Structure

Seismic Loading Summary

General			
Method	ASCE7		
Structure details			
Height to highest level	88' 0"	ft, in	
Ignore seismic in floor (and below)	none		
Number of storeys	1		
Max earthquake spectral response acceleration (0.2 s) period (mapped)	11.10	% g	
S_1 1.0 s period (mapped)	4.20	% g	
Site Class	D - Stiff soil		ASCE7-16 Table 20.3-1
Risk Category	I		ASCE7-16 Table 1.5-1
Design spectral response acceleration parameters			
S_{DS} short (0.2 s) period	11.84	% g	ASCE7-16 Clause 11.4-3
S_{D1} 1.0 s period	6.72	% g	ASCE7-16 Clause 11.4-4
Seismic Importance Factor, I_e	1.000		ASCE7-16 Table 1.5-2
Seismic Design Category	B		ASCE7-16 Clause 11.6
T_L long period transition period	6.000	sec	
T_S (S_{D1}/S_{DS})	0.568	sec	
Effective Seismic Weight, W	1201.9	kip	ASCE7-16 Clause 12.7.2
Structure Type			ASCE7-16 Table 12.8-2
Direction Dir1	Eccentrically braced steel frames		
Direction Dir2	Eccentrically braced steel frames		
Basic seismic force resisting system			ASCE7-16 Table 12.2-1
Direction Dir1	H. Steel Systems not Specifically detailed for Seismic		
Direction Dir2	H. Steel Systems not Specifically detailed for Seismic		
	Direction Dir1	**Direction Dir2**	
Response Modification Factor, R	3.000	3.000	
System Over-Strength Factor, Ω_0	3.000	3.000	
Deflection Amplification Factor, Cd	3.000	3.000	
Redundancy Factor, ρ	1.000	1.000	ASCE7-16 Clause 12.3.4.2
Approximate fundamental period, T_a [sec]	0.862	0.862	ASCE7-16 Clause 12.8.2.1
Exponent related to structural period k	1.181	1.181	
Seismic response coefficient, C_S	0.026	0.026	ASCE7-16 Clause 12.8.1.1
Seismic base shear, V [kip]	**31.2**	**31.2**	
Scaling Factor for Forces (1.00 V/V_t)	-	-	ASCE7-16 Clause 12.9.1.4.1
Scaling Factor for Drifts	-	-	ASCE7-16 Clause 12.9.1.4.2
Structure Plan Irregularities - User Defined			ASCE7-16 Table 12.3-1
Plan irreg 1a - torsion	No		
Plan irreg 1b - extreme torsion	No		
Plan irreg 2 - re-entrant corners	No		
Plan irreg 3 - diaphragm discontinuity	No		
Plan irreg 4 - out of plane	No		
Plan irreg 5 - Non parallel systems	No		
Structure Vertical Irregularities - User Defined			ASCE7-16 Table 12.3-2

Vert irreg 1a - soft story	No
Vert irreg 1b - extreme soft story	No
Vert irreg 2 - weight mass	No
Vert irreg 3 - geometric	No
Vert irreg 4 - in plane	No
Vert irreg 5a - weak story	No
Vert irreg 5b - extreme weak story	No

Equivalent Lateral Force Procedure is permitted (ASCE7-16 12.8)

Reference	Level [ft, in]	Weight [kip]	Direction Dir1			Direction Dir2		
			C_V	F [kip]	Ecc [ft, in]	C_V	F [kip]	Ecc [ft, in]
St. 1 (Platform)	16' 0"	1201.9	1.000	31.2	10 3/8"	1.000	31.2	10 3/4"

Analysis procedure to be used:

Equivalent Lateral Force Procedure

Analysis

Seismic Drift

Non-wall Elements

Level	Ref.	Stack	Combination Dir 1	Drift Ratio Dir 1	$\theta_{Dir\ 1}$ Ratio	Combination Dir 2	Drift Ratio Dir 2	$\theta_{Dir\ 2}$ Ratio	Status
St. 1 (Platform)	C-3 (B2)	1	1253 (Final) $LRFD_{11.1}$-1.2D+L+0.2S+E	0.392	0.556	1258 (Final) $LRFD_{11.6}$-1.2D+L+0.2S+E	0.024	0.037	Pass
St. 1 (Platform)	C-6 (D2)	1	1253 (Final) $LRFD_{11.1}$-1.2D+L+0.2S+E	0.392	0.556	1257 (Final) $LRFD_{11.5}$-1.2D+L+0.2S+E	0.024	0.037	Pass