Seismic Evaluation Report For:

DAYS CREEK CHARTER SCHOOL - GYMNASIUM

11381 Tiller Trail Hwy, Days Creek, Oregon 97429
Days Creek Charter School

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ZCS ENGINEERING ARCHITECTURE

Project Summary Information						
Building Part	Building Part Name	Included in Retrofit	Year Built	Building Type***	Nonstructural Retrofits Included in Scope Y/N***	Previous Seismic Retrofit Y/N*** (Year if Yes)
A	Classrooms	N	1940			
B	Classrooms	N	1954			
C	Classrooms	N	1956			
D	Classroom	N	1965			
E	Gymnasium	Y	1940/ 1989	W2	Y	N
F	Shop / Vocational Building	N	1971			
*** Entries required **ONLY** for building parts included in proposed seismic retrofit. If building part was previously or is currently being retrofit, please list the building part's Risk Category and retrofit design Performance Objective, if known.						
Nonstructural deficiencies posing life safety risk **MUST** be included in the scope of work and budget.						
Seismic fragility inputs for existing buildings with **previous seismic retrofits MUST** be adjusted to reflect previous seismic retrofit measures completed for a building part.						
Total Retrofit Cost	$2,464,310					
Retrofit Square Feet	16,000					
Retrofit Cost per Square Foot	**$154.02**					
Is the campus within a tsunami, FEMA flood zone, landslide/slope instability, liquefaction potential or other high hazard area? **If so, provide documentation (e.g. the Oregon Statewide Hazards Viewer by DOGAMI). ** Projects within the code defined Tsunami Design Zone require consultation with DOGAMI prior to application submittal. Applicant shall include such documentation with the application.**						N

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1.0 Project Introduction

Douglas County School District #15 is located in Days Creek, Oregon in Douglas County. The District operates 3 schools located within the community including the property of interest, Days Creek Charter School. The District has retained ZCS Engineering and Architecture (ZCS) to perform a seismic evaluation of Days Creek Charter School that provides the District with an objective, comprehensive analysis of the condition of the building's seismic resisting systems. The purpose of the evaluation is to determine the seismic lateral resisting system deficiencies when compared to buildings designed using modern building codes. This evaluation was performed in accordance with the American Society of Civil Engineers "Seismic Rehabilitation of Existing Buildings ASCE/SEI 41-17".

SEISMIC EVALUATION SNAPSHOT	
Street Address	11381 Tiller Trail Highway
Evaluation Standard	ASCE 41-17 (Tier 1 Analysis)
Building's Risk Category	IV
Target Building Performance Level	Immediate Occupancy for BSE-1E and Life Safety for BSE-2E
Target Non-Structural Performance Level	Position Retention for BSE-1E and Hazards Reduced for BSE-2E
ASCE 41 Building Type	W2
FEMA P-154 Seismicity Region (Table 2-2)	High
ASCE 41-17 Level of Seismicity (Table 2-4)	High
Cost Estimate	$2,464,310
Cost/Square Foot	$154.02

2.0 Building Description

The building being considered in this report is the gymnasium. ZCS has reviewed the building and its construction to classify its lateral system as identified in ASCE 41-17. This lateral system will be used throughout this evaluation. The lateral system present consists of Wood Frames, Commercial and Industrial W2. This determination was made after observing the subject facility and reviewing the available existing drawings. Descriptions of this structure type is listed below and specifically identify the lateral load resisting system. In addition to the lateral system present, ZCS has summarized the gravity load carrying systems of the subject facility including later in this section.

Wood Frames, Commercial and Industrial W2 – These buildings are commercial or industrial buildings with a floor area of 5,000 ft^2 or more. There are few, if any, interior walls. The floor and roof framing consists of wood or steel trusses, glulam or steel beams, and wood posts or steel columns. The foundation system may consist of a variety of elements. Seismic forces are resisted by wood diaphragms and exterior stud walls sheathed with plywood, oriented strand board, stucco, plaster, or straight or diagonal wood sheathing, or they may be braced with rod bracing. Wall openings for storefronts and garages, where present, are framed by a post-and-beam framing.

Below is a figure identifying the building parts on campus and listing applicable information. See below for descriptions of building parts included in the evaluation and applicable building types as noted above.

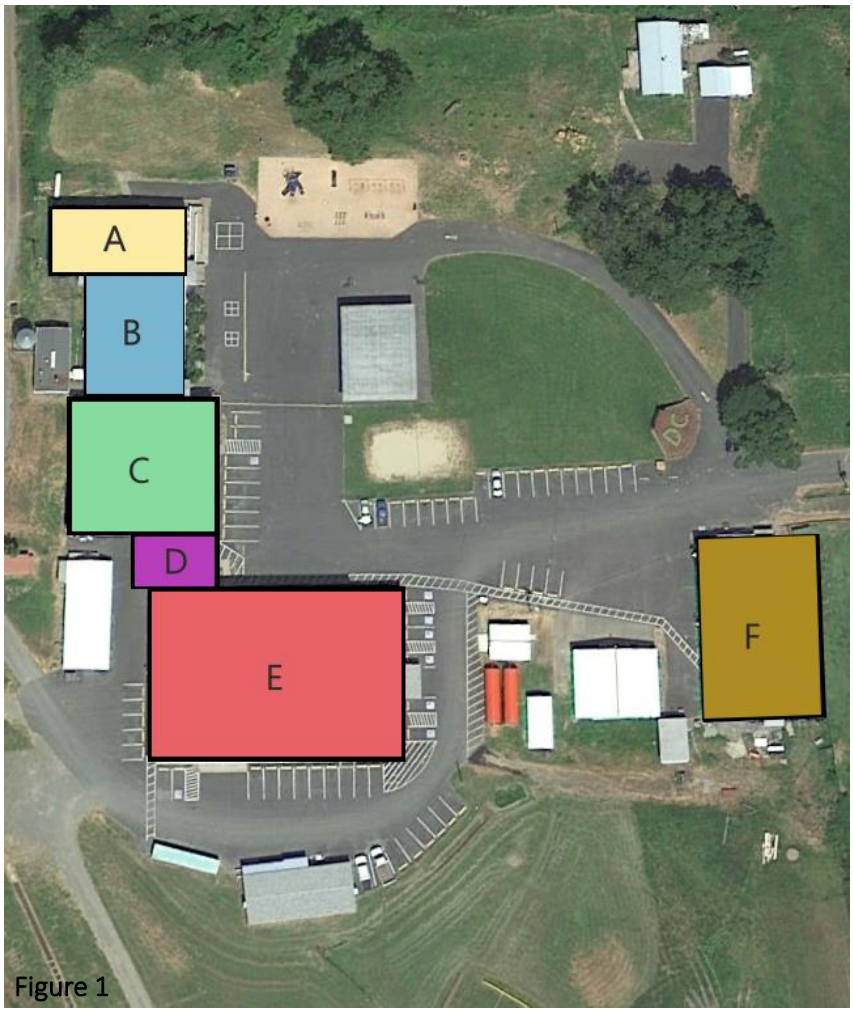

Figure 1

BUILDING PARTS	
A	Construction Year: 1940 Building Name: Classrooms ASCE 41-17 Building Type: W2, C2 In Scope?: N
B	Construction Year: 1954 Building Name: Classrooms ASCE 41-17 Building Type: W2, C2 In Scope?: N
C	Construction Year: 1956 Building Name: Classrooms ASCE 41-17 Building Type: W2 In Scope?: N
D	Construction Year: 1965 Building Name: Classroom ASCE 41-17 Building Type: RM1 In Scope?: N
E	Construction Year: 1940/1989 Building Name: Gymnasium ASCE 41-17 Building Type: W2 In Scope?: Y
F	Construction Year: 1971 Building Name: Shop / Vocational Building ASCE 41-17 Building Type: W2 In Scope?: N

Days Creek Charter School Key Plan

**Photographs of the building parts included in this report are located in Appendix A.

Building Part E Construction:

- ASCE 41-17 Building Type(s):
  - W2
- Roof Structure:
  - Straight sheathed roof diaphragm supported by dimensional lumber and heavy timber trusses
  - Plywood sheathed roof diaphragm supported by roof trusses
  - Large attic space that contains heavy timber trusses and deep glulam
- Walls:
  - Dimensional studs with straight sheathing
- Foundation:
  - Dimensional lumber floor framing with diagonal sheathing supported by post and beam foundation
- Notable Structural Features/Concerns:
  - Addition has different diaphragm type from the original structure. New structure is structural sheathed with plywood. Old structure is sheathed with diagonal sheathing.

3.0 Seismic Evaluation Methodology

The subject structure was evaluated using information gathered from site observations, available historic construction documents, and interviews with District staff. This information was then utilized to perform a structural evaluation as outlined in the American Society of Civil Engineer's "Seismic Evaluation and Retrofit of Existing Buildings – ASCE 41-17" (ASCE 41-17). ASCE 41-17 is referenced as the standard for seismic evaluations of existing buildings by the International Existing Building Code (IEBC) which is referenced by the Oregon Structural Specialty Code (OSSC). Further, ASCE 41-17 is the evaluation tool required by the Seismic Rehabilitation Grant Program for grant applications.

ASCE 41-17 provides several levels of evaluation (Tiers 1-3) depending on the level of evaluation and/or retrofit being performed. The Tier 1 evaluation is a quick checklist selected based on the type of construction and the performance objective of the building and is the baseline tool for preliminary seismic evaluations. In the case of this evaluation, a Tier 1 was performed to identify the likely structural deficiencies requiring retrofit to meet the performance objective stated below.

The OSSC classifies buildings into risk categories based on the type of building and occupancy type. The building's risk category informs the required performance objective post retrofit. Risk categories I and II cover low risk structures. Risk category III includes school buildings that are not required to be used as emergency shelters and are relatively low occupancy. Risk category IV includes emergency service buildings and school buildings that are required to be designed as emergency shelters (high occupancy spaces). Figure 2, below, identifies the performance objective for each risk category.

The primary objective of the adjusting performance objectives relative to risk category is to ensure that the subject building is capable of performing in the necessary manner following a seismic event. In the case of a risk category III building, the intention is to ensure that the building is adequately stable following an earthquake to provide egress for occupants out of the building. Prior to reoccupation, the building would need evaluated and significant structural damage preventing reoccupation may be present. For risk category IV structures, the intent is that the building can be inspected then immediately reoccupied following a seismic event to function in its intended role as an emergency service building or as a high occupancy space capable of acting as an emergency structure.

In accordance with the table below, this section of this building is categorized as a risk category IV structure and was evaluated to meet the Life Safety structural performance and Hazards Reduced nonstructural performance level for BSE-2E loading and the Immediate Occupancy structural performance and Position Retention nonstructural performance level for BSE-1E loading.

Table 2-2. Scope of Assessment Required for Tier 1 and Tier 2 with the Basic Performance Objective for Existing Buildings (BPOE)

Risk Category	Tier 1 and 2[a]	
	BSE-1E	BSE-2E
I and II	Not evaluated	Collapse Prevention Structural Performance
	Life Safety Nonstructural Performance (3-C)	Hazards Reduced Nonstructural Performance[b] (5-D)
III	Not evaluated	Limited Safety Structural Performance[c]
	Position Retention Nonstructural Performance (2-B)	Hazards Reduced Nonstructural Performance[b] (4-D)
IV	Immediate Occupancy Structural Performance	Life Safety Structural Performance[d]
	Position Retention Nonstructural Performance (1-B)	Hazards Reduced Nonstructural Performance[b] (3-D)

[a] For Tier 1 and 2 assessments of Risk Categories I–III, Structural Performance for the BSE-1E is not explicitly evaluated.
[b] Compliance with ASCE 7 provisions for new construction is deemed to comply.
[c] For Risk Category III, the Tier 1 screening checklists shall be based on the Collapse Prevention Performance Level (S-5), except that checklist statements using the Quick Check procedures of Section 4.4.3 shall be based on M_s factors taken as the average of the values for Life Safety and Collapse Prevention.
[d] For Risk Category IV, the Tier 1 screening checklists shall be based on the Collapse Prevention Performance Level (S-5), except that checklist statements using the Quick Check procedures of Section 4.4.3 shall be based on M_s factors for Life Safety.

Figure 2

Building Performance Objectives

Source: Table 2-2, ASCE 41-17: American Society of Civil Engineers – Seismic Evaluation and Retrofit of Existing Buildings

4.0 Seismicity

Seismic design is based on site specific parameters that relate to the location of the building relative to faults and the soil that supports the building. The United States Geologic Survey has developed seismic design data that is utilized to perform the calculations specified in ASCE 41-17. The table below summarizes the factors appropriate for computing the seismic lateral loads for the design earthquake specified in ASCE 41-17.

SITE SPECIFIC SEISMICITY	
ASCE 7-16 Site Soil Classification	D
FEMA P-154 Seismicity Region (Table 2-2)	High
ASCE 41-17 Level of Seismicity (Table 2-4)	High
BSE-1E:	
S_{xs}	0.19
S_{x1}	0.151
Soil Condition Amplification Factors (F_v, F_A)	F_v = 2.4 | F_a = 1.6
BSE-2E:	
S_{xs}	0.678
S_{x1}	0.564
Soil Condition Amplification Factors (F_v, F_A)	F_v = 2.05 | F_a = 1.418

Source: SEAOC and OSHPD Seismic Design Maps, https://seismicmaps.org/

5.0 Site Specific Hazards

Site specific hazards were assessed as part of our engineering evaluation. The hazards evaluated in our analysis included liquefaction, slope failure/landslide, surface fault rupture, and tsunami potential. These potential hazards were evaluated using ASCE 41-17 guidelines, as well as information provided by the online Oregon HazVu: Statewide Geohazards Viewer, maintained by the Department of Geology and Mineral Industries (DOGAMI). Tsunami risk was evaluated using the ASCE Tsunami Hazard Tool. Results from the HazVu analysis are included in Appendix D. Unless noted below, the hazards listed above are not present at the site.

6.0 Deficiencies and Repairs

The table below summarizes both the structural and nonstructural deficiencies noted in the Tier 1 evaluation and states both the proposed retrofit methodology and the plan keynote that corresponds to the scope items in the preliminary plans and the cost estimate. See Appendix B for complete Tier 1 check sheets. Drawings illustrating the proposed retrofit measures are attached in Appendix C.

Tier 1 Deficiency Description	Deficiency Statement	Repair Statement	Plan Key Note
	IO BASIC CHECKLIST		
LOAD PATH	The structure does not 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.	Provide a complete, well-defined load path by installing new elements and connections as needed to transfer inertial forces from all elements of the building to the foundation.	S1
ADJACENT BUILDINGS	The clear distance between the building being evaluated and any adjacent building is less than 0.5% of the height of the shorter building in low seismicity, 1.0% in moderate seismicity, and 3.0% in high seismicity.	Provide seismic isolation joint to avoid pounding of the taller structure into the lower structure. Provide all new gravity framing and lateral resisting elements as necessary to provide building separation.	S2
	W2: IO CHECKLIST		
SHEAR STRESS CHECK	The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is higher than the following values: Structural panel sheathing 1,000 lb/ft Diagonal sheathing 700 lb/ft Straight sheathing 100 lb/ft All other conditions 100 lb/ft	Install new plywood shear walls to ensure adequate shear capacity.	S3
HOLD-DOWN ANCHORS	Not all shear walls have hold-down anchors attached to the end studs constructed in accordance with acceptable construction practices.	Install new hold-down hardware.	S4
WOOD POSTS	There is not a positive connection of wood posts to the foundation.	Install hardware at wood posts to ensure connection to the foundation.	S5

WOOD SILLS	All wood sills are not bolted to the foundation.	Provide new anchor bolts from wood sills to the foundation.	S6
GIRDER–COLUMN CONNECTION	There is not a positive connection using plates, connection hardware, or straps between the girder and the column support.	Provide new connection hardware between the girder and the column support.	S7
STRAIGHT SHEATHING	Not all straight-sheathed diaphragms have aspect ratios less than 1-to-1 in the direction being considered.	Install new plywood diaphragm sheathing.	S8
SPANS	Not all wood diaphragms with spans greater than 12 ft consist of wood structural panels or diagonal sheathing.	Install new shear walls to reduce diaphragm spans.	S9
DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS	Not all diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 30 ft and have aspect ratios less than or equal to 3-to-1.	Install new blocked plywood diaphragm.	S10
WOOD SILL BOLTS	Sill bolts are not spaced at 4ft or less with acceptable edge and end distance provided for wood and concrete.	Provide new anchor bolts from wood sills to the foundation.	S11
	GRAVITY DEFICIENCIES		
GLULAMS	Existing glue laminated beams built prior to 1970 were under designed based on inadequate material stress information available at the time. This results in beams that cannot be relied upon to support code prescribed gravity loading.	Strengthen beams to support code required gravity loading.	S12
SAGGING ELEMENTS	Several ceiling elements are underdesigned and are not blocked to be able to transfer seismic forces.	Strengthen ceiling framing to support code required gravity loading.	S13
	NONSTRUCTURAL CHECKLIST		
SHUTOFF VALVES	Piping containing hazardous material, including natural gas, does not have shut off valves or other devices to limit spills or leaks.	Install shut off valves for piping containing hazardous material, including natural gas.	N1
FLEXIBLE COUPLINGS	Hazardous material ductwork and piping, including natural gas piping, do not have flexible couplings.	Install flexible couplings for ductwork and piping containing hazardous material, including natural gas piping.	N2

INTEGRATED CEILINGS	Integrated suspended ceilings with continuous areas greater than 144 ft2 and ceilings of smaller areas that are not surrounded by restraining partitions are not laterally restrained at a spacing less than 12ft with members attached to the structure above. Each restraint location does not have a minimum of four diagonal wires and compression struts, nor diagonal members capable of resisting compression.	Install seismic bracing for integrated suspended ceilings.	N3
EDGE CLEARANCE	The free edges of integrated suspended ceilings with continuous areas greater than 144ft.2 does not have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, 1/2 in.; in High Seismicity, 3/4 in.	Install free edge clearance for integrated suspended ceilings.	N4
EDGE SUPPORT	The free edges of integrated suspended ceilings with continuous areas greater than 144ft.2 are not supported by closure angles or channels not less than 2 in. wide.	Install free edge support for integrated suspended ceilings.	N5
TALL NARROW CONTENTS	Contents more than 6 ft high with a height-to-depth or height-to-width ratio greater than 3-to-1 are not anchored to the structure or to each other.	Anchor contents to the structure.	N6
FALL-PRONE CONTENTS	Equipment, stored items, or other contents weighing more than 20lb whose center of mass is more than 4 ft above the adjacent floor level are not braced or otherwise restrained.	Brace equipment to structure.	N7
FLEXIBLE COUPLINGS	Fluid and gas piping does not have flexible couplings.	Install flexible couplings for fluid and gas piping.	N8
FLUID AND GAS PIPING	Fluid and gas piping is not anchored or braced to the structure to limit spills or leaks.	Anchor and brace fluid and gas piping to the structure.	N9

In addition to the structural and nonstructural deficiencies noted above, the gravity load resisting system was reviewed to identify obvious insufficient gravity components. Insufficient gravity elements can cause failure during seismic events. These gravity deficiencies are based on visual observations of the existing structural elements. The existing glulam beam and heavy timber trusses were found to be insufficient and require strengthening.

Based upon ZCS's previous experience and discussions with site personnel the building contains hazardous materials. These materials will need to be dealt with on a case-by-case basis as they are encountered during the project.

7.0 Preliminary Construction Cost Estimate

The attached engineer's opinion of probable cost has been developed by ZCS. ZCS has a successful record of completing seismic rehabilitation projects within the State of Oregon. The prices provided in the attached cost estimate have been developed using the extensive list of past projects as a baseline for this project. These prices are based on Oregon BOLI wage rates. The cost estimate is broken down into multiple line items associated with each major task (general conditions, foundation, structural steel, MEP, etc) associated with the rehabilitation. Additional line items are included for design associated permit costs, and owner construction management. A complete breakdown of the cost estimate can be found in Appendix E.

DIRECT COST	
Construction	$1,828,900
Engineering	$286,000
Construction Management	$60,400
Relocation	$26,300
Construction Contingency	$262,710
TOTALS AND SUMMARY	
Total Cost Estimate	**$2,464,310**
Match Funds	**$0**
Total Amount Requested from SRGP	**$2,464,310**
Total Area	**16,000**
Cost/Square Foot	**$154.02**

8.0 Conclusion and Certification Statement

The findings described in this report have been limited to the lateral force-resisting structural system and general assessment of the gravity force-resisting elements. Based on our visual observations, we find the structure to be in relatively good condition and generally safe for occupancy. No significant damage to the existing structural system was discovered.

Given the current condition of the structure, the current code section on existing buildings does not mandate that upgrades are required unless the building is scheduled for repairs, alterations, additions, or change in occupancy. To clarify, upgrades outlined in this report are strictly at the discretion of the District.

Please contact our office if you would like to discuss our findings. Please review the attached schematic drawings that can be used to refine a scope and budget.

Certification Statement

ZCS Engineering & Architecture's professional staff has reviewed the subject building and the deficiencies noted in the Tier 1 evaluation, developed seismic retrofit solutions to rectify the deficiencies, and developed the engineering cost estimate. The project cost estimate was developed by ZCS based on unit costs from our extensive list of past seismic retrofit projects as a baseline. We certify to the best of our knowledge, based on known and readily identifiable existing conditions, that all the seismic deficiencies present in the building are included in the retrofit scope of work and that all the retrofit's scope of work elements are included in the cost estimate.

Matthew R. Smith, PE, SE

Appendix A: Figures

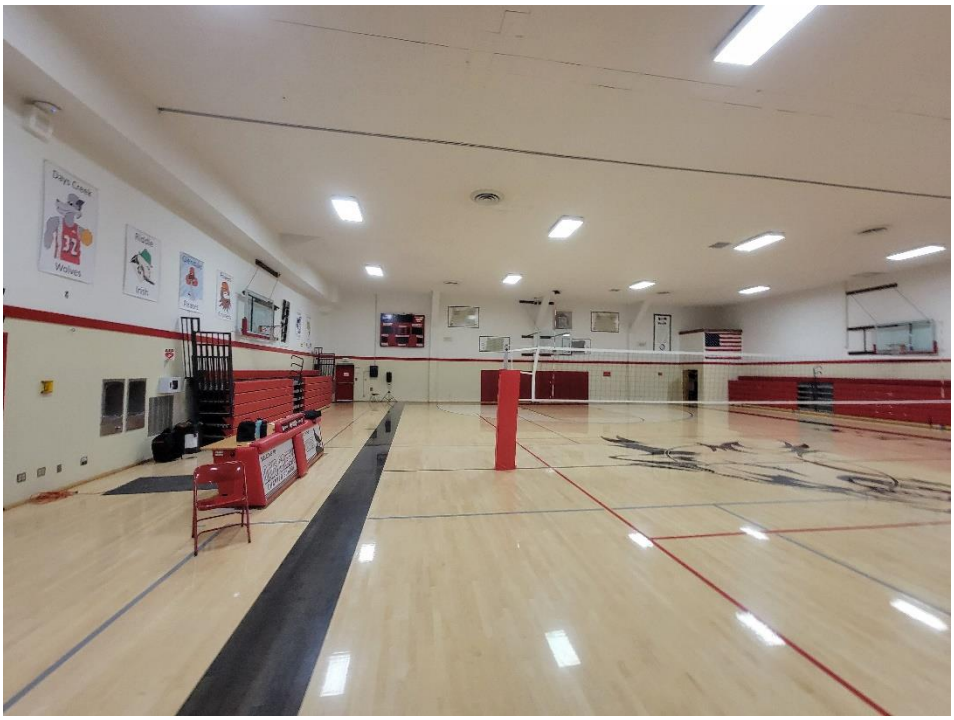

Figure 1: Gymnasium Interior

Figure 2: Roof Above Entrance Showing Roof Steps

Figure 3: Gymnasium Entrance

Figure 4: Gymnasium Wall with Connection to Classroom Building

Figure 5: Attic Space

Figure 6: Western Wall of Gymnasium

Appendix B:
Tier 1 Check Sheets

17.1.2IO Basic Configuration Checklist

Table 17-3. Immediate Occupancy Basic Configuration Checklist

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
Very Low Seismicity							
Building System—General							
C ☐	**NC** ☒	**N/A** ☐	**U** ☐	LOAD PATH: The structure contains a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation.	5.4.1.1	A.2.1.1	Walls and roof of gym do not have sufficient hardware to transfer seismic forces to the foundation.
C ☐	**NC** ☒	**N/A** ☐	**U** ☐	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 0.5% of the height of the shorter building in low seismicity, 1.0% in moderate seismicity, and 3.0% in high seismicity.	5.4.1.2	A.2.1.2	CMU classroom is attached to the gymnasium.
C ☐	**NC** ☐	**N/A** ☒	**U** ☐	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure.	5.4.1.3	A.2.1.3	
Building System—Building Configuration							
C ☐	**NC** ☐	**N/A** ☒	**U** ☐	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above.	5.4.2.1	A.2.2.2	
C ☐	**NC** ☐	**N/A** ☒	**U** ☐	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above.	5.4.2.2	A.2.2.3	
C ☒	**NC** ☐	**N/A** ☐	**U** ☐	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation.	5.4.2.3	A.2.2.4	

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

C	NC	N/A	U				
☐	☐	☒	☐	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines.	5.4.2.4	A.2.2.5	
C	**NC**	**N/A**	**U**	MASS: There is no change in effective mass of more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered.	5.4.2.5	A.2.2.6	
☐	☐	☒	☐				
C	**NC**	**N/A**	**U**	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension.	5.4.2.6	A.2.2.7	
☐	☐	☒	☐				

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

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

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
Moderate and High Seismicity (Complete the Following Items in Addition to the Items for Low Seismicity)							
Foundation Configuration							
C	**NC**	**N/A**	**U**	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$.	5.4.3.3	A.6.2.1	
☒	☐	☐	☐				
C	**NC**	**N/A**	**U**	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C.	5.4.3.4	A.6.2.2	
☐	☐	☒	☐				

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

17.3IO Structural Checklist for Building Type W2: Wood Frames, Commercial and Industrial

Table 17-7. Immediate Occupancy Checklist for Building Type W2

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
Very Low Seismicity							
Seismic-Force-Resisting System							
C ☒	**NC** ☐	**N/A** ☐	**U** ☐	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2.	5.5.1.1	A.3.2.1.1	
C ☐	**NC** ☒	**N/A** ☐	**U** ☐	SHEAR STRESS CHECK: The shear stress in the shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the following values: Structural panel sheathing 1,000 lb/ft (14.6 kN/m) Diagonal sheathing 700 lb/ft (10.2 kN/m) Straight sheathing 100 lb/ft (1.5 kN/m) All other conditions 100 lb/ft (1.5 kN/m)	5.5.3.1.1	A.3.2.7.1	Gypsum board in gymnasium area is not sufficient to transfer seismic forces to the foundation.
C ☐	**NC** ☐	**N/A** ☒	**U** ☐	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system.	5.5.3.6.1	A.3.2.7.2	
C ☐	**NC** ☐	**N/A** ☒	**U** ☐	GYPSUM WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used for shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building.	5.5.3.6.1	A.3.2.7.3	
C ☒	**NC** ☐	**N/A** ☐	**U** ☐	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces.	5.5.3.6.1	A.3.2.7.4	
C ☐	**NC** ☐	**N/A** ☒	**U** ☐	WALLS CONNECTED THROUGH FLOORS: Shear walls have an interconnection between stories to transfer overturning and shear forces through the floor.	5.5.3.6.2	A.3.2.7.5	
C ☐	**NC** ☐	**N/A** ☒	**U** ☐	HILLSIDE SITE: For structures that are taller on at least one side by more than one-half story because of a sloping site, all shear walls on the downhill slope have an aspect ratio less than 1-to-2.	5.5.3.6.3	A.3.2.7.6	
C ☐	**NC** ☐	**N/A** ☒	**U** ☐	CRIPPLE WALLS: Cripple walls below first-floor-level shear walls are braced to the foundation with wood structural panels.	5.5.3.6.4	A.3.2.7.7	

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

C	NC	N/A	U				
☐	☐	☒	☐	OPENINGS: Walls with openings greater than 80% of the length are braced with wood structural panel shear walls with aspect ratios of not more than 1.5-to-1 or are supported by adjacent construction through positive ties capable of transferring the seismic forces.	5.5.3.6.5	A.3.2.7.8	
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	HOLD-DOWN ANCHORS: All shear walls have hold-down anchors attached to the end studs constructed in accordance with acceptable construction practices.	5.5.3.6.6	A.3.2.7.9	Hold-down installation was not confirmed.
Connections							
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	WOOD POSTS: There is a positive connection of wood posts to the foundation.	5.7.3.3	A.5.3.3	Positive connection of wood posts to the foundation was not found.
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	WOOD SILLS: All wood sills are bolted to the foundation.	5.7.3.3	A.5.3.4	Wood sill bolts were not found.
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support.	5.7.4.1	A.5.4.1	Existing heavy timber trusses were not found to have sufficient connections to the column support.
Foundation System							
C	**NC**	**N/A**	**U**				
☐	☐	☒	☐	DEEP FOUNDATIONS: Piles and piers are capable of transferring the lateral forces between the structure and the soil.		A.6.2.3	
C	**NC**	**N/A**	**U**				
☐	☐	☒	☐	SLOPING SITES: The difference in foundation embedment depth from one side of the building to another does not exceed one story high.		A.6.2.4	

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
Low, Moderate, and High Seismicity (Complete the Following Items in Addition to the Items for Very Low Seismicity)							
Seismic-Force-Resisting System							
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 1.5-to-1 are not used to resist seismic forces.	5.5.3.6.1	A.3.2.7.4	
Diaphragms							
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints.	5.6.1.1	A.4.1.1	

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

C	NC	N/A	U				
☒	☐	☐	☐	ROOF CHORD CONTINUITY: All chord elements are continuous, regardless of changes in roof elevation.	5.6.1.1	A.4.1.3	
C	**NC**	**N/A**	**U**				
☐	☐	☒	☐	DIAPHRAGM REINFORCEMENT AT OPENINGS: There is reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension.	5.6.1.5	A.4.1.8	
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 1-to-1 in the direction being considered.	5.6.2	A.4.2.1	Straight sheathing is not less than 1-to-1 ratio.
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	SPANS: All wood diaphragms with spans greater than 12 ft (3.6 m) consist of wood structural panels or diagonal sheathing.	5.6.2	A.4.2.2	Center of gymnasium has a span greater than 12 ft. that contains straight sheathing.
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 30 ft (9.2 m) and have aspect ratios less than or equal to 3-to-1.	5.6.2	A.4.2.3	There are spans greater than 30 ft.
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	OTHER DIAPHRAGMS: The diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing.	5.6.5	A.4.7.1	
Connections							
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	WOOD SILL BOLTS: Sill bolts are spaced at 4 ft or less with acceptable edge and end distance provided for wood and concrete.	5.7.3.3	A.5.3.7	Sill bolt spacing was not found to be less than 4 ft.

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

17.19 Nonstructural Checklist

Table 17-38. Nonstructural Checklist

Status				Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference	Comments
Life Safety Systems							
C	**NC**	**N/A**	**U**	**HR—not required; LS—LMH; PR—LMH**. FIRE SUPPRESSION PIPING: Fire suppression piping is anchored and braced in accordance with NFPA-13.	13.7.4	A.7.13.1	
☐	☐	☒	☐				
C	**NC**	**N/A**	**U**	**HR—not required; LS—LMH; PR—LMH**. FLEXIBLE COUPLINGS: Fire suppression piping has flexible couplings in accordance with NFPA-13.	13.7.4	A.7.13.2	
☐	☐	☒	☐				
C	**NC**	**N/A**	**U**	**HR—not required; LS—LMH; PR—LMH**. EMERGENCY POWER: Equipment used to power or control Life Safety systems is anchored or braced.	13.7.7	A.7.12.1	
☐	☐	☒	☐				
C	**NC**	**N/A**	**U**	**HR—not required; LS—LMH; PR—LMH**. STAIR AND SMOKE DUCTS: Stair pressurization and smoke control ducts are braced and have flexible connections at seismic joints.	13.7.6	A.7.14.1	
☐	☐	☒	☐				
C	**NC**	**N/A**	**U**	**HR—not required; LS—MH; PR—MH**. SPRINKLER CEILING CLEARANCE: Penetrations through panelized ceilings for fire suppression devices provide clearances in accordance with NFPA-13.	13.7.4	A.7.13.3	
☐	☐	☒	☐				
C	**NC**	**N/A**	**U**	**HR—not required; LS—not required; PR—LMH.** EMERGENCY LIGHTING: Emergency and egress lighting equipment is anchored or braced.	13.7.9	A.7.3.1	
☒	☐	☐	☐				
Hazardous Materials							
C	**NC**	**N/A**	**U**	**HR—LMH; LS—LMH; PR—LMH**. HAZARDOUS MATERIAL EQUIPMENT: Equipment mounted on vibration isolators and containing hazardous material is equipped with restraints or snubbers.	13.7.1	A.7.12.2	
☐	☐	☒	☐				
C	**NC**	**N/A**	**U**	**HR—LMH; LS—LMH; PR—LMH**. HAZARDOUS MATERIAL STORAGE: Breakable containers that hold hazardous material, including gas cylinders, are restrained by latched doors, shelf lips, wires, or other methods.	13.8.3	A.7.15.1	
☐	☐	☒	☐				
C	**NC**	**N/A**	**U**	**HR—MH; LS—MH; PR—MH**. HAZARDOUS MATERIAL DISTRIBUTION: Piping or ductwork conveying hazardous materials is braced or otherwise protected from damage that would allow hazardous material release.	13.7.3 13.7.5	A.7.13.4	
☐	☐	☒	☐				
C	**NC**	**N/A**	**U**	**HR—MH; LS—MH; PR—MH**. SHUTOFF VALVES: Piping containing hazardous material, including natural gas, has shutoff valves or other devices to limit spills or leaks.	13.7.3 13.7.5	A.7.13.3	No shutoff valves were found.
☐	☒	☐	☐				
C	**NC**	**N/A**	**U**	**HR—LMH; LS—LMH; PR—LMH**. FLEXIBLE COUPLINGS: Hazardous material ductwork and piping, including natural gas piping, have flexible couplings.	13.7.3 13.7.5	A.7.15.4	No flexible couplings were found
☐	☒	☐	☐				

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

C	NC	N/A	U			
☐	☐	☒	☐	**HR—MH; LS—MH; PR—MH**. PIPING OR DUCTS CROSSING SEISMIC JOINTS: Piping or ductwork carrying hazardous material that either crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5 13.7.6	A.7.13.6
Partitions						
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—LMH; LS—LMH; PR—LMH**. UNREINFORCED MASONRY: Unreinforced masonry or hollow-clay tile partitions are braced at a spacing of at most 10 ft (3.0 m) in Low or Moderate Seismicity, or at most 6 ft (1.8 m) in High Seismicity.	13.6.2	A.7.1.1
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—LMH; LS—LMH; PR—LMH**. HEAVY PARTITIONS SUPPORTED BY CEILINGS: The tops of masonry or hollow-clay tile partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—MH; PR—MH**. DRIFT: Rigid cementitious partitions are detailed to accommodate the following drift ratios: in steel moment frame, concrete moment frame, and wood frame buildings, 0.02; in other buildings, 0.005.	13.6.2	A.7.1.2
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—MH**. LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops of gypsum board partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—MH**. STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints.	13.6.2	A.7.1.3
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—MH**. TOPS: The tops of ceiling-high framed or panelized partitions have lateral bracing to the structure at a spacing equal to or less than 6 ft (1.8 m).	13.6.2	A.7.1.4
Ceilings						
C	**NC**	**N/A**	**U**			
☒	☐	☐	☐	**HR—H; LS—MH; PR—LMH**. SUSPENDED LATH AND PLASTER: Suspended lath and plaster ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—MH; PR—LMH**. SUSPENDED GYPSUM BOARD: Suspended gypsum board ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3

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

C	NC	N/A	U				
☐	☒	☐	☐	**HR—not required; LS—not required; PR—MH**. INTEGRATED CEILINGS: Integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) and ceilings of smaller areas that are not surrounded by restraining partitions are laterally restrained at a spacing no greater than 12 ft (3.6 m) with members attached to the structure above. Each restraint location has a minimum of four diagonal wires and compression struts, or diagonal members capable of resisting compression.	13.6.4	A.7.2.2	Suspended ceilings were not found to have sufficient bracing.
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	**HR—not required; LS—not required; PR—MH**. EDGE CLEARANCE: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, 1/2 in. (13 mm); in High Seismicity, 3/4 in. (19 mm).	13.6.4	A.7.2.4	Edge clearance is not present.
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	**HR—not required; LS—not required; PR—MH**. CONTINUITY ACROSS STRUCTURE JOINTS: The ceiling system does not cross any seismic joint and is not attached to multiple independent structures.	13.6.4	A.7.2.5	
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	**HR—not required; LS—not required; PR—H**. EDGE SUPPORT: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) are supported by closure angles or channels not less than 2 in. (51 mm) wide.	13.6.4	A.7.2.6	Edge support not present.
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	**HR—not required; LS—not required; PR—H**. SEISMIC JOINTS: Acoustical tile or lay-in panel ceilings have seismic separation joints such that each continuous portion of the ceiling is no more than 2,500 ft^2 (232.3 m^2) and has a ratio of long-to-short dimension no more than 4-to-1.	13.6.4	A.7.2.7	
Light Fixtures							
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	**HR—not required; LS—MH; PR—MH**. INDEPENDENT SUPPORT: Light fixtures that weigh more per square foot than the ceiling they penetrate are supported independent of the grid ceiling suspension system by a minimum of two wires at diagonally opposite corners of each fixture.	13.6.4 13.7.9	A.7.3.2	

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C	NC	N/A	U			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. PENDANT SUPPORTS: Light fixtures on pendant supports are attached at a spacing equal to or less than 6 ft. Unbraced suspended fixtures are free to allow a 360-degree range of motion at an angle not less than 45 degrees from horizontal without contacting adjacent components. Alternatively, if rigidly supported and/or braced, they are free to move with the structure to which they are attached without damaging adjoining components. Additionally, the connection to the structure is capable of accommodating the movement without failure.	13.7.9	A.7.3.3
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. LENS COVERS: Lens covers on light fixtures are attached with safety devices.	13.7.9	A.7.3.4
Cladding and Glazing						
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—MH; LS—MH; PR—MH**. CLADDING ANCHORS: Cladding components weighing more than 10 lb/ft^2 (0.48 kN/m^2) are mechanically anchored to the structure at a spacing equal to or less than the following: for Life Safety in Moderate Seismicity, 6 ft (1.8 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 ft (1.2 m)	13.6.1	A.7.4.1
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—MH; PR—MH**. CLADDING ISOLATION: For steel or concrete moment-frame buildings, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.3
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—MH; LS—MH; PR—MH**. MULTI-STORY PANELS: For multi-story panels attached at more than one floor level, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.4

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

C	NC	N/A	U			
☐	☐	☒	☐	**HR—not required; LS—MH; PR—MH**. THREADED RODS: Threaded rods for panel connections detailed to accommodate drift by bending of the rod have a length-to-diameter ratio greater than 0.06 times the story height in inches for Life Safety in Moderate Seismicity and 0.12 times the story height in inches for Life Safety in High Seismicity and Position Retention in any seismicity.	13.6.1	A.7.4.9
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—MH; LS—MH; PR—MH**. PANEL CONNECTIONS: Cladding panels are anchored out of plane with a minimum number of connections for each wall panel, as follows: for Life Safety in Moderate Seismicity, 2 connections; for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 connections.	13.6.1.4	A.7.4.5
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—MH; LS—MH; PR—MH**. BEARING CONNECTIONS: Where bearing connections are used, there is a minimum of two bearing connections for each cladding panel.	13.6.1.4	A.7.4.6
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—MH; LS—MH; PR—MH**. INSERTS: Where concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel.	13.6.1.4	A.7.4.7
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—MH; PR—MH**. OVERHEAD GLAZING: Glazing panes of any size in curtain walls and individual interior or exterior panes more than 16 ft^2 (1.5 m^2) in area are laminated annealed or laminated heat-strengthened glass and are detailed to remain in the frame when cracked.	13.6.1.5	A.7.4.8
Masonry Veneer						
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—LMH; PR—LMH**. TIES: Masonry veneer is connected to the backup with corrosion-resistant ties. There is a minimum of one tie for every 2-2/3 ft^2 (0.25 m^2), and the ties have spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 36 in. (914 mm); for Life Safety in High Seismicity and for Position Retention in any seismicity, 24 in. (610 mm).	13.6.1.2	A.7.5.1
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—LMH; PR—LMH**. SHELF ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor.	13.6.1.2	A.7.5.2
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—LMH; PR—LMH**. WEAKENED PLANES: Masonry veneer is anchored to the backup adjacent to weakened planes, such as at the locations of flashing.	13.6.1.2	A.7.5.3

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

C	NC	N/A	U			
☐	☐	☒	☐	**HR—LMH; LS—LMH; PR—LMH**. UNREINFORCED MASONRY BACKUP: There is no unreinforced masonry backup.	13.6.1.1 13.6.1.2	A.7.7.2
C	**NC**	**N/A**	**U**	**HR—not required; LS—MH; PR—MH**. STUD TRACKS: For veneer with cold-formed steel stud backup, stud tracks are fastened to the structure at a spacing equal to or less than 24 in. (610 mm) on center.	13.6.1.1 13.6.1.2	A.7.6.1
☐	☐	☒	☐			
C	**NC**	**N/A**	**U**	**HR—not required; LS—MH; PR—MH**. ANCHORAGE: For veneer with concrete block or masonry backup, the backup is positively anchored to the structure at a horizontal spacing equal to or less than 4 ft along the floors and roof.	13.6.1.1 13.6.1.2	A.7.7.1
☐	☐	☒	☐			
C	**NC**	**N/A**	**U**	**HR—not required; LS—not required; PR—MH**. WEEP HOLES: In veneer anchored to stud walls, the veneer has functioning weep holes and base flashing.	13.6.1.2	A.7.5.6
☐	☐	☒	☐			
C	**NC**	**N/A**	**U**	**HR—not required; LS—not required; PR—MH**. OPENINGS: For veneer with cold-formed-steel stud backup, steel studs frame window and door openings.	13.6.1.1 13.6.1.2	A.7.6.2
☐	☐	☒	☐			
Parapets, Cornices, Ornamentation, and Appendages						
C	**NC**	**N/A**	**U**	**HR—LMH; LS—LMH; PR—LMH**. URM PARAPETS OR CORNICES: Laterally unsupported unreinforced masonry parapets or cornices have height-to-thickness ratios no greater than the following: for Life Safety in Low or Moderate Seismicity, 2.5; for Life Safety in High Seismicity and for Position Retention in any seismicity, 1.5.	13.6.5	A.7.8.1
☐	☐	☒	☐			
C	**NC**	**N/A**	**U**	**HR—not required; LS—LMH; PR—LMH**. CANOPIES: Canopies at building exits are anchored to the structure at a spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 10 ft (3.0 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 6 ft (1.8 m).	13.6.6	A.7.8.2
☐	☐	☒	☐			
C	**NC**	**N/A**	**U**	**HR—H; LS—MH; PR—LMH**. CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement.	13.6.5	A.7.8.3
☐	☐	☒	☐			
C	**NC**	**N/A**	**U**	**HR—MH; LS—MH; PR—LMH**. APPENDAGES: Cornices, parapets, signs, and other ornamentation or appendages that extend above the highest point of anchorage to the structure or cantilever from components are reinforced and anchored to the structural system at a spacing equal to or less than 6 ft (1.8 m). This evaluation statement item does not apply to parapets or cornices covered by other evaluation statements.	13.6.6	A.7.8.4
☒	☐	☐	☐			

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

C	NC	N/A	U				
Masonry Chimneys							
☐	☐	☒	☐	**HR—LMH; LS—LMH; PR—LMH**. URM CHIMNEYS: Unreinforced masonry chimneys extend above the roof surface no more than the following: for Life Safety in Low or Moderate Seismicity, 3 times the least dimension of the chimney; for Life Safety in High Seismicity and for Position Retention in any seismicity, 2 times the least dimension of the chimney.	13.6.7	A.7.9.1	
☐	☐	☒	☐	**HR—LMH; LS—LMH; PR—LMH**. ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof.	13.6.7	A.7.9.2	
Stairs							
☐	☐	☒	☐	**HR—not required; LS—LMH; PR—LMH**. STAIR ENCLOSURES: Hollow-clay tile or unreinforced masonry walls around stair enclosures are restrained out of plane and have height-to-thickness ratios not greater than the following: for Life Safety in Low or Moderate Seismicity, 15-to-1; for Life Safety in High Seismicity and for Position Retention in any seismicity, 12-to-1.	13.6.2 13.6.8	A.7.10.1	
☐	☐	☒	☐	**HR—not required; LS—LMH; PR—LMH**. STAIR DETAILS: The connection between the stairs and the structure does not rely on post-installed anchors in concrete or masonry, and the stair details are capable of accommodating the drift calculated using the Quick Check procedure of Section 4.4.3.1 for moment-frame structures or 0.5 in. for all other structures without including any lateral stiffness contribution from the stairs.	13.6.8	A.7.10.2	
Contents and Furnishings							
☐	☐	☒	☐	**HR—LMH; LS—MH; PR—MH**. INDUSTRIAL STORAGE RACKS: Industrial storage racks or pallet racks more than 12 ft high meet the requirements of ANSI/RMI MH 16.1 as modified by ASCE 7, Chapter 15.	13.8.1	A.7.11.1	
☐	☒	☐	☐	**HR—not required; LS—H; PR—MH**. TALL NARROW CONTENTS: Contents more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 are anchored to the structure or to each other.	13.8.2	A.7.11.2	Tall narrow contents are present.
☐	☒	☐	☐	**HR—not required; LS—H; PR—H**. FALL-PRONE CONTENTS: Equipment, stored items, or other contents weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level are braced or otherwise restrained.	13.8.2	A.7.11.3	Fall-prone contents are present.

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

C	NC	N/A	U			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—MH**. ACCESS FLOORS: Access floors more than 9 in. (229 mm) high are braced.	13.6.10	A.7.11.4
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—MH**. EQUIPMENT ON ACCESS FLOORS: Equipment and other contents supported by access floor systems are anchored or braced to the structure independent of the access floor.	13.7.7 13.6.10	A.7.11.5
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. SUSPENDED CONTENTS: Items suspended without lateral bracing are free to swing from or move with the structure from which they are suspended without damaging themselves or adjoining components.	13.8.2	A.7.11.6
Mechanical and Electrical Equipment						
C	**NC**	**N/A**	**U**			
☒	☐	☐	☐	**HR—not required; LS—H; PR—H**. FALL-PRONE EQUIPMENT: Equipment weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level, and which is not in-line equipment, is braced.	13.7.1 13.7.7	A.7.12.4
C	**NC**	**N/A**	**U**			
☒	☐	☐	☐	**HR—not required; LS—H; PR—H**. IN-LINE EQUIPMENT: Equipment installed in line with a duct or piping system, with an operating weight more than 75 lb (34.0 kg), is supported and laterally braced independent of the duct or piping system.	13.7.1	A.7.12.5
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—H; PR—MH**. TALL NARROW EQUIPMENT: Equipment more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 is anchored to the floor slab or adjacent structural walls.	13.7.1 13.7.7	A.7.12.6
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—MH**. MECHANICAL DOORS: Mechanically operated doors are detailed to operate at a story drift ratio of 0.01.	13.6.9	A.7.12.7
C	**NC**	**N/A**	**U**			
☒	☐	☐	☐	**HR—not required; LS—not required; PR—H**. SUSPENDED EQUIPMENT: Equipment suspended without lateral bracing is free to swing from or move with the structure from which it is suspended without damaging itself or adjoining components.	13.7.1 13.7.7	A.7.12.8
C	**NC**	**N/A**	**U**			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. VIBRATION ISOLATORS: Equipment mounted on vibration isolators is equipped with horizontal restraints or snubbers and with vertical restraints to resist overturning.	13.7.1	A.7.12.9
C	**NC**	**N/A**	**U**			
☒	☐	☐	☐	**HR—not required; LS—not required; PR—H**. HEAVY EQUIPMENT: Floor-supported or platform-supported equipment weighing more than 400 lb (181.4 kg) is anchored to the structure.	13.7.1 13.7.7	A.7.12.10

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

C	NC	N/A	U				
☒	☐	☐	☐	**HR—not required; LS—not required; PR—H**. ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure.	13.7.7	A.7.12.11	
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	**HR—not required; LS—not required; PR—H**. CONDUIT COUPLINGS: Conduit greater than 2.5 in. (64 mm) trade size that is attached to panels, cabinets, or other equipment and is subject to relative seismic displacement has flexible couplings or connections.	13.7.8	A.7.12.12	
Piping							
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	**HR—not required; LS—not required; PR—H**. FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings.	13.7.3 13.7.5	A.7.13.2	Piping was not confirmed to have flexible couplings.
C	**NC**	**N/A**	**U**				
☐	☒	☐	☐	**HR—not required; LS—not required; PR—H**. FLUID AND GAS PIPING: Fluid and gas piping is anchored and braced to the structure to limit spills or leaks.	13.7.3 13.7.5	A.7.13.4	Piping was not confirmed to be anchored.
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	**HR—not required; LS—not required; PR—H**. C-CLAMPS: One-sided C-clamps that support piping larger than 2.5 in. (64 mm) in diameter are restrained.	13.7.3 13.7.5	A.7.13.5	
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	**HR—not required; LS—not required; PR—H**. PIPING CROSSING SEISMIC JOINTS: Piping that crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5	A.7.13.6	
Ducts							
C	**NC**	**N/A**	**U**				
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. DUCT BRACING: Rectangular ductwork larger than 6 ft^2 (0.56 m^2) in cross-sectional area and round ducts larger than 28 in. (711 mm) in diameter are braced. The maximum spacing of transverse bracing does not exceed 30 ft (9.2 m). The maximum spacing of longitudinal bracing does not exceed 60 ft (18.3 m).	13.7.6	A.7.14.2	
C	**NC**	**N/A**	**U**				
☒	☐	☐	☐	**HR—not required; LS—not required; PR—H**. DUCT SUPPORT: Ducts are not supported by piping or electrical conduit.	13.7.6	A.7.14.3	
C	**NC**	**N/A**	**U**				
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. DUCTS CROSSING SEISMIC JOINTS: Ducts that cross seismic joints or isolation planes or are connected to independent structures have couplings or other details to accommodate the relative seismic displacements.	13.7.6	A.7.14.4	
Elevators							
C	**NC**	**N/A**	**U**				
☐	☐	☒	☐	**HR—not required; LS—H; PR—H**. RETAINER GUARDS: Sheaves and drums have cable retainer guards.	13.7.11	A.7.16.1	
C	**NC**	**N/A**	**U**				
☐	☐	☒	☐	**HR—not required; LS—H; PR—H**. RETAINER PLATE: A retainer plate is present at the top and bottom of both car and counterweight.	13.7.11	A.7.16.2	

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

C	NC	N/A	U			
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored.	13.7.11	A.7.16.3
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. SEISMIC SWITCH: Elevators capable of operating at speeds of 150 ft/min (0.30 m/min) or faster are equipped with seismic switches that meet the requirements of ASME A17.1 or have trigger levels set to 20% of the acceleration of gravity at the base of the structure and 50% of the acceleration of gravity in other locations.	13.7.11	A.7.16.4
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. SHAFT WALLS: Elevator shaft walls are anchored and reinforced to prevent toppling into the shaft during strong shaking.	13.7.11	A.7.16.5
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1.	13.7.11	A.7.16.6
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. BRACKETS: The brackets that tie the car rails and the counterweight rail to the structure are sized in accordance with ASME A17.1.	13.7.11	A.7.16.7
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. SPREADER BRACKET: Spreader brackets are not used to resist seismic forces.	13.7.11	A.7.16.8
☐	☐	☒	☐	**HR—not required; LS—not required; PR—H**. GO-SLOW ELEVATORS: The building has a go-slow elevator system.	13.7.11	A.7.16.9

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

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

Appendix C: Preliminary Seismic Retrofit Drawings

DAYS CREEK CHARTER SCHOOL SEISMIC RETROFIT

PRELIMINARY DESIGN

DOUGLAS COUNTY SCHOOL DISTRICT #15
11381 TILLER TRAIL HWY.
DAYS CREEK, OR 97429

REPAIR KEYNOTES

STRUCTURAL REPAIRS:

S1. PROVIDE A COMPLETE, WELL-DEFINED LOAD PATH BY INSTALLING NEW ELEMENTS AND CONNECTIONS AS NEEDED TO TRANSFER INERTIAL FORCES FROM ALL ELEMENTS OF THE BUILDING TO THE FOUNDATION.
- DIAPHRAGM ATTACHMENTS.

S2. EXISTING STRUCTURAL BUILDING GAP CURRENTLY EXISTS. PROVIDE SEISMIC ISOLATION JOINT AT ROOF AND ADJOINING WALL FRAMING.
S3. INSTALL NEW PLYWOOD SHEAR WALLS TO ENSURE ADEQUATE SHEAR CAPACITY.
S4. INSTALL NEW HOLD-DOWN HARDWARE.
S5. INSTALL HARDWARE AT WOOD POSTS TO ENSURE CONNECTION TO THE FOUNDATION.
S6. PROVIDE NEW ANCHOR BOLTS FROM WOOD SILLS TO THE FOUNDATION.
S7. PROVIDE NEW CONNECTION HARDWARE BETWEEN THE GIRDER AND THE COLUMN SUPPORT.
S8. INSTALL NEW PLYWOOD DIAPHRAGM SHEATHING AND BLOCKING TO CEILING FRAMING.
S9. INSTALL NEW SHEAR WALLS TO REDUCE DIAPHRAGM SPANS.
S10. INSTALL NEW BLOCKED PLYWOOD DIAPHRAGM.
S11. PROVIDE NEW ANCHOR BOLTS FROM WOOD SILLS TO THE FOUNDATION.
S12. STRENGTHEN BEAMS AND TRUSSES TO SUPPORT CODE REQUIRED GRAVITY LOADING.
S13. STRENGTHEN CEILING FRAMING TO SUPPORT CODE REQUIRED GRAVITY LOADING.

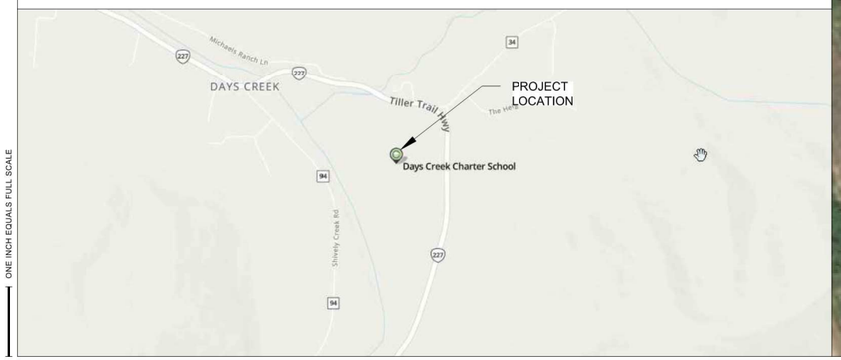
NON-STRUCTURAL REPAIRS:

N1. INSTALL SHUT OFF VALVES FOR PIPING CONTAINING HAZARDOUS MATERIAL, INCLUDING NATURAL GAS.
N2. INSTALL FLEXIBLE COUPLINGS FOR DUCTWORK AND PIPING CONTAINING HAZARDOUS MATERIAL, INCLUDING NATURAL GAS PIPING.
N3. INSTALL SEISMIC BRACING FOR INTEGRATED SUSPENDED CEILINGS.
N4. INSTALL FREE EDGE CLEARANCE FOR INTEGRATED SUSPENDED CEILINGS.
N5. INSTALL FREE EDGE SUPPORT FOR INTEGRATED SUSPENDED CEILINGS.
N6. ANCHOR CONTENTS TO THE STRUCTURE.
N7. BRACE EQUIPMENT TO STRUCTURE.
N8. INSTALL FLEXIBLE COUPLINGS FOR FLUID AND GAS PIPING.
N9. ANCHOR AND BRACE FLUID AND GAS PIPING TO THE STRUCTURE.

SHEET INDEX

BUILDING KEY PLAN

VICINITY MAP



ONE INCH EQUALS FULL SCALE

ZCS ENGINEERING ARCHITECTURE
127 NW D Street, Grants Pass, Oregon 97526 | 541-479-3865

DOUGLAS COUNTY SCHOOL DISTRICT #15
11381 TILLER TRAIL HWY.
DAYS CREEK, OR 97429

DAYS CREEK CHARTER SCHOOL SEISMIC RETROFIT

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER
OREGON
08, 2014
MATTHEW R. SMITH
EXPIRES: 06-30-24
PRELIMINARY - NOT FOR CONSTRUCTION

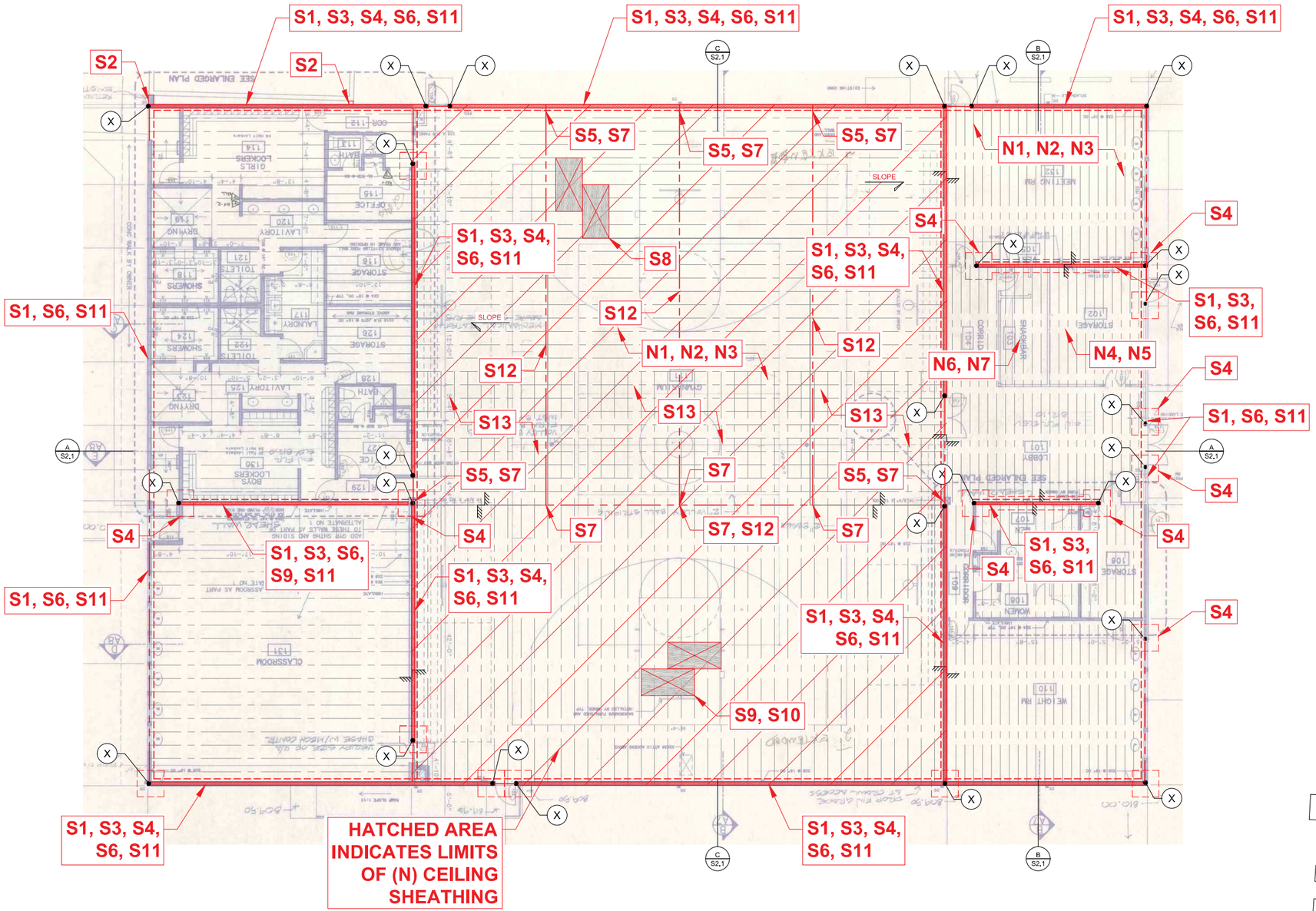
REVISION ID:	DATE:

PROJECT NO:	G-1540-22
DRAWN:	SKN
CHECKED:	MRS
DATE:	DEC. 2022

COVER SHEET

G0.0

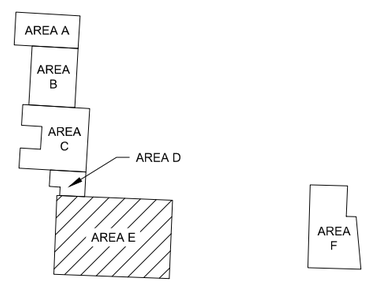
PRELIMINARY DESIGN



1 S1.1 **AREA E ROOF FRAMING PLAN**

1/8"=1'-0"

ONE INCH EQUALS FULL SCALE



0 S1.1 **CAMPUS KEY**

NTS

ZCS ENGINEERING ARCHITECTURE
127 NW D Street, Grants Pass, Oregon 97526 | 541-479-3865

DOUGLAS COUNTY SCHOOL DISTRICT #15
11381 TILLER TRAIL HWY.
DAYS CREEK, OR 97429

DAYS CREEK CHARTER SCHOOL SEISMIC RETROFIT

DAYS CREEK Charter School — Home of the Wolves

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER — OREGON — 08, 2014 — MATTHEW R. SMITH — EXPIRES: 06-30-24

PRELIMINARY NOT FOR CONSTRUCTION

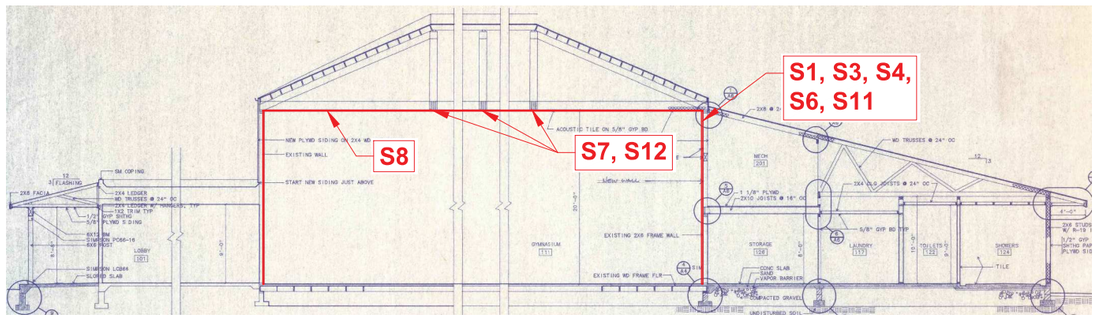
REVISION ID:	DATE:

PROJECT NO:	G-1540-22
DRAWN:	SKN
CHECKED:	MRS
DATE:	DEC. 2022

AREA E ROOF FRAMING PLAN

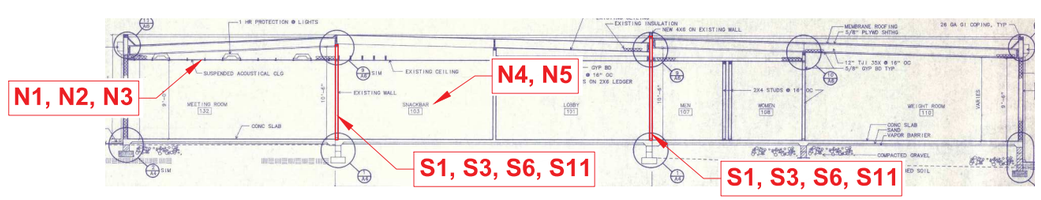
S1.1

PRELIMINARY DESIGN



A S2.1 **SECTION A-A**

1/8"=1'-0"



B S2.1 **SECTION B-B**

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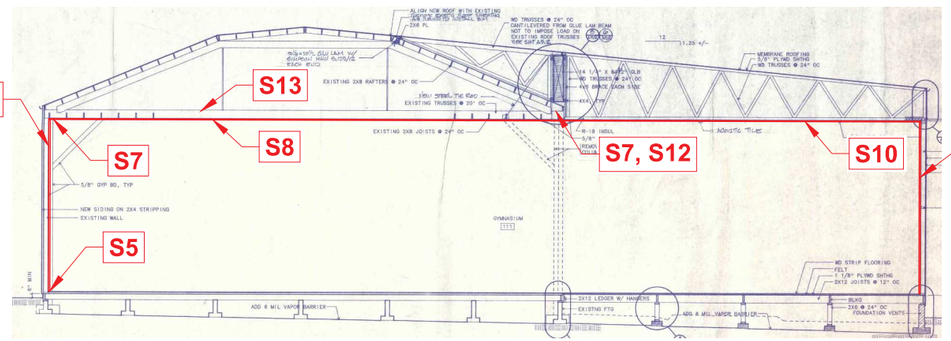
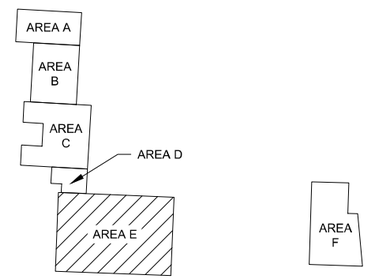


C S2.1 **SECTION C-C**

1/8"=1'-0"

ONE INCH EQUALS FULL SCALE



0 S2.1 **CAMPUS KEY**

NTS

ZCS
ENGINEERING
ARCHITECTURE

127 NW D Street, Grants Pass,
Oregon 97526 | 541-479-3865

DOUGLAS COUNTY
SCHOOL DISTRICT #15
11381 TILLER TRAIL
HWY.
DAYS CREEK, OR
97429

DAYS CREEK CHARTER SCHOOL SEISMIC RETROFIT

DAYS CREEK Charter School
Home of the Wolves

STRUCTURAL
REGISTERED PROFESSIONAL ENGINEER
OREGON
08, 2014
DREW R. SMITH
EXPIRES: 06-30-24
PRELIMINARY - NOT FOR CONSTRUCTION

REVISION ID:	DATE:

PROJECT NO:	G-1540-22
DRAWN:	SKN
CHECKED:	MRS
DATE:	DEC. 2022

SECTIONS

S2.1

PRELIMINARY DESIGN

Appendix D:
Geotechnical Information

This is a beta release of the new ATC Hazards by Location website. Please contact us with feedback.

The ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Hazards by Location

Search Information

Address: 11381 Tiller Trail Hwy, Days Creek, OR 97429, USA

Coordinates: 42.969342, -123.1629139

Elevation: 833 ft

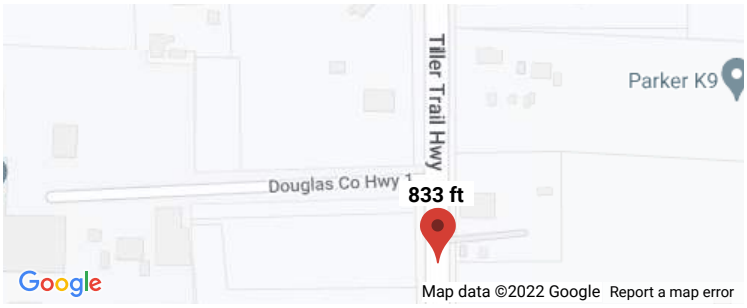
Timestamp: 2022-11-14T20:41:05.835Z

Hazard Type: Seismic

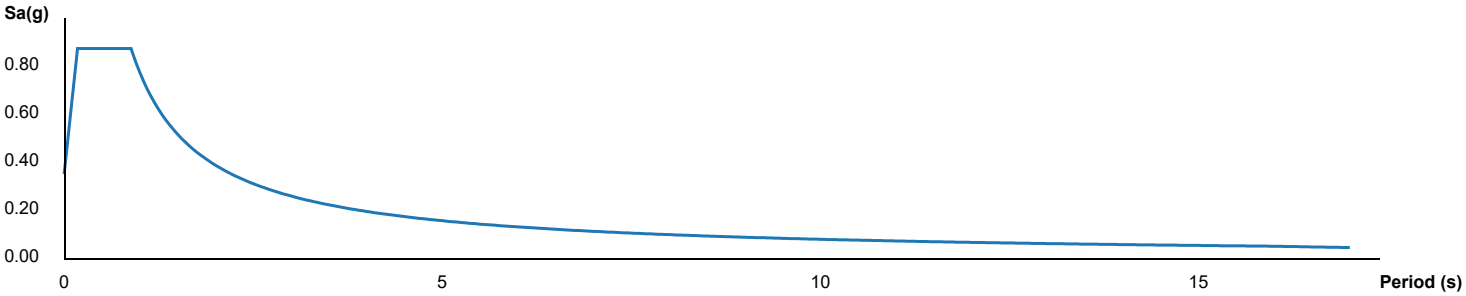
Reference Document: ASCE41-17

Site Class: D-default

Custom Probability:



Horizontal Response Spectrum - Hazard Level BSE-2N



Hazard Level BSE-2N

Name	Value	Description
SsUH	0.811	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
CR_S	0.87	Coefficient of risk (0.2s)
SsRT	0.706	Probabilistic risk-targeted ground motion (0.2s)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S_S	0.706	MCE_R ground motion (period=0.2s)
F_a	1.236	Site amplification factor at 0.2s
S_{XS}	0.872	Site modified spectral response (0.2s)
S1UH	0.475	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
CR_1	0.859	Coefficient of risk (1.0s)
S1RT	0.408	Probabilistic risk-targeted ground motion (1.0s)
S1D	0.681	Factored deterministic acceleration value (1.0s)
S_1	0.408	MCE_R ground motion (period=1.0s)
F_v	1.892	Site amplification factor at 1.0s
S_{X1}	0.773	Site modified spectral response (1.0s)

Hazard Level BSE-1N

Name	Value	Description
S_{XS}	0.581	Site modified spectral response (0.2s)
S_{X1}	0.515	Site modified spectral response (1.0s)

Hazard Level BSE-2E

Name	Value	Description
S_S	0.478	MCE_R ground motion (period=0.2s)
F_a	1.418	Site amplification factor at 0.2s
S_{XS}	0.678	Site modified spectral response (0.2s)
S_1	0.275	MCE_R ground motion (period=1.0s)
F_v	2.05	Site amplification factor at 1.0s
S_{X1}	0.564	Site modified spectral response (1.0s)

Hazard Level BSE-1E

Name	Value	Description
S_S	0.119	MCE_R ground motion (period=0.2s)
F_a	1.6	Site amplification factor at 0.2s
S_{XS}	0.19	Site modified spectral response (0.2s)
S_1	0.063	MCE_R ground motion (period=1.0s)
F_v	2.4	Site amplification factor at 1.0s
S_{X1}	0.151	Site modified spectral response (1.0s)

T_L Data

Name	Value	Description
T_L	16	Long-period transition period (s)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Disclaimer

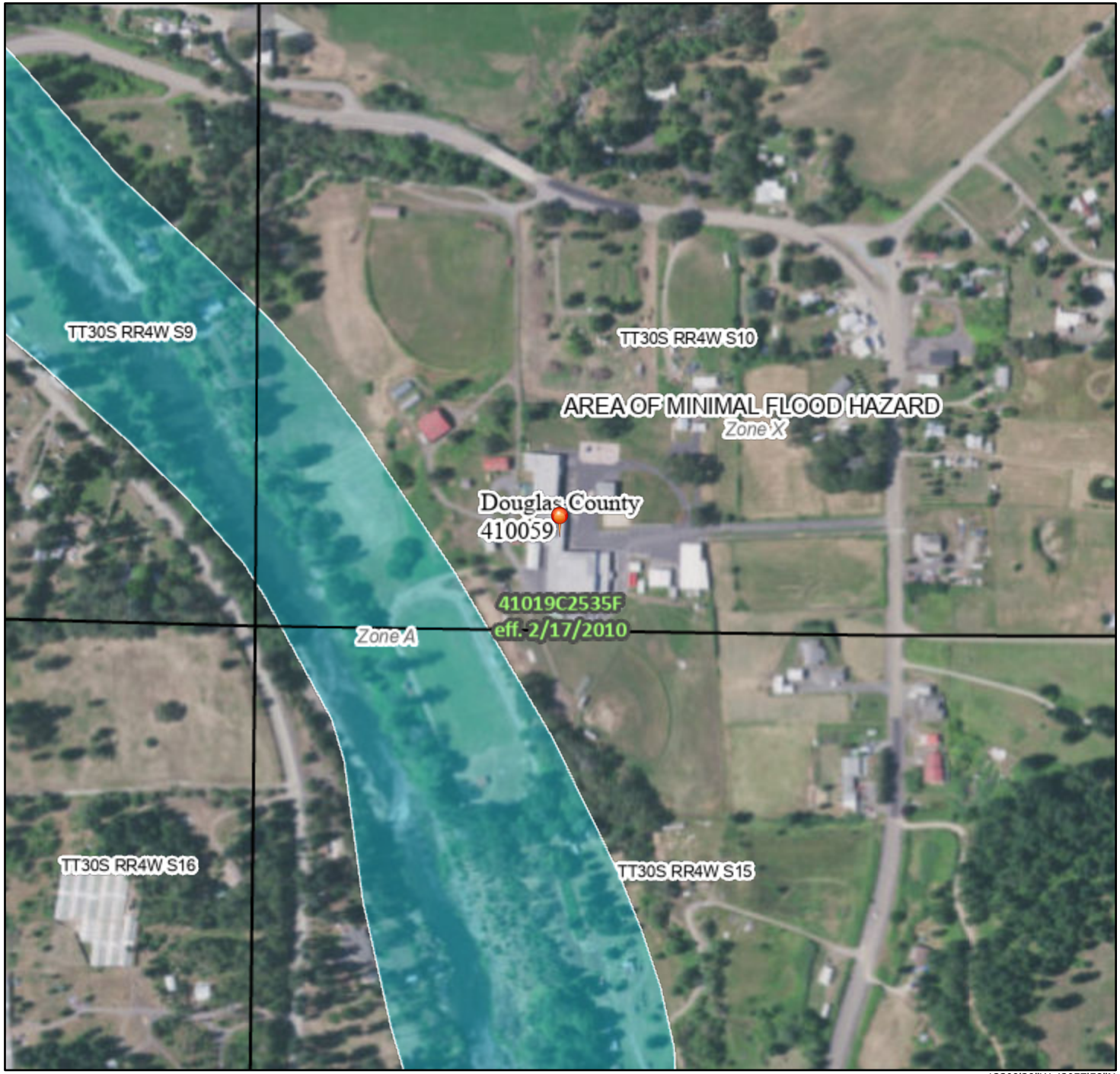
Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in the report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the report.

National Flood Hazard Layer FIRMette

FEMA

123°10'17"W 42°58'24"N



123°9'39"W 42°57'58"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/15/2022 at 6:41 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Active Fault Line Map

November 14, 2022

Active Faults

1:2,257

0 0.01 0.03 0.05 mi

0 0.02 0.04 0.08 km

Maxar, Microsoft

Landslide Map

November 14, 2022

Landslide Hazard

- Low - Landsliding Unlikely
- Moderate - Landsliding Possible
- High - Landsliding Likely
- Very High - Existing Landslide

1:2,257

0 0.01 0.03 0.05 mi

0 0.02 0.04 0.08 km

Maxar, Microsoft

Liquefaction Map

November 14, 2022

1:2,257

0 0.01 0.03 0.05 mi

0 0.02 0.04 0.08 km

Maxar, Microsoft

Appendix E: Construction Cost Estimate Worksheets

ENGINEER'S OPINION OF PROBABLE COST - DAYS CREEK CHARTER SCHOOL SEISMIC REHABILITATION

SUMMARY

Description	Deficiencies (Ref. Seismic Evaluation Report Sec. 6.0)	Quantity	Units	Unit Price	Total Price for Construction Item
GENERAL CONDITIONS					
General Conditions		10%	%		$ 135,975.00
Preconstruction Services		2%	%		$ 27,195.00
Escalation		7%	%		$ 106,604.40
Bonding & Insurance		3%	%		$ 45,687.60
Contractor Profit & Overhead		5%	%		$ 76,146.00
			General Conditions Subtotal		$ 391,608.00
Non-Structural Elements					
Misc MEP	N6,N7	1	Lump Sum	$ 87,600.00	$ 130,800.00
Misc Non-Structural	N4,N5	1	Lump Sum	$ 35,100.00	$ 78,600.00
Ceiling Acoustic Treatment	N3,N4,N5	8500	Square Foot	$ 5.00	$ 42,500.00
			Non-Structural Subtotal		$ 251,900.00
Construction Cost Per Building Part					
			Building Part 'Area E' Subtotal		$ 1,107,850.00
			Sub-Total Construction Cost		$ 1,751,400.00
			Contingency	15%	$ 262,710.00
			Total Construction Cost		$ 2,014,110.00
Cost Estimate Summary					
Engineering					$ 286,000.00
Architectural Consulting				$ 30,200.00	
Structural / Rehabilitation Engineering				$ 221,600.00	
Geotechnical Consulting				$ 19,100.00	
Materials Testing for Design				$ 15,100.00	
Construction Management					$ 60,400.00
Construction					$ 1,828,900.00
Sub-Total Construction Cost				$ 1,751,400.00	
Special Inspection Services for Construction				$ 17,100.00	
Permitting Fees				$ 60,400.00	
Relocation of FF&E					$ 26,300.00
Contingency					$ 262,710.00
			Total Project Funding Requirement		**$ 2,464,310.00**

ENGINEER'S OPINION OF PROBABLE COST - DAYS CREEK CHARTER SCHOOL SEISMIC REHABILITATION

BUILDING PART - 'Area E'

Description	Deficiencies (Ref. Seismic Evaluation Report Sec. 6.0)	Quantity	Units	Unit Price	Total Price for Construction Item
Demolition & Asbestos Abatement					
Soft Demolition	S1,S3,S6	28000	Square Foot	$ 2.00	$ 56,000.00
Abatement	S1,S2,S3,S4,S5,S6,S7,S8,S9	28000	Square Foot	$ 5.00	$ 140,000.00
Hard Demolition	S2,S4	1000	Square Foot	$ 20.00	$ 20,000.00
				Demolition & Asbestos Subtotal	$ 216,000.00
Foundation / Floor Strengthening Construction					
Spread Footings for Columns / Holdown	S4	25	Each	$ 4,000.00	$ 100,000.00
Holdowns	S4	25	Each	$ 1,500.00	$ 37,500.00
Bolting of Extg Walls to footings	S1,S6,S11	850	Linear Foot	$ 35.00	$ 29,750.00
Flooring Protection	S3,S7,S8,S9,S10	8500	Square Foot	$ 6.00	$ 51,000.00
Concrete Repair & Patching	S2,S4	2000	Square Foot	$ 15.00	$ 30,000.00
Floor Finish Patch / Replacement	S1,S4,S6,S11	2000	Square Foot	$ 7.00	$ 14,000.00
				Foundation Level Subtotal	$ 262,250.00
Wall Strengthening Construction					
Sheathing of Existing Walls	S1,S3,S9,S10	17000	Square Foot	$ 5.00	$ 85,000.00
Painting	S1,S3,S6,S7,S8,S9,S10,S11	28000	Square Foot	$ 3.00	$ 84,000.00
Interior Wall Finish Repair	S1,S3	20000	Square Foot	$ 2.00	$ 40,000.00
				Wall Strengthening Subtotal	$ 209,000.00
Roof Strengthening Construction					
New Batt Insulation in Attic	S3,S7,S8,S9,S10	8500	Square Foot	$ 5.00	$ 42,500.00
Block (E) Wood Diaphragm	S8,S9,S10	8500	Square Foot	$ 8.00	$ 68,000.00
Fold Back Existing Roofing for Diaphragm	S2	150	Square Foot	$ 4.00	$ 600.00
Diaphragm Attachments - In-Plane Shear	S1	850	Linear Foot	$ 20.00	$ 17,000.00
Existing Beam Strengthening	S12	1	EA	$ 30,000.00	$ 30,000.00
Existing Truss Strengthening	S13	3	EA	$ 30,000.00	$ 90,000.00
New Ceiling Sheathing	S8,S9,S10	8500	Square Foot	$ 5.00	$ 42,500.00
Ceiling Repair	S1,S3,S7,S8,S9,S10	14000	Square Foot	$ 3.00	$ 42,000.00
Seismic Isolation from Adjacent Building	S2	30	Linear Foot	$ 400.00	$ 12,000.00
New Suspended Ceiling	N3,N4,N5	8500	Square Foot	$ 6.00	$ 51,000.00
Blocking and Strapping Line	S1,S3	500	Linear Foot	$ 50.00	$ 25,000.00
				Roof Strengthening Subtotal	$ 420,600.00
				Building Part 'Area E' - Total Construction Cost	**$ 1,107,850.00**

Appendix F:
Rapid Visual Screening

Rapid Visual Screening of Buildings for Potential Seismic Hazards
FEMA P-154 Data Collection Form

Level 1
HIGH Seismicity

SKETCH

Address: 11381 Tiller Trail Highway
Days Creek, OR **Zip:** 97429
Other Identifiers: Gymnasium
Building Name: Days Creek Chart School
Use: Gymnasium
Latitude: 42.969342 **Longitude:** -123.1629139
S_S: 0.706 **S_1:** 0.408
Screener(s): SKN **Date/Time:** 8/10/2022

No. Stories: Above Grade: 1 Below Grade: 0 **Year Built:** 1940 ☐ EST
Total Floor Area (sq. ft.): 16000 **Code Year:**
Additions: ☐ None ■ Yes, Year(s) Built: 1989

Occupancy: ☐ Assembly ☐ Commercial ☐ Emer. Services ☐ Historic ☐ Shelter
☐ Industrial ☐ Office ■ School ☐ Government
☐ Utility ☐ Warehouse ☐ Residential, # Units:

Soil Type: ☐ A Hard Rock ☐ B Avg Rock ☐ C Dense Soil ■ D Stiff Soil ☐ E Soft Soil ☐ F Poor Soil **DNK** *If DNK, assume Type D.*

Geologic Hazards: Liquefaction: Yes/No/DNK Landslide: Yes/No/DNK Surf. Rupt.: Yes/No/DNK

Adjacency: ■ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ■ Vertical (type/severity) Out-of-plane setback
☐ Plan (type)

Exterior Falling Hazards: ☐ Unbraced Chimneys ☐ Heavy Cladding or Heavy Veneer
☐ Parapets ☐ Appendages
☐ Other:

COMMENTS:

☐ Additional sketches or comments on separate page

BASIC SCORE, MODIFIERS, AND FINAL LEVEL 1 SCORE, S_{L1}

FEMA BUILDING TYPE W2 ☐ Do Not Know	W1	W1A	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM	MH
Basic Score	**3.6**	**3.2**	**2.9**	**2.1**	**2.0**	**2.6**	**2.0**	**1.7**	**1.5**	**2.0**	**1.2**	**1.6**	**1.4**	**1.7**	**1.7**	**1.0**	**1.5**
Severe Vertical Irregularity, V_{L1}	-1.2	-1.2	-1.2	-1.0	-1.0	-1.1	-1.0	-0.8	-0.9	-1.0	-0.7	-1.0	-0.9	-0.9	-0.9	-0.7	NA
Moderate Vertical Irregularity, V_{L1}	-0.7	-0.7	-0.7	-0.6	-0.6	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.6	-0.5	-0.5	-0.5	-0.4	NA
Plan Irregularity, P_{L1}	-1.1	-1.0	-1.0	-0.8	-0.7	-0.9	-0.7	-0.6	-0.6	-0.8	-0.5	-0.7	-0.6	-0.7	-0.7	-0.4	NA
Pre-Code	-1.1	-1.0	-0.9	-0.6	-0.6	-0.8	-0.6	-0.2	-0.4	-0.7	-0.1	-0.5	-0.3	-0.5	-0.5	0.0	-0.1
Post-Benchmark	1.6	1.9	2.2	1.4	1.4	1.1	1.9	NA	1.9	2.1	NA	2.0	2.4	2.1	2.1	NA	1.2
Soil Type A or B	0.1	0.3	0.5	0.4	0.6	0.1	0.6	0.5	0.4	0.5	0.3	0.6	0.4	0.5	0.5	0.3	0.3
Soil Type E (1-3 stories)	0.2	0.2	0.1	-0.2	-0.4	0.2	-0.1	-0.4	0.0	0.0	-0.2	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4
Soil Type E (> 3 stories)	-0.3	-0.6	-0.9	-0.6	-0.6	NA	-0.6	-0.4	-0.5	-0.7	-0.3	NA	-0.4	-0.5	-0.6	-0.2	NA
Minimum Score, S_{MIN}	*1.1*	*0.9*	*0.7*	*0.5*	*0.5*	*0.6*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*1.0*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 1.3 FEMA-154 Collapse Potential - MODERATE < 10%

EXTENT OF REVIEW

Exterior: ☐ Partial ■ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ■ Entered
Drawings Reviewed: ■ Yes ☐ No
Soil Type Source: N/A
Geologic Hazards Source: DOGAMI
Contact Person: Spencer NIsson

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ■ No
Nonstructural hazards? ☐ Yes ■ No

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

☐ Pounding potential (unless S_{L2} > cut-off, if known)
☐ Falling hazards from taller adjacent building
☐ Geologic hazards or Soil Type F
☐ Significant damage/deterioration to the structural system

ACTION REQUIRED

Detailed Structural Evaluation Required?

☐ Yes, unknown FEMA building type or other building
☐ Yes, score less than cut-off
☐ Yes, other hazards present
■ No

Detailed Nonstructural Evaluation Recommended? *(check one)*

☐ Yes, nonstructural hazards identified that should be evaluated
■ No, nonstructural hazards exist that may require mitigation, but a detailed evaluation is not necessary
☐ No, no nonstructural hazards identified ☐ DNK

Where information cannot be verified, screener shall note the following: EST = Estimated or unreliable data OR DNK = Do Not Know

Legend: MRF = Moment-resisting frame; BR = Braced frame; RC = Reinforced concrete; SW = Shear wall; URM INF = Unreinforced masonry infill; TU = Tilt up; MH = Manufactured Housing; LM = Light metal; FD = Flexible diaphragm; RD = Rigid diaphragm