

## REINFORCED CONCRETE

1.0 GENERAL REQUIREMENTS:  
 A. DESIGN, DETAILING AND CONSTRUCTION OF REINFORCED CONCRETE SHALL CONFORM TO THE MOST RECENT EDITIONS OF THE FOLLOWING PUBLICATIONS:  
 1. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)  
 2. DETAILS AND DETAILING OF CONCRETE REINFORCEMENT (ACI 315)  
 3. SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301)  
 B. BEFORE PROCEEDING WITH DETAILING, EXAMINE EXISTING FIELD CONDITIONS AND FIELD VERIFY CRITICAL DIMENSIONS. REPORT ANY DISCREPANCIES TO THE OWNERS REPRESENTATIVE.  
 C. DO NOT PROCEED WITH DETAILING, FABRICATION OR CONSTRUCTION OF ANY WORK DEPENDENT ON EQUIPMENT FURNISHED BY THE OWNER OR OTHER CONTRACTORS UNTIL DIMENSIONS AND DETAILS HAVE BEEN VERIFIED WITH APPROVED CERTIFIED EQUIPMENT DRAWINGS.  
 D. SEE ARCHITECTURAL DRAWINGS FOR DOOR & WINDOW OPENINGS, DRIP SLOTS, REGLETS, MASONRY ANCHORS, PRECAST BEARING LEDGES AND FOR MISCELLANEOUS EMBEDDED PLATES, BOLTS, ANCHORS, ETC.  
 E. SCHEDULE CONSTRUCTION IN SUCH A WAY NOT TO INTERRUPT THE OWNERS OPERATIONS.  
 F. SLABS, WALLS AND FOUNDATIONS AND OTHER CONSTRUCTION SHALL BE PROTECTED FROM FROST HEAVE.

2.0 CONCRETE:  
 A. READY-MIXED MEETING ASTM C94, ALTERNATE 3 AND THESE SPECIFICATIONS.  
 B. PORTLAND CEMENT: TYPE I OR TYPE II, CONFORMING TO ASTM C150.  
 C. MIX DESIGN:  

	MIN. 28 DAY *** STRENGTH $f_c$	CEMENT CONTENT lbs/cu	POINT OF MAX. W/C SLUMP	MAX. NOMINAL MAX. COARSE AGG. SIZE (U. O. N.)
EXTERIOR CONCRETE SUBJECT TO DEICERS (SLABS & WALLS)	4500PSI (AIR ENTRAINED)	540 TO 630	5" MAX ****	.45
FOOTINGS, DECK, CMU WALL & BLDG COLUMN FNDNS	3500PSI (AIR ENTRAINED) (OPTIONAL)			
PILE CAPS: WALLS, SLABS, & FOUNDATIONS FOR PITS AND TUNNELS; RETAINING WALLS; SUPPORT FNDNS; FOUNDRY EQUIPMENT; TANKS AND CONTAINMENT	4000PSI	517 MIN.	4" INITIAL 6" FINAL **	.45

\*\*\*\* CONCRETE MIX DESIGN FOR SLABS SHALL BE PROPORTIONED PER ACI 302.1 FOR FINISHABILITY, PLACEABILITY, & CONSISTENCY PER ACI 302.1R  
 \*\* SLUMP MAY BE INCREASED ONLY WITH THE ADDITION OF WATER REDUCING ADMIXTURE, SLUMP TOLERANCE SHALL MEET THE REQUIREMENTS OF ACI 117.  
 \*\*\* MIN ALLOWABLE 28 DAY STRENGTH WHEN CURED AND TESTED IN ACCORDANCE WITH ASTM C31 AND C39.  
 \*\*\*\* A ONE-TIME SLUMP ADJUSTMENT IS ALLOWED AT THE JOB SITE PER SLUMP ADJUSTMENT GUIDELINES OF ACI 301. THE MAXIMUM W/C RATIO AND SLUMP SHALL NOT BE EXCEEDED WITH THE SITE ADJUSTMENT.

PRODUCTS  
 1. AGGREGATES: SHALL CONFORM TO ASTM C33 (NORMAL WEIGHT) AND ASTM C330 (LIGHTWEIGHT).  
 - SIZE OF COARSE AGGREGATE SHALL NOT EXCEED 3/4" X THE CLEAR SPACING BETWEEN REINFORCING BARS OR 10X THE SLAB OR TOPPING THICKNESS.  
 2. AIR ENTRAINMENT:  
 - AIR CONTENT RANGE: 4 1/2 TO 6 1/2 PERCENT PER ASTM C138, C137, OR C231 IN CONCRETE EXPOSED TO WEATHER.  
 - AIR CONTENT RANGE: 4 PERCENT MINIMUM IN LIGHTWEIGHT CONCRETE, INTERIOR ELEVATED SLABS  
 - ADMIXTURE SHALL CONFORM TO ASTM C260 EXCEPT BE NON TOXIC AFTER 30 DAYS AND CONTAIN NO CHLORIDES CAUSING CORROSION.  
 - DO NOT INCLUDE ANY AIR ENTRAINING ADMIXTURES IN CONCRETE TO BE USED AT INTERIOR CONCRETE FLOOR SLABS WITH HARD STEEL TROWEL FINISH.  
 3. FLY ASH:  
 - FLY ASH SHALL CONFORM TO ASTM C618-84, TYPE C OR F.  
 - WHEN FLY ASH IS USED IN THE CONCRETE MIX, THE MINIMUM AMOUNT SHALL BE 15% BY WEIGHT OF THE TOTAL CEMENTITIOUS CONTENT, THE MAXIMUM SHALL BE 20% FOR INTERIOR FLOOR SLABS, FOR EXTERIOR FLOOR SLABS AND SUBJECT TO DEICING SALTS THE MAXIMUM SHALL BE 25% FOR TYPE C AND 30% FOR TYPE F.  
 - FLY ASH CONCRETE THE MAXIMUM AMOUNT SHALL BE 30% FOR TYPE C, AND 20% FOR TYPE F.  
 4. SUPERPLASTICIZERS/WATER REDUCERS:  
 - USE TYPE AS RECOMMENDED BY MANUFACTURER IN THE APPLICABLE TEMPERATURE RANGES ALLOWED.  
 - USE AS REQUIRED TO CONFORM TO DESIGN STRENGTH, SLUMP, AND WATER CEMENT RATIO.  
 - SUPERPLASTICIZERS SHALL CONFORM TO ASTM C494 TYPE F OR G.  
 - WATER REDUCERS SHALL CONFORM TO ASTM C494 TYPE A OR D.  
 5. ACCELERATOR: (NON-CORROSIVE, NON-CHLORIDE)  
 - USE TYPE AS RECOMMENDED BY MANUFACTURER WHEN AIR TEMPERATURES ARE BELOW 50°F.  
 D. MIXING: MINIMUM 70 AND MAXIMUM 270 REVOLUTIONS OF MIXING DRUM.  
 E. EVALUATION OF CONCRETE FIELD STRENGTH:  
 1. TESTING IN ACCORDANCE WITH ASTM C172.  
 2. SAMPLES EVERY 100cu OR FRACTION THERE OF AT LEAST DAILY WHEN CONCRETE IS PLACED.  
 3. CAST AND LABORATORY CURE TWO SETS OF TWO CYLINDERS FOR EACH SAMPLE.  
 4. CAST AND FIELD CURE TWO SETS OF TWO CYLINDERS FOR EACH SAMPLE.  
 5. TEST ONE SET EACH OF FIELD AND LABORATORY CYLINDERS AT 7 AND 28 DAYS.  
 6. CONDUCT FIELD TESTS AT LEAST ONCE PER DAY THAT CONCRETE IS PLACED FOR:  
 a. SLUMP  
 b. AIR CONTENT  
 c. CONCRETE TEMPERATURE  
 d. UNIT WEIGHT

## REINFORCED CONCRETE, (CONT.)

3.0 REINFORCING STEEL:  
 A. GRADE 60, DEFORMED BARS CONFORMING TO ASTM A615.  
 B. WELDED STEEL WIRE FABRIC: PLAIN TYPE, ANSI/ASTM A185, IN FLAT SHEETS: UNCOATED FINISH.  
 - SPLICE WELDED WIRE FABRIC BY LAPING ONE FULL MESH SPACE PLUS 2".  
 C. REBAR SPLICES IN PARALLEL/SIDE BY SIDE BARS SHALL BE STAGGERED AT LEAST ONE SPLICE LENGTH.  
 D. REINFORCING LAP SPLICES, DEVELOPMENT LENGTHS AND CONCRETE CLEAR COVER, SHALL CONFORM TO THE MOST RECENT VERSION OF ACI 318.  
 E. FOR NORMAL WEIGHT CONCRETE ( $f_c = 4000$  psi) AND UNCOATED BARS ( $f_y = 60,000$  psi) THE FOLLOWING SPLICE LENGTHS, DEVELOPMENT LENGTHS AND CLEAR COVER MAY BE USED UNLESS OTHERWISE NOTED. ( $c = 2.5 \times \text{BAR DIA}$ ,  $K_{tr} = 0$ )

BAR SIZE	SPLICE LENGTHS		DEVELOPMENT LENGTH		MINIMUM CONCRETE CLEAR COVER		
	ALL BARS EXCEPT TOP BARS	TOP BARS	ALL BARS EXCEPT TOP BARS	TOP BARS	CAST AGAINST EARTH	EXPOSED TO EARTH OR WEATHER	INTERIOR SLABS, WALLS, BEAMS & COLS
INCHES	INCHES	INCHES	INCHES	INCHES	INCHES	INCHES	INCHES
#3	16	16	12	12	3.00	1.50	1.50
#4	16	20	12	15	3.00	1.50	1.50
#5	19	25	15	19	3.00	1.50	1.50
#6	23	29	18	23	3.00	2.00	2.00
#7	33	43	25	33	3.00	2.00	2.00
#8	37	49	29	37	3.00	2.50	2.50
#9	42	55	33	42	3.00	2.50	2.50
#10	47	62	37	47	3.00	3.00	3.00
#11	53	68	41	53	3.00	3.00	3.00

\* TOP BAR SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR, IN ANY SINGLE CONCRETE PLACEMENT, HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.

F. ALL HORIZONTAL WALL CORNER AND WALL INTERSECTION REINFORCEMENT BARS SHALL BE CONTINUOUS AROUND CORNERS. REINFORCEMENT SHALL BE EXTENDED INTO CONNECTING CONNECTING WALLS AND LAP SPLICE ON OPPOSITE FACE OF CONNECTING WALL.  
 G. HOOK TOP REINFORCING BARS AT DISCONTINUOUS EDGES OF SUPPORTED SLABS AND BEAMS.  
 4.0 CONCRETE PLACING:  
 A. CONCRETE PLACING SHALL CONFORM TO REQUIREMENTS AND RECOMMENDATIONS OF ACI 304 AND ACI 318, EXCEPT AS MODIFIED HEREIN.  
 B. PRIOR TO PLACING CONCRETE, REMOVE WATER FROM EXCAVATION, AND DEBRIS, AND FOREIGN MATERIAL FROM FORMS. CHECK REINFORCING STEEL FOR PROPER PLACEMENT AND CORRECT ANY DISCREPANCIES.  
 C. AT WALL/SLAB OR WALL/WALL CONSTRUCTION JOINTS, CLEAN ADJOINING SURFACES AND USE KEY, OR CLEAN ADJOINING SURFACES USING A BUSH HAMMER OR OTHER MECHANICAL MEANS TO OBTAIN 1/4 INCH ROUGH PROFILE.  
 D. PLACE CONCRETE AS SOON AS POSSIBLE AFTER LEAVING MIXER, WITHOUT SEGREGATION OR LOSS OF INGREDIENTS. PLACE WITHIN 1-1/2 HOURS AFTER ADDING CEMENT TO MIX.  
 E. BEFORE PLACING CONCRETE, REFER TO OTHER TRADE DRAWINGS AND COORDINATE SIZE AND LOCATION OF ITEMS SUCH AS DERESSED SLAB OPENINGS, PENETRATIONS AND EMBEDDED ITEMS.  
 F. PLACE WALLS, MATS AND STRIP FOOTINGS TO A MAXIMUM LENGTH OF 80'-0" BETWEEN CONSTRUCTION JOINTS, ALIGN WITH FLOOR JOINTS WHERE POSSIBLE.  
 G. PRODUCE A 3/8" CHAMFER ON THE EXPOSED EDGES OF CONCRETE WALLS AND SLABS.  
 H. PLACING CONCRETE IN HOT WEATHER:  
 I. PLACING CONCRETE IN COLD WEATHER:  
 1. DO NOT PLACE CONCRETE WHEN THE AMBIENT TEMPERATURE IS BELOW 40 DEGREES F OR APPROACHING 40 DEGREES F AND FALLING WITHOUT SPECIAL PROTECTION CONFORMING TO ACI 305.  
 2. REMOVE AND REPLACE CONCRETE DAMAGED BY FREEZING.

5.0 CONCRETE FINISH:  
 A. SLABS (PER ACI 302)  
 6.0 SLAB COMPACTED ROCK BASE TOLERANCE:  
 THICKNESS +1/4" SURFACE FLATNESS +1/4", -1/2"  
 7.0 SLAB THICKNESS TOLERANCE:  
 3/8" THICKER -1/4" THINNER

8.0 PRE FORMED JOINT MATERIAL: 1/2 INCH THICK, CONFORMING TO ASTM D994, D1751, OR D1752

9.0 SLAB SURFACE TOLERANCES: IN ACCORDANCE WITH ACI 302 (NOTE EITHER METHOD IS ACCEPTABLE)  
 A. FLOOR FLATNESS/LEVELNESS TOLERANCES  
 SPECIFIED OVERALL VALUE  $F_1 = 20$ ,  $F_2 = 15$   
 MINIMUM LOCAL VALUE  $F_1 = 15$ ,  $F_2 = 10$

B. 10-FOOT STRAIGHT EDGE METHOD: 5/16" MAXIMUM GAP

10.0 PRE FORMED JOINT MATERIAL: 1/2 INCH THICK, CONFORMING TO ASTM D994, D1751, OR D1752

11.0 FLOOR FLATNESS/LEVELNESS TOLERANCES  
 SPECIFIED OVERALL VALUE  $F_1 = 20$ ,  $F_2 = 15$

MINIMUM LOCAL VALUE  $F_1 = 15$ ,  $F_2 = 10$

12.0 10-FOOT STRAIGHT EDGE METHOD: 5/16" MAXIMUM GAP

## STRUCTURAL STEEL

3.0 REINFORCING STEEL:  
 A. DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE MOST RECENT EDITION OF THE FOLLOWING PUBLICATIONS:  
 1. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION (2005) INCLUDING:  
 2. (AISC) DETAILING FOR STEEL CONSTRUCTION, (FEB, 2003)  
 3. HOLLOW STRUCTURAL SECTIONS - (AISC) MANUAL OF STEEL CONSTRUCTION THIRTEENTH EDITION (2005)  
 4. AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE.  
 5. STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS AND LOAD TABLES FOR STEEL JOIST AND JOIST GIRDERS, 42nd EDITION, 2005.

B. BEFORE PROCEEDING WITH DETAILING, EXAMINE EXISTING FIELD CONDITIONS AND FIELD VERIFY CRITICAL DIMENSIONS. REPORT ANY DISCREPANCIES TO THE OWNERS REPRESENTATIVE.  
 C. DO NOT PROCEED WITH DETAILING, FABRICATION OR ERECTION OF ANY WORK DEPENDENT ON EQUIPMENT FURNISHED BY THE OWNER OR OTHER CONTRACTORS UNTIL DIMENSIONS AND DETAILS HAVE BEEN VERIFIED WITH APPROVED CERTIFIED EQUIPMENT DRAWINGS.  
 D. SCHEDULE CONSTRUCTION IN SUCH A WAY NOT TO INTERRUPT THE OWNERS OPERATIONS.  
 E. STRUCTURAL STEEL CONTRACTOR TO PROVIDE AND MAINTAIN WEATHER TIGHT CLOSURE AT ALL INTERFACES BETWEEN NEW AND EXISTING CONSTRUCTION. CONTRACTOR MUST NOT IMPAIR THE STRUCTURAL INTEGRITY OF EXISTING ROOFS OR WALL CONSTRUCTION.

2.0 MATERIALS:  
 STRUCTURAL BEAMS: ASTM A992  
 STRUCTURAL V-SHAPE COLUMNS: ASTM A992  
 MISC. STRUCTURAL PLATES, ANGLES AND CHANNELS: ASTM A36 UNLESS NOTED OTHERWISE  
 STRUCTURAL TUBE COLUMNS: ASTM A500, GRADE B  
 ANCHOR BOLTS: POST INSTALLED ANCHORS, HILTI HIT-RE 500 EPOXY ADHESIVE SYSTEM WITH A38 THREADED RODS, MIN. EMBED 4 1/2" ANCHOR Ø PER VENDOR APPROVED DRAWINGS  
 HIGH STRENGTH THREADED FASTENERS: ASTM A325 OR ASTM F1852  
 WELDING ELECTRODES: CONFORM TO AWS D1.1 REQUIREMENTS USING SERIES E70 ELECTRODES

3.0 EXECUTION:  
 A. STRUCTURAL STEEL TO BE ADEQUATELY GUYED DURING ERECTION. TEMPORARY BRACING IS TO REMAIN IN PLACE UNTIL ROOF DECKING IS INSTALLED.  
 B. MAKE WELDS TO EXISTING STEEL WITH LOW HYDROGEN ELECTRODES. STORE ELECTRODES IN ACCORDANCE WITH AWS SPECIFICATIONS.  
 C. WELDED CONSTRUCTION: WELDING PROCESSES SHALL BE PRE QUALIFIED PER AWS D1.1.  
 D. SHOP CONNECTIONS SHALL BE WELDED.  
 E. FIELD CONNECTIONS SHALL BE BOLTED.  
 F. ALL COLUMN BEARING AREAS SHALL BE MILLED.  
 G. BEAM TO COLUMN CONNECTION SHALL BE STANDARD DOUBLE ANGLE OR SINGLE-PLATE SHEAR CONNECTIONS AT TUBE COLUMNS UNLESS NOTED OTHERWISE.  
 H. ALL BEAM AND GIRDERS CONNECTIONS SHALL BE STANDARD DOUBLE ANGLE UNLESS OTHERWISE NOTED.

I. BOLTED CONNECTIONS SHALL BE MADE WITH H.S. ASTM A325N BOLTS, UNLESS OTHERWISE NOTED, EXCEPT IN THE FOLLOWING LOCATIONS WHERE MACHINE BOLTS BOLTS MAY BE USED: HANDRAILS, TOE PLATES, GIRTS, STAIR THREADS, PURLINS, AND LADDER ASSEMBLIES.  
 J. WHEREVER REACTION VALUES OF A NONCOMPOSITE BEAM ARE NOT SHOWN ON DESIGN DRAWINGS, THE CONNECTION SHALL BE PROVIDED TO SUPPORT 60% OF THE TOTAL UNIFORM LOAD CAPACITY TABULATED IN THE AISC TABLES FOR ALLOWABLE LOADS ON BEAMS FOR THE GIVEN SHAPE, SPAN AND STEEL SPECIFICATION OF THE BEAM IN QUESTION. FOR COMPOSITE BEAMS, SEE VALUE ON FRAMING PLANS.

K. HIGH STRENGTH BOLT DESIGN SHEAR VALUES SHALL BE TAKEN AS SPECIFIED IN THE AISC SPECIFICATION FOR BOLTS WITH THREADS IN THE SHEAR PLANE UNLESS OTHERWISE NOTED.  
 L. ALL GUSSET PLATES SHALL HAVE A MINIMUM THICKNESS OF 3/8", UNLESS NOTED.  
 M. HANDRAIL/GUARDRAIL SHALL BE DETAILED SUCH THAT GUARDRAIL ASSEMBLY IS CAPABLE OF SUPPORTING A 200 POUND CONCENTRATED LOAD IN ANY DIRECTION AT ANY POINT ON THE RAIL, OR A LOAD OF 20 POUNDS PER LINEAL FOOT APPLIED HORIZONTALLY TO TOP RAIL.  
 N. PROVIDE SHELF ANGLES ON COLUMNS AS REQUIRED TO SUPPORT THE ROOF AND FLOOR DECK.  
 O. PROVIDE 1/4" THICK CAP PLATE FOR ALL TUBE STEEL.  
 P. ALL STEEL TO BE HOT DIP GALVANIZED UNLESS OTHERWISE NOTED.

## DESIGN CRITERIA

1.0 ALL STRUCTURAL DESIGN HAS BEEN COMPLETED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (2006 EDITION) WITH THE FOLLOWING LOADING CRITERIA:

ACCESS PLATFORM LOADING	50
LIVE LOAD	50
GRATING DEAD LOAD	10
TOTAL	60 POUNDS PER SQUARE FOOT

2.0 DEAD LOADS:  
 DEAD LOAD MATERIALS ASSUMED IN THE DESIGN ARE SHOWN IN THE LOAD TABLES ABOVE. ANY CHANGES IN CONSTRUCTION MATERIALS THAT WOULD CHANGE THE WEIGHT SHOWN IN THE LOAD TABLES ABOVE SHALL BE REPORTED BY THE GENERAL CONTRACTOR TO THE STRUCTURAL ENGINEER FOR VERIFICATION OF THE LOAD CARRYING CAPABILITY OF THE STRUCTURE. EQUIPMENT DEAD LOADS ARE ACTUAL EQUIPMENT WEIGHTS FROM VENDOR CUT SHEETS.

3.0 LIVE LOADS:  
 A. NO LIVE LOAD REDUCTION HAS BEEN TAKEN FOR EQUIPMENT ACCESS PLATFORMS.

4.0 SNOW LOADS:  
 A. SNOW LOADS ARE IN ACCORDANCE WITH THE FOLLOWING FORMULA:  $P_f = 0.7C_e(C_l)(I)(P_g)$

WHERE:  
 $P_f$  = FLAT ROOF SNOW LOAD  
 $C_e$  = EXPOSURE FACTOR = 0.9  
 $C_l$  = THERMAL FACTOR = 1.0  
 $I$  = IMPORTANCE FACTOR = 1.0  
 $P_g$  = GROUND SNOW LOAD = 30 psf

B. DRIFT:  
 -  $hd$  = HEIGHT OF SNOW DRIFT.  
 -  $hc$  = CLEAR HEIGHT FROM TOP OF BALANCED SNOW LOAD TO UPPER ROOF.  
 -  $hb$  = HEIGHT OF BALANCED SNOW LOAD =  $P_g/h$   
 -  $lu$  = LENGTH OF THE ROOF UPWIND OF THE DRIFT  
 -  $v$  = SNOW DENSITY =  $1.3P_g + 14 \times 30$  psf  
 -  $w$  = WIDTH OF SNOW DRIFT =  $4hd$  ( $hd < hc$ ) OR  $4hd^2/hc$  ( $hd > hc$ )

5.0 WIND LOADS:  
 WIND LOAD CONSTANTS ARE AS FOLLOWS:  
 BASIC WIND SPEED = 110 mph  
 WIND EXPOSURE = B  
 I = WIND IMPORTANCE FACTOR = 1.0  
 TANKS: G = GUST EFFECT FACTOR = 0.85  
 CI = FORCE COEFFICIENT = 0.50

6.0 SEISMIC LOADS:  
 SEISMIC CONSTANTS ARE AS FOLLOWS:  
 I = SEISMIC IMPORTANCE FACTOR = 1.0  
 $S_d$  = MAPPED SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS = 0.340  
 $S_1$  = MAPPED SPECTRAL RESPONSE ACCELERATION AT 1 SECOND PERIOD = 0.088  
 $S_{0.5}$  = DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS = 0.35  
 $S_{0.5}$  = DESIGN SPECTRAL RESPONSE ACCELERATION AT 1 SECOND PERIOD = 0.14  
 SEISMIC USE GROUP: 1  
 SITE CLASS = D  
 SEISMIC DESIGN CATEGORY = C  
 BASIC SEISM