonry Bearing Walls with Stiff Diaphragms

	and URMA: Unreinforced Masonry Bearing Walls with Stiff Diaphragms
Low and N	Moderate Seismicity

Seismic-Force-Resisting System							
		orce-h	lesist	0 3			
KA	TING	I		DESCRIPTION	COMMENTS		
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal			
x			$ \Box$	to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.			
				5.5.1.1)			
				,			
C	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the	No calculations completed.		
			X	unreinforced masonry shear walls, calculated using the Quick Check procedure of Section			
				4.5.3.3, is less than 30 lb/in. ² for clay units and 70			
				Ib/in. ² for concrete units. (Commentary: Sec.			
				A.3.2.5.1. Tier 2: Sec. 5.5.3.1.1)			
Conn	ectio	ns					
RA	TING			DESCRIPTION	COMMENTS		
C	NC	N/A	U	WALL ANCHORAGE: Exterior concrete or masonry	Exterior masonry shear walls do not have		
	X			walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane	adequate connections to provide out of plane		
				forces at each diaphragm level with steel anchors,	support. No calculations completed.		
				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)			

					Project Name Project Number	25_Ridgewood Eleme	
K	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)			ELEMENTARY SCHOOLS
С	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 roof diaphragm is the masonry shear wa diaphragm is not.	s connected properly to Ills but the floor	MIDDLE SCHOOLS
C x	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			STOOHDS HBH
		-		PROPORTIONS: The height-to-thickness ratio of the shear walls at each story is less than the following (Commentary: Sec. A.3.2.5.2. Tier 2: Sec. 5.5.3.1.2): Top story of multi-story building 9 First story of multi-story building 15 All other conditions 13	COMMENTS		OPTION SCHOOLS
egend	l: C = (Comp	oliant,	, NC = Noncompliant, N/A = Not Applicable, U = Unk	known		SUPPORT FACILITIES

Project Name 25_Ridgewood Eleme Project Number 10021800125 MASONRY LAYUP: Filled collar joints of multi-U NC N/A Single wythe walls. wythe masonry walls have negligible voids. X (Commentary: Sec. A.3.2.5.3. Tier 2: Sec. 5.5.3.4.1) Diaphragms (Flexible or Stiff)

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm	
X				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 X	NC	N/A	υ	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)	

Flexible Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec.	
X				A.4.1.2. Tier 2: Sec. 5.6.1.2)	

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

					Project Name Project Number	25_Ridgewood Eleme	
С	NC	N/A x	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)			ELEMENTARY SCHOOLS
c	NC x	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)	There are spans greate	er then 24'.	MIDDLE
C **	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft 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
x	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)			OPTION SCHOOLS
							ORT ITIES

Connections

RA	RATING DESCRIPTION COMMENTS					
С	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of		
X				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)		
C **	NC	N/A	U	BEAM, GIRDER, AND TRUSS SUPPORTS: Beams, girders, and trusses supported by unreinforced masonry walls or pilasters have independent secondary columns for support of vertical loads. (Commentary: Sec. A.5.4.5. Tier 2: Sec. 5.7.4.4)	Wood posts and/or concrete pilasters are used to support gravity elements.	

FIRM:	KPFF
PROJECT NAME:	26_Rock Creek Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/06/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 26_Rock Creek Elemer 10021800125

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			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)	
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)	Exterior masonry shear walls are tied into the foundations and concrete floor diaphragm. No calculations completed by anchorage appears adequate for out of plane forces.

00125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			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)	
C X	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)	
С	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)	No Interior Mezzanines

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

26_Rock Creek Elemer Project Number 10021800125

Project Name

Building Configuration

RA	TING			DESCRIPTION	COMMENTS
O	NC	N/A X	>	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	1-Story Structure.
С	NC	N/A	υ	SOFT STORY: The stiffness of the seismic-forceresisting 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)	1-Story Structure.
C X	NC	N/A	>	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)	All lateral elements are continuous to the foundations.
С	NC	N/A x	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	1-Story Structure.

					Project Name Project Number	26_Rock Creek Elemer 10021800125	
С	NC	N/A	U	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)	1-Story Structure.		ELEMENTARY SCHOOLS
С	NC	N/A	U X	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No calculations perfo	rmed.	MIDDLE SCHOOLS
Mode	erate	Seisn	nicity	,			
Geole			-	ls	COMMENTS		တ္
С	NC	N/A	U X	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)	COMMENTS		100HJS HIGH
С	NC	N/A	U	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such			OPTION SCHOOLS
				failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1)			S
			li	NC Negroupling N/A Net Applicable III IIII			SUPPORT FACILITIES

Project Name 26_Rock Creek Elemer 10021800125

	C	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
				x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
					5.4.3.1)	
ı						

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U X	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No calculations completed.
С	NC x	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	Foundations are not tied together at 1988 and 1996 additions since there is no concrete slab on grade to brace foundations.

FIRM:	KPFF
PROJECT NAME:	26_Rock Creek Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 26_Rock Creek Element 10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls	
]	in each principal direction is greater than or equal	
X	Ш	Ш		to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.	
				5.5.1.1)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the	No calculations completed.
			14	shear walls, calculated using the Quick Check	·
			X	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	
_	NIC	N1 / A		STUCCO (EXTERIOR PLASTER) SHEAR WALLS:	
C	NC	N/A	U	Multi-story buildings do not rely on exterior	Stucco is present on exterior shear walls but it is all backed up by plywood sheathing as well.
X				stucco walls as the primary seismic-force-resisting	is all backed up by plywood sheathing as well.
				system. (Commentary: Sec. A.3.2.7.2. Tier 2: Sec.	
				5.5.3.6.1)	
С	NC	N/A	U	GYPSUM WALLBOARD OR PLASTER SHEAR	Only plywood was used as shear wall
		x		WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than	sheathing.
Ш	Ш		Ш	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)	

					Project Name Project Number	26_Rock Creek Elemer 10021800125	
C X	NC	N/A	υ	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
С	NC	N/A *	υ	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)	One-Story Structure.		MIDDLE SCHOOLS
C	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)			SCHOOLS HIGH
C X	NC	N/A	υ <u></u>	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)	No cripple walls below wood posts are used t the floor.		OPTION SCHOOLS
							. (0

Project Name Project Number

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)

Connections

ι	Connections							
	RA	TING			DESCRIPTION	COMMENTS		
	с П	NC x	N/A	U	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 do not have a positive connection at the 1988/1996 additions.		
	C x	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			
	C x	NC	N/A	о	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)			

Project Name

High Seismicity

Dianhragms

RA	TING			DESCRIPTION	COMMENTS
C	NC	N/A	U	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)	Simpson anchors are spaced at 48" o.c.
X	NC	N/A	U	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)	
	NG	N1/A		DIAPHRAGM REINFORCEMENT AT OPENINGS:	
X	NC	N/A	U	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)	
	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)	

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	X N	N/A	U	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)	Some roof diaphragm spans are greater than 24' where wood decking is being used.
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
X				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)	
				,	
_				OTHER DIAPHRAGMS: The diaphragm does not	
С	NC	N/A	U	consist of a system other than wood, metal deck,	
X				concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)	
				Sec. A.4.7.1. Her 2: Sec. 5.6.5)	
Conn		ns			
RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	WOOD SILL BOLTS: Sill bolts are spaced at 6 ft or less, with proper edge and end distance provided	
X				for wood and concrete. (Commentary: A.5.3.7. Tier	
				2: Sec. 5.7.3.3)	
]				

FIRM:	KPFF
PROJECT NAME:	26_Rock Creek Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	06/06/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 26_Rock Creek Element 10021800125

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

L	٥v	٧	and	Mo	der	ate	Seis	mici	itv

Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
∠	NC	N/A	υ	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)	
С	NC	N/A	U x	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)	No calculations completed.
о <u></u>	NC X	N/A	U	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)	Typical reinforcing spacing is not less then the minimum.

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous	No precast topping slab
		X		reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

	Lonnections							
RA	TING			DESCRIPTION	COMMENTS	ı		
C x	NC	N/A	⊃	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)	Exterior masonry walls are anchored into the concrete floor diaphragm and the foundations. No calculations are completed but anchorage seems adequate to provide out of plane support.	-		
C **	NC	N/A	υ	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)				
C X	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)				

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

Project Name 26_Rock Creek Elemer 10021800125

C **	NC	N/A	υ	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)	No precast diaphragm, reinforced concrete slab on grade is doweled into the exterior masonry walls.
C	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is	
			_	doweled into the foundation. (Commentary: Sec.	
X				A.5.3.5. Tier 2: Sec. 5.7.3.4)	
C	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a	
X				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

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm	
X				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)	
				(Commentary, Sec. 7th 1.711, 11cl 2, Sec. 3.0.113)	

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K	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)			ELEMENTARY SCHOOLS
Flexi	hle Di	iaphra	aams				
	TING	ш <i>р</i>	-9	DESCRIPTION	COMMENTS		၂၂ တု
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)			MIDDLE SCHOOLS
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)			STOOHDS HBH
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)			OPTION SCHOOLS
			lia « *	NC - Noncompliant N/A - Not Applicable II - Uple	70.040		SUPPORT FACILITIES

Project Name 26_Rock Creek Elemer 10021800125

C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed diaphragms have aspect ratios less than 2-to-1 in	
		X		the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
				CDANC: All wood disabus areas with areas areastar	
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or	Some diaphragm spans are greater then 24'.
	X			diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
	NG	N1/A		DIAGONALLY SHEATHED AND UNBLOCKED	
X	NC	N/A	U	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)	
С	NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm shall not	
X				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)	
		L	L		

Project Name
Project Number
10021800125

Rev. 41-31.1

Connections

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural	
X				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)	

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

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Project Name Project Number 10021800125

28_Scholls Heights Elem

FIRM:	KPFF Consulting Engineers
PROJECT NAME:	28_Scholls Heights Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NWH
DATE COMPLETED:	10/25/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 28_Scholls Heights Elem

Project Number 10021800125

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

	Lateral Seismic-Force-Resisting System							
RA	TING			DESCRIPTION	COMMENTS			
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal				
x				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)				
] Z	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				
		X		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				
С	NC	N/A	U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS:				
x				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)				
С	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)	Need page S3.1 to check Section A (note: drawing was not available). It appears some gypsum shear walls are used, however there are lots of plywood walls.			

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

Project Name 28_Scholls Heights Element
Project Number
10021800125

	NC x	N/A	⊃	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)	But very few of these walls exist, most are 1-to-1 or less.
С	NC	N/A	U	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)	Some walls do not have overturning interconnection, but it may not be necessary given the lengths of wall.
О <u></u>	NC	N/A	>	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)	Retaining walls only occur for one-half story or less, except on east side of building, in which case, east-west walls appear to be 1-to-1 or greater.
C **	NC	N/A	U	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)	Multiple plywood cripple-shear walls, with (1) gypsum shear wall.

					Project Name Project Number	28_Scholls Heights Ele 10021800125	
C x	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	Appears to be complia	ant.	ELEMENTARY SCHOOLS
Conn	ectio	uns					
	TING			DESCRIPTION	COMMENTS		ဟု
C X	NC	N/A	U	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)	Minimum nailing per of hold-down posts have	general notes. All e positive connections.	MIDDLE
C X	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)			HIGH SCHOOLS
C X	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			OPTION SCHOOLS
							SUPPORT FACILITIES

28_Scholls Heights Elem

Project Name Project Number 10021800125

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
U	NC X	N/A	U	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)	Roof diaphragms step in multiple places.
С	NC	N/A	V	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)	
С	NC	N/A	U	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)	
С	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)	The diaphragms stagger their sheathing.

					Project Name Project Number	10021800125	
C X	NC	N/A	U	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)			ELEMENTARY SCHOOLS
С	NC x	N/A	U	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)			MIDDLE SCHOOLS
С	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)			SCHOOLS HIGH
Conn	ectio	ns					
	NC	N/A	U	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)	COMMENTS Sill bolt spacing is 6ft end is unknown.	or less, but distance to	OPTION SCHOOLS
egend	: C = (Comp	liant,	NC = Noncompliant, $N/A = Not Applicable$, $U = Unk$	nown		SUPPORT FACILITIES

Project Name 29_Sexton Mountain ES
Project Number 10021800125

FIRM:	KPFF Consulting Engineers
PROJECT NAME:	Sexton Mountain Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NWH
DATE COMPLETED:	10/25/2018
REVIEWED BY:	
REVIEW DATE:	

Project Number 10021800125

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

Low and	Moderate	Seismicity
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1	RATING DESCRIPTION COMMENTS							
	C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls	COMMITME		
	X				in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.			
	•••			Ш	5.5.1.1)			
							щS	
							MIDDLE SCHOOLS	
							불당	
							ဟ	
	C	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check			
				X	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		_ S_	
					All other conditions 100 lb/ft		HE SE	
							HIGH	
	С	NC	N/A	U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS:		0)	
			x		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)			
							N S S S S S S	
							lĕĕ	
		NG	N1/A		GYPSUM WALLBOARD OR PLASTER SHEAR		OPTION SCHOOL(
	С	NC	N/A	U	WALLS: Interior plaster or gypsum wallboard is		"	
				X	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)			
							_	
							몺	
] - -	
							SUPP(FACILI	

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

Project Name 29_Sexton Mountain ES
Project Number 10021800125

C x	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
С	NC X	N/A	U	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)	No holdowns found on drawings. Shear load transfer assumed due to nailing schedule on sheet S3.
O	NC	N/A X	υ	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 **	NC	N/A	U	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)	

					Project Name 29_Sexton Project Number 100218001	Mountain ES	
C X	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)	Appears to be compliant.		ELEMENTARY SCHOOLS
Conn	ectio	ns					
RA	TING			DESCRIPTION	COMMENTS		၂၂၂ တု
x	NC	N/A	U	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)	See detail 2/S11 for posts below L crawl space).	₋evel 1 (in	MIDDLE
C x	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)	Appears to be compliant.		STOOHOS HBIH
C X	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			OPTION SCHOOLS
							SUPPORT FACILITIES

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC X	N/A	υ	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)	
С	NC X	N/A	U	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)	Appears to be non-compliant.
С	NC	N/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS:	
	X			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	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)	

					Project Name Project Number	29_Sexton Mountain ES 10021800125	
C	NC x	N/A	U	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)	Appears to be non-co	mpliant.	ELEMENTARY SCHOOLS
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	Blocking does not app	pear to exist.	MIDDLE SCHOOLS
C X	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)			SCHOOLS SCHOOLS
Conn	ectio	ns					
C x	NC	N/A	U	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)	COMMENTS Appears to be 48" o.c.	(drawings hard to read).	OPTION SCHOOLS
egend	l: C = 0	Comp	liant,	NC = Noncompliant, N/A = Not Applicable, U = Unk	nown		SUPPORT FACILITIES

Project Name 29_Sexton Mountain ES
Project Number 10021800125

FIRM:	KPFF Consulting Engineers
PROJECT NAME:	Sexton Mountain Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NWH
DATE COMPLETED:	10/25/2018
REVIEWED BY:	
REVIEW DATE:	

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	
С	NC	N/A	J	REDUNDANCY: The number of lines of shear walls	
X			П	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)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using	
			X	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)	
С	NC	N/A	U	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced	#5 at 32" o.c. Vertical
X				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)	#4 at 48" o.c. Horizontal

Stiff Diaphragms

R.A	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous	
		X		reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

	connections								
RA	RATING DESCRIPTION COMMENTS								
C	NC	N/A	U	WALL ANCHORAGE: Exterior concrete or masonry					
X				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)					
С	NC	N/A	U	WOOD LEDGERS: The connection between the					
	X			wall panels and the diaphragm does not induce					
		Ш		cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec.					
				5.7.1.3)					
c	NC	N/A	U	TRANSFER TO SHEAR WALLS: Diaphragms are					
				connected for transfer of seismic forces to the					
X		Ш	Ш	shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2)					
				3.7.2)					

	Project Name 29_Sexton Mountain ES Project Number 10021800125
concrete topping slabs in precast concrete diaphred doweled for transfer of the concrete topping slabs in the concrete diaphred in the concrete diaphred in the concrete topping slabs in	
C NC N/A U FOUNDATION DOWELS: doweled into the found A.5.3.5. Tier 2: Sec. 5.7.3.	ation. (Commentary: Sec.
C NC N/A U GIRDER-COLUMN CONI positive connection usin hardware, or straps between column support. (Comm Sec. 5.7.4.1)	g plates, connection
High Seismicity Stiff Diaphragms RATING C NC N/A U OPENINGS AT SHEAR W openings immediately a are less than 25% of the (Commentary: Sec. A.4.1)	djacent to the shear walls wall length.
egend: C = Compliant, NC = Noncompliant, N/A 2014 American Society of Civil Engineers	= Not Applicable, U = Unknown 4 Rev. 41-31.1

Project Name 29_Sexton Mountain ES
Project Number 10021800125

С	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to	
		x		exterior masonry shear walls are not greater than	
				8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec.	
				5.6.1.3)	

Flexible Diaphragms

Flexi	Flexible Diaphragms							
RATING DESCRIPTION COMMENTS								
C	NC	N/A	U	CROSS TIES: There are continuous cross ties				
I_{\Box}				between diaphragm chords. (Commentary: Sec.				
		Ш	Ш	A.4.1.2. Tier 2: Sec. 5.6.1.2)				
c	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm	See grid line 4B and 5B, sheet S6.			
	X			openings immediately adjacent to the shear walls are less than 25% of the wall length.				
	•	ш	Ш	(Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)				
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to	There does not appear to be any extendi			
		X		exterior masonry shear walls are not greater than	masonry shear walls.			
				8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec.				
				5.6.1.3)				

				Project Name Project Number	29_Sexton Mountain ES 10021800125	
C NO	N/A	U X	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 NC	S N/A	υ	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 NC		U	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 NC	N/A	U	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
rgend: C =	- Comp	liant	NC = Noncompliant, N/A = Not Applicable, U = Unk	nown		SUPPORT FACILITIES

Project Name 29_Sexton Mountain ES
Project Number 10021800125

Connections

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	J	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural	
			x	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)	

FIRM:	KPFF
PROJECT NAME:	30_Springville Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NH
DATE COMPLETED:	5/30/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 30_Springville Element 10021800125

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							
RA	TING			DESCRIPTION	COMMENTS		
С	NC	N/A	U X	COLUMN AXIAL STRESS CHECK: The axial stress caused by gravity loads in columns subjected to overturning forces is less than 0.10Fy. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.5.3.6, is less than 0.30Fy. (Commentary: Sec. A.3.1.3.2. Tier 2: Sec. 5.5.2.1.3)			
С	NC	N/A	U X	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 0.50Fy. (Commentary: Sec. A.3.3.1.2. Tier 2: Sec. 5.5.4.1)			
Conn		ns					
RA	TING			DESCRIPTION	COMMENTS		
C X	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)			

					Project Name Project Number	30_Springville Elemen	
C X	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.		10021000123	VTARY OLS
				5.7.3.1)			ELEMEN SCHOO
Mode	erate	Seisn	nicity				
			-	ing System			္ ဟု
	TING			DESCRIPTION	COMMENTS)
С	NC X	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)	Some bays only have 1 frames in them, while sof only 1 frame.		WIDDLE SCHOOLS
C	NC	N/A	U	CONNECTION STRENGTH: All the brace	Assumed since 2007 O	SSC docion	HIGH HIGH
X				connections develop the buckling capacity of the diagonals. (Commentary: Sec. A.3.3.1.5. Tier 2: Sec. 5.5.4.4)	Assumed since 2007 0	ose design.	HIGH SCHOOL
				COMPACT MEMBERS: All brace elements meet			N STC
x	NC	N/A	υ	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 since 2007 O	SSC design.	OPTION SCHOOLS
							SUPPORT FACILITIES

3

Project Name 30_Springville Element 10021800125

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:	
X				Sec. 5.5.4.6)	

High Seismicity

Seismic-Force-Resisting System

361	Seismic-Force-Resisting System								
R	ATING			DESCRIPTION	COMMENTS				
C	NC	N/A	U X	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)	See 8 & 10/S-521				
X		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)	Assumed since 2007 OSSC design.				
X		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)	Assumed since 2007 OSSC design.				

					Project Name Project Number	30_Springville Elemen	
C X	NC	N/A	U	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 since 2007 C	OSSC design.	ELEMENTARY SCHOOLS
C **	NC	N/A	U	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 since 2007 C	DSSC design.	WIDDLE SCHOOLS
C x	NC	N/A	U	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)	Assumed since 2007 C	DSSC design.	STOOHDS H9IH
		ns (Fl	exible	e or Stiff)			
RA C	TING NC	N/A	U	DESCRIPTION OPENINGS AT FRAMES: Diaphragm openings	COMMENTS See page S-125, grid E	3	(C)
	X			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)	see page 3-123, grid b	·	OPTION SCHOOLS
							SUPPORT ACILITIES

Project Name
Project Number
10021800125

Flexible Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	CROSS TIES: There are continuous cross ties	
			_	between diaphragm chords. (Commentary: Sec.	
X				A.4.1.2. Tier 2: Sec. 5.6.1.2)	
С	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed	
				diaphragms have aspect ratios less than 2-to-1 in	
Ш		X	Ш	the direction being considered. (Commentary:	
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater	
$ \Box $		x		than 24 ft consist of wood structural panels or	
	Ш			diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
				Tier 2. 3ec. 3.0.2)	
				DIAGONALLY SHEATHED AND UNBLOCKED	
C	NC	N/A	U	DIAPHRAGMS: All diagonally sheathed or	
ΙП		X		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)	

				Project Name	30_Springville Elemen
				Project Number	10021800125
NC	N/A	U	OTHER DIAPHRAGMS: The diaphragm does not		
	x		concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5)		
	NC			consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	NC N/A U OTHER DIAPHRAGMS: The diaphragm does not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:

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

MIDDLE SCHOOLS

Project Name Project Number 10021800125

30_Springville Elemen

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	30_Springville Elementary School
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	NH
DATE COMPLETED:	05/30/2018
REVIEWED BY:	
REVIEW DATE:	

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	Seis	micity

Connections

RA	TING			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 since 2007 OSSC design.

Moderate Seismicity

Seismic-Force-Resisting System

001311	ooisinic i oroo nosisting oystom							
RA	TING			DESCRIPTION	COMMENTS	ı		
C	NC	N/A	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal	Compliant			
				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.		ı		
				5.5.1.1)		I		
						l		
						I		
						ŀ		
С	NC	N/A	U	WALL SHEAR STRESS CHECK: The shear stress in		I		
	_		0	the precast panels, calculated using the Quick		l		
		X	Ш	Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in. ² or $2\sqrt{f}$ c. (Commentary:		l		
				Sec. A.3.2.3.1. Tier 2: Sec. 5.5.3.1.1)		l		
						I		
						ŀ		

Project Name 30_Springville Elemen Project Number 10021800125 REINFORCING STEEL: The ratio of reinforcing steel NC N/A U 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 THICKNESS: Thicknesses of bearing walls NC U C N/A Verify. Trusses sit on walls which meet this shall not be less than 1/40 the unsupported criteria, however parallel walls to trusses do X height or length, whichever is shorter, nor less not, but they are only supporting a small area than 4 in. (Commentary: Sec. A.3.2.3.5. Tier 2: Sec. of roof deck. 5.5.3.1.2) Diaphragms RATING DESCRIPTION COMMENTS TOPPING SLAB: Precast concrete diaphragm C NC N/A U elements are interconnected by a continuous X 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 <u>DESC</u>RIPTION COMMENTS WOOD LEDGERS: The connection between the C NC U N/A wall panels and the diaphragm does not induce X 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

					Project Name Project Number	30_Springville Elemen 10021800125	
C X	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)			ELEMENTARY SCHOOLS
С	NC	N/A	U	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)			MIDDLE SCHOOLS
C x	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			HIGH SCHOOLS
•	Seisn	-					
	nic-Fo TING	rce-R	esist	ing System DESCRIPTION	COMMENTS		W
С	NC	N/A	U	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)	Unlikely, but investiga	ate further.	OPTION SCHOOLS
egend	: C = 0	Comp	liant,	NC = Noncompliant, N/A = Not Applicable, U = Unk	nown		SUPPORT FACILITIES

Project Name 30_Springville Elemen Project Number 10021800125 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)

Dianhranms

X

NC N/A

U

Diap	Diaphragms							
RA	TING			DESCRIPTION	COMMENTS			
c	NC	N/A	U	CROSS TIES IN FLEXIBLE DIAPHRAGMS: There are				
				continuous cross ties between diaphragm chords.				
X		Ш	Ш	(Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)				
C	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed				
				diaphragms have aspect ratios less than 2-to-1 in				
		X		the direction being considered. (Commentary:				
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)				
С	NC	N/A	U	SPANS: All wood diaphragms with spans greater				
				than 24 ft consist of wood structural panels or				
		X		diagonal sheathing. (Commentary: Sec. A.4.2.2.				
				Tier 2: Sec. 5.6.2)				
	1		l	1				

					Project Name Project Number	30_Springville Elemen 10021800125	
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec.5.6.2)			ELEMENTARY SCHOOLS
С	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)			MIDDLE SCHOOLS
Conn	ectio	ns					
RA	TING			DESCRIPTION	COMMENTS		(n)
x	NC	N/A	U	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)			SCHOOFS HIGH
C X	NC	N/A	U	PRECAST WALL PANELS: Precast wall panels are connected to the foundation. (Commentary: Sec. A.5.3.6. Tier 2: Sec. 5.7.3.4)	Connected to SOG Re	rf. 6/S-512.	OPTION SCHOOLS
			1				
egend	l: C = (Comp		, NC = Noncompliant, N/A = Not Applicable, U = Unk	known		SUPPORT FACILITIES

Project Name 30_Springville Elemen 10021800125

С	NC	N/A X	U	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 x	NC	N/A	U	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)	DBA's are used to connect OWJ's to walls. Llkely adequate

Stiff Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous	Cannot locate any concrete on metal deck
		x		reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	diaphragms at masonry shear walls.
				Sec. A.4.3.1. Hel 2. Sec. 3.0.4)	

Connections

	Lonnections						
RA	TING			DESCRIPTION	COMMENTS	ı	
C x	NC	N/A	о _П	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 since 2007 OSSC design.		
С	NC	N/A X	⊃	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)		-	
C x	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)		-	

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

Project Name 30_Springville Elemen
Project Number 10021800125

С	NC	N/A	U	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	NC	N/A	U	FOUNDATION DOWELS: Wall reinforcement is	
×				doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
c	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a	
			_	positive connection using plates, connection	
X				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

R/	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm	
		X		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)	

					Project Name Project Number	30_Springville Elemen 10021800125	
С	NC	N/A x	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)			ELEMENTARY SCHOOLS
Flexi	ble Di	iaphra	agms	3			
	TING			DESCRIPTION	COMMENTS		၂၂၂ တု
C X	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)			MIDDLE SCHOOLS
С	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls			HIGH SCHOOLS
X				are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3)			H
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)			OPTION SCHOOLS
							SUPPORT FACILITIES

Project Name 30_Springville Element 10021800125

_					
C	NC	N/A	υ	STRAIGHT SHEATHING: All straight sheathed	
$ \Box $			l	diaphragms have aspect ratios less than 2-to-1 in	
Ш		X		the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
				Sec. A.4.2.1. Tier 2: Sec. 5.6.2)	
C	NC	N/A	U	SPANS: All wood diaphragms with spans greater	
_			_	than 24 ft consist of wood structural panels or	
Ш		X	Ш	diagonal sheathing. (Commentary: Sec. A.4.2.2.	
				Tier 2: Sec. 5.6.2)	
С	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED	
	_			DIAPHRAGMS: All diagonally sheathed or	
		X		unblocked wood structural panel diaphragms	
				unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect	
				unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary:	
				unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect	
				unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary:	
				unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary:	
				unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary:	
				unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary:	
	NC NC	X	U	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) OTHER DIAPHRAGMS: The diaphragm shall not	
С			U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck,	
		X	U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
С		X	U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck,	
С		X	U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
С		X	U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
С		X	U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
С		X	υ	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	
С		X	U	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) OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary:	

Project Name 30_Springville Element 10021800125

Connections

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural	
		X		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)	

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

Project Name Project Number 10021800125

31_Terra Linda Elemer

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	31_Terra Linda Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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)	Exterior walls do not have adequate out of plane connections between foundations and roof diaphragm.
С	NC x	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)	Exterior walls are not adequately anchored into the foundations. No calculations completed.

Project Name 31_Terra Linda Element 10021800125

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RA	TING			DESCRIPTION	COMMENTS
С	NC x	N/A	>	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)	Exterior walls do not have adequate out of plane connections between foundations and roof diaphragm.
С	NC	N/A	о _П	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 adjacent buildings.
С	NC	N/A X	υ	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)	

Project Name

31_Terra Linda Elemer Project Number 10021800125

Building Configuration

	Building Configuration							
R/	ATING			DESCRIPTION	COMMENTS	\ <u>\</u>		
C	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1)	One-Story Structure.			
С	NC	N/A	U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2)	One-Story Structure.			
C	NC	N/A	U	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)	All lateral components appear to be continuous to foundations.			
С	NC	N/A	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	One-Story Structure.	NOITGO		

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

Project Name 31_Terra Linda Elemento 10021800125

С	NC	N/A X	U	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)	One-Story Structure.
С	NC	N/A	U X	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6)	No Calculation performed.

Moderate Seismicity

Geologic Site Hazards

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could	
			X	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)	
С	NC	N/A	U	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope	
			X	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)	

					Project Name Project Number	31_Terra Linda Element	
					Project Number	10021800125	
C	NC	N/A	U X	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:			NTAR
				5.4.3.1)			ELEME SCH(
High	Seisr	 nicity	,				
Foun	datio	n Cor	nfigui	ration			L S
RA	TING			DESCRIPTION	COMMENTS		디즈
С	NC	N/A	U X	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than 0.6S _a . (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3)	No Calculation perfor	med.	MIDDLE SCHOOLS
				TIES BETWEEN FOUNDATION ELEMENTS: The			SH SOLS
C	NC X	N/A	υ	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)			SCHOOLS HIGH
							N N STO
							OPTION SCHOOLS
							SUPPORT FACILITIES
							SF

Project Name Project Number 10021800125

31_Terra Linda Elemer

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	31_Terra Linda Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

31_Terra Linda Elemer Project Name Project Number 10021800125

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

Low and Moderate Seismicity

	Lateral Seismic-Force-Resisting System								
RA	TING			DESCRIPTION	COMMENTS				
С	NC	N/A	υ	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal					
X				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1)					
С	NC	N/A	U x	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	No calculations completed.				
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)					
x	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)	Gypsum board is used as sheathing in the structure but not in all areas				

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

Project Name 31_Terra Linda Elemento 10021800125

C	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood	
X				shear walls with an aspect ratio greater than 2- to-1 are not used to resist seismic forces.	
			Ш	(Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)	
				(Commentary, Sec. 71.5.2.7.4. Her 2. Sec. 5.5.5.6.1)	
	NC	NI/A	U	WALLS CONNECTED THROUGH FLOORS: Shear	
C	NC	N/A	U	walls have an interconnection between stories to	
X				transfer overturning and shear forces through the	
				floor. (Commentary: Sec. A.3.2.7.5. Tier 2:	
				Sec.5.5.3.6.2)	
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at	
С _	NC		U	least one side by more than one-half story	
С	NC	N/A	U		
С	NC		U	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.	
с П	NC		υ	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-	
С <u></u>	NC		U	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.	
С	NC		υ	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.	
С	NC		υ	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.	
С	NC		U	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)	
С	NC		υ	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) CRIPPLE WALLS: Cripple walls below first-floor-	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	
		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	
C		X		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) CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels. (Commentary: Sec.	

					Project Name Project Number	31_Terra Linda Elementa 10021800125	
C X	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces. (Commentary: Sec. A.3.2.7.8. Tier 2: Sec. 5.5.3.6.5)			ELEMENTARY SCHOOLS
Conn	ectio	ns					
	TING			DESCRIPTION	COMMENTS		၂,, တု
С	NC X	N/A	U	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)			MIDDLE SCHOOLS
С	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec.			sH ools
X				5.7.3.3)			HIGH SCHOOL
x	NC	N/A	U	GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)			OPTION SCHOOLS
agend		Comr	liant	.NC = Noncompliant. N/A = Not Applicable, U = Unk	nown		SUPPORT FACILITIES

High Seismicity

Diaphragms

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not	
X				have expansion joints. (Commentary: Sec. A.4.1.1.	
				Tier 2: Sec. 5.6.1.1)	
				POOF CHOPP CONTINUITY All I	
C	NC	N/A	U	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof	
X				elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec.	
				5.6.1.1)	
С	NC	N/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS:	
	INC	IN/A		There is reinforcing around all diaphragm	
X	Ш	Ш	Ш	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)	
С	NC	N/A	U	STRAIGHT SHEATHING: All straight sheathed	
$ \Box $		X		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)	

					Project Name Project Number	31_Terra Linda Elemer 10021800125	
С	NC	N/A	U	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)	There appears to be sp that are longer then 24	oans of the diaphragm 4'.	ELEMENTARY SCHOOLS
C **	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			MIDDLE SCHOOLS
C X	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)			STOOHDS HIGH
Conn	ectio	ns		DESCRIPTION	COMMENTS		
C X	NC	N/A	U	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)	— EOWINIEN TO		OPTION SCHOOLS
			lia	NC - Noncompliant N/A - Not Applicable II - IInl			SUPPORT FACILITIES

Project Name Project Number 10021800125

31_Terra Linda Elemer

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	31_Terra Linda Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	05/17/2018
REVIEWED BY:	
REVIEW DATE:	

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

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls	
X				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)	
С	NC	N/A	U	SHEAR STRESS CHECK: The shear stress in the	No calculations completed.
			X	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)	
С	NC	N/A	U	REINFORCING STEEL: The total vertical and	Reinforcement is spaced at 24" and 32" o.c.
X				horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall	typically, as noted on 1970 and 1971 drawings.
		-	-	with the minimum of 0.0007 in either of the two	arawings.
				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)	

Project Name 31_Terra Linda Elemento 10021800125

Stiff Diaphragms

NAI	RATING DESCRIPTION				COMMENTS
С	NC	N/A	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous	No precast Diaphragm.
		X		reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	
				Sec. A.4.5.1. Het 2: Sec. 5.0.4)	

Connections

COIIII	RATING DESCRIPTION COMMENTS								
RA	TING			COMMENTS					
С	NC x	N/A	□	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)	Foundation drawings for the original structure are unclear if a connection is made from the floor diaphragm to the exterior shear walls and foundation system. No calculations completed.				
C **	NC	N/A	υ	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)					
C x	NC	N/A	υ <u></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)					

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 NC N/A U FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4) C NC N/A U GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1) High Seismicity Stiff Diaphragms		
doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4) C NC N/A U GIRDER-COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1) High Seismicity Stiff Diaphragms RATING DESCRIPTION COMM 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.	ecast diaphragm, but reinforced slab on e appears to tie into exterior sear walls oundations system.	ELEMENTARY SCHOOLS
High Seismicity Stiff Diaphragms RATING C NC N/A C N		MIDDLE
Stiff Diaphragms RATING DESCRIPTION COMM 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.		HIGH
	MMENTS	OPTION
egend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown		SUPPORT

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Project Name 31_Terra Linda Elemento 10021800125

С	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to	
X				exterior masonry shear walls are not greater than	
				8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec.	
				5.6.1.3)	

Flexible Diaphragms

Flex	Flexible Diaphragms								
R/	ATING			DESCRIPTION	COMMENTS				
С	NC x	N/A	>	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Cross ties will likely need strengthening.				
C **	NC	N/A	υ	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 **	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)					

					Project Name Project Number	31_Terra Linda Elemer 10021800125	
С	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)			ELEMENTARY SCHOOLS
С	NC X	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)	Roof diaphragm span some areas of wood d	s are greater then 24' in lecking.	MIDDLE SCHOOLS
C x	NC	N/A	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)			SCHOOLS HIGH
C **	NC	N/A	U	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
							PORT ITIES

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

Project Name 31_Terra Linda Element 10021800125

Connections

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	STIFFNESS OF WALL ANCHORS: Anchors of	
X				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)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	33_West Tualatin View Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 33_West Tualatin View 1. 10021800125

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RA	TING			DESCRIPTION	COMMENTS
С	NC x	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)	Exterior walls do not have adequate out of plane connections between foundations and roof diaphragm.
С	NC x	N/A	υ	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)	Exterior walls are not adequately anchored into the foundations. No calculations completed.

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity Building System General

RA	TING			DESCRIPTION	COMMENTS
С	x S	N/A	υ <u></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)	Exterior walls do not have adequate out of plane connections between foundations and roof diaphragm.
С	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 adjacent buildings.
С	NC	N/A *	υ <u></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)	

Project Name 33_West Tualatin View 1
Project Number 10021800125

Building Configuration

RA	TING			COMMENTS	
С	NC	N/A	υ	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. A2.2.2. Tier 2: Sec. 5.4.2.1)	One-Story Structure.
С	NC	N/A	υ	SOFT STORY: The stiffness of the seismic-forceresisting 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)	One-Story Structure.
C	NC	N/A	U	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)	All lateral components appear to be continuous to foundations.
С	NC	N/A x	>	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-forceresisting 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)	One-Story Structure.

Project Name 33_West Tualatin View 1
Project Number 10021800125

C	NC	N/A	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are	
			x	not anticipated. (Commentary: Sec. A.6.1.3. Tier 2:	
				5.4.3.1)	

High Seismicity

Foundation Configuration

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at	No Calculation performed.
			X	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)	
С	NC	N/A	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic	
	X			forces where footings, piles, and piers are not	
				restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4)	

ASCE 41-13 Tier 1 Checklists

FIRM:	KPFF
PROJECT NAME:	31_West Tualatin View Elementary
SEISMICITY LEVEL:	High
PROJECT NUMBER:	10021800125
COMPLETED BY:	SMD
DATE COMPLETED:	08/29/2018
REVIEWED BY:	
REVIEW DATE:	

Project Name 33_West Tualatin View 10021800125

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

Low and Moderate Seismicity

Lateral Seismic-Force-Resisting System

RA	TING			DESCRIPTION	COMMENTS
С	NC	N/A	U	REDUNDANCY: The number of lines of shear walls	
				in each principal direction is greater than or equal	
X				to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec.	
				5.5.1.1)	
				SHEAR STRESS CHECK: The shear stress in the	
C	NC	N/A	U	shear walls, calculated using the Quick Check	Likely Non-compliant
	X			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	
C	NC	N/A	U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS:	
x				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	NC	N/A	U	GYPSUM WALLBOARD OR PLASTER SHEAR	Gypsum board is used as sheathing in the
x				WALLS: Interior plaster or gypsum wallboard is not used as shear walls on buildings more than	structure but not in all areas
				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)	

					Project Number	10021800125	
C x	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces. (Commentary: Sec. A.3.2.7.4. Tier 2: Sec. 5.5.3.6.1)			ELEMENTARY SCHOOLS
C X	NC	N/A	U	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
С	NC	N/A	U	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-1. (Commentary: Sec. A.3.2.7.6. Tier 2: Sec. 5.5.3.6.3)			SCHOOLS SCHOOLS
C x	NC	N/A	U	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

Project Name 33_West Tualatin View 10021800125

С	NC	N/A	U	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural	
x				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)	

Connections

COIIII	onnections							
RA	TING			DESCRIPTION	COMMENTS			
c	NC	N/A	U	WOOD POSTS: There is a positive connection of				
				wood posts to the foundation. (Commentary: Sec.				
$ \sqcup $	X	Ш		A.5.3.3. Tier 2: Sec. 5.7.3.3)				
C	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the				
X				foundation. (Commentary: Sec. A.5.3.4. Tier 2: Sec. 5.7.3.3)				
	Ш	ш	Ш	3.7.3.3) 				
	NG	N1/A	U	GIRDER-COLUMN CONNECTION: There is a				
C	NC	N/A	U	positive connection using plates, connection				
X				hardware, or straps between the girder and the				
				column support. (Commentary: Sec. A.5.4.1. Tier 2:				
				Sec. 5.7.4.1)				

Project Name

High Seismicity

Dianhragms

-	TING			DESCRIPTION	COMMENTS
C X	NC	N/A	U	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)	
	116			ROOF CHORD CONTINUITY: All chord elements	
x	NC	N/A	υ	are continuous, regardless of changes in roof elevation. (Commentary: Sec. A.4.1.3. Tier 2: Sec. 5.6.1.1)	
С	NC	N/A	U	DIAPHRAGM REINFORCEMENT AT OPENINGS:	
X				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)	
С	NC X	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)	

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

Project Name 33 _West Tualatin View ___.
Project Number 10021800125

C	NC X	N/A	υ 	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)	There appears to be spans of the diaphragm that are longer then 24'.
C X	NC	N/A	>	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)	
x	NC	N/A	υ <u></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)	
Connections					
RA	TING	ı		DESCRIPTION	COMMENTS
x	NC	N/A	υ	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)	