DESIGN SUPERIMPOSED DEAD LOADS:

....TOPOGRAPHIC FACTOR (Kzt)

....DESIGN PROCEDURE

.....PARKING GARAGE

....PLAZA

.....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

150 psf

1.0

METHOD 1 (SIMPLIFIED PROCEDURE)

.....AWS D1.1/D1.1M STRUCTURAL WELDING CODE-STEEL

#### **BUILDING DESIGN LOADS/CRITERIA**

ROOF	28 psf 18 psf
DESIGN LIVE LOADS:PARKING GARAGEFLOOR FRAMING (RETAIL, OFFICE, RESTAURANT, RECREATIONALFLOOR FRAMING (RESIDENTIAL AREAS)STORAGE/HVACSTAIRWAYS, EXITSBALCONIESPLAZA (FOOTPRINT)INTERIOR PARTITION WALLS (UNIFORMLY DISTRIBUTED WEIGHT)CORRIDORS FIRST FLOORCORRIDORS 2 nd 3rd FLOORSROOFCORNICES	40 psf 125 psf 100 psf 40 psf 150 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)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)MEAN ROOF HEIGHTWIND EXPOSURE CATEGORYWIND EXPOSURE CLASSIFICATIONVELOCITY EXPOSURE COEFFICIENT KZ	1.0 115 MPH 90 MPH 33 FT B ENCLOSED 0.720

NET PRESSURE COEFFICIENTS Cnet						
AREA	C + INTERNAL net	C - INTERNAL net				
	PRESSURE	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				
/ \ <b>_</b> /	PRESSURE	PRESURE				
WINDWARD WALL	10.5 psf	17.8 psf				
LEEWARD WALL	-12.4 psf	-5.1 psf -8.5 psf				
SIDEWALL	-16.1 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 PERIC	DDS (Ss)	0.045 g
MAPPED SPECTRAL ACCELERATIONS AT (1) SECOND F	PERIODS (S1)	0.038 g
SITE CLASSIFICATIONS		В
SITE COEFFICIENT (Fa)		1,0
SITE COEFFICIENT (Fv)		1,0
DESIGN SPECTRAL RESPONSE COEFFICIENT AT SHOR	T PERIODS (Sds)	0.030 g
DESIGN SPECTRAL RESPONSE COEFFICIENT AT (1) SE	COND PERIODS (Sd1)	0.025 g
SEISMIC DESIGN CATEGORY		Α
BASIC SEISMIC-FORCE-RESISTING SYSTEM		WOOD WALLS WITH OOD SHEAR PANEL
ANALYSIS PROCEDURE FOR SEISMIC DESIGN	EQUIVALENT LATERA	L FORCE ANALYSI

SOIL DESIGN VALUES: ....SOIL UNIT WEIGHT .....LATERAL EARTH PRESSURE

125 PCF (ASSUMED)

.....AT-REST (BASEMENT WALLS) 62.5 PSF/FT OF DEPTH (ASSUMED) .....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

_								
	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/480	N/A	L/360				
	SUPPORTING FLEXIBLE MATERIALS	L/480	N/A	L/360				
	LINTEL/HEADER/BEAM MEMBERS							
	SUPPORTING RIGID MATERIALS (BRICK, MASONRY, ETC.)	RIGID MATERIALS (BRICK, MASONRY, ETC.) L/600 L/600		L/600				
	SUPPORTING FLEXIBLE MATERIALS (EIFS, SIDING, ETC.)	SIDING, ETC.) L/360 L/360 L/240		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:

CAST-IN-PLACE CONCRETE		
FOOTINGS		
MINIMUM COMPRESSIVE STRENGTH AT 28	DAYS	f'c = 3.000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
MAXIMUM AGGREGATE SIZE	1 1/2"	
SLUMP LIMIT	5" +/-1"	,
AIR CONTENT	NO	
FOUNDATION FROST WALLS		
MINIMUM COMPRESSIVE STRENGTH AT 28	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%
EXTERIOR PIERS, WALLS, AND COLUMNS		
MINIMUM COMPRESSIVE STRENGTH AT 28	DAYS	f'c = 4,000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO	0.48	,
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1'	•
AIR CONTENT	YES 4%	6 to 6%
INTERIOR SLABS ON GRADE		
MINIMUM COMPRESSIVE STRENGTH AT 28	DAYS	f'c = 4,000 PSI
MAXIMUM WATER-CEMENTITIOUS RATIO	0.48	
MAXIMUM AGGREGATE SIZE	3/4"	
SLUMP LIMIT	4" +/-1'	•
AIR CONTENT	NO	
CONCRETE TOPPING		
MINIMUM COMPRESSIVE STRENGTH AT 28	DAYS	f'c = 4,000 PSI
		•

....MAXIMUM WATER-CEMENTITIOUS RATIO 0.48 ....MAXIMUM AGGREGATE SIZE ....SLUMP LIMIT 4" +/-1" NO ....AIR CONTENT STAIR LANDINGS AND TREADS

....MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS fc = 4,000 PSI ....MAXIMUM WATER-CEMENTITIOUS RATIO 0.48 ....MAXIMUM AGGREGATE SIZE ....SLUMP LIMIT 4" +/-1" ....AIR CONTENT EXTERIOR SLABS ON GRADE

....MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS fc = 4,000 PSI ....MAXIMUM WATER-CEMENTITIOUS RATIO 0.48 ....MAXIMUM AGGREGATE SIZE 4" +/-1" ....SLUMP LIMIT ....AIR CONTENT YES 4% to 6%

SLURRY .....MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS fc = 1,000 PSI ....MAXIMUM WATER-CEMENTITIOUS RATIO 0.55 ....MAXIMUM AGGREGATE SIZE 1 1/2" 6" +/-1" .....SLUMP LIMIT ...AIR CONTENT NO

# 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 A992 GRADE 50 Fy = 50,000 PSI .....CHANNELS, ANGLES, AND S SHAPES, ASTM A367y = 36,000 PSI .....PLATE AND BAR, ASTM A36 Fy = 36,000 PSIFy = 46,000 PSI ....TUBE SHAPES, ASTM A500 GRADE B .....PIPE ASTM A53, TYPE E or S, GRADE B  $F_V = 46,000 PSI$ 

STRUCTURAL BOLTS:

.....HIGH STRENGTH BOLTS, NUTS, & WASHERS ASTM A325 ....ZINC-COATED HIGH STRENGTH BOLTS, NUTS, &ASTM A325 WASHERS .....STAINLESS STEEL BOLTS, NUTS, & WASHERS ASTM F593

....ALL OTHER ROLLED SHAPES, ASTM A36

.....SHEAR CONNECTORS (GRADES 1015 THRU 1020\$TM A108 ....THREADED RODS .....CLEVIS & TURNBUCKLES (GRADE 1035) ASTM A108 ASTM A108 .....EYE BOLTS & NUTS (GRADE 1030) ASTM F1554 ....ANCHOR BOLTS (GRADE 36)

WELDED CONNECTIONS: ....WELDING ELECTRODES

E70XX E80XX FOR WELDING REINF

Fy = 36,000 PSI

MASONRY: f'm = 2,000 PSI

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

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
- 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

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

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)

TITLE GETTOG B OF ETGES)									
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 MAGULANUA RELIGIOUS PROPERTY OF THE MAGULANUA RELIGIOUS PROPERTY PROPERTY OF THE MAGULANUA RELIGIOUS PROPERTY PROPERTY PROPERTY OF THE MAGULANUA RELIGIOUS PROPERTY PRO FOR MECHANICAL SPLICE PRODUCTS WITH SHOP DRAWINGS.

CAPITAL GROUP **Developer:** W Capital Group tyler@wcapitalgroupre.com | 608.345.9848

**Architect:** OpeningDesign 316 W Washington Ave | Suite 675 Madison, WI 53703



ryan@openingdesign.com | 773.425.6456

General Contractor: ROYAL CONSTRUCTION 3653 Greenway Street | Eau Claire, WI 54701 jim@royalbuilt.com | 715-225-6377







**Structural Engineer:** Structural Engineering Calle Apolonio Morales, 628036 Madrid, I.pereztato@xcengineering.xyz | +34 610 56 26 37



**Structural Engineer:** Structural Engineering 4729 Dale-Curtain Dr, McFarland, WI 53558 kfrey@ennovationbuilt.com



jhansen@hovlands-inc.com | 715.552.5595

Electrical Engineer: PRISM DESIGN ELECTRICAL CONSULTANS INC E8403 State Rd 85 | Mondovi, WI 54755 bhalgren@prismdesign-electrical.com | 715.797.0602



Plumbing Engineer: TAILORED ENGINEERING 1600 Aspen Commons | Ste 210 | Middleton, WI bnovak@tailoredeng.com | 608.209.7500

Description

Permit

07.08.2019 Footing and Foundation Plan

STRUCTURAL NOTES 1750 OX RESIDENCES - 1750 N OXFORD AVE. - EAU CLAIRE, WI