## DESIGN LOADS

### BUILDING CODE: INTERNATIONAL BUILDING CODE 2006

FLOOR LIVE LOAD (SLAB ON GRADE): 100 PSF

MEZZANINE LIVE LOAD: 50 PSF

ROOF DEAD LOAD:
- ROOF DEAD LOAD: 20 PSF
- ROOF DEAD LOAD RESISTING UPLIFT: 20 PSF

ROOF LIVE LOAD:
- MINIMUM ROOF LIVE LOAD: 20 PSF
- DESIGN ROOF LIVE LOAD: 20 PSF

ROOF SNOW LOAD (ASCE 7-05):
GROUND SNOW LOAD (Pg) = 50 PSF
MIN. FLAT-ROOF SNOW LOAD (Pf min.) = 35 PSF
RAIN ON SNOW SURCHARGE = N/A
SNOW EXPOSURE FACTOR (Ce) = 1.0
SNOW LOAD THERMAL FACTOR (Ct) = 1.0
SNOW LOAD IMPORTANCE FACTOR (I) = 1.0
ALL APPLICABLE EFFECTS DUE TO SNOW DRIFTING.

WIND LOADS (ASCE 7-05):
BASIC WIND SPEED (3 SECOND GUST) = 100 MPH
WIND LOAD IMPORTANCE FACTOR = 1.0
WIND EXPOSURE CATEGORY C FOR MAIN WINDFORCE-RESISTING SYSTEM
INTERNAL PRESSURE COEF. = 0.18
WIND DESIGN PRESSURES
1. 16.2 psf. FOR WINDWARD WALLS (END ZONE) (MWFRS)
2. 5.6 psf. FOR LEEWARD WALLS (END ZONE) (MWFRS)
3. 0.0 psf. FOR WINDWARD PARAPET (MWFRS)
4. 0.0 psf. FOR LEEWARD PARAPET (MWFRS)
5. 5.0 psf. FOR SIDE WALLS (MWFRS)
6. 4.6 psf. ROOF UPLIFT (FIELD) (MWFRS)
7. 6.5 psf. ROOF UPLIFT (END ZONE) (MWFRS)
8. 23.8 psf FOR COMPONENTS AND CLADDING (WALLS)
9. 29.4 psf FOR COMPONENTS AND CLADDING (CORNERS)
10. 0.0 psf. FOR COMPONENTS AND CLADDING (PARAPET-FIELD), 0.0 psf. (PARAPET-CORNER)
11. 21.9 psf ROOF COMPONENTS AND CLADDING (ROOF UPLIFT-FIELD)
12. 25.7 psf ROOF COMPONENTS AND CLADDING (ROOF UPLIFT-EAVE/RIDGE)
13. 25.7 psf ROOF COMPONENTS AND CLADDING (ROOF UPLIFT-CORNERS)
14. 37.2 psf OVERHANG COMPONENTS AND CLADDING (UPLIFT), 37.2 psf.(OVERHANG CORNERS) (UPLIFT)
15. 20.1 psf. DOWNWARD (ALL ZONES)

SEISMIC DESIGN CRITERIA (ASCE 7-05):
SEISMIC OCCUPANCY CATEGORY II
SEISMIC IMPORTANCE FACTOR, Is = 1.0
MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION AT 0.2 SECOND PERIOD, Ss = 31.7%g
MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION AT 1.0 SECOND PERIOD, S1 = 7.70%g
SITE CLASS = B
FIVE-PERCENT DAMPED DESIGN SPECTRAL RESPONSE ACCELERATION AT 0.2 SECOND PERIOD, Sds = 0.327
FIVE-PERCENT DAMPED DESIGN SPECTRAL RESPONSE ACCELERATION AT 1.0 SECOND PERIOD, Sd1 = 0.123
SEISMIC DESIGN CATEGORY = B
SEISMIC-FORCE-RESISTING SYSTEM: BEARING WALL, ORDINARY PLAIN MASONRY SHEAR WALL
DESIGN BASE SHEAR, V = 0.218 W KIPS
SEISMIC RESPONSE COEFFECIENT Cs = 0.218
RESPONSE MODIFICATION FACTOR R = 1.5
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
SPECIAL LOADS:
- INTERIOR PARTITIONS: 5 PSF
- HANDRAILS: 50 PLF / 200 LBS

FROST DEPTH (BELOW GRADE): 4'-0"

## MASONRY

CONCRETE BLOCK DESIGN AND CONSTRUCTION SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", ACI 530-02/ASCE 5-02/TMS 402-02.

MASONRY MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING SPECIFICATIONS:
- HOLLOW LOAD BEARING CONCRETE BLOCK: ASTM C-90, GRADE NI
- MORTAR: ASTM C-270, TYPE S
  MINIMUM COMPRESSIVE STRENGTH = 1800 PSI AT 28 DAYS.
- MORTAR: ASTM C-270, TYPE M
  MINIMUM COMPRESSIVE STRENGTH = 2500 PSI AT 28 DAYS (USED FOR BELOW GRADE WORK.)
- GROUT: ASTM C-476,
- MINIMUM COMPRESSIVE STRENGTH = 2000 PSI AT 28 DAYS
- MASONRY REINFORCEMENT: ASTM A-82, GALVANIZED
- MASONRY PRISM STRENGTH: F'm = 1500 PSI
- BAR REINFORCING ASTM A615, GRADE 60

PRIOR TO DELIVERY OF MASONRY UNITS TO THE JOB SITE, FURNISH TO THE OWNER AFFIDAVITS FROM AN APPROVED TESTING LABORATORY CERTIFYING THAT ALL UNITS CONFORM TO THEIR RESPECTIVE ASTM REQUIREMENTS.

GROUT ALL CAVITIES CONTAINING REINFORCEMENT IN LIFTS NOT TO EXCEED 4'-0".

LABORATORY PREPARED MIXES SHALL BE PREPARED AND TESTED IN ACCORDANCE WITH ASTM C-270. FIELD MORTAR SHALL BE TESTED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH ASTM C-780 TWO SETS OF THREE MORTAR CUBES SHALL BE TAKEN DIRECTLY FROM THE MIXER FOR EACH DAY OF MASONRY WORK. TEST THE CUBES AT 28 DAYS. ACCEPTANCE OF THE MORTAR SHALL BE AT THE DISCRETION OF THE ENGINEER.

PROVIDE STANDARD DUR-O-WALL OR EQUIVALENT REINFORCEMENT AT EVERY SECOND BLOCK COURSE IN ALL WALLS UNLESS MORE RESTRICTIVE REQUIREMENTS ARE NOTED.

CALCIUM CHLORIDE AND/ OR ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL NOT BE INCLUDED IN MORTAR OR GROUT MIX, EXCEPT WHEN APPROVED IN WRITING BY THE STRUCTURAL ENGINEER. NO ANTI FREEZE COMPOUNDS SHALL BE USED TO LOWER THE MORTAR'S FREEZING POINT.

REINFORCED MASONRY, WHERE VERTICAL BARS ARE TO BE GROUTED INTO CORES, THE FOLLOWING REQUIREMENTS APPLY:

1. PROVIDE DOWELS FROM FOOTING, SAME SIZE AND SPACING AS WALL BARS. LAP 12 INCHES MINIMUM WITH WALL BAR. EMBED INTO FOOTING 9 INCHES.
2. PROVIDE A CONTINUOUS VERTICAL CAVITY, AT LEAST 2" X 3" IN SIZE, FREE OF MORTAR DROPPINGS.
3. PROVIDE REBAR ALIGNMENT DEVICES AT A MAXIMUM SPACING OF 96 BAR DIAMETERS (MINIMUM OF 2 PER BAR).
4. LAP PER SCHEDULE.
5. ALL REINFORCEMENT MUST BE INSTALLED AND SECURELY ANCHORED IN PLACE PRIOR TO PLACEMENT OF GROUT.
6. MAXIMUM HEIGHT OF GROUT LIFT = 4'-0".

NO EXTERIOR MASONRY SHALL BE LAID WHEN THE OUTSIDE AIR TEMPERATURE IS LESS THAN 40 DEGREES FAHRENHEIT, UNLESS THE RECOMMENDATIONS SPECIFIED BY THE INTERNATIONAL MASONRY INDUSTRY ALL WEATHER COUNCIL IN THEIR PUBLICATION "RECOMMENDED PRACTICES AND GUIDE SPECIFICATIONS FOR COLD WEATHER MASONRY" ARE STRICTLY FOLLOWED.

THE MASONRY CONTRACTOR SHALL PROVIDE BRACING TO WITHSTAND HORIZONTAL PRESSURES AS REQUIRED BY THE BUILDING CODE AND LOCAL ORDINANCE.

## REINFORCED CONCRETE

ALL CONCRETE SHALL BE IN ACCORDANCE WITH THE "AMERICAN CONCRETE INSTITUTE BUILDING CODE" (ACI 318) AND WITH "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) LATEST EDITIONS.

ALL NORMAL WEIGHT CONCRETE (145 PCF) SHALL OBTAIN A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI,(3500 PSI FOR SLABS).

ALL CONCRETE SUBJECT TO EXTERIOR EXPOSURE SHALL BE AIR ENTRAINED AS RECOMMENDED BY ACI 318.

TEST CYLINDERS SHALL BE MADE AND TESTED AS OUTLINED IN CHAPTER 16 OF ACI-301.

REINFORCING BARS SHALL BE DEFORMED BARS OF NEW BILLET STEEL CONFORMING TO ASTM A-615, GRADE 60. WELDABLE STEEL SHALL CONFORM WITH ASTM A706, GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185. ALL REINFORCING AND ACCESSORIES SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH ACI STANDARD 315 AND 315R.

PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCEMENT AT POSITIONS SHOWN ON THE PLANS AND DETAILS. PLASTIC COATED ACCESSORIES SHALL BE USED IN ALL EXPOSED CONCRETE WORK.

THE GENERAL CONTRACTOR SHALL CHECK WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND THE SUB-CONTRACTORS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, INSERTS, SLAB DEPRESSIONS AND OTHER ITEMS RELATED TO THE CONCRETE WORK AND SHALL ASSUME RESPONSIBILITY FOR THEIR PROPER LOCATION.

CONSTRUCTION JOINTS:
1. CONSTRUCTION JOINTS PERMITTED ONLY WHERE SHOWN OR AS APPROVED BY THE STRUCTURAL ENGINEER. ALL CONSTRUCTION JOINTS ARE TO BE KEYED. KEY WAYS SHALL BE CONSTRUCTED PER PLANS.

CONCRETE COVER: UNLESS NOTED OTHERWISE, DETAIL REINFORCING TO PROVIDE CONCRETE COVER AS FOLLOWS:
1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3 IN.
2. CONCRETE EXPOSED TO EARTH OR WEATHER:
   #5 BARS AND SMALLER : 1 1/2 IN.
   OTHERS: 2 IN.

JOINT DEVICES AND FILLER MATERIALS
1. JOINT FILLER (ASTM D1752): CLOSED CELL MOLDED VINYL FOAM, RESILIENCY RECOVERY OF 95 PERCENT IF NOT COMPRESSED MORE THAN 50 PERCENT OF ORIGINAL THICKNESS.
2. CONSTRUCTION JOINT DEVICES: INTEGRAL GALVANIZED STEEL, FORMED TO TONGUE AND GROOVE PROFILE, WITH REMOVABLE TOP STRIP EXPOSING SEALANT TROUGH, KNOCKOUT HOLES SPACED AT 6 INCHES, RIBBED STEEL SPIKES WITH TONGUE TO FIT TOP SCREED EDGE.
3. SEALANT AND PRIMER: SEALANT NO. 2.1 A2.

## STRUCTURAL STEEL

STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" AND THE AISC "CODE OF STANDARD PRACTICE".

STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:

| | |
|---|---|
| BEAMS (W-SHAPE) | ASTM A992, Fy = 50 KSI |
| ANCHOR RODS | F1554, GR 36 |
| HIGH STRENGTH STRUCTURAL BOLTS | A325-N U.N.O. |
| STRUCTURAL SHAPES AND PLATES | A36 (MIN.) |
| STRUCTURAL TUBES | A500 GRADE B |
| STRUCTURAL PIPES | ASTM A53, Fy = 35 KSI |

ALL WELDING ELECTRODES SHALL BE E70-XX. ALL SHOP AND FIELD WELDING SHALL BE MADE IN ACCORDANCE WITH A.W.S. D1.1-02 "CODE FOR WELDING IN BUILDING CONSTRUCTION" AND SHALL BE MADE BY CERTIFIED WELDERS.

SPECIFICATIONS: WELDING PERSONNEL AND PROCEDURES ARE TO BE QUALIFIED PER AWS D1.1. UNLESS SPECIFICALLY SHOWN OTHERWISE, DESIGN, FABRICATION AND ERECTION TO BE GOVERNED BY:
1. AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.
2. AISC CODE OF STANDARD PRACTICE.
3. STRUCTURAL WELDING CODE, AWS D1.1-06 OF THE AMERICAN WELDING SOCIETY.
4. SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.

CONNECTIONS:
1. CONNECTIONS TO BE DESIGNED BY THE FABRICATOR TO DEVELOP FULL STRENGTH OF MEMBERS OR FORCES SHOWN ON THE PLANS, WHICHEVER GOVERNS. FOLLOW INSTRUCTIONS ON DRAWINGS FOR GENERAL ARRANGEMENT OR PARTICULAR DETAILS. FIELD CONNECTIONS TO BE BOLTED. SHOP CONNECTION TO BE WELDED OR BOLTED.
2. FULL PENETRATION AND PARTIAL PENETRATION FIELD WELDS IN MATERIAL OVER 5/16 INCH THICK SHALL BE SUBJECT TO NONDESTRUCTIVE TESTING (OTHER THAN VISUAL INSPECTION) BY AN INDEPENDENT LABORATORY.
3. ALL BOLTS IN BRACED FRAMES AND BOLTS IN SHEAR CONNECTIONS USED IN CONJUNCTION WITH FULL PENETRATION FLANGE WELDS SHALL BE SLIP CRITICAL (FRICTION) TYPE.

PAINT:
1. FINISHED PRODUCT CONCEALED FROM VIEW. DO NOT PAINT ANY STEEL WHICH WILL BE LOCATED OUT OF VIEW.

GALVANIZING: ALL SHELF ANGLES, LINTELS IN EXTERIOR WALLS, AND ALL EXTERIOR STEEL EXPOSED TO THE ELEMENTS SHALL BE GALVANIZED.

SUBMITTAL DRAWINGS:
1. SHOP DRAWINGS SHOWING LAYOUT AND DETAIL NECESSARY FOR DETERMINING FIT AND PLACEMENT IN THE BUILDING SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW.
2. PRODUCTION: DO NOT PROCEED WITH PRODUCTION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED BY THE ARCHITECT AND/OR ENGINEER.

MISCELLANEOUS
1. PROVIDE HOLES FOR OTHERS. IF OPENING IS NOT SHOWN ON THE STRUCTURAL DRAWINGS, OBTAIN PRIOR APPROVAL.
2. STEEL SUPPORTING OR CONNECTED TO HVAC AND OTHER EQUIPMENT AND ROOF OPENINGS AS SHOWN ON THE DRAWINGS IS SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL RECONCILE EXACT SIZE AND LOCATION BEFORE PROCEEDING WITH HIS WORK.
3. GROUT UNDER BEARING PLATES, BASE PLATES, AND SETTING PLATES TO BE NON-SHRINK TYPE.
4. STEEL BELOW GRADE TO BE PROTECTED BY A MINIMUM OF 3 INCHES OF CONCRETE.
5. PROVIDE 1/4 INCH THICK SETTING PLATES FOR ALL BEAMS BEARING ON MASONRY WHICH DO NOT REQUIRE A BEARING PLATE.
6. PROVIDE SHOP WELDED ANCHORS FOR ATTACHMENTS OF MASONRY. SPACING TO BE 16 INCHES ON COLUMNS AND BEAMS.
7. PROVIDE HEAVY WASHER AT ALL ANCHOR BOLTS.
8. FINISH ENDS OF ALL COLUMNS, STIFFENERS AND ALL OTHER MEMBERS IN DIRECT BEARING.
9. PROVIDE BOLT HOLES FOR JOISTS BOLTED TO BEAMS AND ATTACHMENT FOR JOINING EXTENDED JOIST BOTTOM CHORDS.
10. MINIMUM BEAM BEARING ON MASONRY = 8 INCHES UNLESS NOTED OTHERWISE.
11. EMBEDMENT LENGTH OF EXPANSION BOLTS INTO SOLID MASONRY OR CONCRETE SHALL BE AS FOLLOWS:
    1/2 INCH DIAMETER BOLTS --- 3 1/2 INCHES EMBEDMENT
    3/4 INCH DIAMETER BOLTS --- 5 INCHES EMBEDMENT

## STRUCTURAL LUMBER

ALL GRADES OF LUMBER SHALL BE RATED BY THE SOUTHERN PINE INSPECTION BUREAU (SPIB), OR THE WESTERN WOOD PRODUCTS ASSOCIATION (WWPA). LUMBER GRADES SHALL BE AS FOLLOWS, WITH A MAXIMUM MOISTURE CONTENT OF 19%:
- SOUTHERN PINE NO. 2.
- DOUGLAS FIR-LARCH NO. 2.
- HEM-FIR NO. 2

EXTERIOR WALL SHEATHING:19/32" OR 5/8" EXTERIOR PANEL GRADE C-D PLUGGED EXPOSURE 1 WITH EXTERIOR GLUE WITH A MINIMUM APA SPAN RATING OF 40/20. USE 10d COMMON NAILS AT 6" O.C AT EDGES AND 12" O.C AT INTERMEDIATE SUPPORTS

SPECIFICATIONS: UNLESS SPECIFICALLY SHOWN OTHERWISE, DESIGN, FABRICATION AND ERECTION SHALL BE GOVERNED BY THE LATEST REVISIONS OF:
1. NATIONAL DESIGN SPECIFICATION FOR STRESS-GRADE LUMBER AND ITS FASTENINGS.
2. U.S. PRODUCT STANDARD PS-1 FOR SOFTWOOD PLYWOOD - CONSTRUCTION AND INDUSTRIAL.

CONNECTIONS:
1. JOISTS TO BEAMS - 16 GA. GALVANIZED STD. JOIST HANGERS, UNLESS SHOWN OTHERWISE.
2. BOLT HEADS AND NUTS BEARING ON WOOD SHALL BE PROVIDED WITH STANDARD CUT WASHERS. ALL WOOD IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED.
3. MINIMUM NAILED CONNECTIONS FOR WOOD FRAMING MEMBERS SHALL BE IN ACCORDANCE WITH THE LOCAL BUILDING CODE OR THE INTERNATIONAL BUILDING CODE, 2006 EDITION, IF NO OTHER CRITERIA IS GIVEN.
4. CONNECTORS SHOWN ON THE DETAILS ARE MANUFACTURED BY SIMPSON. WRITTEN APPROVAL BY ENGINEER REQUIRED FOR SUBSTITUTIONS.
5. DOUBLE TOP PLATE - TYPICAL END JOINTS IN DOUBLE TOP PLATE SHALL BE OFFSET AT LEAST 24 INCHES O/C.

MISCELLANEOUS:
1. USE ONE LINE OF SOLID BLOCKING OR CROSS BRIDGING AT 10'-0" O/C
4. MAX. FOR ALL ROOF RAFTERS, USE SOLID BLOCKING AT JOIST AND RAFTER BEARING, U.N.O.
2. USE SOLID BLOCKING AT MID-HEIGHT FOR ALL EXTERIOR STUD WALLS AND INTERIOR BEARING PARTITIONS, U.N.O.
   USE DOUBLE STUDS UNDER BEAM AND LINTEL BEARING, UNLESS SHOWN OTHERWISE.
   ALL WOOD IN DIRECT CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED. ALL CONNECTIONS TO PRESSURE TREATED LUMBER SHALL BE GALVANIZED.

REVISIONS:

* INDICATES NO REVISION TO THIS SHEET

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GENERAL NOTES

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