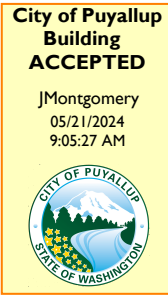




STRUCTURAL CALCULATIONS FOR

**Project #21479
621 River Rd,
Puyallup, WA 98371**



FULL SIZED LEDGIBLE
COLOR REPORT IS
REQUIRED TO BE PROVIDED
BY THE PERMITTEE ON SITE
FOR ALL INSPECTIONS



DATE: 04/09/2024



REPORTS

ASCE 7 Hazards Report

Address:

621 River Rd
Puyallup, Washington
98371

Standard:

ASCE/SEI 7-16

Risk Category: II**Soil Class:**

D - Default (see
Section 11.4.3)

Latitude:

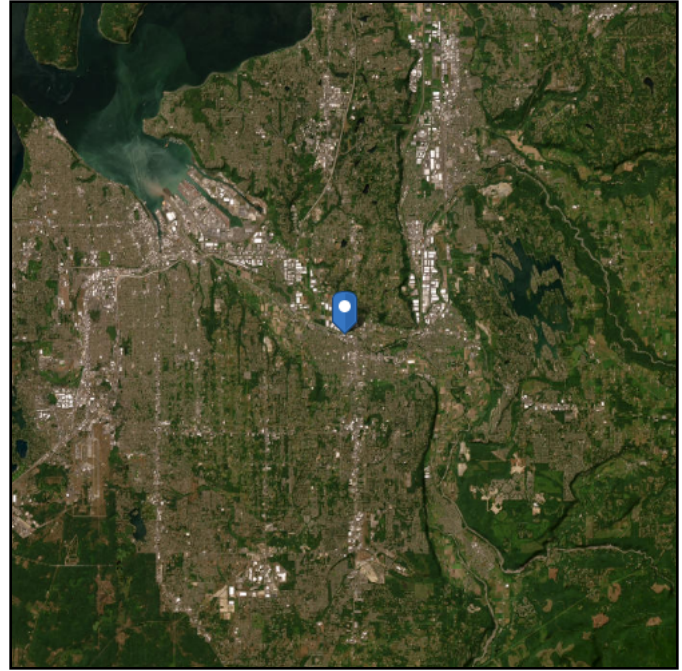
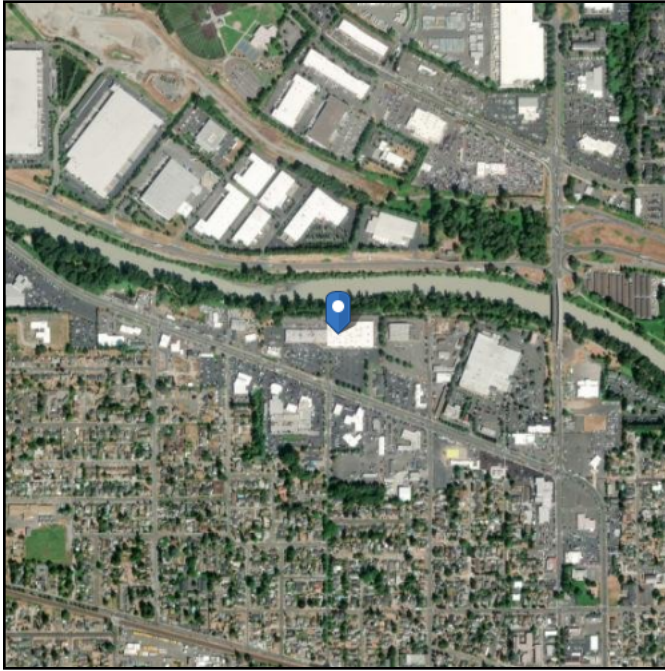
47.20208

Longitude:

-122.301716

Elevation:

40.03564644846348 ft
(NAVD 88)



Wind

Results:

Wind Speed	97 Vmph
10-year MRI	67 Vmph
25-year MRI	73 Vmph
50-year MRI	78 Vmph
100-year MRI	83 Vmph

Data Source:

ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed:

Mon Dec 18 2023

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_S :	1.278	S_{D1} :	N/A
S_1 :	0.44	T_L :	6
F_a :	1.2	PGA :	0.5
F_v :	N/A	PGA_M :	0.6
S_{MS} :	1.534	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1
S_{DS} :	1.022	C_v :	1.356

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Mon Dec 18 2023

Date Source: [USGS Seismic Design Maps](#)

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 25 F

Gust Speed 30 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Mon Dec 18 2023

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Snow

Results:

Ground Snow Load, p_g : 18 lb/ft²

Mapped Elevation: 40.0 ft

Data Source:

Date Accessed: Mon Dec 18 2023

Statutory requirements of the Authority Having Jurisdiction are not included.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

Rain

Results:

15-minute duration: No Data
60-minute duration: No Data

Data Source:

NOAA National Weather Service, Precipitation Frequency Data Server, Atlas 14
[\(https://www.nws.noaa.gov/oh/hdsc/\)](https://www.nws.noaa.gov/oh/hdsc/)

Date Accessed:

Mon Dec 18 2023

For rainfall-event data in this area, see NOAA Hydrometeorological Design Studies Center, [Current Precipitation Frequency Information and Documents for Washington](#).

Results:

Flood Zone Categorization: AE

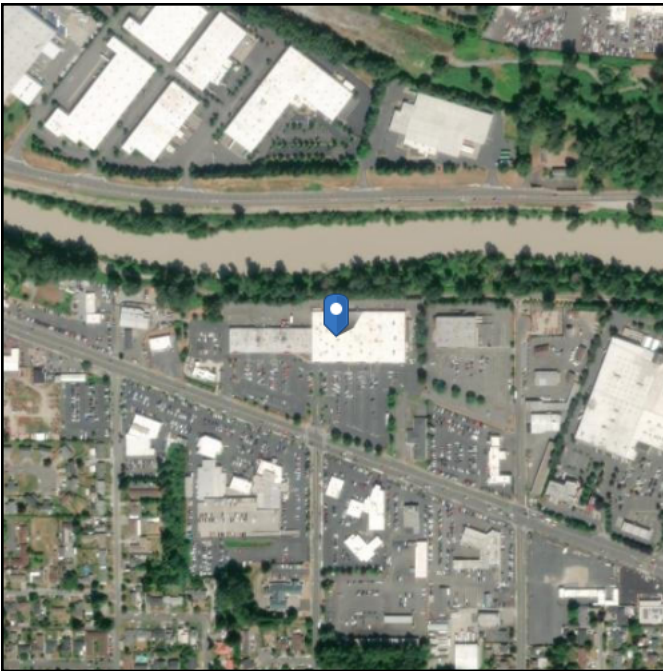
Base Flood Elevation:

Data Source: FEMA National Flood Hazard Layer - Effective Flood Hazard Layer for US, where modernized (<https://msc.fema.gov/portal/search>)

Date Accessed: Mon Dec 18 2023

FIRM Panel: If available, download FIRM panel [here](#)

Insurance Study Note: Download FEMA Flood Insurance Study for this area [here](#)

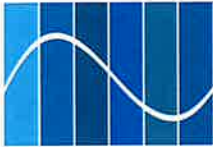


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CALCULATIONS



BlueStreak Consulting
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216.223.3210 fax
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Job No. 21479 - TSC - Puyallup
Client TSC
Sheet no. 1
Drawn By NW Date 7/9/24

Lintel @ new opening

$$S_p = 4' - 9''$$

$$W_{\text{ROOF}} = (20L + 20D)(4.75') = 190 \text{ PLF}$$

$$W_{\text{WALL}} = (\pm 80 \text{ PSF})(15') = 1200 \text{ PLF}$$

$$1390 \text{ PLF}$$

Cast.-Crete table : minimum 8F12-1B

8" PRECAST U-LINTELS SAFE LOADS (LBS/FT)

CAST-CRETE

			GRAVITY						
OVERALL LINTEL LENGTH	TYPE OF LINTEL	8U8	8F8-0B	8F12-0B	8F16-0B	8F20-0B	8F24-0B	8F28-0B	8F32-0B
			8F8-1B	8F12-1B	8F16-1B	8F20-1B	8F24-1B	8F28-1B	8F32-1B
2'-8" TO 3'-6"	PRECAST	2231	3069	3719	5163	6607	8054	9502	10951
			3069	4605	6113	7547	8974	10394	11809
3'-7" TO 4'-0"	PRECAST	1966	2561	2751	3820	4890	5961	7034	8107
			2693	4605	6113	7547	8974	10394	11809
4'-1" TO 4'-6"	PRECAST	1599	1969	2110	2931	3753	4576	5400	6224
			2189	4375	6113	7547 ⁽⁷⁾	8672	10294	11809
4'-7" TO 5'-4"	PRECAST	1217	1349	1438	1999	2560	3123	3686	4249
			1663	3090	5365	7547 ⁽³⁶⁾	7342 ⁽¹⁹⁾	8733 ⁽¹⁹⁾	10127 ⁽¹⁹⁾
5'-5" TO 5'-10"	PRECAST	1062	1105	1173	1631	2090	2549	3009	3470
			1451	2622	4360	7168 ⁽⁴⁵⁾	6036 ⁽¹⁹⁾	7181 ⁽¹⁹⁾	8328 ⁽²⁰⁾
5'-11" TO 6'-6"	PRECAST	908	1238	2177	3480	3031	3707	4383	5061
			1238	2177	3480	5381	8360	10394 ⁽³⁷⁾	8825 ⁽¹⁴⁾
6'-7" TO 7'-6"	PRECAST	743	1011	1729	2632	2205	2698	3191	3685
			1011	1729	2661	3898	5681	8467 ⁽⁴⁴⁾	6472 ⁽¹⁵⁾
7'-7" TO 9'-4"	PRECAST	554	699	1160	1625	2564	3486	2818	3302
			752	1245	1843	2564	3486	4705 ⁽³⁷⁾	6390 ⁽⁴⁷⁾
9'-5" TO 10'-6"	PRECAST	475	535	890	1247	2093	2777	2163	2536
			643	1052	1533	2093	2781	3643 ⁽³⁸⁾	4754 ⁽⁴⁵⁾
10'-7" TO 11'-4"	PRECAST	362	582	945	1366	1846	2423	3127	4006
			582	945	1366	1846	2423	3127	4006
11'-5" TO 12'-0"	PRECAST	337	540	873	1254	1684	2193	2805	3552
			540	873	1254	1684	2193	2805	3552
12'-1" TO 13'-4"	PRECAST	296	471	755	1075	1428	1838	2316	2883
			471	755	1075	1428	1838	2316	2883
13'-5" TO 14'-0"	PRECAST	279	424	706	1002	1326	1697	2127	2630
			442	706	1002	1326	1697	2127	2630
14'-1" TO 14'-8"	PRESTRESSED	NR	NR	NR	NR	NR	NR	NR	NR
			458	783	1370	1902	2245	2517	2712
14'-9" TO 15'-4"	PRESTRESSED	NR	NR	NR	NR	NR	NR	NR	NR
			412	710	1250	1733	2058	2320	2513
15'-5" TO 17'-4"	PRESTRESSED	NR	NR	NR	NR	NR	NR	NR	NR
			300	548	950	1326	1609	1849	2047
17'-5" TO 19'-4"	PRESTRESSED	NR	NR	NR	NR	NR	NR	NR	NR
			235	420	750	1037	1282	1515	1716
19'-5" TO 21'-4"	PRESTRESSED	NR	NR	NR	NR	NR	NR	NR	NR
			180	340	598	845	1114	1359	1468
21'-5" TO 22'-0"	PRESTRESSED	NR	NR	NR	NR	NR	NR	NR	NR
			165	315	550	784	1047	1285	1399
22'-1" TO 24'-0"	PRESTRESSED	NR	NR	NR	NR	NR	NR	NR	NR
			129	250	450	654	884	1092	1222

PRCTI20240464

SAFE LOADS (LBS/FT) 8" PRECAST U-LINTELS

		UPLIFT							LATERAL		
OVERALL LINTEL LENGTH	TYPE OF LINTEL	8F8-1T	8F12-1T	8F16-1T	8F20-1T	8F24-1T	8F28-1T	8F32-1T	8U8	8F8	RCMU
		8F8-2T	8F12-2T	8F16-2T	8F20-2T	8F24-2T	8F28-2T	8F32-2T			
2'-8" TO 3'-6"	PRECAST	1569	2655	3524	4394	5263	6132	7001	1025	1024	1598
		1569	2655	3524	4394	5263	6132	7001			
3'-7" TO 4'-0"	PRECAST	1363	2305	3060	3815	4570	5325	6079	765	763	1309
		1363	2305	3060	3815	4570	5325	6079			
4'-1" TO 4'-6"	PRECAST	1207	2040	2707	3375	4043	4711	5379	592	591	1073
		1207	2040	2707	3375	4043	4711	5379			
4'-7" TO 5'-4"	PRECAST	1016	1715 ⁽¹¹⁾	2276 ⁽⁴⁾	2838	3399	3961	4522	411	411	745
		1016	1715	2276	2838	3399	3961	4522			
5'-5" TO 5'-10"	PRECAST	909	1567 ⁽¹⁸⁾	2080 ⁽¹³⁾	2593 ⁽⁹⁾	3107 ⁽⁶⁾	3620 ⁽⁴⁾	4133 ⁽³⁾	340	339	616
		929	1567	2080	2593	3107	3620	4133			
5'-11" TO 6'-6"	PRECAST	835 ⁽¹²⁾	1407 ⁽²⁶⁾	1868 ⁽²¹⁾	2329 ⁽¹⁸⁾	2790 ⁽¹⁶⁾	3251 ⁽¹⁴⁾	3712 ⁽¹²⁾	507	721	490
		835	1407	1868	2329	2790	3251	3712			
6'-7" TO 7'-6"	PRECAST	727 ⁽²³⁾	1065 ⁽²⁶⁾	1624 ⁽³¹⁾	2025 ⁽²⁸⁾	2426 ⁽²⁶⁾	2827 ⁽²⁵⁾	3228 ⁽²⁴⁾	424	534	363
		727	1224	1624	2025	2426	2827	3228			
7'-7" TO 9'-4"	PRECAST	591	708 ⁽²⁵⁾	1136 ⁽³⁴⁾	1474 ⁽³⁴⁾	1815 ⁽³⁴⁾	2157 ⁽³⁴⁾	2500 ⁽³⁴⁾	326	512	230
		591	862	1318	1643	1969	2294	2619			
9'-5" TO 10'-6"	PRECAST	530	575 ⁽²⁴⁾	916 ⁽³³⁾	1188 ⁽³³⁾	1461 ⁽³³⁾	1736 ⁽³³⁾	2011 ⁽³³⁾	284	401	180
		530	695	1180 ⁽⁸⁾	1472 ⁽⁴⁾	1763 ⁽²⁾	2055	2346			
10'-7" TO 11'-4"	PRECAST	474	504 ⁽²³⁾	800 ⁽³²⁾	1037 ⁽³²⁾	1274 ⁽³²⁾	1513 ⁽³²⁾	1753 ⁽³²⁾	260	452	154
		494	607	1042 ⁽¹⁰⁾	1372 ⁽¹¹⁾	1643 ⁽⁸⁾	1915 ⁽⁶⁾	2187 ⁽⁵⁾			
11'-5" TO 12'-0"	PRECAST	470 ⁽⁹⁾	458 ⁽²³⁾	724 ⁽³¹⁾	938 ⁽³²⁾	1153 ⁽³²⁾	1369 ⁽³²⁾	1585 ⁽³²⁾	244	402	137
		470	550	940 ⁽¹⁰⁾	1302 ⁽¹⁵⁾	1560 ⁽¹³⁾	1818 ⁽¹¹⁾	2075 ⁽¹⁰⁾			
12'-1" TO 13'-4"	PRECAST	418 ⁽¹⁵⁾	386 ⁽²²⁾	607 ⁽³⁰⁾	785 ⁽³⁰⁾	964 ⁽³⁰⁾	1143 ⁽³¹⁾	1323 ⁽³¹⁾	217	324	110
		428	460	780 ⁽⁹⁾	1159 ⁽²¹⁾	1418 ⁽²⁰⁾	1653 ⁽¹⁹⁾	1887 ⁽¹⁷⁾			
13'-5" TO 14'-0"	PRECAST	384 ⁽¹⁵⁾	358 ⁽²¹⁾	560 ⁽²⁹⁾	724 ⁽³⁰⁾	889 ⁽³⁰⁾	1054 ⁽³⁰⁾	1220 ⁽³⁰⁾	205	293	100
		410	425	717 ⁽⁹⁾	1063 ⁽²¹⁾	1358 ⁽²³⁾	1582 ⁽²²⁾	1807 ⁽²¹⁾			
14'-1" TO 14'-8" PRESTRESSED		239	334 ⁽²¹⁾	520 ⁽²⁹⁾	672 ⁽²⁹⁾	825 ⁽²⁹⁾	978 ⁽²⁹⁾	1131 ⁽³⁰⁾	NR	284	91
		246	395	663 ⁽⁹⁾	980 ⁽²⁰⁾	1303 ⁽²⁶⁾	1518 ⁽²⁵⁾	1734 ⁽²⁴⁾			
14'-9" TO 15'-4" PRESTRESSED		224	313 ⁽²⁰⁾	486 ⁽²⁸⁾	627 ⁽²⁹⁾	769 ⁽²⁹⁾	911 ⁽²⁹⁾	1054 ⁽²⁹⁾	NR	259	83
		230	368	616 ⁽⁹⁾	908 ⁽²⁰⁾	1240 ⁽²⁸⁾	1460 ⁽²⁷⁾	1668 ⁽²⁶⁾			
15'-5" TO 17'-4" PRESTRESSED		187	263 ⁽¹⁹⁾	405 ⁽²⁶⁾	521 ⁽²⁷⁾	638 ⁽²⁷⁾	756 ⁽²⁷⁾	873 ⁽²⁷⁾	NR	194	64
		192	306	506 ⁽⁸⁾	740 ⁽¹⁹⁾	1005 ⁽²⁷⁾	1271 ⁽³¹⁾	1473 ⁽³¹⁾			
17'-5" TO 19'-4" PRESTRESSED		162	229 ⁽¹⁷⁾	348 ⁽²⁵⁾	447 ⁽²⁵⁾	547 ⁽²⁵⁾	647 ⁽²⁵⁾	747 ⁽²⁵⁾	NR	148	52
		166	263	429 ⁽⁸⁾	623 ⁽¹⁸⁾	841 ⁽²⁶⁾	1059 ⁽³⁰⁾	1227 ⁽³⁰⁾			
19'-5" TO 21'-4" PRESTRESSED		142	204 ⁽¹⁶⁾	307 ⁽²³⁾	393 ⁽²³⁾	480 ⁽²³⁾	568 ⁽²⁴⁾	655 ⁽²⁴⁾	NR	125	42
		142	232	373 ⁽⁷⁾	537 ⁽¹⁷⁾	721 ⁽²⁵⁾	905 ⁽²⁹⁾	1048 ⁽²⁹⁾			
21'-5" TO 22'-0" PRESTRESSED		137	197 ⁽¹⁵⁾	295 ⁽²²⁾	379 ⁽²³⁾	462 ⁽²³⁾	546 ⁽²³⁾	630 ⁽²³⁾	NR	116	40
		137	223	358 ⁽⁷⁾	513 ⁽¹⁷⁾	688 ⁽²⁴⁾	863 ⁽²⁸⁾	999 ⁽²⁸⁾			
22'-1" TO 24'-0" PRESTRESSED		124	179 ⁽¹⁴⁾	267 ⁽²¹⁾	342 ⁽²¹⁾	416 ⁽²¹⁾	492 ⁽²¹⁾	567 ⁽²²⁾	NR	91	33
		124	202	319 ⁽⁷⁾	455 ⁽¹⁶⁾	606 ⁽²³⁾	757 ⁽²⁷⁾	876 ⁽²⁷⁾			

PRCTI20240464