DESIGN DATA

DESIGN CODE:
2011 WISCONSIN COMMERCIAL BUILDING CODE

WIND LOAD INFORMATION:

BASIC WIND SPEED			90 MPH
BUILDING OCCUPANCY CATEGORY			II
WIND LOAD IMPORTANCE FACTOR (Iw)			1.00
WIND EXPOSURE			B
INTERNAL PRESSURE COEFFICIENTS			± .18
COMPONENTS AND CLADDING (GROSS WIND PRESSURES):			
(FOR ZONE DEFINITIONS & DIAGRAMS SEE DESIGN GUIDE ASCE/SEI 7 SECTION 6)			
WIDTH OF PRESSURE COEFFICIENT ZONE (a)			4 ft
TRIBUTARY WIND LOAD AREAS:	10 ft²	50 ft²	100 ft²
ROOF (GABLE/HIP/MONOSLOPE):			
NEGATIVE ZONE 1	-18.4 psf	-17.2 psf	-16.7 psf
NEGATIVE ZONE 2	-32.1 psf	-26.1 psf	-23.5 psf
NEGATIVE ZONE 3	-47.4 psf	-40.3 psf	-37.2 psf
POSITIVE PRESSURE ALL ZONES	11.6 psf	10.0 psf	10.0 psf
WALLS:			
ZONE 4	-21.8 psf	-20.2 psf	-18.8 psf
ZONE 5	-27.0 psf	-23.6 psf	-20.9 psf
OVERHANGS/CANOPIES:			
ZONE 1,2	-37.5 psf	-37.5 psf	-37.5 psf
ZONE 3	-63.1 psf	-48.8 psf	-45.2 psf

SEISMIC LOAD INFORMATION:

SEISMIC USE GROUP / OCCUPANCY CATEGORY	II
SEISMIC LOAD IMPORTANCE FACTOR (Ie)	1.00
SEISMIC SITE CLASS	D
MAPPED SPECTRAL RESPONSE ACCELERATION (Ss)	10.40
MAPPED SPECTRAL RESPONSE ACCELERATION (S1)	4.40
SPECTRAL RESPONSE COEFFICIENT (Sds)	0.111
SPECTRAL RESPONSE COEFFICIENT (Sd1)	0.070
SEISMIC DESIGN CATEGORY	A
BASIC SEISMIC FORCE RESISTING SYSTEM	LIGHT FRAME SHEAR WALLS
RESPONSE MODIFICATION FACTOR	2.5
SEISMIC RESPONSE COEFFICIENT (Cs)	0.044
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE

SNOW LOAD INFORMATION:

GROUND SNOW LOAD (Pg)	30 psf
SNOW EXPOSURE FACTOR (Ce)	1.00
SNOW LOAD IMPORTANCE FACTOR (Is)	1.00
THERMAL FACTOR (Ct)	1.10
	1:20 AT OVERHANGS
DESIGN/BALANCED SNOW LOAD (Ps)	30 psf

SOIL LOAD INFORMATION:

COEFFICIENT OF SLIDING FRICTION (μ)	0.40
LATERAL EARTH PRESSURE:	
ACTIVE	35 pcf
AT-REST	55 pcf
PASSIVE	200 pcf
ALLOWABLE NET SOIL BEARING PRESSURE (PRESUMED)	Qa = 1750 psf
MODULUS OF SUB-GRADE REACTION	k = 125 pci
FROST DEPTH	42"

LIVE LOADS:

FLOOR UNLESS NOTED	40 psf + 1psf PARTITION
PATIO / BALCONIES	75 psf

MATERIAL DESIGN PROPERTIES

CIP CONCRETE STRENGTHS:

FOOTINGS	f'c = 3000 psi
CONCRETE WALLS / PIERS / COLUMNS	f'c = 3500 psi
SLAB ON GRADE	f'c = 3500 psi
EXTERIOR SLAB ON GRADE	f'c = 4000 psi

REINFORCING STEEL STRENGTHS:

BARS (ASTM A 615, grade 60)	Fy = 60,000 psi
WWF (ASTM A 185)	Fy = 65,000 psi

STRUCTURAL STEEL STRENGTHS:

WF SHAPES (ASTM A992)	Fy = 50,000 psi
ANGLES, CHANNELS, PLATES, & BARS (ASTM A36)	Fy = 36,000 psi
SQUARE & RECTANGULAR TS OR HSS SECTIONS (ASTM A500, grade B)	Fy = 46,000 psi
ROUND HSS SECTIONS (ASTM A500, grade B)	Fy = 42,000 psi
STEEL PIPE (ASTM A53, grade B)	Fy = 35,000 psi
HIGH STRENGTH BOLTS (ASTM A325)	
ANCHOR BOLTS (ASTM F1554)	Fy = 36,000 psi
WELD ELECTRODES	E70 XX

WOOD STRENGTHS:

DIMENSIONAL LUMBER (SEE WOOD FRAMING NOTES)	
LAMINATED VENEER LUMBER:	E = 1,900 ksi Fb = 2,600 psi Fv = 285 psi Fc(perp) = 750 psi Fc(para) = 2,510 psi
PARALLEL STRAND LUMBER:	E = 2,000 ksi Fb = 2,900 psi Fv = 290 psi Fc(perp) = 750 psi Fc(para) = 2,900 psi
GLULAMINATED LUMBER	WESTERN SPECIES BALANCED CONDITION 24F-1.8E WS

EARTHWORK NOTES

1. AN ALLOWABLE SOIL BEARING PRESSURE OF 1750 psf HAS BEEN PRESUMED. CONTRACTOR TO FIELD VERIFY ALLOWABLE SOIL BEARING PRESSURE AT THE TIME OF EXCAVATION BY ENGAGING THE SERVICES OF A GEOTECHNICAL ENGINEER. CONTACT A/E FOR EVALUATION IF A LOWER SOIL BEARING PRESSURE IS ENCOUNTERED
2. ALL TOPSOIL, DEBRIS, SILTS, AND ORGANIC MATERIAL SHALL BE STRIPPED AND REMOVED FROM LIMITS OF EXCAVATIONS AND EXISTING SUBGRADE SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY PRIOR TO PLACEMENT OF FILL MATERIAL
3. FILL MATERIAL SHALL BE PLACED AND COMPACTED IN LIFTS NO THICKER THAN 8". EACH LIFT SHALL MEET COMPACTION REQUIREMENTS PRIOR TO PLACEMENT AND COMPACTION OF ADDITIONAL LIFTS.
4. FILL MATERIAL SHALL BE PLACED AND COMPACTED AT +1% TO -4% OPTIMUM MOISTURE CONTENT TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY, UNLESS RECOMMENDED OTHERWISE BY A QUALIFIED SOILS ENGINEER.
5. UNSATISFACTORY SOILS LOCATED BELOW FOUNDATIONS SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE SOILS ENGINEER.

GENERAL FOUNDATION NOTES

2. PROTECT IN-PLACE FOUNDATIONS AND SLABS ON GRADE FROM FROST PENETRATION UNTIL PROJECT COMPLETION

CAST-IN-PLACE CONCRETE NOTES

1. DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST PROVISIONS OF ACI 318/318R.
3. ARRANGEMENT AND BENDING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL (ACI SP-66), LATEST EDITION.
4. WHEN THE AVERAGE TEMPERATURE FROM MIDNIGHT TO MIDNIGHT IS EXPECTED TO DROP BELOW 40 DEGREES FAHRENHEIT FOR THREE SUCCESSIVE DAYS, COLD WEATHER CONCRETING REQUIREMENTS MUST BE FOLLOWED.
5. WHEN AMBIENT AIR OR CONCRETE TEMPERATURES EXCEED 90 DEGREES FAHRENHEIT, STEEL REINFORCING AND/OR FORMING SURFACES ARE ABOVE 120 DEGREES, OR WHEN WIND VELOCITY, HUMIDITY, OR SOLAR RADIATION CREATE CONDITIONS OF ACCELERATED MOISTURE LOSS AND INCREASED RATE OF HYDRATION, HOT WEATHER CONCRETING REQUIREMENTS SHALL BE FOLLOWED.
6. ALL HOOKS IN STEEL REINFORCING SHALL BE ACI STANDARD HOOKS, UNLESS NOTED OTHERWISE IN CONSTRUCTION DOCUMENTS.
7. ALL CONCRETE SURFACES SHALL BE FORMED, UNLESS OTHERWISE NOTED.
8. CONTROL JOINTS SHALL BE PLACED IN SLAB ON GRADE AND SLAB ON METAL DECK CONSTRUCTION WITHIN 24 HOURS OF INITIAL POUR.
9. WIRE SPACERS, CHAIRS, TIES, ETC., FOR SUPPORT OF STEEL REINFORCING SHALL BE PROVIDED BY THE CONTRACTOR TO ENSURE REINFORCING IS PLACED IN THE PROPER POSITION DURING CONCRETE PLACEMENT.
10. STEEL REINFORCING SPLICES OF ADJACENT BARS SHALL BE STAGGERED SUCH THAT SPLICES ARE 4 FEET APART. MINIMUM.
12. WELDED WIRE REINFORCING SHALL BE IN FLAT SHEETS ONLY, AND LAPPED A MINIMUM OF 6 INCHES.
13. WELDING OF STEEL REINFORCING IS NOT PERMITTED.
15. ALUMINUM CONDUIT OR PIPING SHALL NOT BE CAST IN CONCRETE.
17. FINISH & COVER CONCRETE SLABS w/ FILM FORMING CURING COMPOUND OR VAPOR RETARDER UNO OR SPECIFIED OTHERWISE.

CAST-IN-PLACE CONCRETE TOLERANCES

1. CONCRETE COVER MEASURED PERPENDICULAR FROM THE SURFACE IN DIRECTION OF TOLERANCES:
   - MEMBERS 12" OR LESS: ±3/8"
   - MEMBERS OVER 12": ±1/2"
2. STEEL REINFORCEMENT SPACING SHALL BE WITHIN THE FOLLOWING TOLERANCES:
   - 1/4" SPACING DISTANCE, NOT TO EXCEED 1"
3. PLACEMENT OF EMBEDDED ITEMS SHALL BE WITHIN THE FOLLOWING TOLERANCES:
   - VERTICAL ALIGNMENT: ±1"
   - LATERAL ALIGNMENT: ±1"
   - LEVEL ALIGNMENT: ±1"
4. PLACEMENT OF FOOTINGS SHALL BE WITHIN THE FOLLOWING TOLERANCES:
   - LATERAL ALIGNMENT: ±2"
   - LEVEL ALIGNMENT: +1/2" TO -2"
   - (LEVEL ALIGNMENT SUPPORTING MASONRY): ±1/2"
5. CROSS-SECTIONAL DIMENSION OF FOOTINGS SHALL BE WITHIN THE FOLLOWING TOLERANCES:
   - FORMED FOOTINGS: +2" TO -1/2"
   - EARTHCAST FOOTINGS:
     - 2' OR LESS: +3" TO -1/2"
     - GREATER THAN 2' BUT LESS THAN 6': +6" TO -1/2"
     - GREATER THAN 6': +12" TO -1/2"
   - FOOTING THICKNESS: ±5%
6. TOP OF FOOTING SLOPE: 1" IN 10'

MILD STEEL PROTECTION

FOOTINGS - BOTTOM & SIDES	3"
FOOTING - TOP	2"
PERIMETER WALLS - #5 & SMALLER	1½"
PERIMETER WALLS - #6 & LARGER	2"
INTERIOR WALLS	¾"
BEAMS, PIERS, & COLUMNS	1½"
SLABS - BOTTOM & SIDES	1"
SLABS - TOP	¾"

WOOD FRAMING NOTES

(APPLY TO ALL FRAMING DRAWI SPRUCE PINE FIR (SPF) - STUD GRADE

1. FRAMING MEMBERS:
   - VERTICAL MEMBERS: SPRUCE PINE FIR (SPF) - STUD GRADE
   - HORIZONTAL MEMBERS: SPRUCE PINE FIR (SPF) - NO 1/NO2

   LUMBER TO BE KILN DRIED, MOISTURE CONTENT SHALL BE BETWEEN 15% AND 19%
2. TOP & BOTTOM PLATES OF STUD WALLS SHALL BE THE SAME AS THE WALL STUDS. (BOTTOM PLATE TO BE TREATED).
3. ROOF SHEATHING SHALL BE ¾" AT FLAT ROOFS ATTACHED TO THE ROOF FRAMING MEMBERS w/ 8d COMMON OR BOX NAILS @ 6" O.C. ALONG EDGES AND 12" O.C. ALONG INTERMEDIATE MEMBERS. STAGGER PANEL EDGES. (1" MIN. EMBED. INTO FRAMING MEMBER). INSTALL EDGE CLIPS ON PANEL EDGES BETWEEN FRAMING MEMBERS.
4. EXTERIOR WALLS TO BE SHEATHED w/APA RATED SHEATHING, SEE ARCH DRAWINGS FOR THICKNESS. ATTACH DIRECTLY TO THE OUTSIDE FACE OF EXTERIOR STUD WALLS WITH 8d COMMON OR BOX NAILS @ 6"O.C. ALONG EDGES AND 12" O.C. ALONG INTERMEDIATE MEMBERS. U.N.O.
5. AS A MINIMUM, ALL CONNECTIONS SHALL CONFORM TO IBC 2006 TABLE 2304.9.1 FASTENING SCHEDULE. DRAWING DETAILS SHALL GOVERN IF THEIR CONNECTION CAPACITY IS GREATER THAN THOSE SPECIFIED IN TABLE 2304.9.1.
6. WHERE BUILT-UP/MULTI-PLY BEAMS AND HEADERS OF DIMENSIONAL LUMBER OR LVL MATERIAL ARE INDICATED, SEE DETAIL 1/S4.00 FOR TOP LOADED MEMBERS FOR MINIMUM FASTENING REQUIREMENTS. ALSO SEE MANUFACTURER'S MINIMUM FASTENING REQUIREMENTS.
7. WHERE BUILT-UP/MULTI-PLY POSTS AND JAMBS ARE INDICATED, FASTENING SHALL BE IN ACCORDANCE WITH NATIONAL DESIGN SPECIFICATION SECTION 15.3.3.
8. USE JOIST HANGERS DESIGNED FOR GIVEN MEMBER SIZE TO SUPPORT ALL JOISTS/HEADERS FRAMING INTO SIDES OF OTHER MEMBERS.

LAMINATED WOOD ROOF FRAMING NOTES

LAMINATED WOOD SPECIFICATIONS:

SPECIES	DOUGLAS FIR UNLESS NOTED
LAMINATION THICKNESS	1 1/2" (2" NOM.) UNLESS NOTED
STRESS COMBINATION	SEE STRESS LISTING BELOW
TREATING	ALL MEMBERS EXPOSED TO THE EXTERIOR TO BE TREATED
ADHESIVE	RESORCINOL RESIN
AITC APPEARANCE GRADE	ARCHITECTURAL SMOOTH TEXTURE
FINISH (EXPOSED SURFACES)	FACTORY STAIN - ONE COAT. ARCHITECT TO SELECT COLOR
FINISH (UNEXPOSED SURFACES)	ONE COAT SEALER
PROTECTION (TRANSIT)	WRAP INDIVIDUAL MEMBERS w/ WATER-RESISTANT PAPER OR OPAQUE POLYETHYLENE, TAPE SEAMS

1. MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH "AMERICAN NATIONAL STANDARD", ANSI/AITC A190.1-1992.
2. MEMBERS SHALL BE MARKED WITH A QUALITY MARK INDICATING CONFORMANCE TO THE STANDARD LISTED IN NOTE 1.

LAMINATED WOOD STRESS COMBINATIONS:

BEAMS	24F-1.8E (SIMPLE SPAN, 3500' RADIUS)
COLUMNS	COMB 2

LAMINATED WOOD CONNECTION / HARDWARE NOTES:

1. ALL CONNECTIONS PLATES SHALL BE FABRICATED WITH ASTM A36 STEEL
2. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS STANDARDS
3. ALL HOLES SHALL BE 13/16" - UNLESS NOTED OTHERWISE
4. ALL BOLTS SHALL BE 3/4" ASTM A307 UNLESS NOTED OTHERWISE
5. ALL LAGS SHALL CONFORM TO ANSI/ASME STANDARDS
6. ALL SHEAR PLATES SHALL CONFORM TO ANSI/AF&PA STANDARDS
7. SHAPED STEEL CONNECTION PLATES MAY BE CUT FROM A SINGLE PLATE OR CONSTRUCTED OF MULTIPLE PLATES w/ BEVELED, FULL PENETRATION WELDS (GROUND SMOOTH)
8. ALL FABRICATED STEEL, BOLTS, WASHERS, SHEAR PLATES, LAGS, AND NAILS SHALL BE HOT DIP GALVANIZED WHERE EXPOSED TO THE WEATHER OR EMBEDDED IN CONCRETE.

LAMINATED WOOD STORAGE / ERECTION NOTES:

1. JOB-SITE STORAGE SHALL BE PROVIDED IN A LEVEL AREA TO PREVENT WARPAGE. MEMBERS SHALL BE SUPPORTED WITH BLOCKING SPACED TO PROVIDE UNIFORM AND ADEQUATE SUPPORT.
2. MATERIAL SHALL BE BLOCKED WELL OFF THE GROUND AND SEPARATED WITH STRIPPING TO ALLOW AIR CIRCULATION AROUND ALL FOUR SIDES OF EACH MEMBER.
3. INDIVIDUAL MEMBER WRAPPINGS SHALL BE SLIT OR PUNCTURED ON THE LOWER SIDE TO ALLOW DRAINAGE OF WATER.
4. MATERIAL SHALL BE STORED BENEATH AN OPAQUE, MOISTURE-RESISTANT COVERING UNTIL ERECTED.
5. PADDED OR NONMARRING SLINGS SHALL BE USED FOR ERECTION, AND CORNERS SHALL BE PROTECTED WITH WOOD BLOCKING.
6. PROVIDE ADEQUATE TEMPORARY BRACING UNTIL THE ROOF STRUCTURE IS SHEATHED.
7. MODERATE USE OF DRIFT PINS, MODERATE REAMING, AND SLIGHT CUTTING ARE ACCEPTABLE MEANS OF CORRECTION FOR PROPER ASSEMBLY AND FITTING. CONTACT PIERCE ENGINEERS FOR METHOD OF CORRECTION IF ERROR OR MATERIAL DEFECTS DO NOT ALLOW PROPER ASSEMBLY.
8. HEAT SHOULD NOT BE FULLY TURNED ON AS SOON AS THE STRUCTURE IS ENCLOSED. EXCESSIVE CHECKING MAY OCCUR DUE TO RAPID LOWERING OF THE RELATIVE HUMIDITY IN THE BUILDING. A GRADUAL SEASONING PERIOD AT MODERATE TEMPERATURE SHOULD BE PROVIDED.