

ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1-9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A – PROPERTY INFORMATION				FOR INSURANCE COMPANY USE	
A1. Building Owner's Name Ephrata School District #165				Policy Number:	
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 451 3rd Ave NW				Company NAIC Number:	
City Ephrata		State Washington		ZIP Code 98823	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Lot 1 Stover School Addition Tax Parcel #140661000					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) _____					
A5. Latitude/Longitude: Lat. <u>47.326867</u> Long. <u>-119.554379</u> Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983					
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.					
A7. Building Diagram Number <u>8</u>					
A8. For a building with a crawlspace or enclosure(s):					
a) Square footage of crawlspace or enclosure(s) <u>1820.00</u> sq ft					
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>18</u>					
c) Total net area of flood openings in A8.b <u>4050.00</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
A9. For a building with an attached garage:					
a) Square footage of attached garage <u>N/A</u> sq ft					
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A9.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number City of Ephrata 530051			B2. County Name Grant		B3. State Washington
B4. Map/Panel Number 53025C0758C	B5. Suffix C	B6. FIRM Index Date 02-18-2009	B7. FIRM Panel Effective/ Revised Date 02-18-2009	B8. Flood Zone(s) AO	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) 1 Foot
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input checked="" type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					

ELEVATION CERTIFICATE

OMB No. 1660-0008
Expiration Date: November 30, 2018

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
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SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: Construction Drawings* Building Under Construction* Finished Construction
*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: GP 13028-54 1D6615 Vertical Datum: NAVD 88

Indicate elevation datum used for the elevations in items a) through h) below.

NGVD 1929 NAVD 1988 Other/Source: _____

Datum used for building elevations must be the same as that used for the BFE.


Check the measurement used.

- | | | | |
|---|----------------|--|---------------------------------|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor) | <u>1283.20</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| b) Top of the next higher floor | <u>1286.94</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| d) Attached garage (top of slab) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building
(Describe type of equipment and location in Comments) | <u>1290.20</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG) | <u>1283.15</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG) | <u>1283.54</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support | <u>1283.31</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

Were latitude and longitude in Section A provided by a licensed land surveyor? Yes No Check here if attachments.

Certifier's Name K.S. Knudsen	License Number 8588		
Title Owner			
Company Name Knudsen Land Survey, L.L.C.			
Address P.O. Box 505			
City Ephrata	State Washington		ZIP Code 98823
Signature <i>K. Knudsen</i>	Date 08-23-2017	Telephone (509) 754-4376	Ext.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location, per C2(e), if applicable)

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**SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED)
FOR ZONE AO AND ZONE A (WITHOUT BFE)**

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

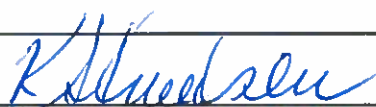
- E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).
- a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ 0.34 feet meters above or below the HAG.
 - b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ 0.05 feet meters above or below the LAG.
- E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 1–2 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ 3.40 feet meters above or below the HAG.
- E3. Attached garage (top of slab) is _____ N/A feet meters above or below the HAG.
- E4. Top of platform of machinery and/or equipment servicing the building is _____ 6.66 feet meters above or below the HAG.
- E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? Yes No Unknown. The local official must certify this information in Section G.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name
K.S. Knudsen

Address P.O. Box 505	City Ephrata	State Washington	ZIP Code 98823
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Signature 	Date 08-23-2017	Telephone (509) 754-4376
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Comments

Check here if attachments.

BUILDING PHOTOGRAPHS

ELEVATION CERTIFICATE

See Instructions for Item A6.

OMB No. 1660-0008

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If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.



Photo One Caption Photo taken 8/22/2017

Clear Photo One



Photo Two Caption Photo taken 8/22/2017

Clear Photo Two

ELEVATION CERTIFICATE

BUILDING PHOTOGRAPHS

Continuation Page

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If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.

Photo Three

Photo Three

Photo Three Caption

Clear Photo Three

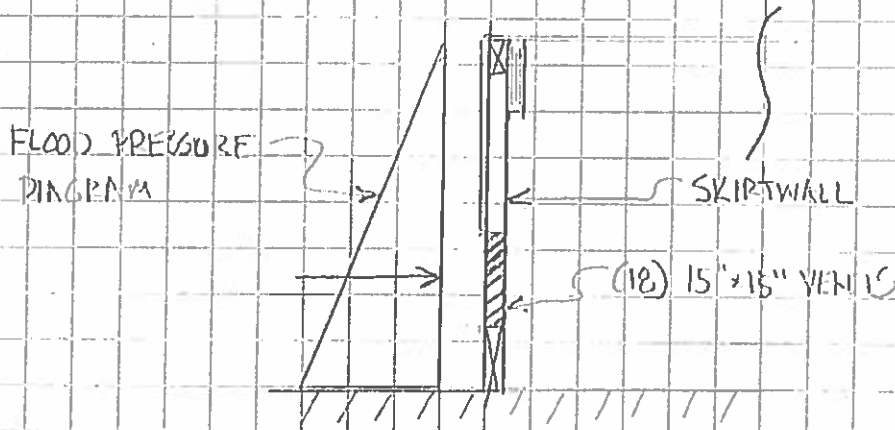
Photo Four

Photo Four

Photo Four Caption

Clear Photo Four

FLOOD PRESSURE ON SKIRTPANEL



FLOOD PRESSURES USED IN CALCULATIONS
WRE EXTREMELY CONSERVATIVE. FLOOD WATERS
WOULD FLOW THROUGH VENTS TO EQUALIZE
PRESSURE WITH ONLY MINIMAL PRESSURE DIFFERENCE
DURING EQUALIZATION.
SKIRTPANEL SYSTEM WOULD ONLY EXPERIENCE
A FRACTION OF USUAL FLOOD PRESSURE.

FLOOD FOUNDATION

HYDRODYNAMIC LOADS

$V = 5 \text{ ft/sec} \leq 10 \text{ ft/sec}$

SURCHARGE DEPTH = $d_h = \frac{aV^2}{2g}$ (ASCE 7-10, SEC 5.4.3)

$a = 1.98$

(FLUID MECHANICS, FINNEMORE FIG 3.7B)

$d_h = \frac{1.98 (5 \text{ ft/sec})^2}{2(32.2 \text{ ft/sec}^2)} = 0.77'$

$D_{FE} = 3.0'$, $D_{FE}' = D_{FE} + d_h = 3.0' + 0.77' = 3.77'$

$F_a = \frac{1}{2} \rho C_d A V^2$

(FLUID MECHANICS, FINNEMORE EQN 3.16)

$\frac{F_a}{F_t} = \frac{(62.4 \text{ lb/ft}^3) \left(\frac{3.77'}{2}\right) (3.77')}{F_t} = \underline{443 \text{ pF}}$

$\frac{1}{2} \rho C_d A V^2$

CONTROLLING AND COMBO

$0.60 + 0.6W + 0.75 F_a$

(ASCE 7-10, SEC 2.4.2)

FLOOD VENTING

ENCLOSED AREA = $64' \times 27.1' = 1773 \text{ ft}^2$

REQ'D VENTING

$A_v = 1773 \text{ ft}^2 \left(\frac{1 \text{ in}^2}{1 \text{ ft}^2} \right) = 1773 \text{ in}^2$

NET OPEN AREA PER VENT

$A_o = 13" \times 13" (.63) = 106 \text{ in}^2$

$N = \frac{A_v}{A_o} = \frac{1773 \text{ in}^2}{106 \text{ in}^2} \cdot 16.7 \rightarrow \underline{\underline{18}}$

USE MIN (18) 15" SQ VENTS (MODERN STANDARD)
w/ LOWER EDGE \leq 12" ABOVE GRADE

FLOATATION - N/A

SCOUR - N/A (ON ASPHALT)

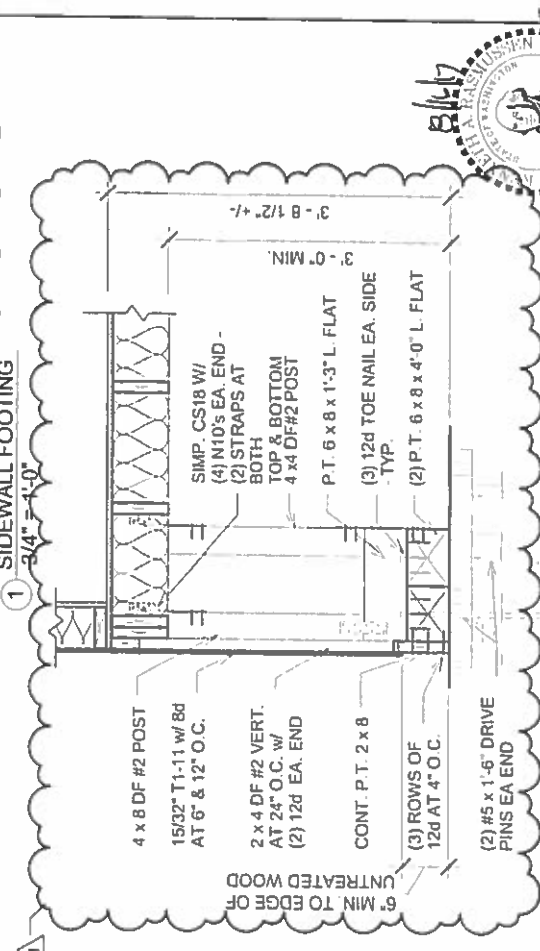
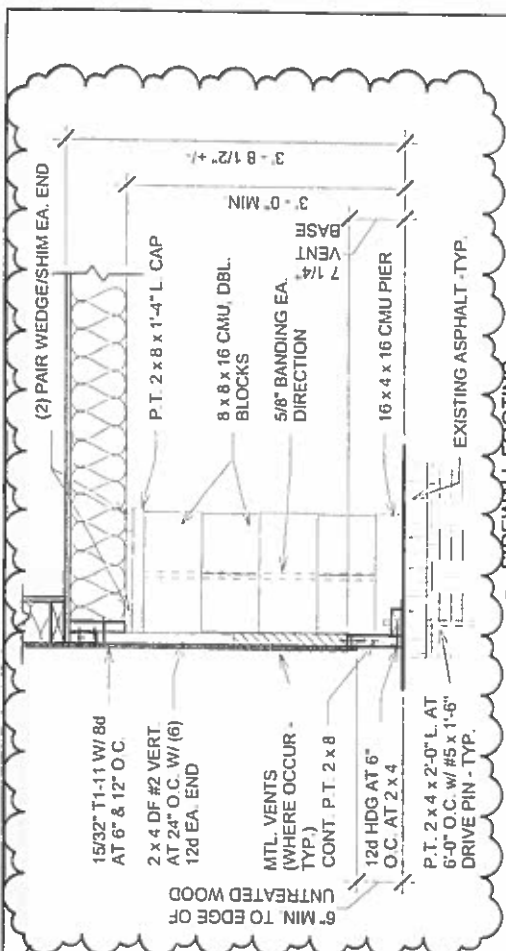
FOUNDATION NOTES

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS. THIS STRUCTURE SHALL BE ADEQUATELY BRACED FOR WIND OR EARTHQUAKE FORCES AND TEMPORARY FORCES DURING SETTING AND ERECTION UNTIL ALL UNITS HAVE BEEN PERMANENTLY ATTACHED THERETO. REMOVE ORGANIC / SOD UNDER ALL BEARING PADS.

2. DESIGN LOADS:

ROOF DEAD LOAD	12 PSF
ROOF SNOW LOAD	25 PSF
FLOOR DEAD LOAD	10 PSF
FLOOR LIVE LOAD	50 PSF
WIND LOAD	Lambda = 1.0 Vult = 140 MPH (Vasd = 108 MPH) 3 SECOND GUST - EXP. B
SEISMIC	BEARING WALL SYSTEM: $S_s = 1.500$, $F_a = 1.000$ $S_{ps} = 1.000$, RISK CATEGORY II $I_a = 1.0$, SEISMIC DESIGN CATEGORY C, SITE CLASS D
ALLOWABLE BEARING CAPACITY	2000 PSF AT ASPHALT

- EXCEPT AS NOTED, DIMENSION LUMBER FOR FOUNDATION SHALL BE HEM-FIR, NO. 2 AND BETTER. TREATED LUMBER SHALL BE ACQ PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD U1, USE CATEGORY UC4A, TO A MINIMUM RETENTION OF 0.40 PCF. AT PIECES IN CONTACT WITH GROUND, SAWN END GRAIN SHALL BE FIELD TREATED WITH 2% MIN. CONCENTRATION COPPER NAPHTHENE. TREATED PLATE STOCK SHALL BE GOOD QUALITY AND SHALL NOT CONTAIN EXCESSIVE SPLITS, CHECKS OR WANE. 2 x 4 FRAMING SHALL BE HEM-FIR, STANDARD OR BETTER, TREATED 2 x 4 FRAMING SHALL MEET THE REQUIREMENTS SPECIFIED ABOVE.
- ALL FASTENERS TO BE HOT DIPPED GALVANIZED OR EQUAL AT P.T. MEMBERS.
- VENT CRAWL SPACE w/ (18) 15" SQ. METAL VENTS (MODERN STANDARD), INSTALL 6 MIL. VAPOR BARRIER ON GROUND IN ENTIRE CRAWL SPACE. LAP VAPOR BARRIER JOINTS MIN 12". (VAPOR BARRIER NOT REQUIRED AT ASPHALT OR CONCRETE IF OCCURS)
- CONNECT STORM WATER FROM ROOF GUTTERS AND DOWNSPOUTS AND DIRECT AWAY FROM BUILDING PAD TO AN APPROVED DRAINAGE SYSTEM.
- FOUNDATION PLANS AND DETAILS ARE NOT REVIEWED BY BCD OR L&I, EXCEPT FOR THE SUITABILITY OF THE DESIGN TO SUPPORT THE MODULAR BUILDING. APPROVAL AND INSPECTION OF THE FOUNDATION SYSTEM IS THE JURISDICTION OF THE LOCAL BUILDING OFFICIAL.



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2. DESIGN LOADS:

ROOF DEAD LOAD	12 PSF
ROOF SNOW LOAD	25 PSF
FLOOR DEAD LOAD	10 PSF
FLOOR LIVE LOAD	50 PSF
WIND LOAD	Lambda = 1.0 Vult = 140 MPH (Vasd = 108 MPH) 3 SECOND GUST - EXP. B
SEISMIC	BEARING WALL SYSTEM: $S_s = 1.500$, $F_a = 1.000$ $S_{ps} = 1.000$, RISK CATEGORY II $I_a = 1.0$, SEISMIC DESIGN CATEGORY C, SITE CLASS D
ALLOWABLE BEARING CAPACITY	2000 PSF AT ASPHALT

- EXCEPT AS NOTED, DIMENSION LUMBER FOR FOUNDATION SHALL BE HEM-FIR, NO. 2 AND BETTER. TREATED LUMBER SHALL BE ACQ PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD U1, USE CATEGORY UC4A, TO A MINIMUM RETENTION OF 0.40 PCF. AT PIECES IN CONTACT WITH GROUND, SAWN END GRAIN SHALL BE FIELD TREATED WITH 2% MIN. CONCENTRATION COPPER NAPHTHENE. TREATED PLATE STOCK SHALL BE GOOD QUALITY AND SHALL NOT CONTAIN EXCESSIVE SPLITS, CHECKS OR WANE. 2 x 4 FRAMING SHALL BE HEM-FIR, STANDARD OR BETTER, TREATED 2 x 4 FRAMING SHALL MEET THE REQUIREMENTS SPECIFIED ABOVE.
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REV. 1	DESCRIPTION	DATE	BY
	NEW SITE FOUNDATION DESIGN	5/22/17	VF

SHEET	FOUNDATION NOTES & DETAILS	JOB#	U-2365-2366
PROJECT	28' x 64' MODULAR CLASSROOM FOUNDATION	DWP	2016-09-WA-2364 BY
OWNER	EPHRATA SD	SHEET#	S 4.0
ADDRESS	451 3RD AVE. NW, EPHRATA, WA 98823	DATE	5/22/17
		DRW	VF

