APPLICABLE CODES/STANDARDS: .....INTERNATIONAL BUILDING CODE - 2018 .....ASCE 7-16 MIN DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE/SEI

STRUCTURAL DESIGN STANDARDS (DESIGN SHALL CONFORM TO THE CURRENT EDITION UNDER THE APPLICABLE

.....ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY ....ACI 530/530.1 BLDG CODE REQUIREMENTS AND SPECS FOR MASONRY STRUCTURES (AND RELATED COMMENTARIES)

...ANSI/AISC 360-16 SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS ....AWS D1.1/D1.1M STRUCTURAL WELDING CODE-STEEL

DESIGN LIVE LOADS:

...MEAN ROOF HEIGHT

....DESIGN PROCEDURE

....WIND EXPOSURE CATEGORY

....TOPOGRAPHIC FACTOR (Kzt)

...WIND EXPOSURE CLASSIFICATION

...VELOCITY EXPOSURE COEFFICIENT KZ

## **BUILDING DESIGN LOADS/CRITERIA**

FLOOR FRAMING (RETAIL, OFFICE, RESTAURANT, RECREATIONAL)	100 psf
FLOOR FRAMING (RESIDENTIAL AREAS)	40 psf
STAIRWAYS, EXITSBALCONIESPRIVATE GARAGES (PASSENGER VEHICLES ONLY)INTERIOR PARTITION WALLS (UNIFORMLY DISTRIBUTED WEIGHT)CORRIDORS FIRST FLOORCORRIDORS 2 nd 3 rdFLOORSCORNICES	100 psf 40 psf 40 psf 15 psf 100 psf 40 psf 60 psf
SNOW LOADS & DESIGN DATA:DESIGN SNOW LOADFLAT ROOF SNOW LOAD (Pf) = (0.7*Ce*Ct*Is*Pg)SNOW EXPOSURE FACTOR (Ce)SNOW LOAD IMPORTANCE FACTOR (Is)ROOF THERMAL FACTOR (Ct)GROUND SNOW (Pg)SLOPED ROOF FACTOR (Cs)	42 psf (BALANCED SNOW LOAD) 42 psf 1.0 1.0 1.0 60 psf 1.0
WIND DESIGN DATA:WIND IMPORTANCE FACTOR (Iw)RISK CATEGORY IIBASIC WIND SPEED (3-SECOND GUST, ULTIMATE)BASIC WIND SPEED (3-SECOND GUST, NOMINAL)	1.0 115 MPH 90 MPH

33 FT

0.720

1.0

**ENCLOSED** 

METHOD 1 (SIMPLIFIED PROCEDURE)

NET PRESSURE COEFFICIENTS C <sub>net</sub>			
AREA	C + INTERNAL net PRESSURE	C - INTERNAL net PRESURE	
WINDWARD WALL	0,43	0,73	
LEEWARD WALL	-0,51	-0,21	
SIDEWALL	-0,66	-0,35	
PARAPET WINDWARD WALL	1,28		
PARAPET LEEWARD WALL	-0,85		
FLAT ROOF	-1,09	-0,79	

DESIGN WIND PRESSURES Pnet			
AREA	P + INTERNAL net	P - INTERNAL net	
, <u></u> , .	PRESSURE	PRESURE	
WINDWARD WALL	10.5 psf	17.8 psf	
LEEWARD WALL	-12.4 psf	-5.1 psf	
SIDEWALL	-16.1 psf	-8.5 psf	
PARAPET WINDWARD WALL	31.2 psf		
PARAPET LEEWARD WALL	-20.7 psf		
FLAT ROOF	-26.6 psf	-19.3 psf	

EARTHQUAKE DESIGN DATA:		
OCCUPANCY CATEGORY		II
SEISMIC IMPORTANCE FACTOR (Ie)		1
MAPPED SPECTRAL ACCELERATIONS AT SHORT PERIODS	(Ss)	0.045 g
MAPPED SPECTRAL ACCELERATIONS AT (1) SECOND PERI	ODS (S1)	0.038 g
SITE CLASSIFICATIONS		В
SITE COEFFICIENT (Fa)		1,0
SITE COEFFICIENT (Fv)		1,0
DESIGN SPECTRAL RESPONSE COEFFICIENT AT SHORT P	ERIODS (Sds)	0.030 g
DESIGN SPECTRAL RESPONSE COEFFICIENT AT (1) SECON	ND PERIODS (Sd1)	0.025 g
SEISMIC DESIGN CATEGORY		Α
BASIC SEISMIC-FORCE-RESISTING SYSTEM	LIGHT FRAME W	OOD WALLS WITH
		OD SHEAR PANELS
ANALYSIS PROCEDURE FOR SEISMIC DESIGN	EQUIVALENT LATERAL	FORCE ANALYSIS

SOIL DESIGN VALUES:		
SOIL UNIT WEIGHT		

LATERAL EARTH PRESSURE	,
AT-REST (BASEMENT WALLS)	62,5 PSF/FT OF DEPTH (ASSUME
PASSIVE	340 PSF (ASSUMED)
COEFFICIENT OF SLIDING FRICTION	0.30 (ASSUMED)
SUBGRADE MODULUS	260 PCI (ASSUMED)
ALLOWABLE SOIL BEARING PRESSURE	3000 PSF

REFER TO SOILS REPORT NO. 17002 DATED 2/10/2017 PREPARED BY ITCO ALLIED ENGINEERING CO. FOR DESCRIPTION OF SOIL CONDITIONS, GEOTECHNICAL RECOMMENDATIONS, AND DESIGN VALUES

125 PCF (ASSUMED)

DEFLECTION	ON LIMITS		
MEMBERS	LIVE	SNOW or WIND	DEAD + LIVE or SNOW
ROOF MEMBERS			
SUPPORTING GYPSUM BOARD CEILINGS	L/360	L/360	L/240
SUPPORTING FLEXIBLE CEILINGS	L/360	L/360	L/240
NOT SUPPORTING CEILING	L/240	L/240	L/180
SUPPORTING RIGID MATERIALS (BRICK, MASONRY, ETC.)	L/600	L/600	L/600
FLOOR MEMBERS			
SUPPORTING RIGID MATERIALS (BRICK, MASONRY, ETC.)	L/600	L/600	L/600
SUPPORTING GYPSUM BOARD CEILINGS	L/540	N/A	L/360
SUPPORTING FLEXIBLE MATERIALS	L/540	N/A	L/360
LINTEL/HEADER/BEAM MEMBERS			
SUPPORTING RIGID MATERIALS (BRICK, MASONRY, ETC.)	L/600	L/600	L/600
SUPPORTING FLEXIBLE MATERIALS (EIFS, SIDING, ETC.)	L/360	L/360	L/240
EXTERIOR WALLS			
WITH RIGID FINISHES (BRICK, MASONRY, ETC.)	N/A	L/600	N/A
WITH FLEXIBLE FINISHES (EIFS, SIDING, ETC.)	N/A	L/360	N/A

## MATERIAL STRENGTHS

CAST-IN-PLACE CONCRETE:

FOOTINGS		
MINIMUM COMPRESSIVE STRENGTH AT 2	8 DAYS	f'c = 3,000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO	0.59	
MAXIMUM AGGREGATE SIZE	1 1/2"	
SLUMP LIMIT	5" +/-1	n .
AIR CONTENT	NO	
EXTERIOR PIERS, WALLS, AND COLUMNS		
MINIMUM COMPRESSIVE STRENGTH AT 2	8 DAYS	f'c = 4,000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO		,
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1	"
AIR CONTENT		% to 6%
NTERIOR SLABS ON GRADE		-
MINIMUM COMPRESSIVE STRENGTH AT 2	8 DAYS	f'c = 4.000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1	п
AIR CONTENT	NO	
CONCRETE TOPPING		
MINIMUM COMPRESSIVE STRENGTH AT 2	8 DAYS	f'c = 4.000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO		,
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1	"
AIR CONTENT	NO	
STAIR LANDINGS AND TREADS		
MINIMUM COMPRESSIVE STRENGTH AT 2	8 DAYS	f'c = 4,000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO		,
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1	"
AIR CONTENT	NO	
EXTERIOR SLABS ON GRADE		
MINIMUM COMPRESSIVE STRENGTH AT 2	8 DAYS	f'c = 4,000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO	0.48	,
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1	"
AIR CONTENT	YES 49	% to 6%
SLURRY		
MINIMUM COMPRESSIVE STRENGTH AT 2	8 DAYS	f'c = 1,000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO	0.55	
	1 1/2"	
MAXIMUM AGGREGATE SIZE	1 1/2	
MAXIMUM AGGREGATE SIZE SLUMP LIMIT	6" +/-1	II .

## STEEL/METAL:

REINFORCING STEEL:	
ALL ASTM A615, GRADE 60, DEFORMED	Fy = 60,000 PSI
STEEL WELDED WIRE REINFORCEMENT, FLAT	T SHEETS Fy = 60,000 PSI

STRUCTURAL STEEL:	
ROLLED WIDE FLANGE SHAPES, ASTM A9	92 GRADE 50 Fy = 50,000 PSI
CHANNELS, ANGLES, AND S SHAPES, AST	M A3 <b>6</b> y = 36,000 PSI
PLATE AND BAR, ASTM A36	Fy = 36,000 PSI
TUBE SHAPES, ASTM A500 GRADE B	Fy = 46,000 PSI
PIPE ASTM A53, TYPE E or S, GRADE B	Fy = 46,000 PSI
ALL OTHER ROLLED SHAPES, ASTM A36	Fy = 36,000 PSI

STRUCTURAL BOLTS:	
HIGH STRENGTH BOLTS, NUTS, & WASHE	ERS ASTM A325
ZINC-COATED HIGH STRENGTH BOLTS, N	IUTS, <b>&amp;</b> STM A325
WASHERS	
STAINLESS STEEL BOLTS, NUTS, & WASH	HERS ASTM F593
SHEAR CONNECTORS (GRADES 1015 THE	RU 10240STM A108
THREADED RODS	ASTM A36
CLEVIS & TURNBUCKLES (GRADE 1035)	ASTM A108
EYE BOLTS & NUTS (GRADE 1030)	ASTM A108

DED CONNECTIONS:	
VELDING ELECTRODES	E70XX
	E80XX FOR
	WELDING REINF

**ASTM F1554** 

MASONRY: f'm = 2,000 PSI

.....TYPE "M" MORTAR BELOW GRADE .....TYPE "M" or "S" ABOVE GRADE

MASONRY MORTAR:

.....ANCHOR BOLTS (GRADE 36)

GROUT BELOW BASE PLATES & BEARING PLATES: ....NONMETALLIC, SHRINKAGE-RESISTANT ASTM C1107 **FOUNDATION AND EARTHWORK:** 

1. ALL EXTERIOR FOOTINGS MUST BEAR BELOW LOCAL FROST LINE RELATIVE TO ADJACENT FINISH EXTERIOR GRADE.

2. DO NOT PLACE ANY FOOTINGS ON FROZEN SUBGRADE.

SOILS ENGINEER AND COMPACTED TO 90% STANDARD PROCTOR.

3. BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDES OF FOUNDATION WALLS.

4. DO NOT PLACE BACK FILL AGAINST BASEMENT WALLS UNTIL THE TOP AND BOTTOM OF THE WALL ARE ADEQUATELY BRACED BY THE SLAB ON GRADE AND THE FLOOR FRAMING AT THE TOP OF THE WALL.

5. REMOVE ANY EXISTING CONCRETE 2'-0" BELOW NEW CONCRETE FOOTINGS AND SLABS ON GRADE, UNLESS NOTED OTHERWISE.

6. SHORING/OR UNDERPINNING SHALL BE DESIGNED TO LIMIT HORIZONTAL AND VERTICAL MOVEMENT OF EXISTING CONSTRUCTION TO 1/4" MAXIMUM IN ANY DIRECTION.

7. CENTER PIER AND COLUMN FOOTINGS ON COLUMN CENTERLINES AND WALL FOOTINGS ON WALL CENTERLINES UNLESS SPECIFICALLY NOTED

8. ALL BACK FILL WITHIN 3'-0" OF RETAINING WALLS AND BASEMENT WALLS SHALL BE FREE DRAINING GRANULAR MATERIAL APPROVED BY A

9. TOP OF FOOTING ELEVATIONS SHOWN ON THESE CONSTRUCTION DOCUMENTS REPRESENT MINIMUM FOOTING DEPTHS FOR FROST PROTECTION AND BEST JUDGMENT OF A SUITABLE BEARING STRATUM. ACTUAL GRADE CONDITIONS AND SUITABLE BEARING STRATUM MUST BE VERIFIED BY THE CONTRACTOR AND A SOILS ENGINEER AT THE TIME OF EXCAVATION.

10.FOOTING EXCAVATIONS MUST EXTEND TO COMPETENT BEARING MATERIAL. CONTRACTOR SHALL HIRE A SOILS ENGINEER TO FIELD VERIFY NET ALLOWABLE SOIL BEARING CAPACITY STATED ON THESE CONSTRUCTION DOCUMENTS AND IN GEOTECHNICAL REPORT FOR THIS PROJECT. IF SUITABLE BEARING STRATUM DOES NOT EXIST AT FOOTING ELEVATIONS STATED ON CONSTRUCTION DOCUMENTS. EXCAVATIONS SHALL BE EXTENDED UNTIL SOIL WITH STATED BEARING CAPACITY IS REACHED. PLACE COMPACTED FILL BELOW FOOTINGS OR EXTEND FOOTINGS DOWN TO SUITABLE BEARING STRATUM. ENGINEERED FILL BELOW SLABS ON GRADE AND FOOTINGS SHALL BE FREE DRAINING GRANULAR MATERIAL COMPACTED TO 95% MODIFIED PROCTOR AND PLACED PER THE SOIL ENGINEERS RECOMMENDATIONS. ALL FIELD CONDITIONS THAT WILL AFFECT DESIGN AS PRESENTED MUST BE COORDINATED WITH STRUCTURAL ENGINEER.

11.REFER TO DESIGN DATA FOR DESCRIPTION OF SOIL CONDITIONS, GEOTECHNICAL RECOMMENDATIONS, AND DESIGN VALUES.

## **CONTINUITY:**

ALL REINFORCING SHALL BE CONTINUOUS UNLESS NOTED OTHERWISE. CONTINUITY AT CORNERS AND INTERSECTIONS SHALL BE ACHIEVED USING CORNER BARS AND CONTACT LAP SPLICES, SEE TYPICAL DETAIL. CONTINUITY AT OTHER LOCATIONS MAY BE ACHIEVED USING CONTACT LAP SPLICES SHOWN ON APPROVED SHOP DRAWINGS. LOCATION OF LAP SPLICES SHALL BE SHOWN ON THE SHOP DRAWINGS. UNLESS NOTED OTHERWISE, THE FOLLOWING LAP SPLICES SHALL BE USED: (ALL LAP SPLICES ARE CLASS B SPLICES)

LOCATION:	#3	#4	#5	#6	#7	#8	#9	#10	#11
3,000 & 3,500 PSI CONCRETE:									
- TOP BARS (*):	21"	19"	35"	46"	71"	93"	118"	149"	184"
- OTHER BARS:	16"	22"(**)	27"	35"	55"	71"	91"	115"	142"
4,000 & 4,500 PSI CONCRETE:									
- TOP BARS (*):	16"	19"	25"	36"	61"	80"	102"	129"	159"
- OTHER BARS:	16"	16"(**)	19"	28"	47"	62"	78"	99"	123"

(\*) TOP BARS ARE HORIZONTAL REINFORCING WHERE MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE

(\*\*) FOR #4 EPOXY COATED REBAR, USE 27" SPLICE LENGTH AT 3,000 AND 3,500 PSI CONC.

AND 19" AT 4,000 AND 4,500 PSI.

MECHANICAL CONNECTIONS MAY BE USED IN LIEU OF LAP SPLICES PROVIDED APPROVAL IS OBTAINED FROM THE ARCHITECT/ENGINEER. CONNECTIONS SHALL DEVELOP IN TENSION 125 PERCENT OF THE SPECIFIED YIELD STRENGTH OF THE BAR. ALL MECHANICAL CONNECTIONS SHALL BE SHOWN ON THE SHOP DRAWINGS AND BE INSTALLED IN ACCORDANCE WITH THE MECHANICAL SPLICE PROPRIESTS WITH SHOP DRAWINGS. FOR MECHANICAL SPLICE PRODUCTS WITH SHOP DRAWINGS.

CAPITAL GROUP Developer: W Capital Group











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07.08.2019 Footing and Foundation Plan

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Electrical Engineer: PRISM DESIGN ELECTRICAL



Description