

SWISSHOME-DEADWOOD RURAL FIRE PROTECTION DISTRICT

REQUEST FOR PROPOSALS FOR ENGINEERING SERVICES

SWISSHOME-DEADWOOD RFPD STATION 2

SEISMIC REHABILITATION

CONTRACT ADMINISTRATOR:
SWISSHOME-DEADWOOD RURAL FIRE PROTECTION DISTRICT
GREG HERTZBACH
FIRE CHIEF
Phone: 541-901-1469
Email: chief@sdrfpd.org

ISSUE DATE: 9/2/2026
RFQ CLOSING (DUE) DATE 9/24/2026 (4:00 PM)

Electronic submittals only
No late responses will be excepted

Submit via email to: chief@sdrfpd.org

Introduction:

Swisshome-Deadwood Rural Fire Protection District (the “District”) is seeking proposals from firms for the structural engineering and design services for the Seismic Rehabilitation of Swisshome-Deadwood Fire Station 2 (the “Project”), located at 15089 OR-36, Deadwood, OR, 97430. In January 2026, the District applied for and received a Seismic Rehabilitation Grant (“SRG”) for the project through the Infrastructure Finance Authority: Business Oregon, based on the application prepared by ZCS. The intent of this RFP is for the consultant to provide an integrated design solution for the seismic rehabilitation and other potential non-seismic related facility upgrades for the project. As part of this grant, a preliminary rehabilitation feasibility report was prepared for each portion of the project and is enclosed. The District was awarded \$1,243,760 for the design and construction of the Swisshome-Deadwood Fire Station 2 Seismic Rehabilitation.

The structure to be rehabilitated was constructed in 1959 with an addition in 1982 and is classified as a W2 structure per ASCE 41. The building is single story, with an approximate total area of 3,000 square feet.

The District intends to use either the typical Design-Bid-Build procurement project delivery method, or the CM/GC procurement project delivery method for this project. Pre-Design/Schematic Design would begin immediately upon award and approval of the resulting design contract. Construction is anticipated to start in April 2027 with the Project completion expected by September 2027. The Project may be vacated during the construction period.

Scope of Work:

Perform a seismic evaluation of the building, per American Society of Civil Engineers (“ASCE”) Standard 41-17 “Seismic Evaluation of Existing Buildings”. Develop rehabilitation and mitigation strategies per ASCE Standard 41-17 and the 2022 Oregon Structural Specialty Code (“OSSC”). It is the wish of the District to rehabilitate the building to meet the rehabilitation objective of “Immediate Occupancy”.

Based on research and evaluation efforts performed during the Seismic Rehabilitation Grant (“SRG”) in preparation for the project, the structural improvements listed in the enclosed evaluation report should be considered for the existing structure. Preliminary rehabilitation drawings (enclosed) were prepared to assist in defining the necessary scope of potential rehabilitation work for this structure.

The scope of work also includes the following services:

- Develop all construction documents for the project required for a CM/GC or hard bid construction delivery methods.
- Assist the District in the selection process for a CM/GC firm if CM/GC is selected as the method of delivery. The selection process will include the preparation and

administration of the “Facts and Findings Report” and the “RFP” for the proposed alternative contracting method as outlined in the OAR 137-049-0600.

- Assist the District with the entitlement of the projects through the Authorities Having Jurisdiction and the State Historical Preservation Office.
- Provide all construction administration services necessary for the implementation of the projects. Services include but are not limited to: Administering project logs, RFI administration, manages progress meetings, submittal review, change order review and verification of certified pay requests.
- Assist District Staff with SRG reporting requirements for the project as required.

Selection Process:

This Request for Proposals (“RFP”) and the selection process will be conducted pursuant to the terms of this RFP, the Oregon Attorney General's Model Rules for Consultant Selection, OAR Chapter 137, Division 48, and the District’s applicable Board Policies.

Compensation:

Compensation will be based on a total “not-to-exceed” amount for services and reimbursable expenses, with “not-to-exceed” maximums for the following individual phases of the design: Pre-Design/ Schematic Design, Design Development, Construction Documents, Bidding, and Construction Administration services, including record documentation. Project Management services are requested in addition to the individual phases list above. The amount of compensation will be negotiated with the Apparent Successful Proposer.

Proposal Requirements:

The Proposer and all firms, subsidiaries and individuals providing professional services shall be currently licensed to practice in each of their respective areas of professional expertise in the State of Oregon, and shall comply with all State of Oregon Architect and Professional Engineer licensure requirements.

The submittal must include the following, in addition to what is required to comply with the Evaluation Criteria below:

- The firm’s name, address, phone number, and facsimile number;
- The name of the contact person within the firm and his/her email address;
- A list of the firm’s key personnel who would be assigned to this Project, by discipline;
- The name and Oregon registration number of the Project engineer who will serve as the Engineer of Record;

- The names of additional Project engineer(s) the firm proposes to provide services on this project, along with specific projects each of these persons has worked on in the past three years;
- Illustrations or photographs of at least three (3) relevant projects completed by the firm and involving the above named individuals; and
- The construction cost and building area (in gross square feet) of each reference project;
- Date of completion of each reference project;
- Location of each reference project;
- The function of each reference project;
- The construction delivery method used for each reference project;
- Whether the project was completed on schedule and within the budget or not;
- Responsibilities of those involved on each reference project who would provide services on these projects;
- Name, address and current telephone number of the owner representative most appropriate to discuss your firm's performance on each reference project;
- A Gantt chart providing a proposed schedule for the Pre-Design/Schematic Design, Design Development, and Construction Documents phases for each project.

If awarded the Contract, the Proposer must accept, as Contract performance obligations, the duty to actively pursue the plans as set forth in the Proposer's response.

Evaluation Criteria:

Please indicate in writing the following information about your firm's ability and desire to perform this work. Firms will be rated based upon the weight assigned to each item as noted in parentheses at the end of each statement below.

1) Firm Capabilities (10 points)

- a) Describe your firm's background and experience, including company history, length of time in the industry, service area, staffing size and capabilities.
- b) Describe your firm's design philosophy.
- c) Describe your firm's recent (past ten years) experience with design of renovations to public agency facilities (i.e. Fire Stations, Police Stations, etc.), and implementing the agency's design criteria.

2) Project Team (15 points)

- a) Provide your firm's staffing plan and specify key personnel to be assigned to this project. Include an organizational chart, staff roles and a current resume of key personnel.
- b) Describe what scope of services will be provided by proposing firm and whether sub-consultants are needed to complete this work. Identify the sub-consultants and the key personnel of the sub-consultants that you propose to use on this project.

- 3) Experience with the State of Oregon Seismic Rehabilitation Grant Program (25 points)
 - a) Describe your experience completing seismic rehabilitation projects funded by the Business Oregon SRG Program.
 - b) Provide record of performance on previously completed projects funded by the Business Oregon SRG Program. Indicate whether the project met budget and schedule expectations.
 - c) Provide case studies on three (3) similar projects completed within the last 5 years. Include information about the size, construction type, building uses, construction delivery method and whether the project was completed on time and within budget.
- 4) Record of Performance & References (20 points)
 - a) Describe your firm's past record of performance on contracts with governmental agencies and private owners with respect to such factors as cost control, quality of work, ability to meet schedules, and contract administration.
 - b) Three (3) letters of reference must be provided, preferably for projects of similar type and size. Provide contact information for each reference.
- 5) Project Approach (20 points)
 - a) Describe your approach to completing seismic rehabilitation projects and what special services, systems, or qualifications the firm has that would benefit the District in this project. Include familiarity with this project specifically and its specific requirements.
 - b) Provide examples of lessons learned and examples of how your firm has worked with Owners and Contractors to minimize surprises during seismic rehabilitation projects.
 - c) Proposed cost management & quality control techniques to be employed.
- 6) Project Location (10 points)
 - a) Describe your availability to and familiarity with the area in which the Project is located, including knowledge of design and construction techniques unique to the area.
 - b) Describe proposer's plan to maximize and document local participation.

Evaluation Process:

The selection committee will score each submittal on the basis of responses to the evaluation categories. Each category is assigned a score between 10 to 25. Each member of the evaluation committee will rank each firm in each category between 0 and 25. The individual evaluation committee members will then total the score from all categories to obtain the total score out of 100. The evaluation committee will then sum the total scores from each member. The result of this total score will be used to rank all respondents.

The RFP also requires reference information for your firm. The District will utilize this information and any other independently obtained references that can provide background on the firm. This information will not be separately scored, but results obtained from these and/or other reference checks will be utilized in evaluating and scoring in the other categories and in the final ranking.

The evaluation committee will meet and use the individual evaluation committee member rankings as a beginning of their discussion. The discussion of the responses will include firm strengths and weaknesses and the individual evaluation committee member scorings. The committee reserves the option to interview finalists as ranked from the results of the evaluation committee discussion and scoring.

Selection Procedure and Timetable:

The selection procedure described below will be used to evaluate the capabilities of interested firms to provide the professional services to the District for this Project.

September 2 nd , 2026	Issue RFP
September 9 th , 2026 at 1:00 pm	Mandatory Site Visit/Pre-Proposal Conference
September 14 th , 2026 at 2:00 pm	Questions and Solicitation Protests Deadline
September 16 th , 2026	Owner's written response to questions
September 24 th , 2026 at 2:00 pm	RFP response due
September 28 th , 2026	Optional Interviews with Selection Committee
September 29 th , 2026	Notice of Intent to Award
October 7 th , 2026 at 2:00 pm	Selection Protest Deadline
October 8 th , 2026	Board Action to Approve Selection
October, 2026	District Finalized Contract

Submission:

Electronic version of proposal is to be received by the District no later than September 24th at 2:00 pm. Send proposals to:

Greg Hertzbach
Fire Chief
chief@sdrfpd.org

Your response must be contained in a document not to exceed sixteen (16) single-sided pages including pictures, charts, graphs, tables and text the firm deems appropriate to be part of the review of the firm's response. Resumes of key individuals proposed to be involved in this project are exempted from the 16-page limit and should be appended to the end of your response. No supplemental information to the 16-page Proposal will be allowed. Appended resumes of the proposed key individuals and client reference letters, along with a transmittal letter, table of contents, front and back covers, and blank section/numerical dividers, etc., will not be counted in the 16-page limit. Information shall be presented in the same order as the above evaluation criteria. The basic text information of the response should be

presented in standard business font size (minimum 10-point), and reasonable (prefer 1 (one) inch) margins. Your response must be signed by an officer of your firm with the authority to commit the firm.

The District may reject any submittal not in compliance with all prescribed public bidding procedures and requirements, and may cancel this solicitation or reject for good cause, all responses upon finding by The District that it is in the public interest to do so.

Please note that throughout this Project, the District will not accept responses or queries that require the District to pay the cost of production or delivery.

Telephone, facsimile, or hardcopy submittals will not be accepted. Responses received after the closing date and time will not be considered.

Questions:

All questions and contacts with the District regarding any information in this RFP must be addressed in written form to the Contract Administrator at the address, email or fax listed in this document.

Solicitation Protests:

Respondents may submit a written request for clarification or change or protest of particular solicitation provisions and specifications and contract terms and conditions (including comments on any specifications that a firm believes limits competition) to the Contract Administrator at the address, email or fax listed in this document. Such requests and protests must be received no later than 2:00 pm, September 14th, 2026. Such requests or protests must state the reasons for the request or protest and any proposed changes to the solicitation provisions and specifications and contract terms and conditions. Failure to file a protest by this time will be deemed a waiver of any claim by a respondent. The District will issue a written disposition of each such protest no less than three (3) business days before proposals are due. If the District upholds the protest, in whole or in part, the District may, in its sole discretion, issue an addendum reflecting its disposition or take other appropriate action.

Change or Modification:

Any change or modification to the specifications or the procurement process will be in the form of an addendum to the RFP and will be made available to all firms via email from the Contract Administrator. No information received in any manner different than as described herein will serve to change the RFP in any way, regardless of the source of the information. Any request for clarification or change or protest of anything contained in an addendum must be received by the date and time stated in the addendum, or they will not be considered.

Selection Protests:

Any respondent to this RFP who claims to have been adversely affected or aggrieved by the selection of a competing respondent may submit a written protest of the selection to the Contract Administrator at the following address within seven days after notification of that selection:

Greg Hertzbach, Fire Chief
Swisshome-Deadwood RFPD
PO Box 10
Swisshome, OR, 97480
Phone: 541-901-1469

Any such protests received by the Contract Administrator after the seven days will not be considered. The protest must state clearly the basis (or bases) for the protest and any legal authority in support thereof. At the request of the protester, a hearing will be conducted before District staff. At such hearing, the protester and other interested parties will have the opportunity to appear and make an oral presentation of the basis for protest. The Director of Business Services will either uphold or deny the protest. If the protest is denied, the District will proceed to award the Contract as planned. The selection decision notification will be made by the Contract Administrator via email.

Proprietary Information:

The District will retain this RFP and one copy of each original response received, together with copies of all documents pertaining to the award of a contract. These documents will be made part of a file or record, which will be open to public inspection after responder selection and award is announced. If a response contains any information that is considered a trade secret under ORS 192.501(2), mark each sheet with the following legend: "This data constitutes a trade secret under ORS 192.501(2), and must not be disclosed except in accordance with the Oregon Public Records Law, ORS Chapter 192."

The Oregon Public Records Law exempts from disclosure only bone fide trade secrets, and the exception from disclosure applies only "unless the public interest requires disclosure in the particular instance". Therefore, non-disclosure of documents or any portion of a document submitted as part of a response may depend upon official or judicial determination made pursuant to the Public Records Law.

In order to facilitate public inspection of the non-confidential portion of the response, material designated as confidential must accompany the response, but must be readily separable from it. Prices, makes, model or catalog numbers of items offered, scheduled delivery dates, and terms of payment will be publicly available regardless of any designation to the contrary. Any response marked as a trade secret in its entirety will be considered non-responsive and will be rejected.

Project Contract:

The District is seeking to award a contract to an engineering firm for pre-design / schematic design, design development, construction documents, bidding, and construction phases. Project Management services are requested in addition to the individual phases list above. The successful proposer is required to provide and execute a contract satisfactory to the District.

Certification of Compliance with Tax Laws:

By submission of your proposal, the signatory (a duly authorized representative of the submitting firm) must certify that the firm is not, to the best of their knowledge, in violation of any Oregon tax law. For purpose of this certification, “Oregon Tax Laws” means a state tax imposed by ORS 320.005 to 320.150 and 403.200 to 403.250, ORS Chapters 118, 314, 316, 317, 318, 321 and 323; the elderly rental assistance program under ORS 310.630 to 310.706; and local taxes administered by the Oregon Department of Revenue under ORS 305.620.

Insurance Provisions:

During the term of the resulting contract, the successful proposer will be required to maintain in full force, at its own expense, from insurance companies authorized to transact business of insurance in the state of Oregon, each insurance coverage/policy as set forth in the contract.

ESB/MBE/WBE:

The District is committed to increasing opportunities for Emerging Small Businesses and Minority and Women Owned Businesses, and the District strongly encourages its consultants to utilize these businesses in providing services and materials for the District contracts and projects.

Additional Requirements:

Pursuant to OAR 580-061, by submitting a proposal, the proposer certifies that the proposer has not discriminated against Minority, Women or Emerging Small Business Enterprises in obtaining any required subcontracts.

Pursuant to OAR 580-061-0040, Proposers are hereby notified that policies applicable to consultants and contractors have been adopted that prohibit sexual harassment and that proposers and their employees are required to adhere to the District’s policy prohibiting sexual harassment in their interactions.

Exhibits:

Exhibit A - Structural Seismic Evaluation Report (including Preliminary Rehabilitation Drawings) prepared by ZCS – Swisshome-Deadwood Rural Fire Protection District — Swisshome-Deadwood Fire Station 2 Seismic Rehabilitation

End of RFP



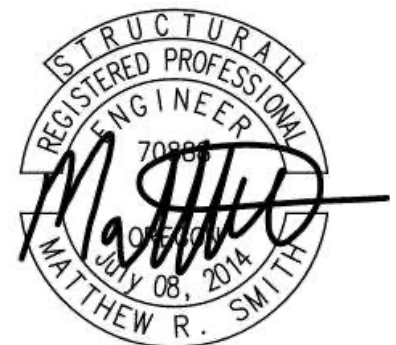
Seismic Evaluation Report For:

**SWISSHOME-DEADWOOD
FIRE STATION #2**

15089 Highway 36 Deadwood, OR 97430
Swisshome-Deadwood Rural Fire Protection District

Prepared By:

ZCS Engineering & Architecture
Matthew R. Smith, PE, SE, Principal
524 Main Street, Suite 2, Oregon City, OR 97045
☎ 503.659.2205 | ✉ MattS@zcsea.com



EXPIRES: 06-30-26



www.zcsea.com

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	Fire Station	Yes	1959	W2	Yes	No
*** 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		\$ 1,243,760.00				
Retrofit Square Feet		3,000				
Retrofit Cost per Square Foot		\$ 414.59				
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.						Yes, landslide per Dogami HazVu

Engineering Report Checklist		
☒	Engineering Report Cover Page	
☒	Project Summary Page	Page 1
☒	Building Parts Identification	Page 5
☒	Statement of the Performance Objective	Page 6
	Summary of Deficiencies	
☒	Structural Seismic Deficiencies	Page 10
☒	Nonstructural Seismic Deficiencies	Page 11
	Summary of Mitigation/Retrofit	
☒	Structural Mitigation/Retrofit	Page 10
☒	Nonstructural Mitigation/Retrofit	Page 11
	Summary Construction Cost Estimate	
☒	Direct Cost	Page 12
☒	Indirect Soft Cost	Page 12
☒	Certification Statement by Engineer	Page 13
	ASCE 41-17 Tier 1 Checklist	
☒	Basic Configuration Checklist	Appendix B
☒	Building System Structural Checklist	Appendix B
☒	Nonstructural Checklist	Appendix B
☒	Retrofit Drawings & Sketches	Appendix C
☒	DOGAMI or Geotechnical Report	Appendix D
☒	Itemized Construction Cost Estimate	Appendix E
☒	Rapid Visual Screening	Appendix F

1.0 Project Introduction

Swisshome-Deadwood RFPD Station 2 is located in Deadwood, Oregon in Lane County. The Department operates three (3) stations located within the community including the property of interest, Swisshome-Deadwood Fire Station 2. The Department has retained ZCS Engineering and Architecture (ZCS) to perform a seismic evaluation of Swisshome-Deadwood that provides the Department 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	15089 Hwy 36, Deadwood, OR 97430
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
Cost Estimate	\$1,243,760.00
Cost/Square Foot	\$414.59

2.0 Building Description

The building being considered in this report includes the part listed in the Project Summary Information. ZCS has reviewed the building and its construction to classify its lateral system as identified in ASCE 41-17. This lateral determination will be used throughout this evaluation. The lateral system present is noted below. This determination was made after observing the subject facility and reviewing the available existing drawings. A description of this structure type is listed below and specifically identifies the lateral load resisting system. In addition to the lateral system present, ZCS has summarized the gravity load carrying systems of the subject facility included later in this section.

Wood Frames, Commercial and Industrial W2

These buildings are commercial or industrial buildings with a floor area of 5,000 ft² 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.

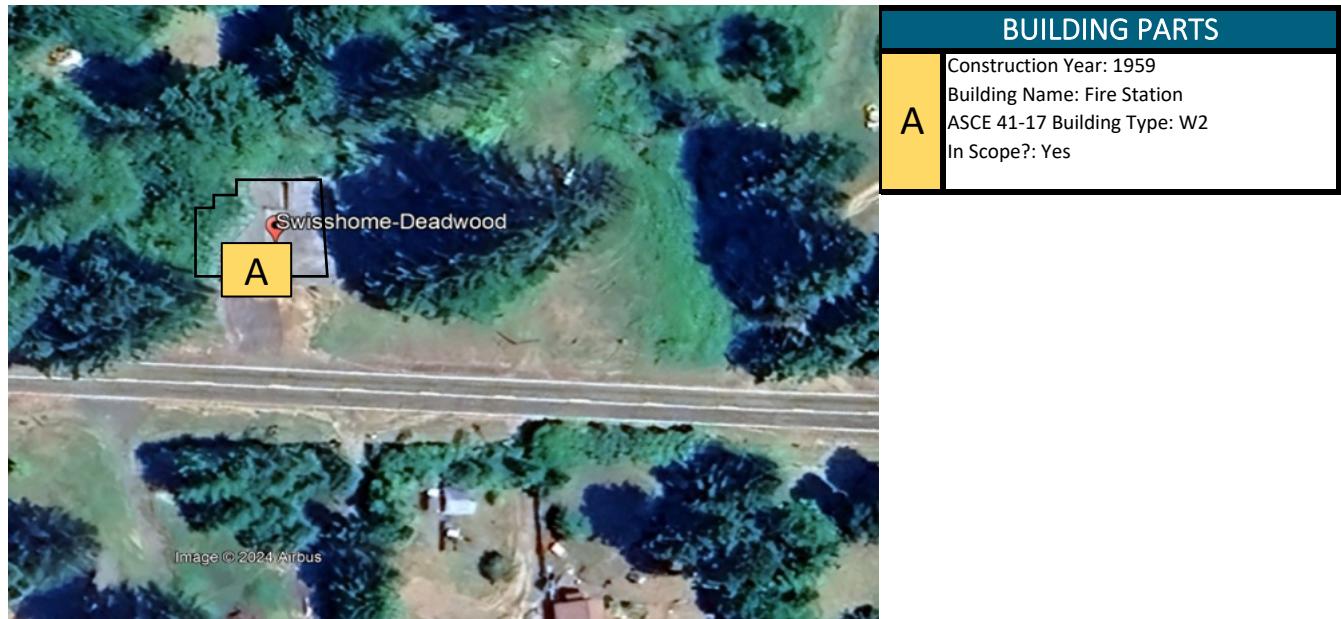


Figure 1 - Swisshome-Deadwood Key Plan

Building Part A Construction:

- o ASCE 41-17 Building Type:
 - o W2
- o Roof Structure:
 - o Unblocked plywood diaphragm supported by light timber trusses and low slope rafters.
- o Walls:
 - o Conventional 2x light stud wall framing with plywood wall sheathing.
- o Foundation:
 - o Slab-on-grade with reinforced concrete continuous shallow strip footings.

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. Risk category IV includes emergency service buildings and school buildings that are required to be designed as emergency shelters. Figure 2, identifies the performance objective for each risk category.

For risk category IV structures, the intent is that the building can be inspected then immediately reoccupied following a seismic event to continue to function as an emergency service building or function as an emergency structure.

In accordance with Figure 2, this building is categorized as a risk category IV structures 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-2E:	
S_{xs}	0.894
S_{x1}	0.758
Soil Condition Amplification Factors (f_a, f_v)	$f_a = 1.208 \mid f_v = 1.901$
BSE-1E:	
S_{xs}	0.248
S_{x1}	0.160
Soil Condition Amplification Factors (F_a, F_v)	$F_a = 1.6 \mid F_v = 2.4$

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.

Slope Failure/Landslide

This project is located within a slope failure/landslide hazard area as identified by the DOGAMI Oregon HazVu. It appears that Deadwood was founded in an unfortunate location from a geotechnical standpoint. Much of the city is located over soils that are susceptible to landslide during ground motion events. Based on our research, it is our understanding that the anticipated surface movement is projected to be uniform across the large area. The strengthening of the south wall with a concrete retaining wall will reinforce the structure and help prevent movement of the remainder of the building during a potential landslide event.

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 key note 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 diaphragm attachments - In-plane shear nailing and hardware	S1
SLOPE FAILURE	The building site is located near potential earthquake-induced slope failures or rockfalls so that it is affected by such failures or is incapable of accommodating any predicted movements without failure.	A) Provide mitigation in the form of a retaining wall. Shore existing structure as required for demolition and rebuild south foundation with a retaining wall extending below the slope failure influence. B) Rebuild south wall using conventional 2x balloon framing techniques C) Rebuild roof framing as required to rebuild south wall.	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
NARROW WOOD SHEAR WALLS	Narrow wood shear walls with an aspect ratio greater than 2-to-1 are used to resist seismic forces.	Install new plywood shear walls with appropriate aspect ratio by providing new raised concrete stemwall.	S4
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.	S5

Tier 1 Deficiency Description	Deficiency Statement	Repair Statement	Plan Key Note
NARROW WOOD SHEAR WALLS	Narrow wood shear walls with an aspect ratio greater than 1.5-to-1 are used to resist seismic forces.	Install new plywood shear walls with appropriate aspect ratio by providing new raised concrete stemwall.	S6
ROOF CHORD CONTINUITY	Chord elements are discontinuous.	Install blocking and strapping at discontinuous chords.	S7
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.	S8
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.	S9
NONSTRUCTURAL CHECKLIST			
MECHANICAL DOORS	Mechanically operated doors are not detailed to operate at a story drift ratio of 0.01.	Remove and replace with doors detailed to operate at a story drift ratio of 0.01.	N1
SUSPENDED EQUIPMENT	Equipment suspended without lateral bracing is not free to swing from or move with the structure from which it is suspended without damaging itself or adjoining components.	Provide lateral bracing of suspended equipment.	N2

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.

Special Notes

It should be noted that the cost per square-foot of the this retrofit may seem abnormally high. The higher-than-average costs are a result of several factors including the following:

- The building is significantly smaller than a building typically retrofit under the program. This results in less economy of scale on the project and increased costs for individual cost estimate line items.
- The landslide hazard present at the site requires foundation upgrade solutions not typically found in seismic rehabilitations of this size.

DIRECT COST	
Construction	\$ 874,300.00
Engineering	\$ 170,100.00
Construction Management	\$ 20,000.00
Relocation	\$ 12,500.00
Construction Contingency	\$ 166,860.00
TOTALS AND SUMMARY	
Total Cost Estimate	\$ 1,243,760.00
Match Funds	\$ -
Total Amount Requested from SRGP	\$ 1,243,760.00
Total Area	3,000
Cost/Square Foot	\$ 414.59

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 Department.

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: SOUTH FACING WALL



Figure 2: EAST FACING WALL



Figure 3: NORTH WEST SIDE OF BUILDING



Figure 4: OVERHEAD DOORS



Figure 5: UNBRACED SUSPENDED HEATER



Figure 6: INADEQUATELY BRACED DOOR TRACK

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	Diaphragm to wall attachments do not exist for in-plane shear transfer
☐	☒	☐	☐				
C	NC	N/A	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 0.5% of the height of the shorter building in low seismicity, 1.0% in moderate seismicity, and 3.0% in high seismicity.	5.4.1.2	A.2.1.2	
☐	☐	☒	☐				
C	NC	N/A	U	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure.	5.4.1.3	A.2.1.3	
☐	☐	☒	☐				
Building System—Building Configuration							
C	NC	N/A	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above.	5.4.2.1	A.2.2.2	
☐	☐	☒	☐				
C	NC	N/A	U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above.	5.4.2.2	A.2.2.3	
☐	☐	☒	☐				
C	NC	N/A	U	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation.	5.4.2.3	A.2.2.4	
☐	☐	☒	☐				

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	Shear stress exceeds 1,000 plf.
☐	☒	☐	☐				
C	NC	N/A	U	STUCCO (EXTERIOR PLASTER) SHEAR WALLS: Multi-story buildings do not rely on exterior stucco walls as the primary seismic-force-resisting system.	5.5.3.6.1	A.3.2.7.2	
☐	☐	☒	☐				
C	NC	N/A	U	GYPSON WALLBOARD OR PLASTER SHEAR WALLS: Interior plaster or gypsum wallboard is not used for shear walls on buildings more than one story high with the exception of the uppermost level of a multi-story building.	5.5.3.6.1	A.3.2.7.3	
☐	☐	☒	☐				
C	NC	N/A	U	NARROW WOOD SHEAR WALLS: Narrow wood shear walls with an aspect ratio greater than 2-to-1 are not used to resist seismic forces.	5.5.3.6.1	A.3.2.7.4	Wood shear walls exceed the 2-to-1 aspect ratio.
☐	☒	☐	☐				
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	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	Building site located in potential slope failure zone per DOGAMI HAZVU.
☐	☒	☐	☐				
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

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	No HD present.
☐	☒	☐	☐				
Connections							
C	NC	N/A	U	WOOD POSTS: There is a positive connection of wood posts to the foundation.	5.7.3.3	A.5.3.3	
☒	☐	☐	☐				
C	NC	N/A	U	WOOD SILLS: All wood sills are bolted to the foundation.	5.7.3.3	A.5.3.4	
☒	☐	☐	☐				
C	NC	N/A	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support.	5.7.4.1	A.5.4.1	Correction: There are no girder to column connections
☐	☐	☒	☐				
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	Wood shear walls exceed the 1.5-to-1 aspect ratio.
☐	☒	☐	☐				
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	Chord elements not continuous.
☐	☒	☐	☐				
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	
☐	☐	☒	☐				
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	
☒	☐	☐	☐				
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	horizontal spans greater than 30'.
☐	☒	☐	☐				
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 inadequate.
☐	☒	☐	☐				

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	
☐	☐	☒	☐				
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	
☐	☐	☒	☐				

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	13.7.3	A.7.13.6
☐	☐	☒	☐	CROSSING SEISMIC JOINTS: Piping or ductwork	13.7.5	
				carrying hazardous material that either crosses	13.7.6	
				seismic joints or isolation planes or is connected to		
				independent structures has couplings or other details		
				to accommodate the relative seismic displacements.		
Partitions						
C	NC	N/A	U	HR—LMH; LS—LMH; PR—LMH. UNREINFORCED	13.6.2	A.7.1.1
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—LMH; LS—LMH; PR—LMH. HEAVY PARTITIONS	13.6.2	A.7.2.1
☐	☐	☒	☐	SUPPORTED BY CEILINGS: The tops of masonry or		
				hollow-clay tile partitions are not laterally supported		
				by an integrated ceiling system.		
C	NC	N/A	U	HR—not required; LS—MH; PR—MH. DRIFT: Rigid	13.6.2	A.7.1.2
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.2	A.7.2.1
☐	☐	☒	☐	LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops		
				of gypsum board partitions are not laterally		
				supported by an integrated ceiling system.		
C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.2	A.7.1.3
☐	☐	☒	☐	STRUCTURAL SEPARATIONS: Partitions that cross		
				structural separations have seismic or control joints.		
C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.2	A.7.1.4
☐	☐	☒	☐	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).		
Ceilings						
C	NC	N/A	U	HR—H; LS—MH; PR—LMH. SUSPENDED LATH AND	13.6.4	A.7.2.3
☐	☐	☒	☐	PLASTER: Suspended lath and plaster ceilings have		
				attachments that resist seismic forces for every 12 ft ²		
				(1.1 m ²) of area.		
C	NC	N/A	U	HR—not required; LS—MH; PR—LMH. SUSPENDED	13.6.4	A.7.2.3
☐	☐	☒	☐	GYPSON BOARD: Suspended gypsum board ceilings		
				have attachments that resist seismic forces for every		
				12 ft ² (1.1 m ²) of area.		

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

C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.4	A.7.2.2
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.4	A.7.2.4
☐	☐	☒	☐	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).		
C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.4	A.7.2.5
☐	☐	☒	☐	CONTINUITY ACROSS STRUCTURE JOINTS: The ceiling system does not cross any seismic joint and is not attached to multiple independent structures.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.6.4	A.7.2.6
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.6.4	A.7.2.7
☐	☐	☒	☐	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.		
Light Fixtures						
C	NC	N/A	U	HR—not required; LS—MH; PR—MH.	13.6.4	A.7.3.2
☐	☐	☒	☐	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.	13.7.9	

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

C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.9	A.7.3.3
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H. LENS	13.7.9	A.7.3.4
☐	☐	☒	☐	COVERS: Lens covers on light fixtures are attached with safety devices.		
Cladding and Glazing						
C	NC	N/A	U	HR—MH; LS—MH; PR—MH. CLADDING ANCHORS:	13.6.1	A.7.4.1
☐	☐	☒	☐	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)		
C	NC	N/A	U	HR—not required; LS—MH; PR—MH. CLADDING	13.6.1	A.7.4.3
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—MH; LS—MH; PR—MH. MULTI-STORY PANELS:	13.6.1	A.7.4.4
☐	☐	☒	☐	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.		

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

C	NC	N/A	U	HR—not required; LS—MH; PR—MH. THREADED	13.6.1	A.7.4.9
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—MH; LS—MH; PR—MH. PANEL CONNECTIONS:	13.6.1.4	A.7.4.5
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—MH; LS—MH; PR—MH. BEARING	13.6.1.4	A.7.4.6
☐	☐	☒	☐	CONNECTIONS: Where bearing connections are used, there is a minimum of two bearing connections for each cladding panel.		
C	NC	N/A	U	HR—MH; LS—MH; PR—MH. INSERTS: Where	13.6.1.4	A.7.4.7
☐	☐	☒	☐	concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel.		
C	NC	N/A	U	HR—not required; LS—MH; PR—MH. OVERHEAD	13.6.1.5	A.7.4.8
☐	☐	☒	☐	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.		
Masonry Veneer						
C	NC	N/A	U	HR—not required; LS—LMH; PR—LMH. TIES:	13.6.1.2	A.7.5.1
☐	☐	☒	☐	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).		
C	NC	N/A	U	HR—not required; LS—LMH; PR—LMH. SHELF	13.6.1.2	A.7.5.2
☐	☐	☒	☐	ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor.		
C	NC	N/A	U	HR—not required; LS—LMH; PR—LMH. WEAKENED	13.6.1.2	A.7.5.3
☐	☐	☒	☐	PLANES: Masonry veneer is anchored to the backup adjacent to weakened planes, such as at the locations of flashing.		

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

C	NC	N/A	U	HR—LMH; LS—LMH; PR—LMH. UNREINFORCED	13.6.1.1	A.7.7.2
☐	☐	☒	☐	MASONRY BACKUP: There is no unreinforced masonry backup.	13.6.1.2	
C	NC	N/A	U	HR—not required; LS—MH; PR—MH. STUD	13.6.1.1	A.7.6.1
☐	☐	☒	☐	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.	13.6.1.2	
C	NC	N/A	U	HR—not required; LS—MH; PR—MH. ANCHORAGE:	13.6.1.1	A.7.7.1
☐	☐	☒	☐	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.	13.6.1.2	
C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.1.2	A.7.5.6
☐	☐	☒	☐	WEEP HOLES: In veneer anchored to stud walls, the veneer has functioning weep holes and base flashing.		
C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.1.1	A.7.6.2
☐	☐	☒	☐	OPENINGS: For veneer with cold-formed-steel stud backup, steel studs frame window and door openings.	13.6.1.2	
<i>Parapets, Cornices, Ornamentation, and Appendages</i>						
C	NC	N/A	U	HR—LMH; LS—LMH; PR—LMH. URM PARAPETS OR	13.6.5	A.7.8.1
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—not required; LS—LMH; PR—LMH. CANOPIES:	13.6.6	A.7.8.2
☐	☐	☒	☐	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).		
C	NC	N/A	U	HR—H; LS—MH; PR—LMH. CONCRETE PARAPETS:	13.6.5	A.7.8.3
☐	☐	☒	☐	Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement.		
C	NC	N/A	U	HR—MH; LS—MH; PR—LMH. APPENDAGES:	13.6.6	A.7.8.4
☐	☐	☒	☐	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.		

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

Masonry Chimneys

C	NC	N/A	U	HR—LMH; LS—LMH; PR—LMH. URM CHIMNEYS:	13.6.7	A.7.9.1
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—LMH; LS—LMH; PR—LMH. ANCHORAGE:	13.6.7	A.7.9.2
☐	☐	☒	☐	Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof.		

Stairs

C	NC	N/A	U	HR—not required; LS—LMH; PR—LMH. STAIR ENCLOSURES: Hollow-clay tile or unreinforced masonry walls around stair enclosures are restrained out of plane and have height-to-thickness ratios not greater than the following: for Life Safety in Low or Moderate Seismicity, 15-to-1; for Life Safety in High Seismicity and for Position Retention in any seismicity, 12-to-1.	13.6.2 13.6.8	A.7.10.1
☐	☐	☒	☐			
C	NC	N/A	U	HR—not required; LS—LMH; PR—LMH. STAIR DETAILS: The connection between the stairs and the structure does not rely on post-installed anchors in concrete or masonry, and the stair details are capable of accommodating the drift calculated using the Quick Check procedure of Section 4.4.3.1 for moment-frame structures or 0.5 in. for all other structures without including any lateral stiffness contribution from the stairs.	13.6.8	A.7.10.2
☐	☐	☒	☐			

Contents and Furnishings

C	NC	N/A	U	HR—LMH; LS—MH; PR—MH. INDUSTRIAL STORAGE RACKS: Industrial storage racks or pallet racks more than 12 ft high meet the requirements of ANSI/RMI MH 16.1 as modified by ASCE 7, Chapter 15.	13.8.1	A.7.11.1
☐	☐	☒	☐			
C	NC	N/A	U	HR—not required; LS—H; PR—MH. TALL NARROW CONTENTS: Contents more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 are anchored to the structure or to each other.	13.8.2	A.7.11.2
☐	☐	☒	☐			
C	NC	N/A	U	HR—not required; LS—H; PR—H. FALL-PRONE CONTENTS: Equipment, stored items, or other contents weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level are braced or otherwise restrained.	13.8.2	A.7.11.3
☐	☐	☒	☐			

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

C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.10	A.7.11.4	
☐	☐	☒	☐	ACCESS FLOORS: Access floors more than 9 in. (229 mm) high are braced.			
C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.7.7	A.7.11.5	
☐	☐	☒	☐	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.	13.6.10		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.8.2	A.7.11.6	
☐	☐	☒	☐	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.			
Mechanical and Electrical Equipment							
C	NC	N/A	U	HR—not required; LS—H; PR—H. FALL-PRONE	13.7.1	A.7.12.4	
☒	☐	☐	☐	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.	13.7.7		
C	NC	N/A	U	HR—not required; LS—H; PR—H. IN-LINE	13.7.1	A.7.12.5	
☐	☐	☒	☐	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.			
C	NC	N/A	U	HR—not required; LS—H; PR—MH. TALL NARROW	13.7.1	A.7.12.6	
☐	☐	☒	☐	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.	13.7.7		
C	NC	N/A	U	HR—not required; LS—not required; PR—MH.	13.6.9	A.7.12.7	Bay doors not compliant.
☐	☒	☐	☐	MECHANICAL DOORS: Mechanically operated doors are detailed to operate at a story drift ratio of 0.01.			
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.1	A.7.12.8	Suspended heaters near bay doors
☐	☒	☐	☐	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.	13.7.7		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.1	A.7.12.9	
☐	☐	☒	☐	VIBRATION ISOLATORS: Equipment mounted on vibration isolators is equipped with horizontal restraints or snubbers and with vertical restraints to resist overturning.			
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.1	A.7.12.10	
☐	☐	☒	☐	HEAVY EQUIPMENT: Floor-supported or platform-supported equipment weighing more than 400 lb (181.4 kg) is anchored to the structure.	13.7.7		

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

C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.7	A.7.12.11
☐	☐	☒	☐	ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.8	A.7.12.12
☐	☐	☒	☐	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.		
Piping						
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.3	A.7.13.2
☐	☐	☒	☐	FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings.	13.7.5	
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	A.7.13.4
☐	☐	☒	☐		13.7.5	
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	A.7.13.5
☐	☐	☒	☐		13.7.5	
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	A.7.13.6
☐	☐	☒	☐		13.7.5	
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.	13.7.11	A.7.16.3
☐	☐	☒	☐	ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.11	A.7.16.4
☐	☐	☒	☐	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.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.11	A.7.16.5
☐	☐	☒	☐	SHAFT WALLS: Elevator shaft walls are anchored and reinforced to prevent toppling into the shaft during strong shaking.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.11	A.7.16.6
☐	☐	☒	☐	COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.11	A.7.16.7
☐	☐	☒	☐	BRACKETS: The brackets that tie the car rails and the counterweight rail to the structure are sized in accordance with ASME A17.1.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H.	13.7.11	A.7.16.8
☐	☐	☒	☐	SPREADER BRACKET: Spreader brackets are not used to resist seismic forces.		
C	NC	N/A	U	HR—not required; LS—not required; PR—H. GO-	13.7.11	A.7.16.9
☐	☐	☒	☐	SLOW ELEVATORS: The building has a go-slow elevator system.		

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

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

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

Appendix C: Preliminary Seismic Retrofit Drawings

SWISSHOME-DEADWOOD RFPD STATION #2

SEISMIC RETROFIT

PRELIMINARY DESIGN
15089 OR-36
DEADWOOD, OR 97430



900 Klamath Avenue, Klamath Falls,
Oregon 97601 | 541-884-7421

SWISSHOME-DEADWOOD
RFPD FIRE STATION #2
SIUSLAW HWY,
DEADWOOD, OR 97430

SWISSHOME-
DEADWOOD RFPD
FIRE STATION #2
SEISMIC RETROFIT

REPAIR KEYNOTES

STRUCTURAL REPAIRS:

- S1. PROVIDE DIAPHRAGM ATTACHMENTS IN-PLANE SHEAR NAILING AND HARDWARE.
- S2. A. PROVIDE MITIGATION IN THE FORM OF A RETAINING WALL. SHORE EXISTING STRUCTURE AS REQUIRED FOR DEMOLITION AND REBUILD SOUTH FOUNDATION WITH A RETAINING WALL EXTENDING BELOW THE SLOPE FAILURE. B. REBUILD SOUTH WALL USING CONVENTIONAL 2x BALLOON FRAMING TECHNIQUES. C. REBUILD ROOF FRAMING AS REQUIRED TO REBUILD SOUTH WALL.
- S3. INSTALL NEW PLYWOOD SHEAR WALLS TO ENSURE ADEQUATE SHEAR CAPACITY.
- S4. INSTALL NEW PLYWOOD SHEAR WALLS WITH APPROPRIATE ASPECT RATIO BY PROVIDING NEW RAISED CONCRETE STEMWALL.
- S5. INSTALL NEW HOLD DOWN HARDWARE.
- S6. INSTALL NEW PLYWOOD SHEAR WALLS WITH APPROPRIATE ASPECT RATIO BY PROVIDING NEW RAISED CONCRETE STEMWALL.
- S7. INSTALL BLOCKING AND STRAPPING AT DISCONTINUOUS CHORDS.
- S8. INSTALL NEW BLOCKED PLYWOOD DIAPHRAGM.
- S9. PROVIDE NEW ANCHOR BOLTS FROM WOOD SILLS TO THE FOUNDATION.

NON-STRUCTURAL REPAIRS:

- N1. REMOVE AND REPLACE WITH DOORS DETAILED TO OPERATE AT A STORY DRIFT RATIO OF 0.01.
- N2. PROVIDE LATERAL BRACING OF SUSPENDED EQUIPMENT.

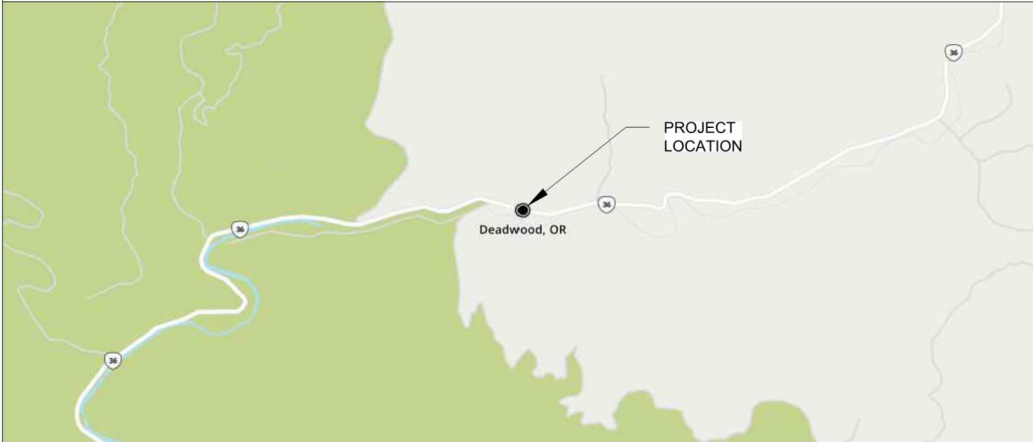
SHEET INDEX

- G0.0 COVER SHEET
- S1.1 FOUNDATION PLAN
- S1.2 ROOF FRAMING PLAN

BUILDING KEY PLAN



VICINITY MAP



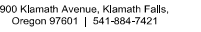
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DRAWN: BJS
CHECKED: MRS
DATE: DEC. 2024

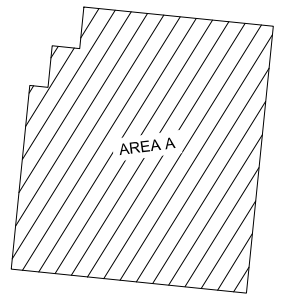
COVER SHEET

G0.0

PRELIMINARY DESIGN

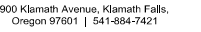


**SWISSHOME-
DEADWOOD RFPD
FIRE STATION #2
SEISMIC RETROFIT**

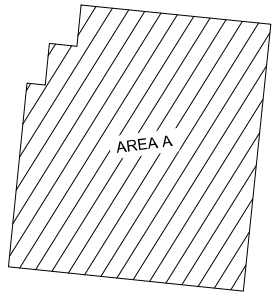
FOUDATION PLAN

S1.1

PRELIMINARY DESIGN



**SWISSHOME-
DEADWOOD RFPD
FIRE STATION #2
SEISMIC RETROFIT**



ROOF FRAMING PLAN

PRELIMINARY DESIGN

Appendix D: Geotechnical Information

USGS web services were down for some period of time and as a result this tool wasn't operational, resulting in *timeout* error.
USGS web services are now operational so this tool should work as expected.



Latitude, Longitude: 44.097207415267015, -123.7331087545424



Date	9/26/2024, 12:15:50 PM
Design Code Reference Document	ASCE41-17
Custom Probability	
Site Class	D - Default (See Section 11.4.3)

Type	Description	Value
Hazard Level		BSE-2N
S _S	spectral response (0.2 s)	1.102
S ₁	spectral response (1.0 s)	0.593
S _{XS}	site-modified spectral response (0.2 s)	1.322
S _{X1}	site-modified spectral response (1.0 s)	1.012
F _a	site amplification factor (0.2 s)	1.2
F _v	site amplification factor (1.0 s)	1.707
ssuh	max direction uniform hazard (0.2 s)	1.265
crs	coefficient of risk (0.2 s)	0.871
ssrt	risk-targeted hazard (0.2 s)	1.102
ssd	deterministic hazard (0.2 s)	1.815
s1uh	max direction uniform hazard (1.0 s)	0.694
cr1	coefficient of risk (1.0 s)	0.855
s1rt	risk-targeted hazard (1.0 s)	0.593
s1d	deterministic hazard (1.0 s)	0.949

Type	Description	Value
Hazard Level		BSE-1N
S _{XS}	site-modified spectral response (0.2 s)	0.881
S _{X1}	site-modified spectral response (1.0 s)	0.675

Type	Description	Value
Hazard Level		BSE-2E
S_S	spectral response (0.2 s)	0.74
S_1	spectral response (1.0 s)	0.399
S_{XS}	site-modified spectral response (0.2 s)	0.894
S_{X1}	site-modified spectral response (1.0 s)	0.758
f_a	site amplification factor (0.2 s)	1.208
f_v	site amplification factor (1.0 s)	1.901

Type	Description	Value
Hazard Level		BSE-1E
S_S	spectral response (0.2 s)	0.155
S_1	spectral response (1.0 s)	0.067
S_{XS}	site-modified spectral response (0.2 s)	0.248
S_{X1}	site-modified spectral response (1.0 s)	0.16
F_a	site amplification factor (0.2 s)	1.6
F_v	site amplification factor (1.0 s)	2.4

Type	Description	Value
Hazard Level		TL Data
T-Sub-L	Long-period transition period in seconds	16

DISCLAIMER

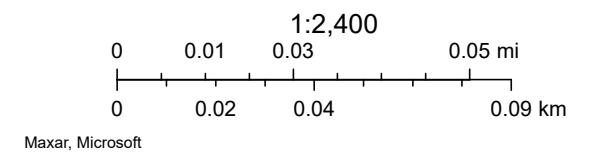
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Swisshome - Deadwood RFPD - Active Faults Hazard Map



September 24, 2024

— Active_Faults



Swisshome - Deadwood RFPD - Landslide Hazard Map

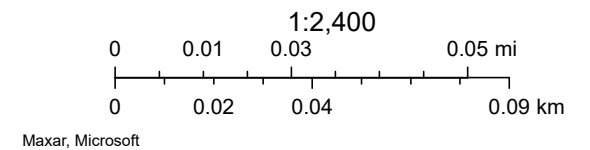


September 24, 2024

Statewide Landslide Susceptibility Overview Map

Low
Moderate

High
Very High



Swisshome - Deadwood RFPD - Liquefaction Hazard Map



September 24, 2024

Liquefaction_Susceptibility_Map

None

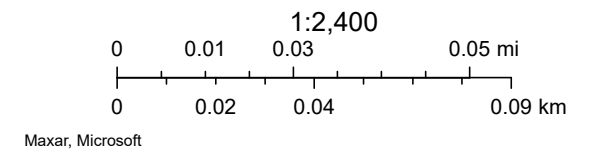
Very Low

Low

Moderate

High

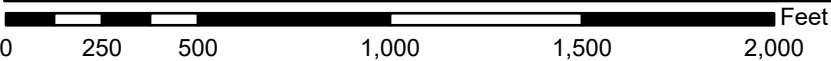
Very High



National Flood Hazard Layer FIRMMette



123°44'20"W 44°6'N



1:6,000

123°43'42"W 44°5'35"N

Basemap Imagery Source: USGS National Map 2023

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
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



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 9/26/2024 at 3:36 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.



Federal Emergency Management Agency

Washington, D.C. 20472

July 01, 2024

MR. DAVID HALLOCK
NORTHSTAR SURVEYING
720 NW 4TH STREET
CORVALLIS, OR 97330

CASE NO.: 24-10-0527A
COMMUNITY: LANE COUNTY, OREGON
(UNINCORPORATED AREAS)
COMMUNITY NO.: 415591

DEAR MR. HALLOCK:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Letter of Map Amendment (LOMA) Determination Document. This determination document provides additional information regarding the effective NFIP map, the legal description of the property and our determination.

Additional documents are enclosed which provide information regarding the subject property and LOMAs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Sincerely,

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

LIST OF ENCLOSURES:

LOMA DETERMINATION DOCUMENT (REMOVAL)

cc: State/Commonwealth NFIP Coordinator
Community Map Repository
Region



Federal Emergency Management Agency

Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy.* The lender may determine, on its own as a business decision, that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

When a restudy is undertaken, or when a sufficient number of revisions or amendments occur on particular map panels, FEMA initiates the printing and distribution process for the affected panels. FEMA notifies community officials in writing when affected map panels are being physically revised and distributed. In such cases, FEMA attempts to reflect the results of the LOMA on the new map panel. If the results of particular LOMAs cannot be reflected on the new map panel because of scale limitations, FEMA notifies the community in writing and revalidates the LOMAs in that letter. LOMAs revalidated in this way usually will become effective 1 day after the effective date of the revised map.



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT

DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	LANE COUNTY, OREGON (Unincorporated Areas)	A portion of Section 14, Township 17 South, Range 9 West, as described in the Warranty Deed recorded as Document No. 52206, in the Office of the County Clerk, Lane County, Oregon
	COMMUNITY NO.: 415591	
AFFECTED MAP PANEL	NUMBER: 41039C1025F	
	DATE: 6/2/1999	
FLOODING SOURCE: LAKE CREEK		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 44.096541, -123.733802 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	15089 Highway 36	Structure	X (unshaded)	--	278.1 feet	--

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

PORTIONS REMAIN IN THE SFHA
ZONE A
STATE LOCAL CONSIDERATIONS

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.



Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency
Washington, D.C. 20472

**LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)**
ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

ZONE A (This Additional Consideration applies to the preceding 1 Property.)

The National Flood Insurance Program map affecting this property depicts a Special Flood Hazard Area that was determined using the best flood hazard data available to FEMA, but without performing a detailed engineering analysis. The flood elevation used to make this determination is based on approximate methods and has not been formalized through the standard process for establishing base flood elevations published in the Flood Insurance Study. This flood elevation is subject to change.

STATE AND LOCAL CONSIDERATIONS (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Mapping and Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Appendix E: Construction Cost Estimate Worksheets

ENGINEER'S OPINION OF PROBABLE COST - 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%	%		\$ 64,777.00
Preconstruction Services		2%	%		\$ 12,955.40
Escalation		7%	%		\$ 50,785.17
Bonding & Insurance		3%	%		\$ 21,765.07
Contractor Profit & Overhead		5%	%		\$ 36,275.12
				General Conditions Subtotal	\$ 186,557.76
Non-Structural Elements					
Misc MEP	N1-N2	1	Lump Sum	\$ 41,800.00	\$ 41,800.00
Misc Non-Structural	N1	1	Lump Sum	\$ 16,700.00	\$ 16,700.00
New Apparatus Bay Doors	N2	3	Lump Sum	\$ 10,000.00	\$ 30,000.00
				Non-Structural Subtotal	\$ 88,500.00
Construction Cost Per Building Part					
			BUILDING PART A: Fire Station Sub-Total	\$	559,270.00
Sub-Total Construction Cost				\$	834,300.00
Contingency				20%	\$ 166,860.00
Total Construction Cost				\$	1,001,160.00
Cost Estimate Summary					
Engineering					\$ 170,100.00
Architectural Consulting				\$ 30,000.00	
Structural / Rehabilitation Engineering				\$ 100,100.00	
Geotechnical Consulting				\$ 25,000.00	
Materials Testing for Design				\$ 10,000.00	
Feasibility Study Reimb. (Fire Stations)				\$ 5,000.00	
Construction Management					\$ 20,000.00
Construction					\$ 874,300.00
Sub-Total Construction Cost				\$ 834,300.00	
Special Inspection Services for Construction				\$ 10,000.00	
Permitting Fees				\$ 30,000.00	
Relocation of FF&E					\$ 12,500.00
Contingency					\$ 166,860.00
Total Project Funding Requirement				\$	1,243,760.00

ENGINEER'S OPINION OF PROBABLE COST - SEISMIC REHABILITATION					
BUILDING PART A: Fire Station					
Description	Deficiencies (Ref. Seismic Evaluation Report Sec. 6.0)	Quantity	Units	Unit Price	Total Price for Construction Item
Demolition & Asbestos Abatement					
Soft Demolition	S1-S9	2970	Square Foot	\$ 4.00	\$ 11,880.00
Hard Demolition	S2	1750	Square Foot	\$ 30.00	\$ 52,500.00
Wall Structure Demolition	S2	300	Square Foot	\$ 10.00	\$ 3,000.00
Roof Structure Demolition	S2	420	Square Foot	\$ 10.00	\$ 4,200.00
Excavation	S2	1000	Square Foot	\$ 15.00	\$ 15,000.00
Temporary Shoring	S2	1	EA	\$ 15,000.00	\$ 15,000.00
TPO / Comp / Metal Roof Demo	S1, S8	3000	Square Foot	\$ 5.00	\$ 15,000.00
Demolition & Asbestos Subtotal					\$ 116,580.00
Foundation / Floor Strengthening Construction					
Retaining Wall Footings - Concrete	S2	70	Linear Foot	\$ 900.00	\$ 63,000.00
Bolting of Extg Walls to footings	S9	400	Linear Foot	\$ 40.00	\$ 16,000.00
Concrete Repair & Patching	S2	1000	Square Foot	\$ 20.00	\$ 20,000.00
Floor Finish Patch / Replacement	S2	1000	Square Foot	\$ 10.00	\$ 10,000.00
Holdowns	S5	14	Each	\$ 1,700.00	\$ 23,800.00
Concrete Apron Repair & Patching	S2	750	Square Foot	\$ 15.00	\$ 11,250.00
Retaining Wall	S2	700	Square Foot	\$ 75.00	\$ 52,500.00
Shear Wall Footings - Wood Walls	S2	25	Linear Foot	\$ 350.00	\$ 8,750.00
Foundation Level Subtotal					\$ 205,300.00
Wall Strengthening Construction					
New 2x Framed Shear Walls	S2	900	Square Foot	\$ 20.00	\$ 18,000.00
Sheathing of Existing Walls	S3, S4, S6	900	Square Foot	\$ 10.00	\$ 9,000.00
Interior Wall Finish Repair	S3, S4, S6, S9	1600	Square Foot	\$ 25.00	\$ 40,000.00
Exterior Finish Repair / Installation	S3, S4, S6	600	Square Foot	\$ 30.00	\$ 18,000.00
Painting	S1-S9	3000	Square Foot	\$ 4.00	\$ 12,000.00
Wall Strengthening Subtotal					\$ 97,000.00
Roof Strengthening Construction					
Block (E) Wood Diaphragm	S8	2580	Square Foot	\$ 8.00	\$ 20,640.00
Blocking and Strapping Line	S1B, S7	50	Linear Foot	\$ 60.00	\$ 3,000.00
New Lighting	S8	2070	Square Foot	\$ 4.00	\$ 8,280.00
Diaphragm Attachments - In-Plane Shear	S1A	410	Linear Foot	\$ 20.00	\$ 8,200.00
Ceiling Repair	S8	2070	Square Foot	\$ 3.00	\$ 6,210.00
New Batt Insulation in Attic	S8	1300	Square Foot	\$ 5.00	\$ 6,500.00
New 6" polyisocurinate rigid insulation	S1, S8	1700	Square Foot	\$ 15.00	\$ 25,500.00
New Composite Roof Shingles	S8	1300	Square Foot	\$ 10.00	\$ 13,000.00
New Roof Sheathing	S2	420	Square Foot	\$ 8.00	\$ 3,360.00
New 3-ply Built Up Roof	S1, S8	1700	Square Foot	\$ 17.00	\$ 28,900.00
New Roof Structure Framing - Wood Framing	S2	420	Square Foot	\$ 40.00	\$ 16,800.00
Roof Strengthening Subtotal					\$ 140,390.00
Building Part 'A' - Total Construction Cost					\$ 559,270.00

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: Suslaw Hwy, Deadwood, OR Zip: 97430

Other Identifiers: _____

Building Name: Swisshome-Deadwood RFPD Station 2

Use: Fire Station

Latitude: 44.09662473148642 Longitude: -123.7335770750571

Ss: 1.102 S₁: 0.593

Screener(s): ORE Date/Time: 09/25/2024

No. Stories: Above Grade: 1 Below Grade: 0 Year Built: 1959 ☐ EST

Total Floor Area (sq. ft.): 1,800 Code Year: _____

Additions: ☐ None ☒ Yes, Year(s) Built: 1982

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

Soil Type: ☐ A ☐ B ☐ C ☒ D ☐ E ☐ F ☐ DNK
Hard Avg Dense Stiff Soft Poor DNK
Rock Rock Soil Soil Soil Soil
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) _____
☒ Plan (type) Reentrant Corner

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	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
W2																		
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, $S_{L1} \geq S_{MIN}$: 1.0 FEMA P-154 Collapse Potential High (>10%)

EXTENT OF REVIEW

Exterior: ☐ Partial ☒ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ☒ Entered
Drawings Reviewed: ☒ Yes ☐ No
Soil Type Source: _____ Assumed
Geologic Hazards Source: _____ DOGAMI
Contact Person: _____

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

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ☒ No

Nonstructural hazards? ☒ Yes ☐ No

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