REQUEST FOR QUALIFICATIONS
ENGINEERING/ARCHITECTURAL SERVICES

ESTACADA SCHOOL DISTRICT
ESTACADA HIGH SCHOOL COMMONS
SEISMIC REHABILITATION

ESTACADA
SCHOOLS
INSPIRE | ENGAGE | ACHIEVE

Issue Date: Friday, May 30th, 2025

RFQ Closing Date: Friday, June, 24th, 2025 5:00pm

NO LATE RESPONSES WILL BE ACCEPTED

SUBMITTAL LOCATION

Electronic submittals only. Submit via email to:
tanner.simmons@estacada.k12.or.us

REQUEST FOR QUALIFICATIONS

Estacada School District (the "District") is conducting selection procedure for an engineering/architectural firm to design and oversee the seismic retrofit of Estacada High School Commons. The District plans to award a contract to the highest ranked proposer selected from those submitting proposals. The anticipated contract or contracts will include: all design work; site analysis; assistance with contractor solicitation and award process; construction oversight; and procurement of all necessary government permits.

The full Request for Qualifications may be obtained from:

Tanner Simmons
Senior Accountant
Estacada School District
255 NE 6th Ave,
Estacada, OR 97023
(503) 630-6871ext. 2902
Tanner.Simmons@estacada.k12.or.us

Electronic proposals will be received by the District until closing at 5 p.m., June 6th, 2025. Responses received after this time will be rejected as non-responsive. Electronic versions shall be emailed to Tanner.Simmons@estacada.k12.or.us. Faxed proposals and hardcopy proposals will be rejected as non-responsive.

Section I - Request for Qualifications

Estacada School District (the “District”) intends to select an engineer/architect for the Seismic Rehabilitation of the Estacada High School Commons (“Project”), as described in Section II, Project Description, from among proposers who respond to this Request for Qualifications (RFQ). The District intends to enter into a contract with the selected Proposer after negotiating a maximum not to exceed dollar amount. The contract amount will be based upon all design work rendered, through selection of a construction contractor, procurement of government permits, construction oversight and project closeout.

No drawings are required for this proposal. Proposal clarifications or additional information requested by the District must be provided by Proposer within 24 hours of request, excluding weekends and holidays.

Section II - Project Description

The project includes Seismic Rehabilitation and other potential non-seismic related facility upgrades of the Estacada School District (the “District”) Estacada High School Commons (the “Project”), located at 355 NE 6th st, Estacada OR 97023. In May 2025, the District received a Seismic Rehabilitation Grant Program (“SRGP”) award for the Project from the Infrastructure Finance Authority: Business Oregon, based on the application prepared by WRK Engineers, Inc. The intent of this RFQ is for the consultant to use the Grant Application as a basis for providing integrated seismic strengthening solutions for each building while adhering to the SRGP requirements. As part of this grant, Seismic Evaluation Reports were prepared (provided as Exhibit A). The District was awarded $2,499,992 for the design and construction of Estacada High School Commons.

It is anticipated that the selected Engineering/Architectural firm will provide comprehensive design and construction administration services throughout the lifespan of the Project. The Scope of Services listed herein is provided to establish a general understanding of the project requirements. The actual scope of services will be finalized during fee/contract negotiations.

The selected consultant will work with the District to determine the sequence of construction as well as any phasing requirements that will be needed to keep the Estacada High School Commons in (modified) operation during construction activities.

The District intends to use 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 the Fall of 2025 with Project completion required by the end of September 2026. The buildings may not be vacated during the construction period.

Scope of Work

The Project scope of work will include the following:

- Use the SRGP application as the basis for developing the final engineering design solution to meet the SRGP requirements while not exceeding the maximum grant funding level. The District has not yet determined if it has available funds to contribute to the project.

- Develop all construction documents required for a CM/GC construction delivery method. Proposer will assist the District in the selection process for a CM/GC firm. The selection process may include the preparation and administration of the "Facts and Finding Report" and the "RFQ" for the proposed alternative contracting method as outlined in OAR 137-049-0600.

- Assist the District with the entitlement of the project through the Authorities Having Jurisdiction and the State Historical Preservation Office (SHPO).

- Provide all construction administration services necessary for the implementation of the project. These include, but are not limited to:
  - Review of contractor's submittals, shop drawings, and material samples.
  - Responding to contractor's requests for clarification.
  - Reviewing and processing change orders.
  - Oversight and inspection of construction and repair work.
  - Weekly site visits and attendance at occasional meetings, unless otherwise directed by District.
  - Ensure smooth construction transitions to facilitate ongoing operations.
  - Monitor budget and maintain costs within grant parameters.

- Assist District Staff with SRGP reporting requirements as required.

- Conduct project closeout procedures as required by SRGP.

- Incorporate non-seismic rehabilitation building remodeling work as directed by Cascade School District.

Section III - Anticipated Contract Performance Schedule

Advertise and Issue RFQ	May 30th, 2025	
Question Submittal Deadline	June 12th, 2025	at 5:00 PM
Deadline for Submittal of RFQ Protest	June 12th, 2025	at 5:00 PM
Response to Questions Issued	June 19th, 2025	at 5:00 PM
Deadline for Submittal of Proposals	June 24th, 2025	at 5:00 PM
Interviews (Optional)	June 25th, 2025	
Notice of Intent to Award	June 26th, 2025	

Section IV - Change or Modification

Any change or modification to the specifications or the procurement process will be in the form of an addendum to the RFQ and will be made available to all firms via posting on the Estacada School District website www.estacadaschools.org. No information received in any manner different than as described herein will serve to change the RFQ 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 RFQ and/or addendum.

Section V - Submittal Information

Electronic version of proposal is to be received by the District no later than **5 p.m. on Wednesday June 24th, 2025**. Faxed proposals and hardcopy proposals will be rejected as non-responsive. Any late proposals cannot be considered and will not be reviewed. Send proposals to the below. A confirmation receipt email will be sent to the originating email only:

Tanner Simmons,
Senior Accountant
Estacada School District
Tanner.simmons@estacada.k12.or.us

Section VI - Instructions to Proposers

The District may modify this RFQ via addenda before the proposal due date by email. Receipt of all addenda must be acknowledged in submitted proposals.

Proposers responding to this RFQ do so solely at their own expense. The District is not responsible for any proposer's expenses associated with responding to this RFQ.

Proposers are directed to the protest procedures as set forth in the OAR Rule 137-048-0240.

Each proposal must include the information set forth in Section VIII, Proposal Requirements, and address the criteria by which the proposals will be evaluated and ranked, set forth in Section VIIII, Proposal Evaluation.

All proposals submitted are the property of the District, thus subject to disclosure pursuant to the public records law, as qualified by ORS 279C.107. Accordingly, proposals received and opened shall not be available for public inspection until after the District has awarded and executed the attached Contract. Thereafter, except for information marked "Proprietary," all documents received by Agency shall be available for public disclosure. Agency will attempt to maintain the confidentiality of materials marked "Proprietary" to the extent permitted under the Oregon Public Records law.

Your response must be contained in a document not to exceed twenty (20) 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 20-page limit and should be appended to the end of your response. No supplemental information to the 20-page Proposal will be allowed. Transmittal letter, table of contents, front and back covers, and blank section/numerical dividers, etc., will not be counted in the 20-page limit.

Information shall be presented in the same order as the Evaluation Criteria listed in Section VIII. The basic text information of the response should be presented in standard business font size (minimum 10-point), and reasonable margins. Your response must be signed by an officer of your firm with the authority to commit the firm.

Section VII - 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, and phone number.
- The name of the contact person within the firm and his/her email address.
- Brief resumes of key staff the firm proposes to provide services on this project, along with relevant projects each of these persons has worked on in the past three years. Resumes of sub-consultants are not required.
- The name and registration number of the Oregon Professional Structural Engineer who will serve as the Engineer-of-Record.
- Illustrations or photographs of at least two (2) relevant projects completed by the firm involving the above named individuals including a one paragraph summary of the projects with their date of completion.

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.

Section VIII - Proposal Evaluation

A. Evaluation Criteria

Please indicate in writing the following information about your firm's ability and desire to perform this work. The Proposers shall provide the following information in the order listed below. Each scoring criteria will be scored by the number of points listed next to the information; the points listed are the maximum amount that can be given during evaluation.

- Describe your firm's history, service area, length of time in the industry, and availability to the project location. (5)
- Describe your firm's past seven (7) years' experience designing renovations of education facilities, working within a campus, and implementing the campus's design

criteria. Use specific examples. Include information about the size, construction type, building uses, construction budget, construction delivery method, and project timeline/completion date. (25)

- Describe what special services, systems, or qualifications your firm has that would benefit the District in carrying out this project. Provide examples of lessons learned and examples of how your firm has worked with Owners and Contractors to minimize surprises during seismic rehabilitation projects. Describe how your firm ensures quality control throughout the design and construction process. The Proposal shall also explain the proposed schedule for the project. (15)
- Describe your firm's experience assisting owners in a consult services role relative to project management. Preference is given if the experience is with public/private educational facilities. (15)
- Describe your firm's experience with the CM/GC procurement method including your experience working with CM/GC to perform value engineering on a project. (20)
- Provide a description of your firm's relevant employees and an estimate of the percentage of type each would deliver in in each phase of the design process (Pre-Design/ Schematic Design, Design Development Construction Documents Construction Administration. Include each person's background, licensure, etc. (10)
- Provide a description of how you would facilitate effective communication between your firm, the Contractor and the District. (10)

B. Evaluation Process

Proposals will be initially screened pursuant to the following minimum qualifications:

1. Proposer is an Engineer/Architect licensed to work in the State of Oregon.
2. Proposer's ability to provide the engineering and architectural work needed by the District on or before the anticipated Project schedule set in Section II to the standards required by the City, County, and State.

Once the initial screening process is completed, the remaining proposals will be evaluated under the criteria and weights accorded in Section VIII. If the District deems it desirable, the District may elect to interview one or more of the top candidates.

The District is using a qualifications-based selection (QBS) process as mandated for contracts anticipated to exceed $100,000 by Oregon's Public Contracting Code (ORS 279C.110) and OAR 137-048-0220. If the District does not cancel the RFQ, only after selecting the most qualified candidate, will the District and the selected candidate enter into contract negotiations for the price of the services. The District shall direct negotiations toward obtaining written agreement on the engineer/architect's performance obligations, a payment methodology that is fair and reasonable to the District, and any other provisions the District believes to be in the District's best interest to negotiate.

If the District and the selected candidate are unable for any reason to negotiate a contract at a compensation level that is reasonable and fair to the District, the District shall, either orally or in writing, formally terminate negotiations with the selected candidate. The District may then negotiate with the next most qualified candidate. The negotiation process may continue in this manner through successive candidates until an agreement is reached or the District terminates the RFQ.

Section IX - Execution of Contract

The District intends to select the highest scoring responsive responsible Proposer. After the Selection Committee scores and ranks the Proposals, the Selection Committee will make a written recommendation on awardee selection to the Board. The Board will make the final decision on selection of the most suitable candidate for District's Project. All Proposers will be notified of the Board's decision.

If the District and a selected candidate are unable for any reason to negotiate a contract at a compensation level that is reasonable and fair to the District, the District shall, either orally or in writing, formally terminate negotiations with that selected candidate. The District may then negotiate with the next most qualified candidate. The negotiation process may continue in this manner through the identified top three candidates until an agreement is reached or the District terminates the RFQ.

Section X - Miscellaneous

The District reserves the right to: 1) Seek clarifications of each proposal; 2) Negotiate a final contract that is in the best interests of the District and the public; 3) Reject any or all proposals or cancel this RFQ at any time if doing either would be in the public interest, as determined by the District in its sole discretion; 4) Award the contract to any proposer based on the evaluation criteria set forth in this RFQ; 5) Waive minor informalities contained in any proposal, when, in the District's sole judgment, it is in the District's best interest to do so; and 6) Request any additional information the District deems reasonably necessary to allow the District to evaluate, rank and select the most qualified proposer to perform the services described in this RFQ.

The services and responsibilities set forth in this RFQ, together with any other documents required herein, shall be included in the contract executed by the successful proposer.

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.

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.

Section XI - Contact Information

Direct all inquiries regarding the Project and this RFQ to:

Tanner Simmons
Senior Accountant Estacada School
District 255 NE 6th Ave
Estacada, OR 97023
(503) 630-6871 ext. 2902
Tanner.simmons@estacada.k12.or.us

Section XI - Exhibits

The following appendices are included in this RFQ:

Exhibit A: Seismic Evaluation Report Estacada School District, prepared by WRK Engineers, Inc.

Estacada School District is an Equal Opportunity/ Affirmative Action Employer

Women, Minorities, and Disabled Persons are encouraged to apply.

THIS RFQ IS NOT AN IMPLIED CONTRACT AND MAY BE MODIFIED OR REVOKED WITHOUT NOTICE.

Structural & Seismic Engineers
215 W 12th Street, Suite 202
Vancouver, WA 98660

January 10, 2025

Gloria Zacharias
Infrastructure Finance Authority
775 Summer St. NE, Suite 200
Salem, OR 97301

Subject: **Seismic Rehabilitation Grant Application**
Estacada High School Commons
24032.00

Dear Gloria,

On behalf of the Estacada School District and Executive Director of Operations and Finance Mike Waer, we are submitting the attached Seismic Rehabilitation Grant Application and the Seismic Evaluation Report (Exhibit A). Included in our submittal package are the following items:

- A signed Seismic Rehabilitation Grant Application.
- A flash drive containing a complete application and PDF file of supporting materials.
- Seismic Evaluation Report (Exhibit A), which includes:
    1. Color photos of the existing building (Appendix A);
    2. Conceptual seismic strengthening scheme (Appendix B);
    3. Construction cost estimate breakdown (Appendix C);
    4. Benefit Cost Analysis worksheets (Appendix D);
    5. ASCE 41-17 Tier 1 checklists (Appendix E);
    6. DOGAMI Hazards, Geotechnical Letter, & RVS (Appendix F).

If you have any concerns or questions regarding this information, please contact us.

Very truly yours,

Brian Knight, PE, SE
President
WRK Engineers, Inc.

775 Summer St NE, Suite 310
Salem, OR 97301-1280

Seismic Rehabilitation Grant Application

Updated September 2024

Section A: Applicant

Legal Organization Name
Estacada School District #108

DBA (if Applicable)

Building or Facility Name
Estacada High School Commons

State Tax Number (eg. 11-111111)
00503260-8

Federal Tax Number
93-6000284

Priority:

Address Line 1: 1101 N Broadway St.

Address Line 2:

City: Estacada State: OR

Zip: 97023

If submitting multiple applications, please indicate the priority ranking for this project (1st, 2nd etc)

Type of Applicant:

- ☐ State Government
- ☐ Local Government
- ☑ School District
- ☐ Fire District
- ☐ Community College
- ☐ Private Non-Profit
- ☐ Other

Has applicant's jurisdiction received a voter approved levy for building maintenance or renovation?
☐ Yes ☑ No

Section B: Contacts

Main Contact:
Mike Waer
Name
Executive Director of Operations & Finance
Title
503-630-8606 ext. 2955
Phone
waerm@estacada.k12.or.us
Email

Secondary Contact:
Brian Knight
Name
WRK Engineers President
Title
503-680-0014
Phone
brian@wrkengrs.com
Email

Who will sign the Contract if Awarded:
Mike Waer
Name
Executive Director of Operations & Finance
Title
503-630-8606 ext. 2955
Phone

waerm@estacada.k12.or.us
Email

Address Line 1: 1101 N Broadway St.
(or PO Box)
Address Line 2:

City: State: Estacada, OR

Zip: 97023

Section C: Community Information

Please provide the pertinent information for the community(ies) that will benefit from this mitigation activity.

Community Name	Area Served (sq miles)	Population Served	State Legislative District	US Congressional District
Estacada, OR	2.62	4,356	51	3
Clackamas County	1,883	421,401	51	3

Does community have a FEMA approved natural hazard mitigation plan?

☑ Yes ☐ No

Describe any community-wide mitigation or awareness efforts and other mitigation projects occurring in the community:

The Clackamas County Multi-Jurisdictional Natural Hazard Mitigations Plan was updated in 2024. The NHMP assists county communities in reducing risks from natural hazards by identifying resources, information, and strategies for risk reduction, while helping to guide and coordinate mitigation activities throughout the county.

The full Natural Hazard Mitigations can be found at:
Planhttps://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=aeb0e462543b4fa69aeaf858945e1262

Section D: Property Information	
Building/Facility name:	Estacada High School Commons
Project address:	355 NE 6th Ave. Estacada, OR 97023

Legal description of property:

Map Number: 34E21B
Tax Lot Number: 34E21B 00100
Parcel Number: 00933789
Landclass: 401

Year built:	1962
Date of most recent major remodel:	1980
Is the building over 50 years old?	☑ Yes ☐ No

If Yes: Is this building listed on the National Register of Historic Places, a National Historic Landmark, or considered an eligible, significant building by the State Historic Preservation Office?
Not listed.

Building use:	High School Commons		
Foundation type:	Concrete		
Square feet:	173,000 (Main HS Building)	Number of stories:	1

Type of construction: URM: Unreinforced Masonry Bearing Walls.

Note: Other building types are present at the High School, but these are outside the project scope area.

Current replacement cost of structure:	$172,481,000 (Main HS Building)
Replacement cost of contents stored in the building:	$100,000
Replacement cost of vehicles stored in the building:	$0

Are you planning to use the building as it is currently used for the next 10 years?	☑ Yes ☐ No

If No: Please Explain:

Is the building located in a DOGAMI-mapped hazard area? (liquefaction, tsunami, flood, landslide)	☑ Yes Specify: Liquefaction ☐ No
Number of natural hazard losses:	0

Describe:

DOGAMI Oregon HazVu identifies the site is within a liquefaction hazard area. Please see Section 6 of the Seismic Evaluation Report (Exhibit A) for further discussion.

NOTE: (Projects in a tsunami and/or other geologic zone as defined in Section 2.D.16 of the Application Guidance packet shall follow the requirements provided).

Provide Photos showing the building from all sides (label each photo), provide close up photos of any vertical irregularities, and any connection points for additions attached to the original building. Minimum of 4 photos, maximum of 10.

Photos Attached? ☑ Yes ☐ No

Describe this building's value to the community. Does it have historical value? Is it utilized for uses outside of its primary function (such as a designated Red Cross Shelter)? Why is this building important to the community?

The Estacada High School is highly used by the community for events throughout the year. Some event examples include: youth sporting events, boys and girls scout meetings, faith-based meetings, dance recitals, fund raiser events, community support events (i.e. food/clothing drive), etc.

In addition, the High School Main Gymnasium is a Red Cross shelter and emergency command center for first responders. The building served as a temporary shelter for displaced community members and an incident command center during the 2020 wildfires. The High School Commons is the primary egress route for the Main Gymnasium and could provide much needed additional shelter space and egress to and from the gymnasium. If the High School Commons is not operational after a seismic event, it would greatly reduce the access to the gymnasium.

Section E: RVS Information

Enter the DOGAMI Rapid Visual Screening (RVS) details for the project.
*If the retrofit includes different building parts with different building types, please enter the data for each part.
Details can be found at:
https://www.oregongeology.org/rvs/default.htm
If your building does not have an RVS or has an incorrect RVS then complete these fields after running your Benefit Cost Analysis.

Building Part: (If Applicable*)	Building Part C		
Building Unique ID:	Clac_sch62C		
Seismicity Zone:	Moderately High		
(Please use the RVS 3rd Edition for this information – see map in the Application Guidance packet)			
Soil Type:	C		
RVS Building Type:	URM		
RVS Final Score:	0.1		
Collapse Potential:	High		
Latitude:	45.29577		
Longitude:	-122.3315		

Does the building have a basement?
☐ Yes ☑ No

Does the building have horizontal irregularities per RVS? What is the shape of the building when viewed from above? (e.g. rectangle, L-shaped)

The building in scope is mostly rectangular in shape with re-entrant corners horizontal irregularity.

Does the building have vertical irregularities per RVS? Are there changes in elevation when the building is viewed from the side? If available, identify the vertical irregularity as moderate or severe per RVS.

The building has a moderate vertical irregularity of split levels.

Are there unreinforced chimneys, parapets or heavy cladding?

No.

Section F: Mitigation Activity

Is the preliminary engineering report completed and attached?

☑ Yes ☐ No

What is the ASCE 41 risk category of this project?

☐ Risk Category III ☑ Risk Category IV

Describe any structural or non-structural seismic mitigation measures in progress or previously conducted, including the date. If available, provide the retrofit building's risk category and performance objective

No structural or nonstructural seismic mitigation measures are known to have occurred.

Has the proposed project been previously submitted for a Seismic Rehabilitation Grant? If so, please provide the year(s) of any previous submission(s).

No.

Section G: Scope of Work

What are the main structural and non-structural deficiencies of the building as outlined in your engineering assessment?

See attached Exhibit A.

What are the main structural and non-structural proposed fixes and do they address all known seismic deficiencies? If not, please describe how your proposal is the most cost-effective approach to rehabilitation for your building.

See attached Exhibit A.

Is the project ready to begin? Describe what planning, design, etc. has been completed to date.

Yes. Structural system and nonstructural component deficiencies have been identified based on original drawings and field investigations. The attached retrofit concept drawings illustrate the feasibility and scope of work expected. They can be developed to permit and construction level on short notice. A schedule identifying significant project milestones has been provided to show the feasibility of performing design and construction work within the available time frame.

Project Management Milestones Briefly identify milestones by quarter, with start and end dates, which will be achieved within the 24 month performance period.			
Quarter	Milestone	Start Date	End Date
1	Grant Award Announcement and Contract Signed	5/1/2025	6/30/2025
2	Notice to Proceed, Selection of Design Consultant	7/1/2025	8/31/2025
3	Start Rehabilitation Design	9/15/2025	11/30/2025
4	Continue Rehabilitation Design	12/1/2025	1/31/2026
5	Finalize Rehabilitation Design	2/1/2026	4/30/2026
6	Start Construction	5/1/2026	8/31/2026
7	Finalize Construction	9/1/2026	9/15/2026
8	Finalize As-Built Documentation & Project Closeout	9/16/2026	9/30/2026

Section H: Cost Estimate Summary

Category	Cost Estimate
Engineering	$ 342,479
Construction Management	$ 48,780
Construction	$ 1,744,575
Relocation	$ 25,406
Contingency	$ 338,752
Total Cost Estimate:	$ 2,499,992
Match Funds:	$ 0
Total Amount Requested from SRGP:	$ 2,499,992

Match Sources		
Source	Funding Type	Amount
	Grand Total:	$ 0

NOTE: An engineering cost estimate must be attached to the application (may be included in the engineering report) with enough detail (ideally with quantities and unit costs) to document the credibility of the estimate. If you would like to make any comments on the cost estimate, please enter them below.

See attached Exhibit A.

Section I: Cost Efficiency Information

Is your Benefit Cost Analysis (BCA) completed and attached?

☑ Yes ☐ No

Provide comments regarding the information sources used to obtain the occupancy and budgetary information necessary for the BCA:

The occupancy and budgetary information was provided by the Estacada School District utilizing the most up-to-date building information.

Benefit Cost Analysis Score:	1.348
Average Occupancy:	107.653
Annual Operating Budget:	$17,191,405

Contact who completed your BCA:

Brian Knight

Name

WRK Engineers President

Title

503-680-0014

Phone

brian@wrkengrs.com

Email

Section J: Maintenance Schedule & Costs

Identify entity that will perform any long-term maintenance and provide substantiating documentation that shows that the entity is accepting performance and budget responsibility:

Estacada School District will provide the long-term maintenance and accepts performance and budget responsibility.

Section K: Applicant Signature(s) and Certification

Please **print and sign <u>one</u> copy** to be mailed or hand delivered. Your **<u>digital</u>** copy **does <u>not</u> need to be signed**. Please save this file directly and include it on your CD or USB drive.

I (we) certify (applicant organization) supports the proposed project, has the legal authority to pledge matching funds (if providing match), and has the legal authority to apply for Seismic Rehabilitation Grant funds. I (we) further certify that any matching funds are available or will be available for proposed project. I understand that all State rules for contracting, auditing, and payment will apply to this project. I (we) certify that the information provided on the application materials is accurate.	Mike Waer Digitally signed by Mike Waer Date: 2024.12.06 07:52:41 -08'00' Signature Date Signature Date

Please mail (USPS/FedEx/UPS) or hand deliver 1 hard copy and 1 USB memory stick of application materials to:

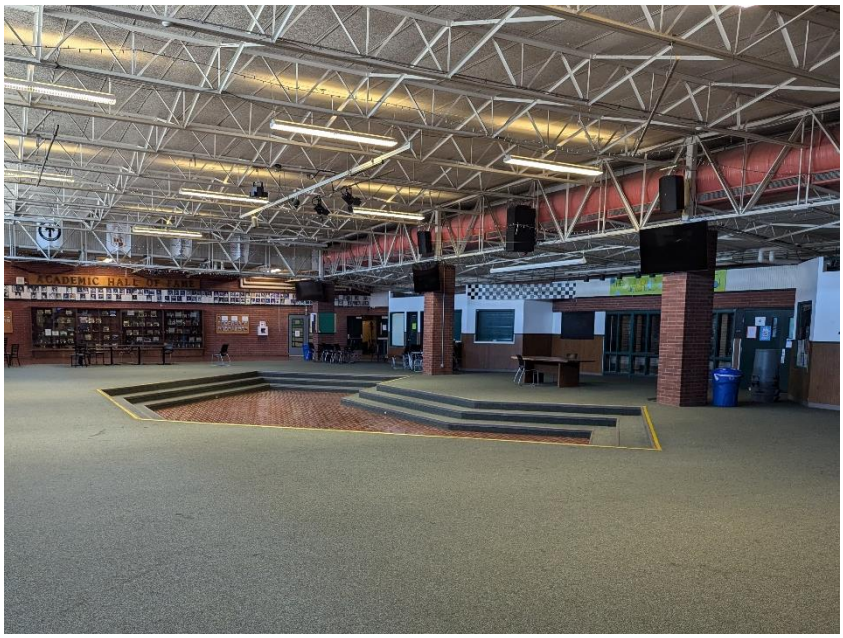
Seismic Rehabilitation Grant
Program Business Oregon
775 Summer St. NE, Suite 310
Salem, Oregon 97301

Faxed grant applications will not be accepted.

Exhibit A

SEISMIC EVALUATION REPORT

SEISMIC EVALUATION REPORT



Seismic Assessment for Estacada High School Commons

355 NE 6th Ave, Estacada, OR 97023

STRUCTURAL
REGISTERED PROFESSIONAL
ENGINEER
64298 PE
OREGON
May 9, 2006
BRIAN T. KNIGHT

EXPIRES: 6/30/2025

January 10, 2025
24032.00

Prepared for:
Estacada School District
Mike Waer
Executive Director of Operations and Finance

Prepared By:
WRK Engineers
Brian Knight PE, SE | Principal
brian@wrkengrs.com | 360.695.9731

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	Main Gym	No	1962			Yes (2023, SC2308)
B	Aux Gym & Lockers	No	1980			
C	Commons	Yes	1962	URM	Yes	No
D	HS Classroom, Cafeteria & Library	No	1962			

***Entries required **ONLY** for building parts included in proposed seismic retrofit. If building part was previously or is currently being retrofitted, please list the building part's Risk Category and retrofit design Performance Objective, if known.

Nonstructural deficiencies posing life safety risk **MUST** be included in the scope of work and budget.

Seismic fragility inputs for existing buildings with previous seismic retrofits **MUST** be adjusted to reflect previous seismic retrofit measures completed for a building part.

Total Retrofit Cost	$2,499,992	
Retrofit Square Feet	15,860 SF	
Retrofit Cost Per Square Feet	$157.63	**Yes or No?**
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 require consultation with DOGAMI prior to application submittal. Applicant shall include such documentation with the application.		**Yes** See Section 6

Engineering Report Checklist		
☒	Engineering Report Cover Page	
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1. Project Background

The goal of this evaluation of the Estacada High School Commons (Commons) is to determine the expected performance during a design basis earthquake. The purpose of our seismic evaluation is to identify the structural and nonstructural deficiencies that exist at the Commons. The evaluation will then be used as the basis for developing a suitable strengthening scheme for the structural system. In addition, the evaluation will assist us in identifying the nonstructural components requiring seismic hardening (i.e. anchorage and/or bracing).

In addition to the High School Main Building that includes the Commons described in this report, there are two (2) classroom buildings on the site. These buildings are outside of the scope of work and are not included in this report.

Our work is based on the following:

1. A review of the construction documents prepared by Shell and Hoyt Architects, dated 1960.

2. A review of available construction documents prepared by Richard L. Gessford & Assoc., dated 1980.

3. A site visit by Spencer Straub, PE, SE, of WRK Engineers on July 9, 2024, to verify the as-built conditions of the building's structural and nonstructural systems.

2. Candidate Qualifications

Upon review of OAR 123-051-0300 regarding eligible applicants for the Seismic Rehabilitation Grant, we have confirmed the Commons is a qualified candidate as it is a public school building routinely used for student activity with a capacity of more than 250 persons, and the building is owned by the Estacada School District.

We believe the Commons is a good candidate for seismic strengthening based on the criteria highlighted in **Table 1**.

TABLE 1 – Candidate Summary	
Criteria	**Response**
Is the building in good condition?	Yes
Is the building a functional part of the community?	Yes
Is the building part of the community's emergency response (RC IV)?	Yes
Is the cost of a rehabilitation low relative to a new building cost?	Yes
Is the building located within a site that has low flood or landslide hazards?	Yes
Is the seismic rehabilitation cost less than the allowable grant maximum?	Yes
Was the original building designed before seismic standards were codified (pre-1974)?	Yes
Is the building in an area of high seismicity?	Yes
Does the building have non-ductile structural systems?	Yes
Does the building have vertical or horizontal irregularities?	Yes

3. Evaluation Criteria and Methodology

For our evaluation of the Commons, we used ASCE Standard 41-17, "Seismic Evaluation and Retrofit of Existing Buildings" published by the American Society of Civil Engineers (ASCE). ASCE 41 is the nationally recognized Standard for seismic assessment and evaluation of existing buildings. The goal of ASCE 41 is to identify the "weak links" in a building's lateral force resisting system that can lead to significant failure and/or collapse. In addition, ASCE 41 will identify typical nonstructural hazards that may pose a life-safety risk to occupants or a business interruption (i.e. operations) risk to the building.

The methodology utilizes a series of checklists that address possible seismic hazards. Checklists are included in the Standard for all the major structural systems, nonstructural elements, and geologic and site hazards. The evaluating engineer addresses each statement and determines whether it is compliant or noncompliant. Compliant statements identify conditions that are acceptable. Noncompliant statements identify conditions that need further investigation. In some cases, the Standard specifies additional calculations that may be performed to address a noncompliant statement. In other cases, a detailed analysis of the building must be performed.

ASCE 41-17 provides Performance Objectives based on a building's Risk Category which are to be used for the evaluation and retrofit of existing buildings. For our evaluation, we have used the Basic Performance Objective for Existing Buildings (BPOE) for Risk Category IV structures. For this performance objective, the building is evaluated to the Life Safety (LS) structural performance level and Hazards Reduced (HR) nonstructural performance level for the BSE-2E seismic hazard and to the Immediate Occupancy (IO) structural performance level and Position Retention (PR) nonstructural performance level for the BSE-1E seismic hazard.

The intent of the IO Structural Performance Level for BSE-1E is:

> *After a design earthquake, the basic vertical and lateral force resisting systems retain nearly all of their pre-earthquake strength, and very limited damage to both structural and nonstructural components is anticipated during the design earthquake which require some minor repairs, but the critical parts of the building are habitable.*

The intent of the LS Structural Performance Level for BSE-2E is:

> *After the earthquake, the structure has damaged components but there is some margin against either partial or total structural collapse that remains. The damaged structure is not an imminent collapse risk although some structural elements are severely damaged. The building will retain at least some of its strength against collapse and should prevent loss of human life. However, there may be injuries and the building could potentially be damaged beyond the point of economical repair.*

The intent of the PR Nonstructural Performance Level for BSE-1E is:

> *After a design earthquake, the nonstructural components might be damaged to the extent that they cannot immediately function but are secured in place so that damages caused by falling, toppling, or breaking of utility connection is avoided. Building access and Life Safety Systems, including doors, stairways, elevators, emergency lighting, fire alarms, and fire suppression systems, generally remain available and operable, provided that power and utility services are available.*

The intent of the HR Nonstructural Performance Level for BSE-2E is:

> *After a design earthquake, the nonstructural components are damaged and could potentially create falling hazards, but high hazard nonstructural components as defined in Chapter 13 of ASCE 7-16, are secured to prevent falling into areas of public assembly or those falling hazards from those components could pose a risk to life safety for many people. Preservation of Egress, protection of fire suppression systems, and similar life safety issues are not addressed.*

In other words, the IO Structural Performance Level and PR Nonstructural Performance Level are meant to ensure that a building will continue to remain in operation immediately following a major earthquake. The LS Structural Peformance Level and HR Nonstructural Peformance Level permit structural damage but ensure the structural integrity of a building after a major earthquake and that occupants are able to evacuate safely. **Figure 1** graphically shows the performance objectives for a BSE-1E seismic event in red, and a BSE-2E seismic event in blue.

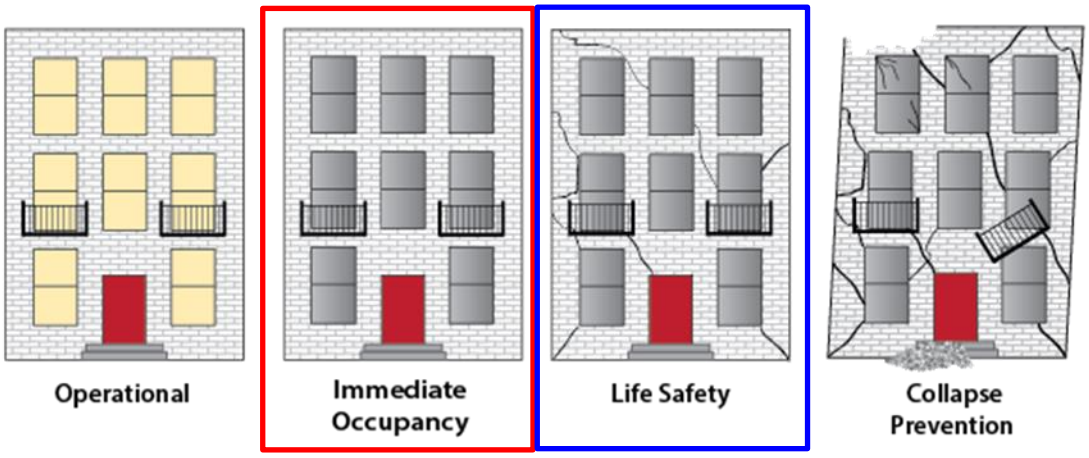


Figure 1: Structural Performance Level

4. Building Description

The High School Commons is approximately 15,860 square feet and is comprised of a large gathering area with entry vestibules, admin offices, and classroom space. The High School Commons is part of the main High School Building and is bounded by the cafeteria to the west, the gym to the east, and an administration area to the north. There is a canopy attached to the south side of the Commons at each entry vestibule. The Commons is mostly rectangular in shape with a total footprint of approximately 110 feet by 127 feet. For visual reference, please see **Figure 2** for the Building Part Map, and **Appendix A** for photos of the building.

The structural system of the Commons can be broken into three parts: the gathering area, the entry vestibules, and the classroom space. The lateral system of the gathering area consists of steel strap roof diaphragm over tectum panels. The diaphragm spans between unreinforced masonry shear walls. The diaphragms are considered flexible relative to the walls that support them. The gravity system of the gathering area consists of tectum roof panels which are supported by open web steel joists. The steel joists span to unreinforced masonry walls or interior steel columns.

The gravity and lateral system of the entry vestibules consists of a steel deck diaphragm which spans between unreinforced masonry walls. The diaphragms are considered flexible relative to the walls that brace them.

The lateral system of the classroom area consists of steel deck and plywood diaphragms. There is a step in the roof diaphragm between classrooms that separates the steel deck from the plywood diaphragm. The steel deck in the classroom area spans between unreinforced masonry walls. The plywood diaphragm spans to wood walls to the south, a glazing system to the east and west, and unreinforced masonry walls to the north. Both diaphragms are considered flexible relative to the walls that support it. The gravity system

of the steel deck portion consists of light gauge joists spanning to unreinforced masonry walls. The gravity system of the wood portion of the classrooms consists of plywood sheathing which is supported by 2x roof joists spanning to the exterior wood walls.

Gravity and lateral loads for all parts of the High School Commons are transferred to the soil via traditional shallow concrete footings. After reviewing the drawings and as-built condition, the lateral force resisting system and the ASCE 41 building type are classified as **URM: Unreinforced Masonry Bearing Walls with Flexible Diaphragms.** In accordance with ASCE 41-17, Section A.3.2.4.2, CMU walls lacking minimum reinforcing shall be considered as URM, which is the case for this building.

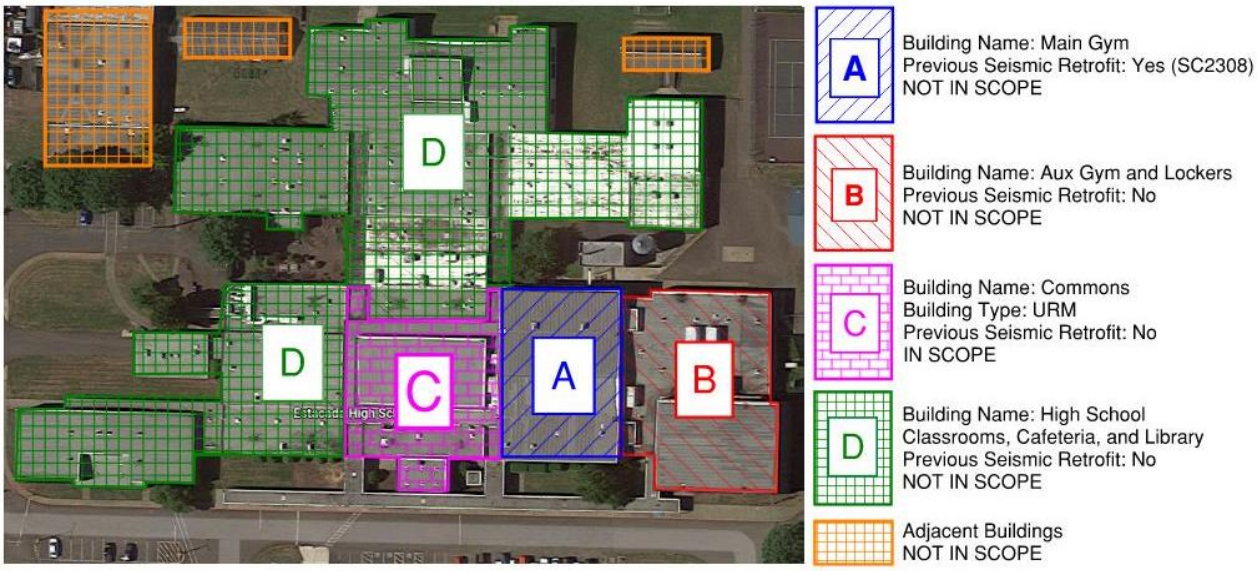


Figure 2: Building Part Map

5. Existing Material Test Results

An onsite investigation was performed solely to verify the as-built conditions. No materials testing was performed as part of our evaluation.

6. Site Specific Seismicity and Geologic Hazards

Using the data collected by the United States Geologic Survey, **Table 2** summarizes the site specific seismicity for the location of the Commons. The soil classification for the site is Class C, as provided by the BCA Tool/DOGAMI.

TABLE 2 - Site Specific Seismicity	
Soil Density	Very Dense Soil & Soft Rock
ASCE 7-16 Soil Classification	Class C
BSE-2N Event: Short Period Spectral Acceleration (S_S)	0.687
BSE-2N Event: Long Period Spectral Acceleration (S_1)	0314
BSE-2N Event: Soil Condition Amplification Factors (F_V / F_A)	1.5 / 1.225
BSE-1E Event: Short Period Spectral Acceleration (S_{xs})	0.267
BSE-1E Event: Long Period Spectral Acceleration (S_{x1})	0.114
BSE-2E Event: Short Period Spectral Acceleration (S_{xs})	0.652
BSE-2E Event: Long Period Spectral Acceleration (S_{x1})	0.334
FEMA 154 RVS Seismicity Zone	Moderately High
ASCE 41-17 Level of Seismicity	High

Using the ASCE 41-17 checklists, the geologic hazards that were assessed as part of this engineering evaluation include liquefaction, landslide, flood potential, and tsunami inundation, if applicable. Using the DOGAMI Oregon HazVu website, these potential hazards were evaluated. The result from each hazard HazVu evaluation is included in **Appendix F**.

The building is located within a liquefaction hazard area as identified by the DOGAMI Oregon HazVu. To ensure that an acceptable level of due diligence was performed during the application phase of the project, a geotechnical engineer was consulted and made recommendations based on available information with respect to severity. Per the geotechnical letter, attached in **Appendix F**, liquefaction is considered a very low risk for the site and no mitigation is required.

7. Building Deficiencies & Recommended Strengthening Measures

Using the procedures of ASCE 41, we have identified several deficiencies in the lateral force resisting system. The ASCE 41 Tier 1 checklists used to identify the structural and nonstructural deficiencies are attached as **Appendix E**. Based on the identified deficiencies and building condition, we have developed a conceptual strengthening scheme (see **Appendix B**) for the Commons. Please note, since the ASCE 41 building type of the Commons is identified as URM, if the seismic grant is awarded, the final strengthening requirements will be based on Tier 3 procedures specified in ASCE 41.

The strengthening measures listed are recommendations intended to provide a general discussion of the potential strengthening/hardening measures likely needed for this building. However, they are conceptual and do not constitute a final engineered solution.

7.1 Structural Deficiencies & Strengthening Measures

Numerous structural deficiencies have been identified at the Commons. All structural deficiencies and the strengthening measures are summarized in **Table 3**.

TABLE 3 – STRUCTURAL
Deficiencies & Strengthening Measures
Immediate Occupancy Performance Level

Item Number	Component Type	Deficiency	Strengthening Measure
S1	LOAD PATH	The structure does not contain a complete, well-defined load path with structural elements and connections that serve to transfer inertial forces associated with mass of elements to the building foundation.	Provide complete load path for transfer of inertial forces to building foundation.
S2	ADJACENT BUILDINGS	The clear distance between the building being evaluated and any adjacent building is not greater than 0.5% of the height of the shorter building in low seismicity, 1.0% in moderate seismicity, and 3% in high seismicity.	Provide seismic isolation joint to avoid pounding of the taller structure into the lower structure. Provide all new gravity framing, foundations, and lateral resisting elements as necessary to provide building separation.
S3	BEAM, GIRDER, AND TRUSS SUPPORTS	Beams, girders, and trusses supported by unreinforced masonry walls or pilasters do not have independent secondary columns for support of vertical loads.	Add supplemental independent support columns for Beam, Girder, and Truss support.
S4	SHEAR STRESS CHECK	The shear stress in the unreinforced masonry shear walls is more than 30 lb./in.^{2} for clay units and 70 lb./in.^{2} for concrete units.	Strengthen wall or add new lateral force resisting elements.

TABLE 3 – STRUCTURAL Deficiencies & Strengthening Measures continued			
Item Number	**Component Type**	**Deficiency**	**Strengthening Measure**
S5	WALL ANCHORAGE	Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are not anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm.	Add wall anchorage connections and subdiaphragms.
S6	TRANSFER TO SHEAR WALLS	Diaphragms are not connected for transfer of seismic forces to the shear walls, and the connections are not able to develop the lesser of the shear strength of walls or diaphragms.	Add in-plane connection between shear walls and diaphragm.
S7	PROPORTIONS	The height-to-thickness ratio of the shear walls is greater than 13.	Strengthen/reinforce wall for expected out-of-plane demands.
S8	PLAN IRREGULARITIES	There is no tensile capacity to develop the strength of the diaphragm at reentrant corners or other locations of plan irregularities.	Provide diaphragm reinforcement at reentrant corners and openings
S9	CROSS TIES	There are no continuous cross ties between diaphragm chords.	Add tension ties and supplemental framing for continuous cross ties.
S10	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS	All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans greater than 30 ft and aspect ratios greater than 3-to-1.	Add blocking and supplemental nailing as required to reinforce diaphragm.
S11	NONCONCRETE FILLED DIAPHRAGMS	Untopped metal deck diaphragms or metal deck diaphragms with fill other than concrete consist of horizontal spans of greater than 40 ft. (12.2 m) and have aspect ratios greater than 4-to-1.	Strengthen metal deck diaphragm for expected forces.
S12	OTHER DIAPHRAGMS	Diaphragms consist of a system other than wood, metal deck, concrete, or horizontal bracing.	Strengthen diaphragm with system of wood, metal deck, concrete, or horizontal bracing.

TABLE 3 – STRUCTURAL Deficiencies & Strengthening Measures continued			
Item Number	**Component Type**	**Deficiency**	**Strengthening Measure**
S13	STIFFNESS OF WALL ANCHORS	Anchors of concrete or masonry walls to wood structural elements are not installed taut and stiff enough to limit the relative movement between the wall and the diaphragm before engagement of the anchors.	Install anchors to improve connection stiffness to limit relative movement between the wall and the diaphragms.

7.2 Nonstructural Deficiencies & Strengthening Measures

Numerous nonstructural deficiencies have been identified at the Commons. All nonstructural deficiencies and the strengthening measures are summarized in **Table 4**.

TABLE 4 – NONSTRUCTURAL Deficiencies & Strengthening Measures Position Retention Performance Level			
Item Number	**Component Type**	**Deficiency**	**Strengthening Measure**
N1	UNREINFORCED MASONRY	Unreinforced masonry or hollow-clay tile partitions are not braced at a spacing of at most 10 ft. in low or moderate seismicity, or at most 6 ft. in high seismicity.	Provide HSS strongback bracing at 10 ft. maximum spacing.
N2	TOPS	The tops of ceiling-high framed or panelized partitions do not have lateral bracing to the structure at a spacing equal to or less than 6 ft.	Tops of partitions are to be braced to the adjacent structure.
N3	CANOPIES	Canopies at building exits are not anchored to the structure at a spacing no great than the following: for Life Safety in Low or Moderate Seismicity, 10 ft.; for Life Safety in High Seismicity and for Position Retention in any seismicity, 6 ft.	Provide additional anchorage of canopies to building structure.
N4	FLEXIBLE COUPLINGS	Fluid and gas piping does not have flexible couplings.	Add flexible couplings to fluid and gas piping.

TABLE 4 – NONSTRUCTURAL Deficiencies & Strengthening Measures continued			
Item Number	**Component Type**	**Deficiency**	**Strengthening Measure**
N5	FLUID AND GAS PIPING	Fluid and gas piping are not anchored and braced to the structure to limit spills or leaks.	Brace all fluid and gas piping to the structure.
N6	DUCT BRACING	Rectangular ductwork larger than 6 ft.^{2} in cross-sectional area are not adequately braced for seismic loading.	Provide lateral bracing at rectangular duct work.

8. Construction Cost Estimate

An engineer's opinion of probable cost has been prepared based on the developed seismic strengthening scheme (see **Appendix B**) and is attached as **Appendix C**. The cost estimate addresses all seismic strengthening required and includes all construction costs, contingencies and necessary soft costs required to complete the scope of work. A summary of the cost estimate is provided in **Table 5**.

TABLE 5 – Cost Estimate Summary	
Construction Category	**Cost Estimate**
Engineering	$342,479
Construction Management	$48,780
Construction	$1,744,575
Relocation	$25,406
Contingency	$338,752
Total	**$2,499,992**
Total Area	15,860 Square Feet
$/Square Feet	$157.63

The cost estimate included in this report has been reviewed by the engineer responsible for the evaluation and seismic strengthening schemes of the Commons.

9. Benefit Cost Analysis

The benefit cost analysis (BCA) is performed using the BCA spreadsheet provided by the Oregon Business Development Department-Infrastructure Finance Authority (OBDD-IFA) as required by the SRGP (Seismic Rehabilitation Grant Program). The BCA tool considers the net present value of costs associated with damage to the building and its contents,

displacements costs, loss of functionality costs, and casualties. Default building data and fragility curve information are provided in the BCA tool.

The BCA score for this project is **1.348**, which suggests this project is a strong candidate for seismic strengthening and should be considered for grant funding.

In addition to the benefits outlined in the application, the Estacada High School Commons serves as the primary egress route for the High School Gymnasium which was awarded a Seismic Rehabilitation Grant in 2023 (Grant Number SC2308). The Main Gymnasium is expected to have a complete seismic retrofit by September of 2025 and the High School Commons would serve as the primary entry to the gymnasium. The gymnasium is expected to act as an emergency shelter after a major seismic event and seismically retrofitting the High School Commons would provide much needed additional shelter space and egress to and from the gymnasium. If the High School Commons is not operational after a seismic event, it would greatly reduce the access to the gymnasium.

10. Rapid Visual Screening

The Department of Geology and Mineral Industries (DOGAMI) completed many Rapid Visual Screening (RVS) assessments for public facilities throughout Oregon. However, for the purpose of this report, a new RVS report was created to align with this seismic evaluation. Attached in **Appendix F** is the RVS report created using the FEMA P-154 Data Collection Form for the Commons.

Note, only the RVS report for Building Part C has been included since the other building parts are out of the project scope and have no impact on the BCA calculations or grant application.

11. Limitations

The opinions and recommendations presented in this report were developed with the care commonly used as the state of practice of the profession. No other warranties are included, either expressed or implied, as to the professional advice included in this report. This report has been prepared for Estacada School District and is used solely in its evaluation of the seismic safety of the building included herein. This report has not been prepared for use by other parties and may not contain sufficient information for purposes of other parties or uses. If you have any comments or questions regarding this evaluation, please contact us.

12. Certification Statement

WRK Engineers has reviewed the Estacada High School Commons, noted the deficiencies in the Tier 1 checklists, developed seismic retrofit solutions to rectify the deficiencies, and a cost estimate for the project. The design engineer certifies the retrofit scope of work includes strengthening measures of all the structural and nonstructural deficiencies identified in the report and all items required to perform the work. The design engineer certifies the cost estimate includes all the retrofit's scope of work elements.



Brian Knight, PE, SE

Appendix A

BUILDING PHOTOS



Image 1: Southeast Elevation

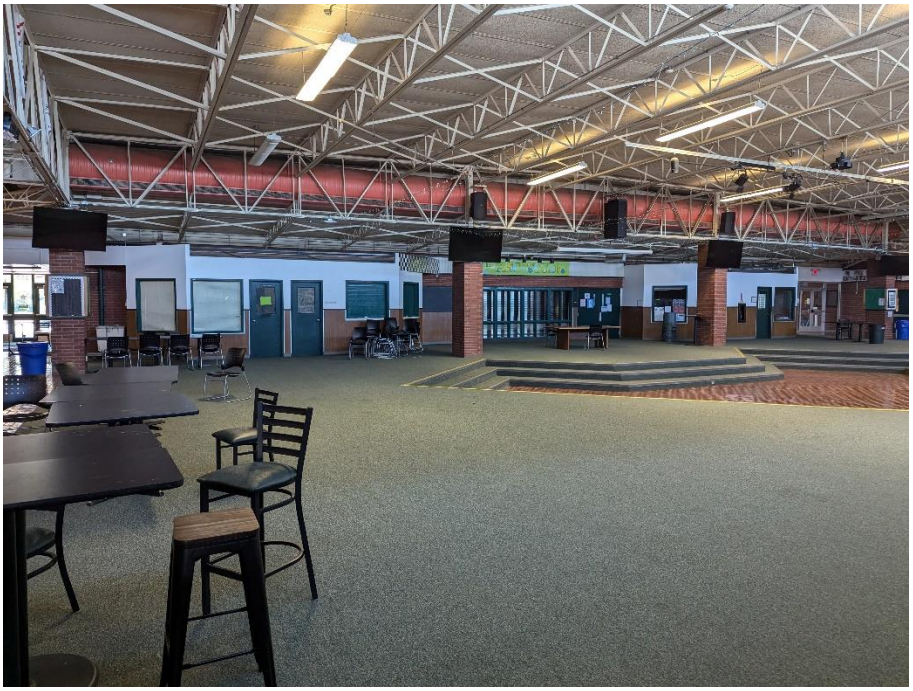


Image 2: Commons Area from Northeast Corner

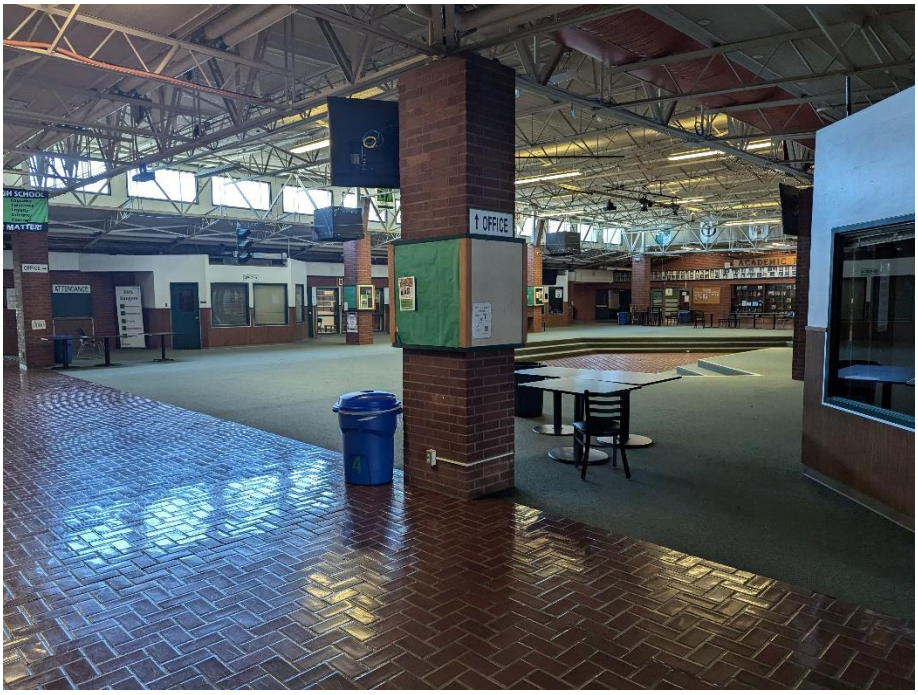


Image 3: Commons Area from Southwest Corner

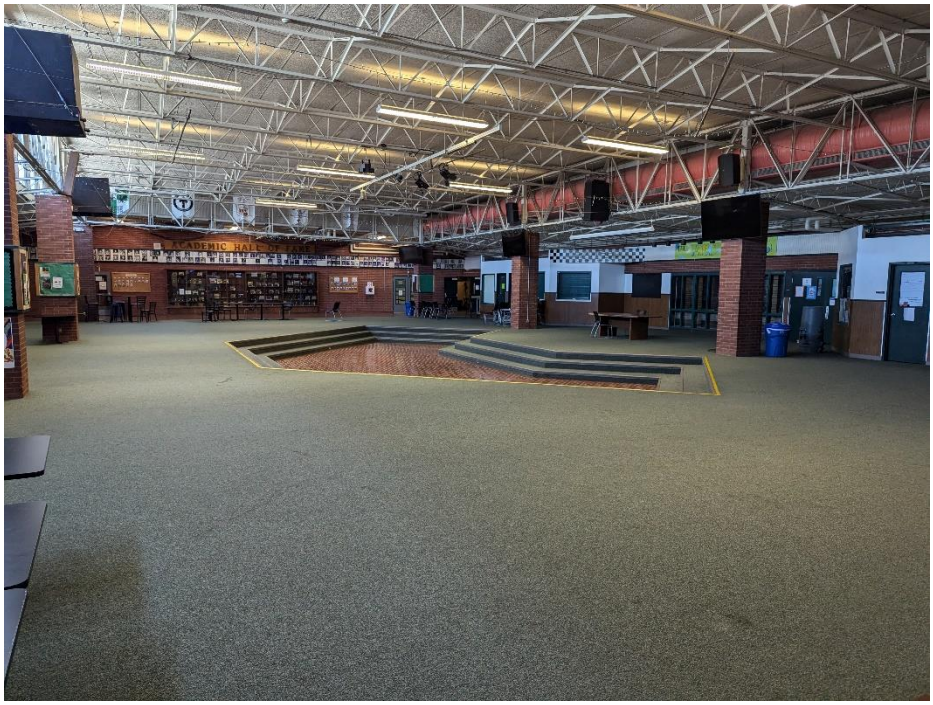


Image 4: Commons Area Looking East

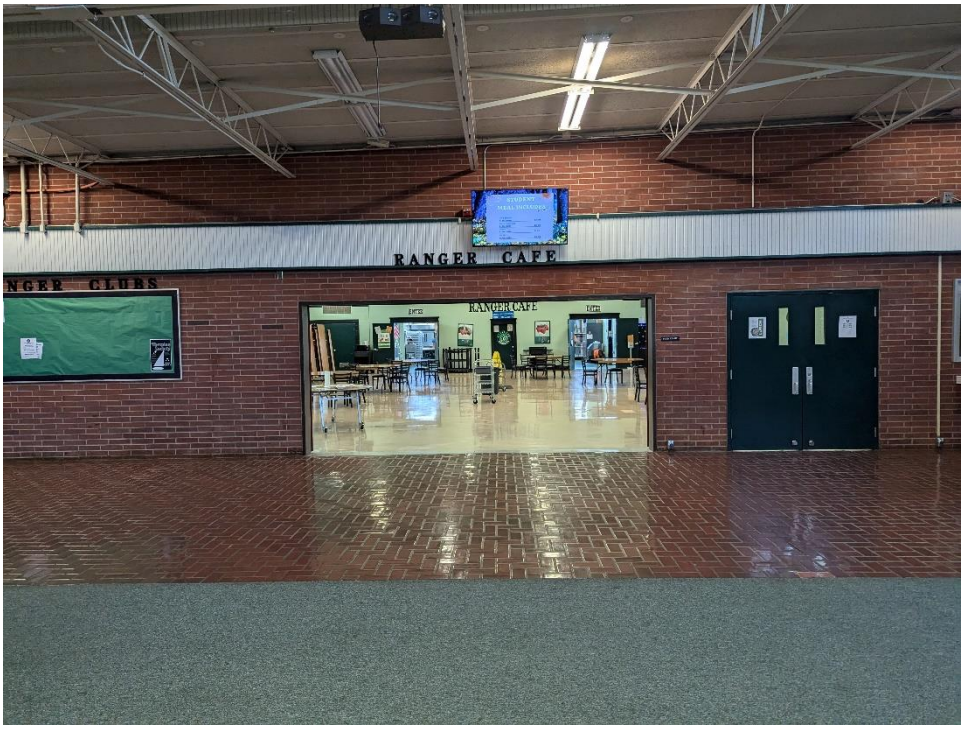


Image 5: Commons Area at Cafeteria Wall



Image 6: Unbraced Top of Wall

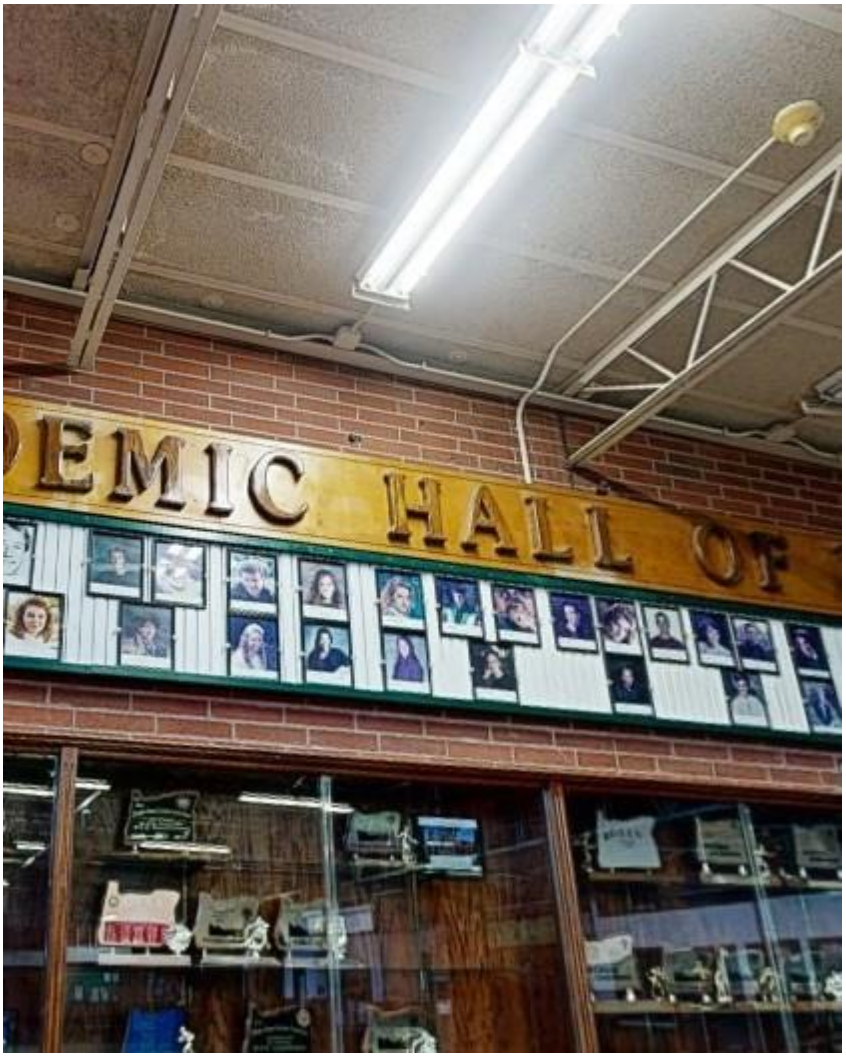


Image 7: Joists Supported on Unreinforced CMU Wall

Appendix B

CONCEPTUAL SEISMIC STRENGTHENING SCHEME

ESTACADA SCHOOL DISTRICT
SEISMIC REHABILITATION GRANT
STRENGTHENING CONCEPTS

SHEET INDEX	
SHEET ID	SHEET TITLE
G1	COVER SHEET
S1.1	HIGH SCHOOL COMMONS FOUNDATION STRENGTHENING PLAN
S1.2	HIGH SCHOOL COMMONS ROOF STRENGTHENING PLAN

PROJECT NARRATIVE

THE INTENT OF THESE DRAWINGS IS TO ILLUSTRATE THE SCHEMATIC SEISMIC REHABILITATION TASKS TO RECTIFY THE LISTED SEISMIC AND NONSTRUCTURAL DEFICIENCIES. THESE SCHEMATIC DRAWINGS HAVE BEEN PREPARED USING THE CURRENT OREGON STRUCTURAL SPECIALTY CODE (OSSC) AND ASCE 41 (SEISMIC REHABILITATION OF EXISTING BUILDINGS) STANDARD.

THE TARGET FOR REHABILITATION IS TO IMMEDIATE OCCUPANCY (IO) STRUCTURAL PERFORMANCE LEVEL AND A POSITION RETENTION NONSTRUCTURAL PERFORMANCE LEVEL AT THE BSE-1E SEISMIC EVENT AND THE LIFE SAFETY STRUCTURAL PERFORMANCE LEVEL AND HAZARD REDUCTION NONSTRUCTURAL PERFORMANCE LEVEL AT THE BSE-2E SEISMIC EVENT.

THE (IO) STRUCTURAL PERFORMANCE LEVEL MEANS THAT AFTER A DESIGN EARTHQUAKE, THE BASIC VERTICAL AND LATERAL FORCE RESISTING SYSTEMS RETAIN NEARLY ALL OF THEIR PRE-EARTHQUAKE STRENGTH AND STIFFNESS. VERY LIMITED DAMAGE TO BOTH THE STRUCTURAL AND NONSTRUCTURAL COMPONENTS IS ANTICIPATED DURING THE DESIGN EARTHQUAKE WHICH REQUIRE SOME MINOR REPAIRS, BUT MAY NOT BE REQUIRED PRIOR TO REOCCUPANCY. THE RISK OF LIFE THREATENING INJURY AS A RESULT OF STRUCTURAL DAMAGE IS VERY LOW.

PROJECT INCLUDES SEISMIC REHABILITATION FOR THE ENTIRE HIGH SCHOOL COMMONS BUILDING.

STRUCTURAL DEFICIENCIES

S1. THE STRUCTURE DOES NOT CONTAIN A COMPLETE, WELL-DEFINED LOAD PATH WITH STRUCTURAL ELEMENTS AND CONNECTIONS THAT SERVE TO TRANSFER INERTIAL FORCES ASSOCIATED WITH MASS OF ELEMENTS TO THE BUILDING FOUNDATION.

S2. 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.

S3. BEAMS, GIRDERS, AND TRUSSES SUPPORTED BY UNREINFORCED MASONRY WALLS OR PILASTERS DO NOT HAVE INDEPENDENT SECONDARY COLUMNS FOR SUPPORT OF VERTICAL LOADS.

S4. THE SHEAR STRESS IN THE UNREINFORCED MASONRY SHEAR WALLS, CALCULATED USING THE QUICK CHECK PROCEDURE OF SECTION 4.4.3.3M IS MORE THAN 30 LB/IN.^{2} (0.21 MPA) FOR CLAY UNITS AND 70 LB/IN.^{2} (0.48 MPA) FOR CONCRETE UNITS.

S5. EXTERIOR CONCRETE OR MASONRY WALLS THAT ARE DEPENDENT ON THE DIAPHRAGM FOR LATERAL SUPPORT ARE NOT ANCHORED FOR OUT-OF-PLANE FORCES AT EACH DIAPHRAGM LEVEL WITH STEEL ANCHORS, REINFORCING DOWELS, OR STRAPS THAT ARE DEVELOPED INTO THE DIAPHRAGM.

S6. DIAPHRAGMS ARE NOT CONNECTED FOR TRANSFER OF SEISMIC FORCES TO THE SHEAR WALLS. AND THE CONNECTIONS ARE NOT ABLE TO DEVELOP THE LESSER OF THE SHEAR STRENGTH OF THE WALLS OR DIAPHRAGMS.

S7. THE HEIGHT-TO-THICKNESS RATIO OF THE SHEAR WALLS AT EACH STORY IS NOT LESS THAN THE FOLLOWING: TOP STORY OF MULTI-STORY BUILDING: 9; FIRST STORY OF MULTI-STORY BUILDING: 15; ALL OTHER CONDITIONS: 13.

S8. THERE IS NOT TENSILE CAPACITY TO DEVELOP THE STRENGTH OF THE DIAPHRAGM AT REENTRANT CORNERS OR OTHER LOCATIONS OF PLAN IRREGULARITIES.

S9. THERE ARE NOT CONTINUOUS CROSS TIES BETWEEN DIAPHRAGM CHORDS.

S10. ALL DIAGONALLY SHEATHED AND UNBLOCKED WOOD STRUCTURAL PANEL DIAPHRAGMS DO NOT HAVE HORIZONTAL SPANS LESS THAN 30 FT (M)AND ASPECT RATIONS LESS THAN OR EQUAL TO 3-TO-1.

S11. UNTOPPED METAL DECK DIAPHRAGMS OR METAL DECK DIAPHRAGMS WITH FILL OTHER THAN CONCRETE CONSIST OF HORIZONTAL SPANS LESS THAN 40 FT (12.2 M) AND HAVE ASPECT RATIOS LESS THAN 4-TO-1.

S12. DIAPHRAGMS CONSIST OF A SYSTEM OTHER THAN WOOD, METAL DECK, CONCRETE, OR HORIZONTAL BRACING.

S13. ANCHORS OF CONCRETE OR MASONRY WALLS TO WOOD STRUCTURAL ELEMENTS ARE NOT INSTALLED TAUT AND ARE NOT STIFF ENOUGH TO LIMIT THE RELATIVE MOVEMENT BETWEEN THE WALL AND THE DIAPHRAGM TO NO GREATER THAN 1/8 IN. (3 MM) BEFORE ENGAGEMENT OF THE ANCHORS.



NONSTRUCTURAL DEFICIENCIES

N1. UNREINFORCED MASONRY OR HOLLOW-CLAY TILE PARTITIONS ARE NOT BRACED AT SPACING AT MOST 10 FT. (3.0 M) IN LOW OR MODERATE SEISMICITY, OR AT MOST 6 FT. (1.8 M) IN HIGH SEISMICITY.

N2. THE TOPS OF CEILING-HIGH FRAMED OR PANELIZED PARTITIONS DO NOT HAVE LATERAL BRACING TO THE STRUCTURE AT A SPACING EQUAL TO OR LESS THAN 6 FT. (1.8 M).

N3. CANOPIES AT THE BUILDING EXITS ARE NOT ANCHORED TO THE STRUCTURE AT A SPACING LESS 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).

N4. FLUID AND GAS PIPING DOES NOT HAVE FLEXIBLE COUPLINGS.

N5. FLUID AND GAS PIPING IS NOT ANCHORED OR BRACED TO THE STRUCTURE TO LIMIT SPILLS OR LEAKS.

N6. RECTANGULAR DUCTWORK LARGER THAN 5 FT^2 (0.56 M^2) IN CROSS-SECTIONAL AREA AND ROUND DUCTS LARGER THAN 28 IN. (711 MM) IN DIAMETER ARE NOT BRACED. THE MAXIMUM SPACING OF TRANSVERSE BRACING DOES NOT EXCEED 30 FT. (9.2 M).

ALL NONSTRUCTURAL DEFICIENCIES WILL BE MITIGATED AS SHOWN IN TABLE 4 IN THIS REPORT UNLESS SPECIFICALLY NOTED OTHERWISE ON THE CONCEPTUAL STRENGTHENING SCHEME DRAWINGS.

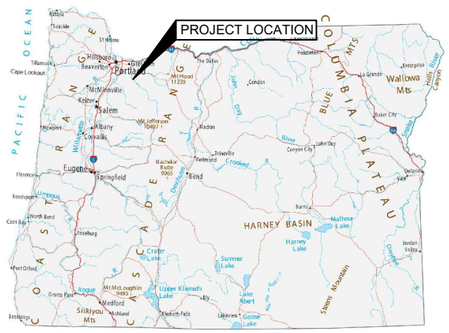


NOTE: PROJECT SCOPE INCLUDES BUILDING PART C.

2 ESTACADA HIGH SCHOOL SITE MAP — NORTH



1 VICINITY MAP — NORTH



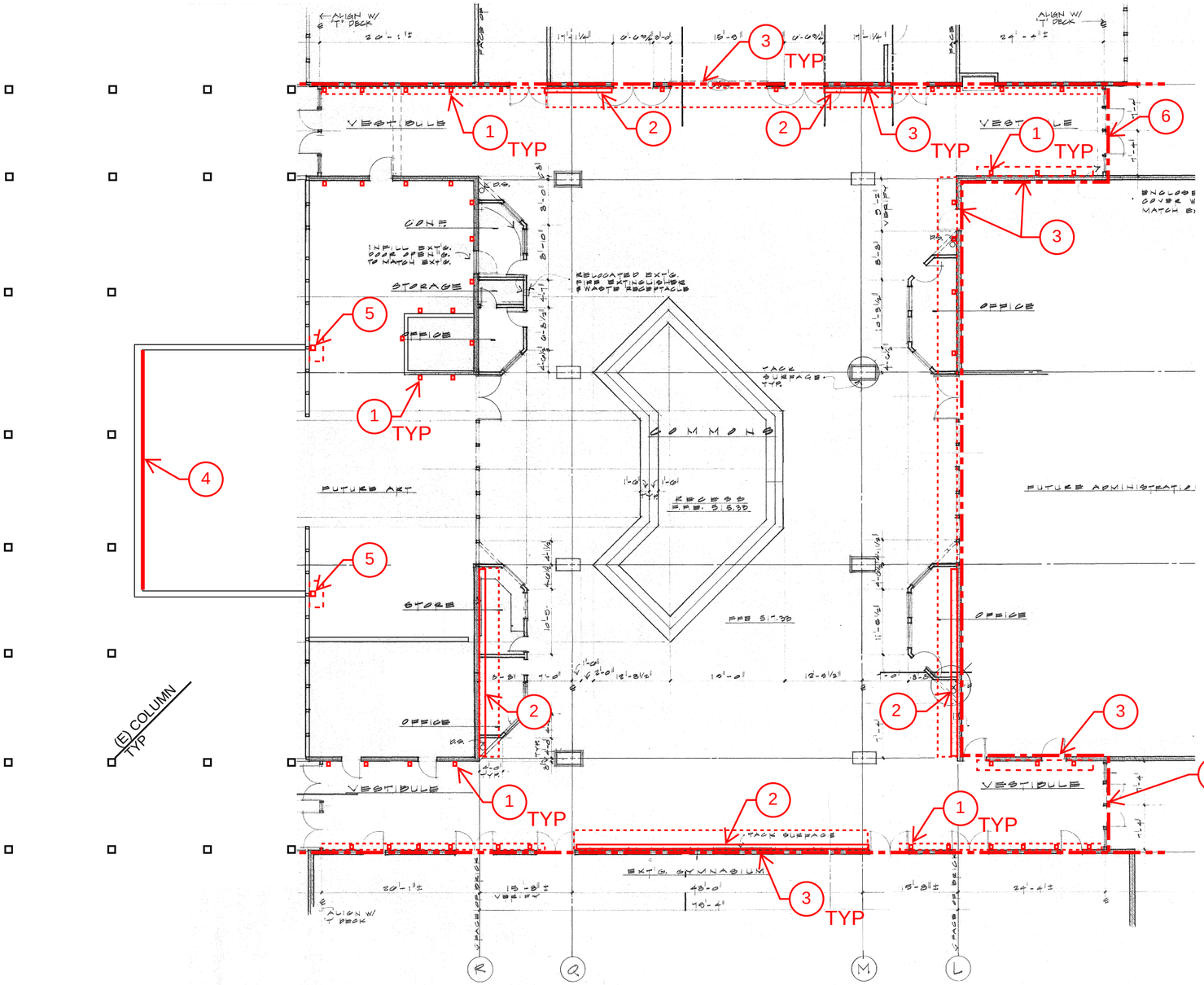
3 STATE MAP — NORTH

ESTACADA SCHOOL DISTRICT
SEISMIC REHABILITATION GRANT STRENGTHENING CONCEPTS
255 NE 6TH AVE
ESTACADA, OR 97023

DATE: 12/10/2024
JOB NUMBER: 24032.00
PAGE REFERENCE:

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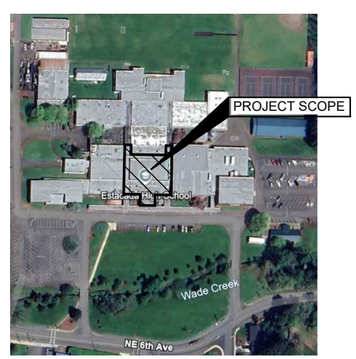


1 HIGH SCHOOL CENTRAL WING FOUNDATION STRENGTHENING PLAN
SCALE: 3/32"=1'-0"

NORTH

SEISMIC STRENGTHENING KEY NOTES:

1. DEMO (E) WALL AND FLOOR FINISHES TO ADD HSS STRONGBACKS FOR OUT OF PLANE WALL BRACING, GRAVITY SUPPORT AT SEISMIC JOINTS, AND SECONDARY SUPPORT AT OPEN WEB STEEL BEAMS. PROVIDED AT 8'-0" OC AND AS SHOWN. REPAIR WALL AND FLOOR FINISHES WHEN WORK IS COMPLETE. (S2, S3, S7, N1)
2. DEMO (E) WALL FINISHES, FLOOR FINISHES, AND CONCRETE SLAB TO ADD 8" CONCRETE SHEAR WALL WITH 3'-0" WIDE X 2'-0" DEEP FOUNDATION FOR NEW LATERAL FORCE RESISITING ELEMENTS AND LATERAL SUPPORT AT SEISMIC JOINT. DOWEL INTO EXISTING FOUNDATION WITH ADHESIVE ANCHORS. REPAIR WALL AND CONCRETE SLAB WHEN WORK IS COMPLETE. (S2, S4)
3. PROVIDE SEISMIC JOINT TO ISOLATE THE COMMONS AND ALLOW IT TO MOVE INDEPENDENTLY OF THE SURROUNDING STRUCTURE. GRAVITY SUPPORT IN THE COMMONS IS PROVIDED FROM THE HSS STRONG BACKS DIRECTLY BELOW ROOF JOIST W/ FOOTINGS. LATERAL RESISTANCE OF THE COMMONS IS FROM THE NEW CONCRETE SHEARWALLS. THE EXISTING LATERAL SYSTEM OF THE SURROUNDING STRUCTURE IS UN-ALTERED. PROVIDE FLEXIBLE FINISHES AS REQUIRED (S2)
4. DEMO GYP BOARD AND WALL FINISHES FOR INSTALLATION OF 1/2" SHEATHING TO CREATE WOOD SHEAR WALL. ANCHOR SILL PLATE TO FOUNDATION WITH POST-INSTALLED ANCHORS AT 24" OC. REPAIR WALL FINISHES AFTER WORK IS COMPLETE. (S1)
5. DEMO (E) WALL FINISHES AND FLOOR FINISHES TO ADD CANTILEVER STEEL HSS COLUMN AND FOOTING. (S8, S1)
6. PROVIDE SEISMIC ISOLATION JOINT AT EDGE OF VESTIBULE. EDGE OF VESTIBULE IS NON-BEARING, AND LATERAL RESISTANCE IS PROVIDED BY METAL DECK DIAPHRAGM WHICH IS TIED INTO REST OF COMMONS AREA. THE EXISTING GRAVITY AND LATERAL SYSTEM OF THE SURROUNDING BUILDING IS UN-ALTERED. PROVIDE FLEXIBLE FINISHES AS REQUIRED. (S2)



SITE MAP

NORTH

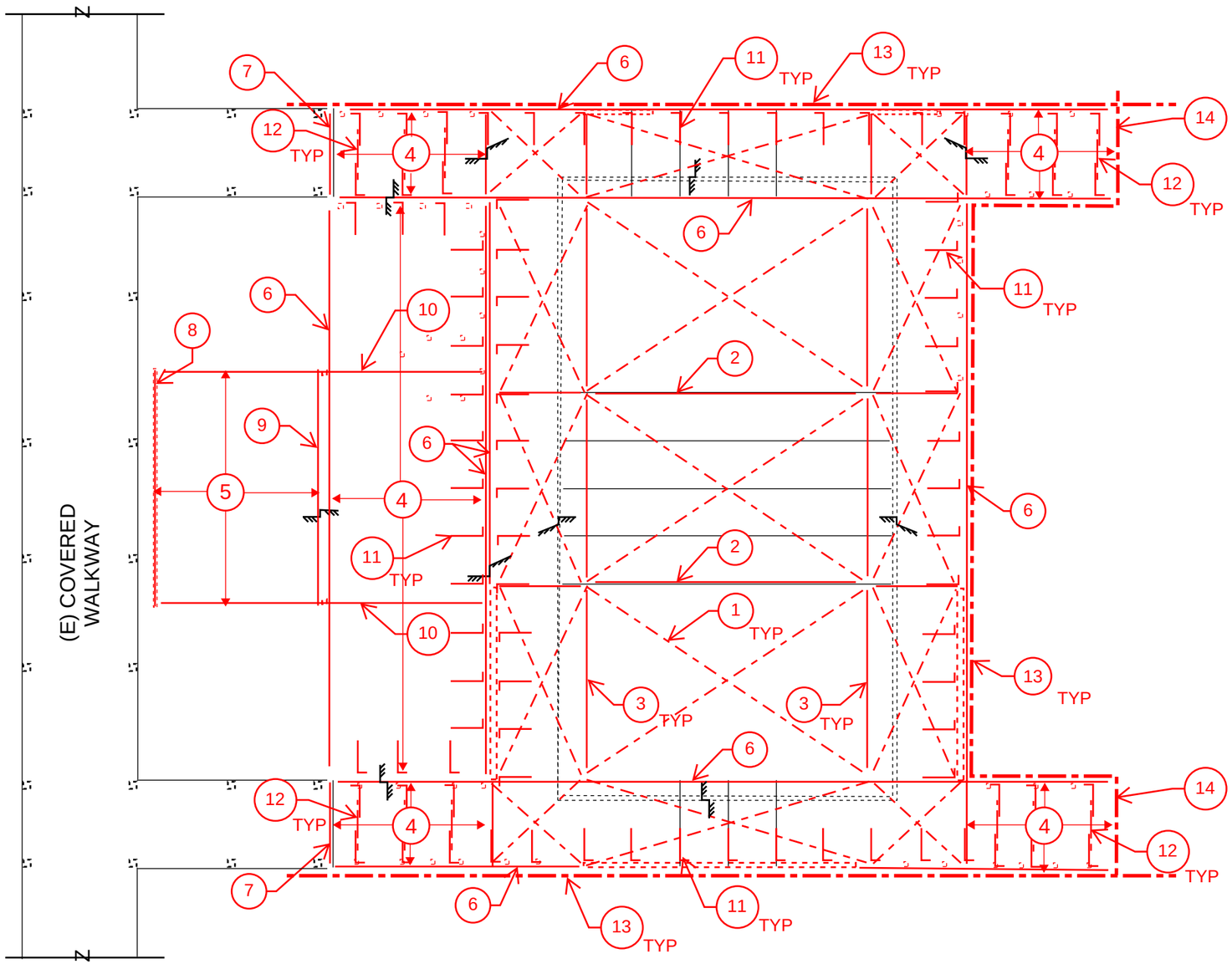
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ESTACADA SCHOOL DISTRICT
TECHNICAL ASSISTANCE PROGRAM GRANT STRENGTHENING CONCEPTS
255 NE 6TH AVE
ESTACADA, OR 97023

DATE: 12/10/20241
JOB NUMBER: 24032.00
PAGE REFERENCE:

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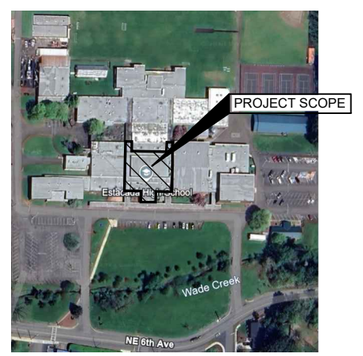


1 HIGH SCHOOL CENTRAL WING ROOF STRENGTHENING PLAN
SCALE: 3/32"=1'-0"

NORTH

SEISMIC STRENGTHENING KEY NOTES:

1. PROVIDE 1" DIA ROD CROSS BRACING DIAPHRAGM. (S12)
2. PROVIDE HSS STRUT FOR ROD DIAPHRAGM. (S12)
3. STRENGTHEN (E) GIRDER TRUSS FOR ROD DIAPHRAGM. (S9, S12)
4. REMOVE (E) ROOFING DOWN TO METAL DECK AND PROVIDE SIDE SEAM WELDS AT 12" OC. REPLACE ROOFING AS REQUIRED. (S11)
5. REMOVE (E) ROOFING DOWN TO (E) SHEATHING AND NAIL SHEATHING TO (E) FRAMING W/ 10d NAILS AT 6" OC AT PANEL EDGES, BLOCK PANEL EDGES. REPLACE ROOFING AS REQUIRED. (S10)
6. HSS CHORD/COLLECTOR. (S1, S6, S8, S9)
7. PROVIDE LEDGER AND ANCHORAGE FROM (E) WALKWAY COVER TO BUILDING @ 6' OC. (N3)
8. PROVIDE NAILING AND BLOCKING TO CREATE IN-PLANE CONNECTION BETWEEN ROOF DIAPHRAGM AND SHEAR WALL BELOW. (S1, S6)
9. REMOVE (E) SIDING AND ADD 1/2" SHEATHING TO (E) CRIPPLE WALL TO TIE UPPER AND LOWER DIAPHRAGMS TOGETHER AND CREATE A COMPLETE LOAD PATH. PROVIDE NEW SIDING AFTER WORK IS COMPLETE. (S1)
10. PROVIDE HSS DRAG STRUT TO TRANSFER LOADS FROM LOWER DIAPHRAGM TO UPPER DIAPHRAGM AND CREATE A COMPLETE LOAD PATH. (S1, S8)
11. ADD OUT-OF-PLANE WALL ANCHORAGE BETWEEN THE URM WALLS AND THE ROOF DIAPHRAGM AT NEW HSS STRONGBACKS AND AT 8'-0" OC. (S5, S13)
12. ADD BLOCKING AND STRAPPING TO DEVELOP OUT-OF-PLANE CONNECTION INTO SUB-DIAPHRAGM. (S5, S13)
13. PROVIDE SEISMIC JOINT TO ISOLATE THE COMMONS AND ALLOW IT TO MOVE INDEPENDENTLY OF THE SURROUNDING STRUCTURE. GRAVITY SUPPORT IN THE COMMONS IS PROVIDED FROM THE HSS STRONG BACKS DIRECTLY BELOW ROOF JOIST W/ FOOTINGS. LATERAL RESISTANCE OF THE COMMONS IS FROM THE NEW CONCRETE SHEARWALLS. THE EXISTING LATERAL SYSTEM OF THE SURROUNDING STRUCTURE IS UN-ALTERED. PROVIDE FLEXIBLE FINISHES AS REQUIRED (S2)
14. PROVIDE SEISMIC ISOLATION JOINT AT EDGE OF VESTIBULE. EDGE OF VESTIBULE IS NON-BEARING, AND LATERAL RESISTANCE IS PROVIDED BY METAL DECK DIAPHRAGM WHICH IS TIED INTO REST OF COMMONS AREA. THE EXISTING GRAVITY AND LATERAL SYSTEM OF THE SURROUNDING BUILDING IS UN-ALTERED. PROVIDE FLEXIBLE FINISHES AS REQUIRED. (S2)



SITE MAP

NORTH

wrk Structural & Seismic Engineers

ESTACADA SCHOOL DISTRICT
TECHNICAL ASSISTANCE PROGRAM GRANT STRENGTHENING CONCEPTS
255 NE 6TH AVE
ESTACADA, OR 97023

DATE: 12/10/2024
JOB NUMBER: 24032.00
PAGE REFERENCE:

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Appendix C

CONSTRUCTION COST ESTIMATE

Estacada High School Commons

DIRECT COSTS

CONSTRUCTION COST

Description	GFA SF	COST/SF	Total Cost
Demolition	15860	$12.34	$195,654
Structural Strengthening	15860	$63.84	$1,012,479
Nonstructural	15860	$2.18	$34,600
		Estimated Subtotal Construction Cost	$1,242,733

GENERAL CONDITIONS

Description	% of Cost	Total Cost
Preconstruction Services	2%	$24,855
General Conditions	15%	$186,410
Escalation	9%	$130,714
Bonds & Insurance	2%	$21,810
Overhead & Profit	6%	$87,240
Estimated Subtotal Construction Cost		$451,029
Contingency	20%	$338,752
Estimated Total Construction Cost		**$2,032,514**

SOFT COSTS

ENGINEERING AND CONSTRUCTION MANAGEMENT

Structural Engineering		$240,853
Architectural Consulting		$66,057
Geotechnical Consulting		$25,406
Materials Testing		$10,163
Construction Management		$48,780
Estimated Subtotal Cost		$391,259

CONSTRUCTION

Special Inspection Services		$20,325
Permitting Fees		$30,488
Relocation of FF&E		$25,406
Estimated Subtotal Cost		$76,219

COST ESTIMATE SUMMARY

Engineering		$342,479
Construction Management		$48,780
Construction		$1,744,575
Relocation		$25,406
Contingency		$338,752
Estimated Total Project Funding Cost		**$2,499,992**

Description	Deficiency	Quantity	Units	Unit Price	Total Price for Construction Item
Building Demo					
PROTECTION	S1, S4, S5, S6	15860	SF	$2.00	$31,720.00
FIXED FURNISHING/ SOFT DEMO	S1, S4, S5, S6	15860	SF	$2.40	$38,064.00
ASBESTOS ABATEMENT	S10, S11	15860	SF	$2.00	$31,720.00
ROOF DEMO	S10, S11	5625	SF	$7.00	$39,375.00
EXCAVATION FOR FOUNDATION - CONC WALL	S4	65	CYD	$250.00	$16,250.00
DEMO 4" SLAB ON GRADE	S4	785	SF	$25.00	$19,625.00
DEMO CERAMIC TILE	S4	475	SF	$10.00	$4,750.00
DEMO WALL FINISHES FOR PLYWOOD	S4	690	SF	$3.00	$2,070.00
CARPET DEMO	S7	310	SF	$3.00	$930.00
SEISMIC JOINT - DEMO	S2	446	LF	$25.00	$11,150.00
				Demo Subtotal	$195,654
Structural Strengthening					
Foundation Strengthening					
NEW CONCRETE FOOTING	S4	43	CY	$1,500.00	$64,500.00
NEW 4" SLAB ON GRADE	S4	785	SF	$15.00	$11,775.00
NEW SLAB AND FOOTING - SEISMIC JOINT	S2	446	LF	$100.00	$44,600.00
FLOOR FINISHES - SEISMIC JOINT	S2	446	LF	$50.00	$22,300.00
CERAMIC TILE	S4	475	SF	$40.00	$19,000.00
NEW CARPET	S5	310	SF	$10.50	$3,255.00
POST-INSTALLED ANCHORS AT SHEARWALL	S1	40	LF	$50.00	$2,000.00
FOUNDATION DOWELING	S4	194	LF	$70.00	$13,580.00
				Foundation Strengthening Subtotal	$181,010
Wall Strengthening Construction					
ADD 8" CONCRETE SHEAR WALL	S4	1736	SF	$100.00	$173,550.00
ANCHOR 8" CONCRETE SW TO (E) MASONRY	S4	1736	SF	$13.75	$23,870.00
NEW PLYWOOD SHEATHING	S1	690	SF	$12.00	$8,280.00
NEW GYP WALL FINISHES	S1	490	SF	$12.50	$6,125.00
NEW WEATHERPROOFING ON EXT WALL	S1	200	SF	$21.00	$4,200.00
HSS CANTILEVER COLUMN	S1, S8	1	TON	$7,000.00	$4,200.00
HSS STRONGBACK	S3, S7	9	TON	$7,000.00	$63,000.00
FLEXIBLE FINISHES - SEISMIC JOINT	S2	446	LF	$100.00	$44,600.00
				Wall Strengthening Subtotal	$327,825
Roof Strengthening Construction					
1" DIA ROD CROSS BRACING DIAPHRAGM	S12	1100	LF	$80.00	$88,000.00
ADD IN-PLANE CONNECTION	S1, S6	40	LF	$100.00	$4,000.00
ADD OUT-OF-PLANE CONNECTION	S5, S13	89	EA	$300.00	$26,700.00
ROOF FINISHES - SEISMIC JOINT	S2	446	LF	$100.00	$44,600.00
HSS ROOF COLLECTOR AND STRUTS	S1, S6, S8, S9	8	TON	$7,000.00	$56,000.00
ADDITIONAL NAILING	S10	1200	SF	$2.00	$2,400.00
METAL DECK STRENGTHENING	S11	4425	SF	$10.00	$44,250.00
REPLACE ROOFING	S10, S11	5625	SF	$30.00	$168,750.00
UNIFORM INSULATION	S10, S11	5624	SF	$6.00	$33,744.00
STRENGTHEN (E) GIRDER	S9, S12	352	LF	$100.00	$35,200.00
				Roof Strengthening Subtotal	$503,644
				Total Strengthening Cost =	**$1,012,479**
Nonstructural Elements					
CANOPY IN-PLANE ANCHORAGE	N3	16	LF	$100.00	$1,600.00
EQUIPMENT AND CONTENT BRACING	N6	1	LS	EA	$10,000.00
MISC. NONSTRUCTURAL	N1, N2	1	LS	EA	$15,000.00
MEP	N4, N5	1	LS	EA	$8,000.00
				Nonstructural Subtotal	$34,600

Appendix D

BENEFIT COST ANALYSIS WORKSHEET

Oregon Seismic Rehabilitation Grant Application: Benefit-Cost Analysis

Entity:	**Estacada School District**		
Point of Contact	**Mike Waer, Executive Director of Operations & Finance**		
Telephone:	**503-630-8606**		
E-Mail:	waerm@estacada.k12.or.us		
BCA File Name:	**Estacada_BCA-Tool_2024**	**BCA Date:**	**10/30/2024**

Building Name:	**Estacada HS Commons**
Site ID:	**Clac_sch62**
Facility Use:	**School**

Is the Building in the Oregon BCA Tool Database: Yes or No? **Yes**

How Many Structurally Different Building Parts Are There?

User-Defined	Database
4	1

Unique Building ID Number	Building Part Square Footage	Percent of Total SF	Percent of Occupancy	Percent of Operating Budget	Building Part Being Retrofitted?
Clac_sch62A	20,533	11.87%			No
Clac_sch62B	18,400	10.64%			No
Clac_sch62C	15,860	9.17%			Yes
Clac_sch62D	118,207	68.33%			No
Totals:	**173,000**	**100.00%**			

Seismic Retrofit Cost Estimate per SRGP Application: **$2,499,992**

Benefit-Cost Analysis: Summary Results
Estacada HS Commons

Building Part	Benefits
Clac_sch62A	
Clac_sch62B	
Clac_sch62C	$3,368,999
Clac_sch62D	
Total Benefits	**$3,368,999**
Total Cost	**$2,499,992**
Benefit-Cost Ratio	**1.348**

Benefits by Category Avoided Damages and Losses	
Building Damage	$1,463,771
Contents Damage	$365,943
Displacement Costs	$59,581
Loss of Function Costs	$19,041
Casualties	$1,460,663
Total	**$3,368,999**

Occupancy Data

For benefit-cost analysis, the average occupancy on a 24/7/365 basis is used for casualty calculations.
Enter data below ONLY for the occupancy categories applicable to this building - all other green cell entries should be left blank.
There are entries below for: employees, visitors, students, meetings or special events and patients.

NOTE: for buildings with similar occupancies each month, complete the tables on the left side only.

NOTE: For buildings with different summer occupancies, complete the tables both on the left and right sides. If this does not apply, enter "0" for number of summer months

Employees: 12 Months per Year or Academic Year for Schools				
Day of Week	Time of Day	Hours per Day	Average Employees in Building	Calculated 24/7/365 Occupancy
Monday - Friday	Day	12	50	14.840
Monday - Friday	Evening	8	15	2.968
Monday - Friday	Night			
Saturday	Day	5	2	0.049
Saturday	Evening			
Saturday	Night			
Sunday	Day			
Sunday	Evening			
Sunday	Night			
			Subtotal:	17.858

Employees: Summer Months			Number of Months:	2
Day of Week	Time of Day	Hours per Day	Average Employees in Building	Calculated 24/7/365 Occupancy
Monday - Friday	Day	12	15	0.890
Monday - Friday	Evening			
Monday - Friday	Night			
Saturday	Day			
Saturday	Evening			
Saturday	Night			
Sunday	Day			
Sunday	Evening			
Sunday	Night			
			Subtotal:	0.890

Visitors: 12 Months per Year or Academic Year for Schools			
Day of Week	Average Number of Visitors Per Day	Average Time in Building (Minutes per Visitor)	Calculated 24/7/365 Occupancy
Monday - Friday	100	30	1.237
Saturday	75	120	0.742
Sunday	20	120	0.198
		Subtotal:	2.177

Visitors: Summer Months		Number of Months:	2
Day of Week	Average Number of Visitors Per Day	Average Time in Building (Minutes per Visitor)	Calculated 24/7/365 Occupancy
Monday - Friday	15	30	0.037
Saturday	5	30	0.002
Sunday			
		Subtotal:	0.040

K-12 Students: Academic Year	
Average Daily Number of Students:	500
Hours per Day:	10
Days per Year:	147
Calculated 24/7/365 Occupancy:	83.904

K-12 Students: Summer School	
Average Daily Number of Students:	30
Hours per Day:	4
Days per Year:	21
Calculated 24/7/365 Occupancy:	0.288

College Students: Academic Year				
Number of Weeks per Year of Classes:				
Course	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Calculated 24/7/365 Occupancy
1 Hr. Courses	1			
1.5 Hr. Courses	1.5			
2 Hr. Courses	2			
3 Hr. Courses	3			
Other	N/A			
Other	N/A			
			Subtotal:	

College Students: Summer School				
Number of Weeks per Year of Classes:				
Course	Class Duration (hours)	Number of Class Periods per Week	Average Number of Students per Class	Calculated 24/7/365 Occupancy
1 Hr. Courses	1			
1.5 Hr. Courses	1.5			
2 Hr. Courses	2			
3 Hr. Courses	3			
Other	N/A			
Other	N/A			
			Subtotal:	

Occupancy Data

Meetings, Sports Events etc.				
Event	Events per Year	People per Event	Average Time spent at Event (hours per person)	Calculated 24/7/365 Occupancy
Volleyball	5	150	3	0.257
Basketball	16	100	3	0.548
Wrestling	10	75	3	0.257
FFA	5	50	1.5	0.043
Back to School Ever	5	350	2	0.400
Freshman Orientatio	1	150	2	0.034
National Conference	1	350	10	0.400
All Staff Events	1	350	4	0.160
School Evening Eve	5	350	2	0.400
			Subtotal:	2.497

Patients			
		Total Number of In-Patient Beds:	
		Average Daily Number of In-Patients	
		Average Percentage Occupancy	
Day of Week	Average Number of Out-Patients per Day	Average Time in Building (Hours per person)	Calculated 24/7/365 Occupancy
Monday - Friday			
Saturday			
Sunday			
		Out-Patients:	
		In-Patients:	
		Total Patients:	

Occupancy Data

SUMMARY OCCUPANCY DATA:
Average 24/7/365 Occupancy

Occupancy Category	12 Months or Academic Year	Summer
Employees	17.858	0.890
Visitors	2.177	0.040
Students: K-12	83.904	0.288
Students: College		
Meetings & Special Events	2.497	N/A
Patients		N/A
Subtotals:	106.436	1.218
Avg 24/7/365 Occupancy:	107.653	

DATA DOCUMENTATION: OCCUPANCY	
Provide brief documentation below and/or references to other documents included with your application (with page number), for the sources of the occupancy data and estimates.	
Employees: Numbers	
Employees: Hours Per Day	
Visitors: Number Per Day	
Visitors: Average Time in Building	
K-12 Students: Number	
K-12 Students: Hours Per Day	
K-12 Students: Days Per Year	
Additional Comments Re: above Occupancy Data	
College Student Occupancy Data	

Meetings, Sports Events and Other Special Events	
NOTES:	**It is <u>NOT</u> necessary to provide separate documentation for every special event listed. Rather, provide an Overview Statement of the sources of special event occupancy estimates.**
	Provide specific documentation for high occupancy events or very frequent events with high Calculated 24/7/365 Occupancy, especially for occupancies that appear "unusual" or potentially "out of bounds."
Overview Statement Re: Sources of Special Events Occupancy Estimates	

Hospital Patient Data	
Number of Patient Beds	
Average Daily Number of In-Patients	
Average Daily Number of Out-Patients	
Average Time in Building for Out-Patients	

Annual Operating Budget for this Facility

Employees:

	Classification	Number of FTEs[1]	Average Annual Salary per Employee	Total Benefits as Percent of Salary	Annual Salary and Benefits
1	Classified	20	$29,848	38.04%	**$824,044**
2	Licensed	28	$81,637	41.41%	**$3,232,401**
3	Managerial/Administrative	2	$137,101	40.37%	**$384,897**
4					**$0**
5					**$0**
6					**$0**
7					**$0**
8					**$0**
9					**$0**
10					**$0**
	Total Number of FTEs:	**50.00**		**Subtotal:**	**$4,441,342**

[1] FTEs: Full time equivalents

Other Building Expenses

Category	Annual Cost
Supplies	$145,788
Building Maintenance	$66,305
Utilities	$399,300
Insurance	$0
Rent	$0
Average Annual Capital Goods	$65,000
OTHER: specify below	
Percent of District Office/Headquarters Annual Operating Budget Attributed to This Building:	**$0**
If rent is zero (building owned), a proxy rent is calculated automatically, based on the value of the building:	**$12,073,670**
Subtotal:	**$12,750,063**

Total Building Annual Operating Budget:	**$17,191,405**

Annual Operating Budget for this Facility

For entities with multiple facilities, a fraction of the operating budget for a District Office of Headquarters building may be attributed to the building being retrofitted. That is, the annual operating budget for the building above may include part of the operating budget for the District Office or Headquarters Building.
If so, complete the following tables:

District Office/Headquarters Building Employees

	Classification	Number of FTEs[1]	Average Annual Salary per Employee	Total Benefits as Percent of Salary	Annual Salary and Benefits
1					$0
2					$0
3					$0
4					$0
5					$0
6					$0
7					$0
8					$0
9					$0
10					$0
	Total Number of FTEs:	0.00		Subtotal:	$0

District Office/Headquarters Building Expenses

Category		Annual Cost
Supplies		
Building maintenance		
Utilities		
Insurance		
Rent		
Average Annual Capital Goods		
OTHER: specify below		
Enter replacement value of building:		
If rent is zero (building owned), a proxy rent is calculated		$0
	Subtotal:	$0

Total Annual Operating Budget for District Office/Headquarters Building:	$0

DOCUMENTATION: ANNUAL OPERATING BUDGET	
NOTE:	**The Annual Operating Budget is used as a "proxy" for the value of services provided from a building and is used to count the benefits of avoiding loss of service in future earthquake events.**
Operating Budget by Categories	
Percent of District Office or Headquarters Annual Operating Budget Attributed to the Facility	

Building Part A: Data for Benefit-Cost Analysis

Building Name:	**Estacada HS Commons**
Building ID:	**Clac_sch62A**
Building Part Name / Description:	**Main Gym (NOT in scope)**

Evaluation for Building Part A

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.366
	5% in 50 year	0.236
	10% in 50 year	0.164
	20% in 50 year	0.101
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.821
	S_{x1}, 2% in 50 year	0.368
	S_{xs}, 10% in 50 year	0.361
	S_{x1}, 10% in 50 year	0.143

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County		Clackamas	Clackamas
Decimal Latitude		45.29577	45.29577
Decimal Longitude		122.3315	122.3315
Soil Type		C	C
Construction Data			
Primary Structure Type (FEMA 154)		RM1	RM1
Number of Stories		1	1
Year Built		1962	1962
Rapid Visual Screening Data			
Pre-Code		No	No
Post-Benchmark		No	No
Existing Severe Vertical Irregularity		No	No
Existing Moderate Vertical Irregularity		No	No
Existing Plan Irregularity		No	No
Are Existing Structural Irregularities (RVS) resolved by the Structural Retrofit plan?			
Severe Vertical Irregularity is Resolved		N/A	N/A
Moderate Vertical Irregularity is Resolved		N/A	N/A
Plan Irregularity is Resolved		N/A	N/A
Building Data			
Historic Importance		None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	20,533	20,533	20,533
Building Replacement - $/SF	$997	$500.00	$997
Building Replacement Value - $	N/A	N/A	$20,471,401
Historic Building Replacement - $/SF	N/A	N/A	$997
Historic Building Replacement Value - $	N/A	N/A	$20,471,401
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.75	$2.75
Displacement Costs - One Time		$3.25	$3.25
Average Annual Occupancy	0.00	12.78	12.78
Annual Operating Budget	$0	$2,040,411	$2,040,411
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.13	0.13
Moderate Damage State		0.16	0.16
Extensive Damage State		0.24	0.24
Complete Damage State		0.43	0.43
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type		RM1	RM1
Risk Category	IV	III	IV
Slight Damage State		0.13	0.13
Moderate Damage State		0.16	0.16
Extensive Damage State		0.24	0.24
Complete Damage State		0.43	0.43
Beta		0.66	0.66

Data Documentation: Building Part A	
Brief documentation and/or refs to other docs included with your app (inc. pg #) MUST BE PROVIDED below whenever a User Entered Value (Column C) is given that intends to override a Database Default Value in Column D. If no justification is given, the User Input will not be used.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	Source from Oregon Department of Education (ODE) current Facility Assessment template for K-12 building replacement costs.
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Building Part B: Data for Benefit-Cost Analysis

Building Name:	**Estacada HS Commons**
Building ID:	**Clac_sch62B**
Building Part Name / Description:	**Aux Gym & Lockers (NOT in scope)**

Evaluation for Building Part B

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.366
	5% in 50 year	0.236
	10% in 50 year	0.164
	20% in 50 year	0.101
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.821
	S_{x1}, 2% in 50 year	0.368
	S_{xs}, 10% in 50 year	0.361
	S_{x1}, 10% in 50 year	0.143

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Clackamas		Clackamas
Decimal Latitude	45.29577		45.29577
Decimal Longitude	122.3315		122.3315
Soil Type	C		C
Construction Data			
Primary Structure Type (FEMA 154)	W2		W2
Number of Stories	1		1
Year Built	1980		1980
Rapid Visual Screening Data			
Pre-Code			**PROVIDE USER INPUT**
Post-Benchmark			**PROVIDE USER INPUT**
Existing Severe Vertical Irregularity			**PROVIDE USER INPUT**
Existing Moderate Vertical Irregularity			**PROVIDE USER INPUT**
Existing Plan Irregularity			**PROVIDE USER INPUT**
Are Existing Structural Irregularities (RVS) resolved by the Structural Retrofit plan?			
Severe Vertical Irregularity is Resolved		N/A	N/A
Moderate Vertical Irregularity is Resolved		N/A	N/A
Plan Irregularity is Resolved		N/A	N/A
Building Data			
Historic Importance		None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	18,400	18,400	18,400
Building Replacement - $/SF	$997	$500.00	$997
Building Replacement Value - $	N/A	N/A	$18,344,800
Historic Building Replacement - $/SF	N/A	N/A	$997
Historic Building Replacement Value - $	N/A	N/A	$18,344,800
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.75	$2.75
Displacement Costs - One Time		$3.25	$3.25
Average Annual Occupancy	0.00	11.45	11.45
Annual Operating Budget	$0	$1,828,450	$1,828,450
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.11	0.11
Moderate Damage State		0.17	0.17
Extensive Damage State		0.36	0.36
Complete Damage State		0.56	0.56
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type		W2	W2
Risk Category		III	III
Slight Damage State		0.11	0.11
Moderate Damage State		0.17	0.17
Extensive Damage State		0.36	0.36
Complete Damage State		0.56	0.56
Beta		0.66	0.66

Data Documentation: Building Part B	
Brief documentation and/or refs to other docs included with your app (inc. pg #) MUST BE PROVIDED below whenever a User Entered Value (Column C) is given that intends to override a Database Default Value in Column D. If no justification is given, the User Input will not be used.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	Source from Oregon Department of Education (ODE) current Facility Assessment template for K-12 building replacement costs.
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Building Part C: Data for Benefit-Cost Analysis

Building Name:	**Estacada HS Commons**
Building ID:	**Clac_sch62C**
Building Part Name / Description:	**Commons (IN scope)**

Evaluation for Building Part C

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.366
	5% in 50 year	0.236
	10% in 50 year	0.164
	20% in 50 year	0.101
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.821
	S_{x1}, 2% in 50 year	0.368
	S_{xs}, 10% in 50 year	0.361
	S_{x1}, 10% in 50 year	0.143

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Clackamas		Clackamas
Decimal Latitude	45.29577		45.29577
Decimal Longitude	122.3315		122.3315
Soil Type	C		C
Construction Data			
Primary Structure Type (FEMA 154)	URM		URM
Number of Stories	1		1
Year Built	1962		1962
Rapid Visual Screening Data			
Pre-Code	Yes		Yes
Post-Benchmark	No		No
Existing Severe Vertical Irregularity	No		No
Existing Moderate Vertical Irregularity	Yes		Yes
Existing Plan Irregularity	Yes		Yes
Are Existing Structural Irregularities (RVS) resolved by the Structural Retrofit plan?			
Severe Vertical Irregularity is Resolved		N/A	N/A
Moderate Vertical Irregularity is Resolved	Yes	No	Yes
Plan Irregularity is Resolved	Yes	No	Yes
Building Data			
Historic Importance		None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	15,860	15,860	15,860
Building Replacement - $/SF	$997	$500.00	$997
Building Replacement Value - $	N/A	N/A	$15,812,420
Historic Building Replacement - $/SF	N/A	N/A	$997
Historic Building Replacement Value - $	N/A	N/A	$15,812,420
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.75	$2.75
Displacement Costs - One Time		$3.25	$3.25
Average Annual Occupancy	0.00	9.87	9.87
Annual Operating Budget	$0	$1,576,044	$1,576,044
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.11	0.11
Moderate Damage State		0.14	0.14
Extensive Damage State		0.21	0.21
Complete Damage State		0.31	0.31
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type	**C2**	URM	C2
Risk Category	IV	III	IV
Slight Damage State		0.28	0.28
Moderate Damage State		0.52	0.52
Extensive Damage State		1.04	1.04
Complete Damage State		1.78	1.78
Beta		0.62	0.62

Data Documentation: Building Part C	
Brief documentation and/or refs to other docs included with your app (inc. pg #) MUST BE PROVIDED below whenever a User Entered Value (Column C) is given that intends to override a Database Default Value in Column D. If no justification is given, the User Input will not be used.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	Cantilever columns are added to transfer loads from the high diaphragm to low diaphragm and girder trusses are being strengthened to address the step in the diaphragm.
Plan Irregularity	Reentrant corners are addressed using HSS collectors on the roof strengthening scheme in Appendix B.
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	Source from Oregon Department of Education (ODE) current Facility Assessment template for K-12 building replacement costs.
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Building Part D: Data for Benefit-Cost Analysis

Building Name:	**Estacada HS Commons**
Building ID:	**Clac_sch62D**
Building Part Name / Description:	**High School (NOT in scope)**

Evaluation for Building Part D

Seismic Hazard Data		
Region of Seismicity	Moderately High	
PGA Ground Motion (g)	2% in 50 year	0.366
	5% in 50 year	0.236
	10% in 50 year	0.164
	20% in 50 year	0.101
Spectral Accelerations (g)	S_{xs}, 2% in 50 year	0.821
	S_{x1}, 2% in 50 year	0.368
	S_{xs}, 10% in 50 year	0.361
	S_{x1}, 10% in 50 year	0.143

Data Entry Item	User Entered Values	Default Values	Used for BCA
Site Data			
County	Clackamas		Clackamas
Decimal Latitude	45.29577		45.29577
Decimal Longitude	122.3315		122.3315
Soil Type	C		C
Construction Data			
Primary Structure Type (FEMA 154)	URM		URM
Number of Stories	1		1
Year Built	1962		1962
Rapid Visual Screening Data			
Pre-Code			**PROVIDE USER INPUT**
Post-Benchmark			**PROVIDE USER INPUT**
Existing Severe Vertical Irregularity			**PROVIDE USER INPUT**
Existing Moderate Vertical Irregularity			**PROVIDE USER INPUT**
Existing Plan Irregularity			**PROVIDE USER INPUT**
Are Existing Structural Irregularities (RVS) resolved by the Structural Retrofit plan?			
Severe Vertical Irregularity is Resolved		N/A	N/A
Moderate Vertical Irregularity is Resolved		N/A	N/A
Plan Irregularity is Resolved		N/A	N/A
Building Data			
Historic Importance		None	None
Historic Adjustment Modifier	N/A	N/A	1.00
Building Square Footage - SF	118,207	118,207	118,207
Building Replacement - $/SF	$997	$500.00	$997
Building Replacement Value - $	N/A	N/A	$117,852,379
Historic Building Replacement - $/SF	N/A	N/A	$997
Historic Building Replacement Value - $	N/A	N/A	$117,852,379
Contents Value - % of Building Value		25%	25%
Displacement Costs - $/SF/month		$2.75	$2.75
Displacement Costs - One Time		$3.25	$3.25
Average Annual Occupancy	0.00	73.56	73.56
Annual Operating Budget	$0	$11,746,499	$11,746,499
Seismic Fragility Curves			
Before Mitigation			
Slight Damage State		0.10	0.10
Moderate Damage State		0.13	0.13
Extensive Damage State		0.20	0.20
Complete Damage State		0.28	0.28
Beta		0.66	0.66
After Mitigation			
Retrofit Building Type		URM	URM
Risk Category		III	III
Slight Damage State		0.10	0.10
Moderate Damage State		0.13	0.13
Extensive Damage State		0.20	0.20
Complete Damage State		0.28	0.28
Beta		0.66	0.66

Data Documentation: Building Part D	
Brief documentation and/or refs to other docs included with your app (inc. pg #) MUST BE PROVIDED below whenever a User Entered Value (Column C) is given that intends to override a Database Default Value in Column D. If no justification is given, the User Input will not be used.	
Soil Type	
Primary Structure Type	
Number of Stories	
Year Built	
Severe Vertical Irregularity	
Moderate Vertical Irregularity	
Plan Irregularity	
Pre-Code	
Post-Benchmark	
Historic Importance (if not none)	
Building Square Footage	
Building Replacement Value $/SF	Source from Oregon Department of Education (ODE) current Facility Assessment template for K-12 building replacement costs.
Contents Value % of Building Value	
Displacement Costs One Time	
Displacement Costs $/SF/month	
Fragility Curve Parameters Before Mitigation	
Fragility Curve Parameters After Mitigation	
Other Comments	

Appendix E

ASCE 41-17 TIER 1 CHECKLISTS

ASCE 41-17 Tier 1 Checklists

FIRM:	WRK Engineers
PROJECT NAME:	Estacada HS Commons
SEISMICITY LEVEL:	High
PROJECT NUMBER:	24032.00.
COMPLETED BY:	TM
DATE COMPLETED:	10/17/2024
REVIEWED BY:	SGS
REVIEW DATE:	10/20/2024

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

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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								
S1	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	Provide complete load path for transfer of inertial forces to building foundation.
S2	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	Provide all new gravity framing and lateral resisting elements as necessary to provide building separation.
	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	Split level is addressed by cantilever columns and strengthening girder truss at roof step.

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

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Table 17-3. Immediate Occupancy Basic Configuration Checklist

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	See Section 6 of the Seismic Evaluation Report.
☒	☐	☐	☐				
C	**NC**	**N/A**	**U**	SLOPE FAILURE: The building site is located away from potential earthquake-induced slope failures or rockfalls so that it is unaffected by such failures or is capable of accommodating any predicted movements without failure.	5.4.3.1	A.6.1.2	
☒	☐	☐	☐				
C	**NC**	**N/A**	**U**	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated.	5.4.3.1	A.6.1.3	
☒	☐	☐	☐				

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Table 17-3. Immediate Occupancy Basic Configuration Checklist

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	
☒	☐	☐	☐				

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17.18IO Structural Checklist for Building Types URM: Unreinforced Masonry Bearing Walls with Flexible Diaphragms and URMa: Unreinforced Masonry Bearing Walls with Stiff Diaphragms

Table 17-37. Immediate Occupancy Structural Checklist for Building Types URM and URMa

	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	
	☒	☐	☐	☐				
S4	**C**	**NC**	**N/A**	**U**	SHEAR STRESS CHECK: The shear stress in the unreinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than 30 lb/in.^{2} (0.21 MPa) for clay units and 70 lb/in.^{2} (0.48 MPa) for concrete units.	5.5.3.1.1	A.3.2.5.1	Strengthen wall or add new lateral force resisting elements.
	☐	☐	☐	☐				
Connections								
S5	**C**	**NC**	**N/A**	**U**	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections have strength to resist the connection force calculated in the Quick Check procedure of Section 4.4.3.7.	5.7.1.1	A.5.1.1	Add wall anchorage connections and subdiaphragms.
	☐	☐	☐	☐				
	C	**NC**	**N/A**	**U**	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers.	5.7.1.3	A.5.1.2	
	☐	☐	☐	☐				
S6	**C**	**NC**	**N/A**	**U**	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls, and the connections are able to develop the lesser of the shear strength of the walls or diaphragms.	5.7.2	A.5.2.1	Add in-plane connection between shear walls and diaphragm.
	☐	☐	☐	☐				
	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	
	☒	☐	☐	☐				

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

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Table 17-37. Immediate Occupancy Structural Checklist for Building Types URM and URMa

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
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	
Low, Moderate, and High Seismicity (Complete the Following Items in Addition to the Items for Very Low Seismicity)							
Seismic-Force-Resisting System							
S7 C	NC	N/A	U	PROPORTIONS: The height-to-thickness ratio of the shear walls at each story is less than the following: Top story of multi-story building 9 First story of multi-story building 15 All other conditions 13	5.5.3.1.2	A.3.2.5.2	Strengthen/reinforce wall for expected out-of-plane demands.
C	NC	N/A	U	MASONRY LAYUP: Filled collar joints of multi-wythe masonry walls have negligible voids.	5.5.3.4.1	A.3.2.5.3	
Diaphragms (Stiff or Flexible)							
C	NC	N/A	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 15% of the wall length.	5.6.1.3	A.4.1.4	
C	NC	N/A	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 4 ft (1.2 m) long.	5.6.1.3	A.4.1.6	
S8 C	NC	N/A	U	PLAN IRREGULARITIES: There is tensile capacity to develop the strength of the diaphragm at reentrant corners or other locations of plan irregularities.	5.6.1.4	A.4.1.7	Provide diaphragm reinforcement at reentrant corners and openings
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	
Flexible Diaphragms							
S9 C	NC	N/A	U	CROSS TIES: There are continuous cross ties between diaphragm chords.	5.6.1.2	A.4.1.2	Add tension ties and supplemental framing for continuous cross ties.

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

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Table 17-37. Immediate Occupancy Structural Checklist for Building Types URM and URMa

	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	
	☒	☐	☐	☐	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	
S10	☐	☐	☐	☐	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 30 ft (9.2 m) and aspect ratios less than or equal to 3-to-1.	5.6.2	A.4.2.3	Add blocking and supplemental nailing as required to reinforce diaphragm.
S11	☐	☐	☐	☐	NONCONCRETE FILLED DIAPHRAGMS: Untopped metal deck diaphragms or metal deck diaphragms with fill other than concrete consist of horizontal spans of less than 40 ft (12.2 m) and have aspect ratios less than 4-to-1.	5.6.3	A.4.3.1	Strengthen metal deck diaphragm for expected forces.
S12	☐	☐	☐	☐	OTHER DIAPHRAGMS: Diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing.	5.6.5	A.4.7.1	Strengthen diaphragm with system of wood, metal deck, concrete, or horizontal bracing.
	Connections							
S13	☐	☐	☐	☐	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. (3 mm) before engagement of the anchors.	5.7.1.2	A.5.1.4	Install anchors to improve connection stiffness to limit relative movement between the wall and the diaphragms.
S3	☐	☐	☐	☐	BEAM, GIRDER, AND TRUSS SUPPORTS: Beams, girders, and trusses supported by unreinforced masonry walls or pilasters have independent secondary columns for support of vertical loads.	5.7.4.4	A.5.4.5	Add supplemental independent support columns for Beam, Girder, and Truss support.

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

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17.19 Nonstructural Checklist

Table 17-38. Nonstructural Checklist

	Status				Evaluation Statement	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	
	C ☐	NC ☐	N/A ☒	U ☐	HR—MH; LS—MH; PR—MH. PIPING OR DUCTS CROSSING SEISMIC JOINTS: Piping or ductwork carrying hazardous material that either crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5 13.7.6	A.7.13.6	
	Partitions							
N1	C ☐	NC ☒	N/A ☐	U ☐	HR—LMH; LS—LMH; PR—LMH. UNREINFORCED MASONRY: Unreinforced masonry or hollow-clay tile partitions are braced at a spacing of at most 10 ft. (3.0 m) in Low or Moderate Seismicity, or at most 6 ft. (1.8 m) in High Seismicity.	13.6.2	A.7.1.1	Provide HSS strongback bracing at 10 ft. maximum spacing.
	C ☐	NC ☐	N/A ☒	U ☐	HR—LMH; LS—LMH; PR—LMH. HEAVY PARTITIONS SUPPORTED BY CEILINGS: The tops of masonry or hollow-clay tile partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1	

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Table 17-38. Nonstructural Checklist

	Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—MH; PR—MH. DRIFT: Rigid cementitious partitions are detailed to accommodate the following drift ratios: in steel moment frame, concrete moment frame, and wood frame buildings, 0.02; in other buildings, 0.005.	13.6.2	A.7.1.2	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—MH. LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops of gypsum board partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—MH. STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints.	13.6.2	A.7.1.3	
N2	C	NC	N/A	U				
	☐	☒	☐	☐	HR—not required; LS—not required; PR—MH. TOPS: The tops of ceiling-high framed or panelized partitions have lateral bracing to the structure at a spacing equal to or less than 6 ft. (1.8 m).	13.6.2	A.7.1.4	Tops of partitions are to be braced to the adjacent structure.
	Ceilings							
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—H; LS—MH; PR—LMH. SUSPENDED LATH AND PLASTER: Suspended lath and plaster ceilings have attachments that resist seismic forces for every 12 ft.2 (1.1 m2) of area.	13.6.4	A.7.2.3	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—MH; PR—LMH. SUSPENDED GYPSUM BOARD: Suspended gypsum board ceilings have attachments that resist seismic forces for every 12 ft2 (1.1 m2) of area.	13.6.4	A.7.2.3	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—MH. INTEGRATED CEILINGS: Integrated suspended ceilings with continuous areas greater than 144 ft.2 (13.4 m2) and ceilings of smaller areas that are not surrounded by restraining partitions are laterally restrained at a spacing no greater than 12 ft. (3.6 m) with members attached to the structure above. Each restraint location has a minimum of four diagonal wires and compression struts, or diagonal members capable of resisting compression.	13.6.4	A.7.2.2	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—MH. EDGE CLEARANCE: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft,2 (13.4 m2) have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, 1/2 in. (13 mm); in High Seismicity, 3/4 in. (19 mm).	13.6.4	A.7.2.4	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—MH. CONTINUITY ACROSS STRUCTURE JOINTS: The ceiling system does not cross any seismic joint and is not attached to multiple independent structures.	13.6.4	A.7.2.5	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—H. EDGE SUPPORT: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft.2 (13.4 m2) are supported by closure angles or channels not less than 2 in. (51 mm) wide.	13.6.4	A.7.2.6	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—H. SEISMIC JOINTS: Acoustical tile or lay-in panel ceilings have seismic separation joints such that each continuous portion of the ceiling is no more than 2,500 ft.2 (232.3 m2) and has a ratio of long-to-short dimension no more than 4-to-1.	13.6.4	A.7.2.7	
	Light Fixtures							
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—MH; PR—MH. INDEPENDENT SUPPORT: Light fixtures that weigh more per square foot than the ceiling they penetrate are supported independent of the grid ceiling suspension system by a minimum of two wires at diagonally opposite corners of each fixture.	13.6.4 13.7.9	A.7.3.2	

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Table 17-38. Nonstructural Checklist

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—not required; PR—H. PENDANT SUPPORTS: Light fixtures on pendant supports are attached at a spacing equal to or less than 6 ft. Unbraced suspended fixtures are free to allow a 360-degree range of motion at an angle not less than 45 degrees from horizontal without contacting adjacent components. Alternatively, if rigidly supported and/or braced, they are free to move with the structure to which they are attached without damaging adjoining components. Additionally, the connection to the structure is capable of accommodating the movement without failure.	13.7.9	A.7.3.3	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—not required; PR—H. LENS COVERS: Lens covers on light fixtures are attached with safety devices.	13.7.9	A.7.3.4	
Cladding and Glazing							
C	NC	N/A	U				
☐	☐	☒	☐	HR—MH; LS—MH; PR—MH. CLADDING ANCHORS: Cladding components weighing more than 10 lb/ft.2 (0.48 kN/m2) are mechanically anchored to the structure at a spacing equal to or less than the following: for Life Safety in Moderate Seismicity, 6 ft. (1.8 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 ft. (1.2 m).	13.6.1	A.7.4.1	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—MH; PR—MH. CLADDING ISOLATION: For steel or concrete moment-frame buildings, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameterratio of 4.0 or less.	13.6.1	A.7.4.3	
C	NC	N/A	U				
☐	☐	☒	☐	HR—MH; LS—MH; PR—MH. MULTI-STORY PANELS: For multi-story panels attached at more than one floor level, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.4	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—MH; PR—MH. THREADED RODS: Threaded rods for panel connections detailed to accommodate drift by bending of the rod have a length-to-diameter ratio greater than 0.06 times the story height in inches for Life Safety in Moderate Seismicity and 0.12 times the story height in inches for Life Safety in High Seismicity and Position Retention in any seismicity.	13.6.1	A.7.4.9	
C	NC	N/A	U				
☐	☐	☒	☐	HR—MH; LS—MH; PR—MH. PANEL CONNECTIONS: Cladding panels are anchored out of plane with a minimum number of connections for each wall panel, as follows: for Life Safety in Moderate Seismicity, 2 connections; for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 connections.	13.6.1.4	A.7.4.5	
C	NC	N/A	U				
☐	☐	☒	☐	HR—MH; LS—MH; PR—MH. BEARING CONNECTIONS: Where bearing connections are used, there is a minimum of two bearing connections for each cladding panel.	13.6.1.4	A.7.4.6	
C	NC	N/A	U				
☐	☐	☒	☐	HR—MH; LS—MH; PR—MH. INSERTS: Where concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel.	13.6.1.4	A.7.4.7	

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Table 17-38. Nonstructural Checklist

	Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—MH; PR—MH. OVERHEAD GLAZING: Glazing panes of any size in curtain walls and individual interior or exterior panes more than 16 ft.2 (1.5 m2) in area are laminated annealed or laminated heat-strengthened glass and are detailed to remain in the frame when cracked.	13.6.1.5	A.7.4.8	
	Masonry Veneer							
	☒	☐	☐	☐	HR—not required; LS—LMH; PR—LMH. TIES: Masonry veneer is connected to the backup with corrosion-resistant ties. There is a minimum of one tie for every 2-2/3 ft.2 (0.25 m2), and the ties have spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 36 in. (914 mm); for Life Safety in High Seismicity and for Position Retention in any seismicity, 24 in. (610 mm).	13.6.1.2	A.7.5.1	
	☐	☐	☒	☐	HR—not required; LS—LMH; PR—LMH. SHELF ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor.	13.6.1.2	A.7.5.2	
	☐	☐	☒	☐	HR—not required; LS—LMH; PR—LMH. WEAKENED PLANES: Masonry veneer is anchored to the backup adjacent to weakened planes, such as at the locations of flashing.	13.6.1.2	A.7.5.3	
	☐	☐	☒	☐	HR—LMH; LS—LMH; PR—LMH. UNREINFORCED MASONRY BACKUP: There is no unreinforced masonry backup.	13.6.1.1 13.6.1.2	A.7.7.2	
	☐	☐	☒	☐	HR—not required; LS—MH; PR—MH. STUD TRACKS: For veneer with cold-formed steel stud backup, stud tracks are fastened to the structure at a spacing equal to or less than 24 in. (610 mm) on center.	13.6.1.1 13.6.1.2	A.7.6.1	
	☒	☐	☐	☐	HR—not required; LS—MH; PR—MH. ANCHORAGE: For veneer with concrete block or masonry backup, the backup is positively anchored to the structure at a horizontal spacing equal to or less than 4 ft. along the floors and roof.	13.6.1.1 13.6.1.2	A.7.7.1	
	☐	☐	☒	☐	HR—not required; LS—not required; PR—MH. WEEP HOLES: In veneer anchored to stud walls, the veneer has functioning weep holes and base flashing.	13.6.1.2	A.7.5.6	
	☐	☐	☒	☐	HR—not required; LS—not required; PR—MH. OPENINGS: For veneer with cold-formed-steel stud backup, steel studs frame window and door openings.	13.6.1.1 13.6.1.2	A.7.6.2	
	Parapets, Cornices, Ornamentation, and Appendages							
	☐	☐	☒	☐	HR—LMH; LS—LMH; PR—LMH. URM PARAPETS OR CORNICES: Laterally unsupported unreinforced masonry parapets or cornices have height-to-thicknessratios no greater than the following: for Life Safety in Low or Moderate Seismicity, 2.5; for Life Safety in High Seismicity and for Position Retention in any seismicity, 1.5.	13.6.5	A.7.8.1	
N3	☐	☒	☐	☐	HR—not required; LS—LMH; PR—LMH. CANOPIES: Canopies at building exits are anchored to the structure at a spacing less than the following: for Life Safety in Low or Moderate Seismicity, 10 ft. (3.0 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 6 ft. (1.8 m).	13.6.6	A.7.8.2	Provide additional anchorage of canopies to building structure.
	☐	☐	☒	☐	HR—H; LS—MH; PR—LMH. CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement.	13.6.5	A.7.8.3	
	☐	☐	☒	☐	HR—MH; LS—MH; PR—LMH. APPENDAGES: Cornices, parapets, signs, and other ornamentation or appendages that extend above the highest point of anchorage to the structure or cantilever from components are reinforced and anchored to the structural system at a spacing equal to or less than 6 ft. (1.8 m). This evaluation statement item does not apply to parapets or cornices covered by other evaluation statements.	13.6.6	A.7.8.4	

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Table 17-38. Nonstructural Checklist

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
Masonry Chimneys							
C ☐	NC ☐	N/A ☒	U ☐	HR—LMH; LS—LMH; PR—LMH. URM CHIMNEYS: Unreinforced masonry chimneys extend above the roof surface no more than the following: for Life Safety in Low or Moderate Seismicity, 3 times the least dimension of the chimney; for Life Safety in High Seismicity and for Position Retention in any seismicity, 2 times the least dimension of the chimney.	13.6.7	A.7.9.1	
C ☐	NC ☐	N/A ☒	U ☐	HR—LMH; LS—LMH; PR—LMH. ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof.	13.6.7	A.7.9.2	
Stairs							
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	
C ☐	NC ☐	N/A ☒	U ☐	HR—not required; LS—not required; PR—MH. ACCESS FLOORS: Access floors more than 9 in. (229 mm) high are braced.	13.6.10	A.7.11.4	
C ☐	NC ☐	N/A ☒	U ☐	HR—not required; LS—not required; PR—MH. EQUIPMENT ON ACCESS FLOORS: Equipment and other contents supported by access floor systems are anchored or braced to the structure independent of the access floor.	13.7.7 13.6.10	A.7.11.5	
C ☐	NC ☐	N/A ☒	U ☐	HR—not required; LS—not required; PR—H. SUSPENDED CONTENTS: Items suspended without lateral bracing are free to swing from or move with the structure from which they are suspended without damaging themselves or adjoining	13.8.2	A.7.11.6	
Mechanical and Electrical Equipment							
C ☐	NC ☐	N/A ☒	U ☐	HR—not required; LS—H; PR—H. FALL-PRONE EQUIPMENT: Equipment weighing more than 20 lb. (9.1 kg) whose center of mass is more than 4 ft. (1.2 m) above the adjacent floor level, and which is not in-lineequipment, is braced.	13.7.1 13.7.7	A.7.12.4	

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	Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—H; PR—H. IN-LINE EQUIPMENT: Equipment installed in line with a duct or piping system, with an operating weight more than 75 lb. (34.0 kg), is supported and laterally braced independent of the duct or piping system.	13.7.1	A.7.12.5	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—H; PR—MH. TALL NARROW EQUIPMENT: Equipment more than 6 ft. (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 is anchored to the floor slab or adjacent structural walls.	13.7.1 13.7.7	A.7.12.6	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—MH. MECHANICAL DOORS: Mechanically operated doors are detailed to operate at a story drift ratio of 0.01.	13.6.9	A.7.12.7	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—H. SUSPENDED EQUIPMENT: Equipment suspended without lateral bracing is free to swing from or move with the structure from which it is suspended without damaging itself or adjoining components.	13.7.1 13.7.7	A.7.12.8	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—H. VIBRATION ISOLATORS: Equipment mounted on vibration isolators is equipped with horizontal restraints or snubbers and with vertical restraints to resist overturning.	13.7.1	A.7.12.9	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—H. HEAVY EQUIPMENT: Floor-supported or platform-supportedequipment weighing more than 400 lb. (181.4 kg) is anchored to the structure.	13.7.1 13.7.7	A.7.12.10	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—H. ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure.	13.7.7	A.7.12.11	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—H. CONDUIT COUPLINGS: Conduit greater than 2.5 in. (64 mm) trade size that is attached to panels, cabinets, or other equipment and is subject to relative seismic displacement has flexible couplings or connections.	13.7.8	A.7.12.12	
	Piping							
N4	C	NC	N/A	U				
	☐	☒	☐	☐	HR—not required; LS—not required; PR—H. FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings.	13.7.3 13.7.5	A.7.13.2	Add flexible couplings to fluid and gas piping.
N5	C	NC	N/A	U				
	☐	☒	☐	☐	HR—not required; LS—not required; PR—H. FLUID AND GAS PIPING: Fluid and gas piping is anchored and braced to the structure to limit spills or leaks.	13.7.3 13.7.5	A.7.13.4	Brace all fluid and gas piping to the structure.
	C	NC	N/A	U				
	☒	☐	☐	☐	HR—not required; LS—not required; PR—H. C-CLAMPS:One-sided C-clamps that support piping larger than 2.5 in. (64 mm) in diameter are restrained.	13.7.3 13.7.5	A.7.13.5	
	C	NC	N/A	U				
	☐	☐	☒	☐	HR—not required; LS—not required; PR—H. PIPING CROSSING SEISMIC JOINTS: Piping that crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5	A.7.13.6	
	Ducts							
N6	C	NC	N/A	U				
	☐	☒	☐	☐	HR—not required; LS—not required; PR—H. DUCT BRACING: Rectangular ductwork larger than 6 ft2 (0.56 m2) 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	Provide lateral bracing at rectangular duct work.

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

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Table 17-38. Nonstructural Checklist

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference	Comments
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	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—not required; PR—H. ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored.	13.7.11	A.7.16.3	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—not required; PR—H. SEISMIC SWITCH: Elevators capable of operating at speeds of 150 ft./min. (0.30 m/min.) or faster are equipped with seismic switches that meet the requirements of ASME A17.1 or have trigger levels set to 20% of the acceleration of gravity at the base of the structure and 50% of the acceleration of gravity in other locations.	13.7.11	A.7.16.4	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—not required; PR—H. SHAFT WALLS: Elevator shaft walls are anchored and reinforced to prevent toppling into the shaft during strong shaking.	13.7.11	A.7.16.5	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—not required; PR—H. COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1.	13.7.11	A.7.16.6	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—not required; PR—H. BRACKETS: The brackets that tie the car rails and the counterweight rail to the structure are sized in accordance with ASME A17.1.	13.7.11	A.7.16.7	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—not required; PR—H. SPREADER BRACKET: Spreader brackets are not used to resist seismic forces.	13.7.11	A.7.16.8	
C	NC	N/A	U				
☐	☐	☒	☐	HR—not required; LS—not required; PR—H. GO-SLOW ELEVATORS: The building has a go-slow elevator system.	13.7.11	A.7.16.9	

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

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Appendix F

DOGAMI HAZARDS, GEOTECHNICAL LETTER, & RVS

Estacada Liquefaction



October 7, 2024

Liquefaction_Susceptibility_Map

- None
- Very Low
- Low
- Moderate
- High
- Very High

1:1,200

0 0.01 0.01 0.02 mi

0 0.01 0.02 0.04 km

Maxar, Microsoft, Oregon Department of Transportation, Geographic Information Services Unit

Estacada Landslide



October 7, 2024

Shallow Susceptibility

- Low susceptibility to shallow landslides
- Moderate susceptibility to shallow landslides
- High susceptibility to shallow landslides

Statewide Landslide Susceptibility Overview Map

- Low
- Moderate
- High
- Very High

1:1,200

0 0.01 0.01 0.02 mi

0 0.01 0.02 0.04 km

Maxar, Microsoft, Oregon Department of Transportation, Geographic Information Services Unit

Estacada Flood



October 7, 2024

- Floodway
- 100-Year Floodplain
- 500-Year Floodplain
- 2015 FEMA Q3 Flood
- 2015 State Digitized Flood

1:1,200

0 0.01 0.01 0.02 mi

0 0.01 0.02 0.04 km

Maxar, Microsoft, Oregon Department of Transportation, Geographic Information Services Unit

Geotechnical ■ Environmental ■ Special Inspections
Columbia West Engineering, Inc

Vancouver, Washington • Phone: 360-823-2900
Portland, Oregon • Phone: 971-384-1666
www.columbiawestengineering.com

December 6, 2024

WRK Structural and Seismic Engineers
215 West 12th Street, Suite 202
Vancouver, WA 98660

Attn: Brian Knight

Re: Preliminary Geologic Hazards Assessment
Estacada High School
355 NE 6th Avenue
Estacada, Oregon
CWE Project: WRK-4-01-19

INTRODUCTION

Columbia West Engineering, Inc. (Columbia West) is pleased to provide this preliminary geologic hazards assessment for Estacada High School in Estacada, Oregon. The school is located at 355 NE 6th Avenue.

This assessment will be used to support applications for funding of possible improvements to the school. Our work is limited to a literature review, and site-specific geotechnical explorations and geotechnical design and construction recommendations are not provided in this assessment.

SITE CONDITIONS

SURFACE CONDITIONS

Surface conditions at the site are based on information reviewed on GoogleEarth™ and topographic data obtained from the Oregon Department of Geology and Mineral Industries (DOGAMI) LiDAR viewer website.[1,2] Topography was downloaded from the LiDAR website and viewed in ArcGIS.

The school is located northeast of the intersection of NE Main Street and NE 6th Avenue in Estacada, Oregon. The school is bounded by playing fields to the north, a creek and cemetery to the east, an open area with a creek and a parking lot to the south, and residential properties to the west.

The irregularly shaped school consists of multiple wings that are generally one to two stories in height. The school is predominately composed of brick with variable roofing types. With the exception of a slope approximately 300 feet east of the main portion of the school, topography in the area is generally flat to gently sloping. The approximately 2H:1V slope east of the school is approximately 200 feet in height and is covered by a mixture of open areas, roadways, and residential structures.

[1] GoogleEarth: https://earth.google.com
[2] DOGAMI LiDAR: https://gis.dogami.oregon.gov/maps/lidarviewer/

Aside from the school structure, the remainder of the area is occupied by parking lots and landscaping areas that primarily consist of grass with occasional bushes and trees.

SUBSURFACE CONDITIONS

Geologic Mapping

Based on geologic mapping, the near-surface soil at the site consists of Pleistocene-aged terrace deposits comprised of unconsolidated cobble and boulder gravel and silty mudflow deposits up to 200 feet thick along the Clackamas River. The terrace deposits are underlain by Pliocene to Pleistocene gravels of the Springwater Formation.[3]

Web Soil Survey Mapping

The Natural Resources Conservation Service Web Soil Survey indicates the near-surface soil at the site generally consists of Woodburn silt loam comprised of 5 feet of silt.[4]

LiDAR Review

Columbia West reviewed grayscale LiDAR mapping from DOGAMI to observe topographic landforms and past landsliding in the area. The topography near the school is flat; however, slopes are present east of the school and a large, pre-historic landslide is mapped in the area. A more detailed discussion of the landslide is presented in the "Landsliding" section.

Water Well Logs

We reviewed available water well logs from the Oregon Water Resources Department as part of this assessment.[5] Multiple wells are located around the school. Subsurface conditions on the well logs generally consist of 5 to 10 feet of silt and clay with variable proportions of sand underlain by gravel and cobbles with clay and sand. Groundwater was generally observed between 5 and 10 feet below ground surface (BGS).

MAPPED GEOLOGIC HAZARDS

We reviewed mapped geologic hazards presented on the DOGAMI HazVu website in the approximate time period this assessment was prepared.[6] A summary of geologic hazards at the site is presented in Table 1.

[3] Schlicker, H.G., and Finlayson, C.T. Geology and Geologic Hazards of Northwest Clackamas County. Oregon Department of Geology and Mineral Industries. Bulletin 87.
[4] U.S. Department of Agriculture. Web Soil Survey. National Resources Conservation Services: https://websoilsurvey.nrcs.usda.gov/app/HomePage.htm
[5] Oregon Water Resources Department: https://apps.wrd.state.or.us/apps/gw/wl_well_report_map/Default.aspx
[6] DOGAMI HazVu: https://gis.dogami.oregon.gov/maps/hazvu/

Table 1. DOGAMI HazVu Geologic Hazard Summary

Location	Cascadia Earthquake Expected Shaking	Flood Hazard Zone	Tsunami Hazard Zone	Volcano Hazard Zone	Liquefaction Hazard	Active Fault Rupture (closest fault)	Landslide Hazard Zone	Closest Historical Landslide
Estacada High School	Very strong	None	None	None	Very low to low	None (>9 miles south)	Moderate	Just east of site

DISCUSSION

GENERAL

Mapped geologic hazards that may affect the site are Cascadia earthquake shaking, liquefaction, and landsliding. A discussion of each is presented below.

CASCADIA EARTHQUAKE SHAKING

The Cascadia subduction zone is the region where the Juan de Fuca Plate is being subducted beneath the North American Plate. This subduction is occurring in the coastal region between Vancouver Island and northern California. Evidence has accumulated suggesting that this subduction zone has generated eight great earthquakes in the last 4,000 years, with the most recent event occurring approximately 300 years ago.[7] The fault trace is mapped approximately 50 to 120 kilometers off the Oregon Coast. A subduction interface earthquake that occurs between the interface of the Juan de Fuca Plate and North American Plate is capable of generating earthquake magnitudes of M_W 9.2, which will result in strong shaking that will diminish with distance away from the interface of the tectonic plates.

The school is located more than 80 miles east of the Oregon Coast. Based on the distance from the interface of the tectonic plates to the site, shaking is expected; however, based on the expected soil conditions at the site, earthquake shaking will be adequately addressed by the code-level seismic design parameters for the facility.

LIQUEFACTION

Liquefaction is caused by a rapid increase in pore water pressure that reduces the effective stress between soil particles. Granular soil, which relies on interparticle friction for strength, undergoes a loss of strength until the excess pore pressures dissipate. In general, loose, saturated sand soil with low silt and clay content is the most susceptible to liquefaction. Silty soil with low plasticity can be susceptible to strain softening under relatively higher levels of ground shaking. Strain-softened soil has volumetric strains much smaller than liquefiable soil due to matrix effects.

[7] Weaver, C.S., and K.M. Shedlock 1991, Program for earthquake hazards assessment in the Pacific Northwest: U.S. Geological Survey Circular 1067, 29 pgs.

DOGAMI mapping indicates the school and general region are located in a very low to low liquefaction hazard area. Based on logs of wells adjacent to and near the school, subsurface conditions at the site likely consist 5 to 10 feet of silt and clay underlain by gravel and cobbles. Groundwater is typically 5 to10 feet BGS.

Based on anticipated soil and groundwater conditions at the site, we conclude the potential for liquefaction at the school is very low.

LANDSLIDING

Topography within the footprint of the school is generally flat. Topography north, west, and south of the school is also flat. Directly east of the school, elevations grade upward to the east at slopes as steep as 2H:1V. In addition, the slope is mapped as a having pre-historic (more than 150 years) slope movement. The landslide is described as deep-seated and is approximately 27 acres in size. The head scarp height is approximately 33 feet, and the failure depth is approximately 32.5 feet. The slide is mapped as having complex movement, and the confidence of the slide is low.

In general, the topography around the school is flat, and based on mapping, the landslide is more than 300 feet from the main school structure. Based on the heights and slopes of the nearby mapped landslide and distance from the school to the base of the slope, we anticipate that potential for re-activation of the large landslide during the lifetime of the school is very low.

CONCLUSIONS

Based on review of available information, there is a very low risk of any geologic hazards affecting the school and proposed improvements. If improvements are completed, we anticipate that foundations can be supported on conventional spread footings on firm, native soil at the site.

Our conclusions are based on available information, and a geotechnical investigation and report may be required to confirm the assumptions in this assessment and provide geotechnical design and construction recommendations for future work.

LIMITATIONS

We have prepared this assessment for use by WRK Structural and Seismic Engineers for use in grant applications for improvements to the described facility. The information in this assessment is based on review of available literature and conclusions, and interpretations should not be construed as warranty of the subsurface conditions and are not applicable to other sites.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time this report was prepared. No warranty, express or implied, should be understood.

♦ ♦ ♦

Please do not hesitate to contact us if you have questions or require additional information.

Sincerely,

Nick Paveglio, PE
Principal Engineer

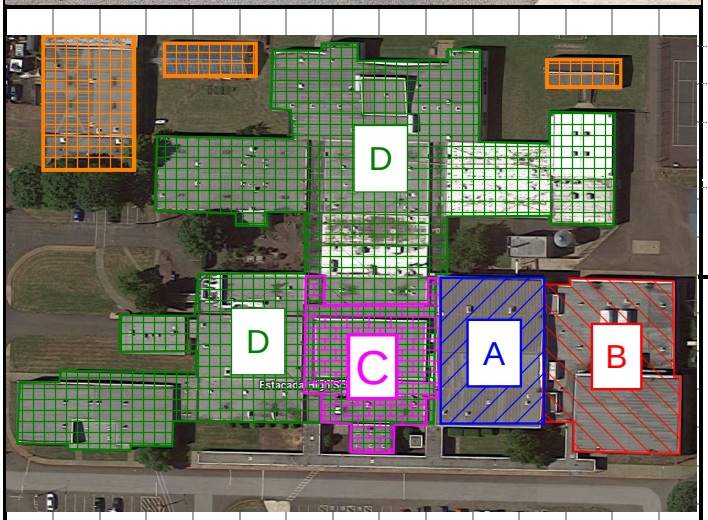
NNP:kat
Document ID: WRK-4-01-19-120624-geol.docx



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

Clac_sch62C
Level 1
MODERATELY HIGH Seismicity





SKETCH

Address: 355 NE 6th Ave.
Estacada, OR **Zip:** 97023
Other Identifiers: Building Part C
Building Name: Estacada High School Commons
Use: School
Latitude: 45.29577 **Longitude:** -122.3315
S_S: 0.687 **S_1:** 0.314
Screener(s): Spencer Straub **Date/Time:** 7/9/2024

No. Stories: Above Grade: 1 Below Grade: 0 **Year Built:** 1962 ☐ EST
Total Floor Area (sq. ft.): 15,860 **Code Year:**
Additions: ☐ None ☐ Yes, Year(s) Built:

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

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

Geologic Hazards: Liquefaction: Yes (No) DNK Landslide: Yes (No) DNK Surf. Rupt.: Yes (No) DNK

Adjacency: ☒ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ☒ Vertical (type/severity) Split Level / Moderate
☒ Plan (type) Reentrant Corners

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

COMMENTS:
Building Part C is in Scope.
Building Parts A, B, and D are out of scope.

☐ 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
Basic Score	**4.1**	**3.7**	**3.2**	**2.3**	**2.2**	**2.9**	**2.2**	**2.0**	**1.7**	**2.1**	**1.4**	**1.8**	**1.5**	**1.8**	**1.8**	**1.2**	**2.2**
Severe Vertical Irregularity, V_{L1}	-1.3	-1.3	-1.3	-1.1	-1.0	-1.2	-1.0	-0.9	-1.0	-1.1	-0.8	-1.0	-0.9	-1.0	-1.0	-0.8	NA
Moderate Vertical Irregularity, V_{L1}	-0.8	-0.8	-0.8	-0.7	-0.6	-0.8	-0.6	-0.6	-0.6	-0.6	-0.5	-0.6	-0.6	-0.6	-0.6	(-0.5)	NA
Plan Irregularity, P_{L1}	-1.3	-1.2	-1.1	-0.9	-0.8	-1.0	-0.8	-0.7	-0.7	-0.9	-0.6	-0.8	-0.7	-0.7	-0.7	(-0.5)	NA
Pre-Code	-0.8	-0.9	-0.9	-0.5	-0.5	-0.7	-0.6	-0.2	-0.4	-0.7	-0.1	-0.4	-0.3	-0.5	-0.5	(-0.1)	-0.3
Post-Benchmark	1.5	1.9	2.3	1.4	1.4	1.0	1.9	NA	1.9	2.1	NA	2.1	2.4	2.1	2.1	NA	1.2
Soil Type A or B	0.3	0.6	0.9	0.6	0.9	0.3	0.9	0.9	0.6	0.8	0.7	0.9	0.7	0.8	0.8	0.6	0.9
Soil Type E (1-3 stories)	0.0	-0.1	-0.3	-0.4	-0.5	0.0	-0.4	-0.5	-0.2	-0.2	-0.4	-0.5	-0.3	-0.4	-0.4	-0.3	-0.5
Soil Type E (> 3 stories)	-0.5	-0.8	-1.2	-0.7	-0.7	NA	-0.7	-0.6	-0.6	-0.8	-0.4	NA	-0.5	-0.6	-0.7	-0.3	NA
Minimum Score, S_{MIN}	*1.6*	*1.2*	*0.8*	*0.5*	*0.5*	*0.9*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.3*	*0.2*	*0.3*	*0.3*	*0.2*	*1.4*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 0.1 FEMA 154 Collapse Potential = HIGH

EXTENT OF REVIEW

Exterior: ☐ Partial ☒ All Sides ☐ Aerial
Interior: ☐ None ☒ Visible ☒ Entered
Drawings Reviewed: ☒ Yes ☐ No
Soil Type Source: DOGAMI
Geologic Hazards Source: USGS.gov
Contact Person: Spencer Straub

LEVEL 2 SCREENING PERFORMED?

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

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

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

ACTION REQUIRED

Detailed Structural Evaluation Required?

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

Detailed Nonstructural Evaluation Recommended? *(check one)*

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

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

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