.....INTERNATIONAL BUILDING CODE - 2018ASCE 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 CODE)

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

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

APPLICABLE CODES/STANDARDS:

...SLOPED ROOF FACTOR (Cs)

....SOIL UNIT WEIGHT

BUILDING DESIGN LOADS/CRITERIA

DESIGN LIVE LOADS:	
FLOOR FRAMING (RETAIL, OFFICE, RESTAURANT, RECREATIONAL)	100 psf
FLOOR FRAMING (RESIDENTIAL AREAS)	40 psf
STAIRWAYS, EXITS	100 psf
BALCONIES	40 psf
PRIVATE GARAGES (PASSENGER VEHICLES ONLY)	40 psf
INTERIOR PARTITION WALLS (UNIFORMLY DISTRIBUTED WEIGHT)	15 psf
CORRIDORS FIRST FLOOR	100 psf
CORRIDORS 2 nd 3rdFLOORS	40 psf
CORNICES	60 psf
SNOW LOADS & DESIGN DATA:	
DESIGN SNOW LOAD	42 psf (BALANCED SNOW LOAD
FLAT ROOF SNOW LOAD (Pf) = (0.7*Ce*Ct*Is*Pg)	42 psf
SNOW EXPOSURE FACTOR (Ce)	1.0
SNOW LOAD IMPORTANCE FACTOR (Is)	1.0
ROOF THERMAL FACTOR (Ct)	1.0
GROUND SNOW (Pg)	60 psf

NET PRESSURE COEFFICIENTS Cnet				
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			
	7 11 12 7 1	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 PERIOD	S (Ss)	0.045 g
MAPPED SPECTRAL ACCELERATIONS AT (1) SECOND PERIODS (S1)		0.038 g
SITE CLASSIFICATIONS		В
SITE COEFFICIENT (Fa)		1,0
SITE COEFFICIENT (Fv)		1,0
DESIGN SPECTRAL RESPONSE COEFFICIENT AT SHORT PERIODS (Sds)		0.030 g
DESIGN SPECTRAL RESPONSE COEFFICIENT AT (1) SECO	OND PERIODS (Sd1)	0.025 g
SEISMIC DESIGN CATEGORY		Α
BASIC SEISMIC-FORCE-RESISTING SYSTEM	LIGHT FRAME W	OOD WALLS WITH
	STRUCTURAL WO	OD SHEAR PANELS
ANIAL VIOLO DE OCEDIUDE ECO CELONIO DECLONI		E000E 411413/010

ANALYSIS PROCEDURE FOR SEISMIC DESIGN	EQUIVALENT LATERAL FORCE ANA	
SOIL DESIGN VALUES:		

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 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	28 DAYS fo	= 3,000
MAXIMUM WATER-CEMENTITIOUS RATIO	0.59	
MAXIMUM AGGREGATE SIZE	1 1/2"	
SLUMP LIMIT	5" +/-1"	
AIR CONTENT	NO	
EXTERIOR PIERS, WALLS, AND COLUMNS		
MINIMUM COMPRESSIVE STRENGTH AT 2	28 DAYS f'c	= 4.000
MAXIMUM WATER-CEMENTITIOUS RATIO		,
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1"	
AIR CONTENT	YES 4% to	6%
INTERIOR SLABS ON GRADE		
MINIMUM COMPRESSIVE STRENGTH AT 2	28 DAYS f'c	= 4.000
MAXIMUM WATER-CEMENTITIOUS RATIO		1,000
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1"	
AIR CONTENT	NO	
CONCRETE TOPPING		
MINIMUM COMPRESSIVE STRENGTH AT 2	28 DAYS f'c	= 4.000
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	28 DAYS fo	= 4,000
MAXIMUM WATER-CEMENTITIOUS RATIO	0.48	•
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1"	
AIR CONTENT	NO	
EXTERIOR SLABS ON GRADE		
MINIMUM COMPRESSIVE STRENGTH AT 2	28 DAYS f'c	= 4,000
MAXIMUM WATER-CEMENTITIOUS RATIO	0.48	·
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1"	
AIR CONTENT	YES 4% to	6%
SLURRY		
MINIMUM COMPRESSIVE STRENGTH AT 2	28 DAYS f'c	= 1,000
		•
MAXIMUM WATER-CEMENTITIOUS RATIO		
MAXIMUM WATER-CEMENTITIOUS RATIO MAXIMUM AGGREGATE SIZE	1 1/2"	
	1 1/2" 6" +/-1"	

STEEL/METAL:

REINFORCING STEEL:	
ALL ASTM A615, GRADE 60, DEFORMED	Fy = 60,000 PSI
STEEL WELDED WIRE REINFORCEMENT,	FLAT 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 6 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

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STRUCTURAL BOLTS:	
HIGH STRENGTH BOLTS, NUTS, & WASHERS ASTM A325	
ZINC-COATED HIGH STRENGTH BOLTS, NUTS, &STM A325 WASHERS	
STAINLESS STEEL BOLTS, NUTS, & WASHERS ASTM F593	
SHEAR CONNECTORS (GRADES 1015 THRU 10240\$TM A108	

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STAINLESS STEEL BOLTS, NUTS, & WASHERS ASTM F593							
SHEAR CONNECTORS (GRADES 1015 THRU 10240\$TM A108							
THREADED RODS	ASTM A36						
CLEVIS & TURNBUCKLES (GRADE 1035)	ASTM A108						
EYE BOLTS & NUTS (GRADE 1030)	ASTM A108						
ANCHOR BOLTS (GRADE 36)	ASTM F1554						

WELDED CONNECTIONS:	
WELDING ELECTRODES	E70XX
	E80XX FOR
	WELDING RE

SONRY:	f'm = 2,000 P

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

MASONRY MORTAR:

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.

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 SOILS ENGINEER AND COMPACTED TO 90% STANDARD PROCTOR.

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"

FOR MECHANICAL SPLICE PRODUCTS WITH SHOP DRAWINGS.

(*) 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.

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Description 07.08.2019 Footing and Foundation Plan





