Department of
Licenses and Inspections
CITY OF PHILADELPHIA

INTERNAL USE ONLY

Date Received _____

Application Number _____

Structural Design Criteria Form

All calculations shall comply with the requirements of ASCE 7-16, ASCE 24-14, and the 2018 Philadelphia Building Code.

Complete all sections applicable to a permit application or project to be permitted.

1 Property Address

Enter the location of work.

Address _____

2 Risk Category (1604.5)

Check the corresponding risk category.

☐	**Category I**: Buildings and structures that represent a low hazard to human life in the event of failure.
☐	**Category II**: Buildings and structures except those listed in Risk Categories I, II, and IV.
☐	**Category III**: Buildings and structures that represent a substantial hazard to human life in the event of failure.
☐	**Category IV**: Buildings and structures designated as essential facilities.

3 Floor Live Loads (1607)

Use this section to provide Floor Live Load values.

	Uniform (psf)	Concentrated (lbs)
a) Basement		
b) First Floor		
c) Second Floor		
d) Third Floor		
e) Additional Floors		

4 Roof Live Loads (1607.13)

Use this section to provide values about the Roof Live Loads and the Roof Live Load Reduction Factor (if any).

	Uniform (psf)	Concentrated (lbs)
Roof Live Loads		
Roof Live Load Reduction Factor; *if any*, R_1 and R_2 (1607.13.2)		N/A

5 Snow Loads (1608)

Use this section to provide Snow Load values.

a) Ground Snow Load, P_g (ASCE 7, 7.2) = 25 psf (Figure 1608.2)

b) Flat-roof Snow Load, P_f (ASCE 7, 7.3) = _____

i) Exposure Factor, C_e (ASCE 7, 7.3.1) = _____

ii) Thermal Factor, C_t (ASCE 7, 7.3.2) = _____

iii) Importance Factor, I_s (ASCE 7, 7.3.3) = _____

iv) Minimum Snow Load for Low-Slope Roofs, P_m (ASCE 7, 7.3.4) = _____ (lbs)

c) Sloped Roof Snow Load, P_s (ASCE 7, 7.4) = _____

i) Roof Slope Factor, Cs (ASCE 7, 7.4.1 to 7.4.4) = _____

ii) Drift Surcharge Load(s), P_d (ASCE 7, 7.10) (where the sum of P_d and P_f exceeds 20 psf) = _____ (psf)

iii) Width of Snow Drift(s), *w* (ASCE 7, 7.7) = _____ (ft)

6 Wind Load (1609)

Use this section to provide Wind Load values.

a) Basic Wind Speed, V and allowable stress design wind speed V_{asd} (1603.1.4, 1609.3.1)	= 105 mph, (3-sec. gust), Risk Category I 115 mph, (3-sec. gust), Risk Category II 130 miles per hour, (3-sec. gust), Risk Category III and IV (B-1609.3.2)
b) Internal Pressure Coefficient, GC_{pi} (ASCE 7, 26.13)	=
c) Exposure Category. (1609.4)	=

	Procedure Used
d) Wind loads on the Main Wind Force Resisting System determined by (ASCE 7, Figure 26.1-1)	
e) Wind loads on the Components & Cladding determined by (ASCE 7, Figure 26.1-1)	

7 Geotechnical Info. (1603.1.6)

Use this section to provide geotechnical info. values.

a) Unified Soil Classification = _____

b) Active Pressure = _____ (psf)

c) At-rest Pressure = _____ (psf)

d) Design Load Bearing Value for Soils = _____ (psf)

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Earthquake Loads (1613)

Use this section to provide Earthquake Load values.

8

a) Seismic Importance Factor, I_e (ASCE 7, Table 1.5-2) =_____

b) Mapped Spectral Response Accelerations (B-1613.2.1.1.) S_s = 0.20 (20% g) (B1613.2.1.1) S_1 = 0.06 (6% g) B1613.2.1.1)

c) Site Class = {Use Site Class "D" when soil properties are not known} (1613.2.2)

d) Design Spectral Response Coefficients (1613.2.4)

Short Period (S_{DS})	=	1-Sec. Period (S_{D1})	=
For Site Class "D", (S_{DS})	= 0.213 (21.3%g)	(S_{D1})	= 0.096 (9.6% g)

e) Seismic Design Category (1613.2.5) (*check one*):

☐ A ☐ B ☐ C ☐ D (Based on most severe: ☐ Short Period ☐ 1-Sec.)

f) Basic Seismic-force Resisting System(s) (ASCE 7, Table 12.2-1) =_____

g) Seismic Response Coefficient(s), C_s (ASCE 7, 12.8.1.1) =_____

h) Design Seismic Base Shear, V (ASCE 7, 12.8.1) =_____

i) Response Modification Factor, R (ASCE 7, Table 12.2-1) =_____

j) Analysis Procedure Used (ASCE 7, Table 12.6-1) =_____

Flood Loads (1612)

Use this section to provide Flood Load values.

9

a) Flood Design Class Designation (*check one*):

(ASCE 24, Table 1-1) = ☐ I ☐ II ☐ III ☐ IV

b) Base Flood Elevation (BFE) [Note: Elevations are reference to Datum as identified on Community's applicable FIRM panel] =_____ ft.

c) Elevation of the proposed lowest floor, including the basement =_____ ft.

d) Elevation to which any non-residential building will be dry flood proofed =_____ ft.

e) Elevation of bottom of the lowest horizontal structural member of the lowest floor, including the basement =_____ ft.

f) Flood Loads combined with Other Loads, using one of the following:

i) Strength Design (ASCE 7, 2.3.1 & 2.3.2); Load Combination used =_____

ii) Allowed Stress Design (ASCE 7, 2.4.1 & 2.4.2); Load Combination used =_____

Note: For buildings and other structures within Flood Hazard Areas as determined by a Community's applicable FIRM panel, additional construction documents and information may be required by the *Building Official* in accordance with IBC Section 1612.4.

Special Loads

Use the lines to provide additional information not covered in the above sections.

10

_____

_____

Declaration & Signature

Buildings, structures, and parts thereof shall be designed and constructed in accordance with strength design, load, and resistance factor design, allowable stress design, empirical design, or conventional construction methods, as permitted by the applicable material chapters.

Buildings and other structures, and parts thereof, shall be designed and constructed to support safely the factored loads in load combinations defined in this code without exceeding the appropriate strength limit states for the materials of construction. Alternatively, buildings and other structures, and parts thereof, shall be designed and constructed to support safely the nominal loads in load combinations defined in this code without exceeding the appropriate specified allowable stresses for the materials of construction.

I hereby certify that the statements contained herein are true and correct to the best of my knowledge and belief.

Submission of this form shall not relieve the design professional from determining the effected of all structural loads applied to the structure, in whole or in part, as specified in the Philadelphia Building Code and its referenced standards, including ASCE 7 and ASCE 24.

PA Professional Engineer Signature _____ **Date** _____

Seal of PA Professional Engineer