GENERAL NOTES

I. GENERAL

1. MATERIALS AND WORKMANSHIP TO CONFORM WITH THE 2009 EDITION OF THE INTERNATIONAL BUILDING CODE AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. THESE GENERAL NOTES SUPPLEMENT THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. IN CASE OF CONFLICT BETWEEN THE PLANS AND SPECIFICATIONS, CONTACT THE ENGINEER. ALL ITEMS REQUIRED PER SPECIFICATIONS AND GENERAL NOTES ARE TO BE PROVIDED.
3. REFERENCE TO CODES, RULES, REGULATIONS, STANDARDS, MANUFACTURER'S INSTRUCTIONS OR REQUIREMENTS OF REGULATORY AGENCIES IS TO THE LATEST PRINTED EDITION OF EACH IN EFFECT AT THE DATE OF SUBMISSION OF BID UNLESS THE DOCUMENT DATE IS SHOWN.
4. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, USE SIMILAR DETAILS OF CONSTRUCTION, SUBJECT TO REVIEW BY THE ENGINEER.
5. DETAILS ON SHEETS TITLED "TYPICAL DETAILS" APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. SUCH DETAILS ARE NOT NOTED AT EACH LOCATION THAT THEY OCCUR.
6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND FOR CHECKING DIMENSIONS. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES AND RESOLVE BEFORE PROCEEDING WITH THE WORK.
7. DO NOT SCALE THE DRAWINGS.
8. PROVIDE MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES INCLUDE, BUT MAY NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DURING CONSTRUCTION. CONTRACTOR SHALL RETAIN A REGISTERED CIVIL ENGINEER WHOM IS PROPERLY QUALIFIED TO DESIGN BRACING, SHORING, ETC. VISITS TO THE SITE BY THE OWNER'S REPRESENTATIVE WILL NOT INCLUDE OBSERVATION OF THE ABOVE NOTED ITEMS.
9. ALL ITEMS CALLED OUT IN DRAWINGS ARE NEW UNLESS CALLED OUT AS (E) – EXISTING.
10. INFORMATION SHOWN ON THE DRAWINGS RELATED TO EXISTING CONDITIONS REPRESENTS THE PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. REPORT CONDITIONS THAT CONFLICT WITH THE CONTRACT DOCUMENTS TO THE OWNER'S REPRESENTATIVE. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE OWNER'S REPRESENTATIVE.
11. REFER TO ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATION OF FLOOR, ROOF AND WALL OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS. COORDINATE THE SIZE AND LOCATION OF OPENINGS ASSOCIATED WITH, BUT NOT LIMITED TO, ELECTRICAL, MECHANICAL AND PLUMBING TRADES. SUBMIT FINAL SIZING AND LOCATION REQUIREMENTS OF OPENINGS TO THE OWNER'S REPRESENTATIVE FOR REVIEW.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING A SAFE PLACE TO WORK AND MEETING THE REQUIREMENTS OF ALL APPLICABLE JURISDICTIONS. EXECUTE WORK TO ENSURE THE SAFETY OF PERSONS AND ADJACENT PROPERTY AGAINST DAMAGE BY FALLING DEBRIS AND OTHER HAZARDS IN CONNECTION WITH THIS WORK.
13. FIELD MEASURE ALL STRUCTURAL ITEMS SHOWN IN THESE DRAWINGS PRIOR TO CREATING SHOP DRAWINGS AND/OR FABRICATION. NOTIFY EOR OF DEVIATIONS FROM THESE DRAWINGS.

II. FOUNDATION AND SITE WORK

1. EVALUATION OF EXISTING FOUNDATION ELEMENTS IS BASED UPON TABULATED CAPACITIES PROVIDED IN THE EXISTING BUILDING AS- BUILT DRAWINGS DATED 7/19/79. THE DESIGN OF NEW FOUNDATION COMPONENTS AT THE ELEVATOR TOWER IS BASED UPON THE CRITERIA AND RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL INVESTIGATION REPORT ENTITLED "GEOTECHNICAL INVESTIGATION REPORT, PROPOSED ELEVATOR TOWER, BUILDING 24 SEISMIC CORRECTIONS, VETERANS ADMINISTRATION MEDICAL CENTER, CLINTON AVENUE AND N. FRESNO STREET, FRESNO, CALIFORNIA" BY BSK ASSOCIATES, DATED MARCH 31, 2011. SEE SECTION XII.2 OF THE STRUCTURAL GENERAL NOTES FOR FOUNDATION DESIGN CRITERIA AS PROVIDED BY THE GEOTECHNICAL REPORT. REPORTS ARE AVAILABLE FOR REVIEW.
2. CONTRACTOR TO FOLLOW ALL REQUIREMENTS OF THE GEOTECHNICAL REPORT ENTITLED "GEOTECHNICAL INVESTIGATION REPORT, PROPOSED ELEVATOR TOWER, BUILDING 24 SEISMIC CORRECTIONS, VETERANS ADMINISTRATION MEDICAL CENTER, CLINTON AVENUE AND N. FRESNO STREET, FRESNO, CALIFORNIA" BY BSK ASSOCIATES, DATED MARCH 31, 2011.
3. LOCATE AND PROTECT EXISTING UTILITIES TO REMAIN DURING AND/OR AFTER CONSTRUCTION.
4. NOTIFY THE OWNER'S REPRESENTATIVE IF ANY BURIED STRUCTURES NOT INDICATED, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC., ARE FOUND.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, UNDERPINNING AND PROTECTION OF EXISTING CONSTRUCTION.
6. REMOVE LOOSE SOIL AND STANDING WATER FROM FOUNDATION EXCAVATIONS PRIOR TO PLACING CONCRETE.
7. SPECIAL INSPECTION OF SOILS SHALL BE PROVIDED IN ACCORDANCE WITH IBC SECTION1704.7. SEE GEOTECHNICAL REPORT.

III. FORMWORK

1. PROVIDE POUR POCKETS IN FORMS AND UNDER EXISTING STRUCTURAL MEMBERS AS REQUIRED TO PREVENT AIR POCKETS AND/OR "HONEYCOMB" UNDER OR AROUND THE EXISTING MEMBERS. CONCRETE CAST WITH AIR POCKETS AND/OR "HONEYCOMB" UNDER OR AROUND THE MEMBERS IS NOT ACCEPTABLE.
2. REMOVE FORMS AND SHORES IN ACCORDANCE WITH THE FOLLOWING:

LOCATION	REMOVE FORMS AND SHORES NO SOONER THAN
BOTTOM FORMS AND SHORES FOR MILDLY REINFORCED SLABS, BEAMS AND GIRDERS	7 DAYS, AND F'C = 3500 PSI MINIMUM
COLUMNS AND WALLS	72 HOURS
FOOTINGS, PILE CAPS, AND GRADE BEAMS	48 HOURS

3. PROVIDE CURING WHERE FORMS ARE REMOVED IN LESS THAN 7 DAYS, INCLUDING BUT NOT LIMITED TO WALLS, COLUMNS, AND UNDERSIDE OF ELEVATED SLABS.

IV. REINFORCING STEEL

1. REINFORCING TO CONFORM TO THE FOLLOWING, UNLESS OTHERWISE NOTED:

LOCATION	TYPE
REINFORCING STEEL #7 AND SMALLER	ASTM A615, 60 KSI
REINFORCING STEEL #8 AND LARGER	ASTM A706, 60 KSI
REINFORCING STEEL TO BE WELDED	ASTM A706, 60 KSI
WELDED STEEL WIRE FABRIC	ASTM A185, 70 KSI
SMOOTH DOWELS IN SLAB ON GRADE	ASTM A36, 36 KSI

2. ACCURATELY POSITION, SUPPORT, AND SECURE REINFORCEMENT FROM DISPLACING DUE TO FORMWORK, CONSTRUCTION, OR CONCRETE PLACEMENT OPERATIONS. LOCATE AND SUPPORT REINFORCING BY METAL CHAIRS, RUNNERS, BOLSTERS, SPACERS, AND HANGERS AT A MAXIMUM 3-FOOT SPACING.
3. MECHANICALCOUPLERS; LENTON THREADED OR INTERLOCK COUPLERS BY ERICO (ICC-ER #3967), CADWELD BY ERICO (ICC-ER #3967), XTENDER BY HEADED REINFORCEMENT CORPORATION (ICC-ESR #2764), OR EQUAL. COUPLERS FOR BEAM AND SLAB BARS AT FORMED CONSTRUCTION JOINTS MAY BE LENTON FORM SAVERS BY ERICO (ICC-ER #3967), OR EQUAL. IF USE OF AN EQUIVALENT PRODUCT IS REQUESTED, CONTRACTOR TO PROVIDE DOCUMENTATION TO THE RESIDENT ENGINEER THAT PROVES TECHNICAL EQUIVALENCE.
4. WELD REINFORCING STEEL IN ACCORDANCE WITH AWS D1.4 USING QUALIFIED WELDERS.
5. TERMINATE REINFORCING STEEL IN STANDARD HOOKS, UNLESS OTHERWISE SHOWN.
6. PROVIDE REINFORCING SHOWN OR NOTED CONTINUOUS IN LENGTHS AS LONG AS PRACTICABLE.

V. CAST-IN-PLACE CONCRETE

1. CONCRETE IS REINFORCED AND CAST-IN-PLACE UNLESS OTHERWISE NOTED. WHERE REINFORCING IS NOT SPECIFICALLY SHOWN OR WHERE DETAILS ARE NOT GIVEN, PROVIDE REINFORCING SIMILAR TO THAT SHOWN FOR SIMILAR CONDITIONS, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE.

   SUBSTITUTION OF SHOTCRETE FOR CAST-IN-PLACE CONCRETE IS NOT ACCEPTABLE.
2. ROUGHEN CONCRETE SURFACES OF CONSTRUCTION JOINTS TO ¼ INCH AMPLITUDE AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES. LOCATE CONSTRUCTION JOINTS AS SHOWN ON THE DRAWINGS. SUBMIT ALTERNATE JOINT LOCATIONS OR JOINTS NOT SHOWN TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO PROCEEDING WITH THE WORK.
3. AT LOCATIONS WHERE CONCRETE IS CAST AGAINST EXISTING CONCRETE, ROUGHEN CONTACT SURFACES TO ¼ INCH AMPLITUDE AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES.
4. CONCRETE CLEAR COVER TO REINFORCING BARS IS AS FOLLOWS, UNLESS OTHERWISE NOTED:

LOCATION	CLEAR COVER
CONCRETE PLACED AGAINST EARTH	3 INCHES
FORMED SURFACES EXPOSED TO WEATHER OR IN CONTACT WITH EARTH: #6 BARS AND LARGER #5 BARS AND SMALLER	 2 INCHES 1 ½ INCHES
SLABS ON GRADE (TOP CLEARANCE)	1 ½ INCHES
BEAMS, GIRDERS AND COLUMNS NOT EXPOSED TO WEATHER OR EARTH	1 ½ INCHES
WALL OR SLAB SURFACES NOT EXPOSED TO WEATHER OR EARTH: #5 & SMALLER #6 & #7 #8,#9, #10 & #11 #14 & #18	 ¾ INCH 1 INCH 1 ½ INCHES 2 ½ INCHES

5. CONCRETE TYPES:

CLASS	28-DAY STRENGTH	TYPE	LOCATION
A	4,000 PSI	NORMAL WEIGHT	FOUNDATIONS, MISC. CURBS, HOUSE –KEEPING PADS, ETC.
B	4,000 PSI	NORMAL WEIGHT	SLABS ON GRADE
C	4,000 PSI	NORMAL WEIGHT	WALLS AND COLUMNS
D	4,000 PSI	LIGHT WEIGHT	FILL ON METAL DECK

6. CONTINUOUSLY MOIST CURE CONCRETE SLABS-ON-GRADE FOR 7 DAYS MINIMUM. WATER FOG SPRAYS, PONDING, SATURATED ABSORPTIVE COVERS, OR MOISTURE RETAINING COVERS MAY BE USED. CURING COMPOUNDS ARE NOT ACCEPTABLE.
7. CONCRETE FILL THICKNESS SHOWN ON THE FRAMING PLANS ARE MINIMUM THICKNESSES. NO ALLOWANCES HAVE BEEN SHOWN FOR ADDITIONAL CONCRETE FILL REQUIRED TO COMPENSATE FOR FRAME, DECK, OR FORMWORK DEFLECTIONS TO MAINTAIN SURFACE TOLERANCES SPECIFIED.
8. NON-SHRINK GROUT, 7000 PSI: EUCLID CHEMICAL COMPANY'S "EUCO-NS", L&M CRYSTEX, MASTER BUILDERS' "MASTERFLOW 713", FIVE STAR GROUT, OR EQUAL. WHERE HIGH FLUIDITY OR INCREASED PLACING TIME IS REQUIRED, USE EUCLID CHEMICAL COMPANY'S "EUCO HI-FLOW GROUT," MASTER BUILDERS' "MASTERFLOW 928," OR EQUAL. IF USE OF AN EQUIVALENT PRODUCT IS REQUESTED, CONTRACTOR TO PROVIDE DOCUMENTATION TO THE RESIDENT ENGINEER THAT PROVES TECHNICAL EQUIVALENCE.

VI. STRUCTURAL STEEL

1. STRUCTURAL STEEL TO CONFORM TO THE FOLLOWING UNLESS OTHERWISE NOTED:

SECTIONS	TYPE
ROLLED SHAPES WIDE FLANGES CHANNELS, ANGLES, & OTHER	 ASTM A992 ASTM A36
PLATES COLUMN BASE PLATES BRACE GUSSET PLATES BEAM SHEAR CONNECTION PLATES COLUMN CONTINUITY PLATES BEAM STIFFENER PLATES DECK CLOSURE PLATES OTHER	 ASTM A572, GR 50 ASTM A572, GR 50 ASTM A572, GR 50 ASTM A572, GR 50 ASTM A572, GR 50 ASTM A36 ASTM A572, GR 50
STEEL PIPE	ASTM A53 GRADE B
COLD FORMED HOLLOW STRUCTURAL SECTION (HSS)	ASTM A500 GRADE B
STAINLESS STEEL SHAPES, PLATES AND BARS	ASTM A276
BOLTS	ASTM A325X
MACHINE BOLTS	ASTM A307
ANCHOR BOLTS	ASTM F1554
ANCHOR RODS	ASTM A36
THREADED AND HANGER ROD	ASTM A572, GR50
WELDED SHEAR CONNECTORS	ASTM A 108, GRADE 1015 THROUGH 1020
WELDED THREADED STUDS	ASTM A 108, GRADE 1015 THROUGH 1020
NUTS FOR BOLTS AND MACHINE BOLTS	ASTM A563
HARDENED WASHERS	ASTM F436
UNHARDENDED WASHERS	ASTM F844
PLAIN WASHERS	ANSI B18.22.1
BEVELED WASHERS	ANSI B18.23.1

2. HOT DIP GALVANIZE IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STRUCTURAL STEEL AND FASTENERS THAT ARE PERMANENTLY EXPOSED TO THE WEATHER. REPAIR GALVANIZING AFTER WELDING IN ACCORDANCE WITH ASTM A780.
3. STRUCTURAL STEEL AND CONNECTIONS EXPOSED TO VIEW IN THE COMPLETED BUILDING ARE DESIGNATED ARCHITECTUALLY EXPOSED STRUCTURAL STEEL (AESS).
4. ARC-WELDING ELECTRODES/FILLER METALS TO BE LOW HYDROGEN TYPES E7XTX, E7XTXX OR E70XXX MINIMUM AS APPLICABLE. ELECTRODES WITH CHARPY V-NOTCH (CVN) TESTS VALUES OF A MINIMUM 20 FOOT-POUNDS AT -20 DEGREES FAHRENHEIT ARE TO BE USED AT THE FOLLOWING LOCATIONS:
   - COMPLETE JOINT PENETRATION WELDS
   - BEAM TO COLUMN MOMENT CONNECTIONS – INCLUDING FLANGE, WEB, AND CONTINUITY PLATE FILLET AND PARTIAL JOINT PENETRATION WELDS
   - BRACE CONNECTIONS – INCLUDING BRACE, GUSSET, BASE PLATES, BEAM STIFFENER PLATES, AND CONTINUITY PLATE FILLET AND PARTIAL JOINT PENETRATION WELDS
   - WELDS NOTED "CVN" ON THE DRAWINGS
5. WELDERS TO BE CERTIFIED BY AWS AND THE GOVERNING JURISDICTION.
6. WHERE FIELD WELDING IS NOTED, THE DESIGNATION IS GIVEN AS A SUGGESTED CONSTRUCTION PROCEDURE ONLY.
7. PROVIDE NATURAL CAMBER UP, UNLESS NOTED OTHERWISE, EXCEPT AT CANTILEVERS. AT CANTILEVERS PROVIDE CAMBER SUCH THAT TIP OF CANTILEVER IS ABOVE FINAL ELEVATION.
8. SPLICE MEMBERS ONLY WHERE INDICATED.

VII. METAL DECKING

1. METAL FLOOR AND ROOF DECK TO HAVE MINIMUM SECTION PROPERTIES SHOWN ON SHEET "TYPICAL DETAILS."
2. ALL FLOOR AND ROOF DECK TO BE GALVANIZED IN ACCORDANCE WITH ASTM A653 COATING CLASS G60. REPAIR DAMAGED COATING.
3. WHERE POSSIBLE, LAYOUT METAL DECK TO SPAN AT LEAST THREE SPANS CONTINUOUSLY. TERMINATE ENDS OVER SUPPORTS EXCEPT AT OPENINGS OR BUILDING EDGES WHERE METAL DECKS MAY BE CANTILEVERED AS SHOWN.
4. SECURE FLOOR AND ROOF METAL DECK TO THE STEEL FRAMEWORK AND TOGETHER AS SHOWN. UNLESS OTHERWISE NOTED ON THE STRUCTURAL DRAWINGS, MINIMUM DECK ATTACHMENT IS AS FOLLOWS:
   - 5/8" EFFECTIVE DIAMETER PUDDLE WELDS AT 12" O.C. AT TRANSVERSE AND PERIMETER SUPPORTS. 5/8" EFFECTIVE DIAMETER PUDDLE WELDS AT 12" O.C. AT LONGITUDINAL SUPPORTS. USE 1-1/2" TOP SEAM WELD AT 36"O.C. (MAX.) AT SIDE LAP CONNECTIONS.

VIII. MECHANICAL ANCHORS

1. EXPANSION OR WEDGE ANCHORS INTO CONCRETE: HILTI KB-TZ (ICC #ESR-1917), ITW REDHEAD TRUBOLT+ (ICC #ESR-2427), POWERS POWER-STUD+ (ICC ESR-2502), SIMPSON STRONG BOLT (ICC ESR-1771), OR EQUAL. INSTALL ANCHORS IN ACCORDANCE WITH ICC REPORT. IF USE OF AN EQUIVALENT PRODUCT IS REQUESTED, CONTRACTOR TO PROVIDE DOCUMENTATION TO THE RESIDENT ENGINEER THAT PROVES TECHNICAL EQUIVALENCE.
2. PROVIDE STAINLESS STEEL FASTENERS FOR EXTERIOR USE OR WHEN EXPOSED TO WEATHER. PROVIDE GALVANIZED CARBON STEEL ANCHORS AT OTHER LOCATIONS, UNLESS OTHERWISE NOTED.
3. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.
4. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL ANCHORS.
5. MINIMUM EMBEDMENT OF ANCHORS, UNLESS OTHERWISE NOTED:

ANCHOR DIA.	WEDGE EMBEDMENT
¼"	2"
5/16"	-
3/8"	2 ½"
½"	3 ¼"
5/8"	4"
¾"	4 ½"
1"	6"

6. THE MINIMUM EMBEDMENT OF HSL ANCHORS IS PER THE ICBO REPORT, UNLESS OTHERWISE NOTED.
7. ANCHORS WILL BE PROOF-TESTED BY OWNER'S TESTING AND INSPECTION AGENCY.
8. IF ANY ANCHOR FAILS TESTING, REPLACE ANCHOR AND TEST ADDITIONAL ANCHORS OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE PASS, THEN RESUME INITIAL TESTING FREQUENCY.
9. APPLY TEST LOAD BY ANY METHOD THAT WILL EFFECTIVELY MEASURE THE TENSION ON THE ANCHOR SUCH AS DIRECT PULL WITH A HYDRAULIC JACK, TORQUE WRENCH, OR CALIBRATED SPRING-LOADING DEVICES, ETC.
10. TEST ANCHORS NO SOONER THAN 24 HOURS AFTER INSTALLATION.
11. REACTION LOADS FROM TEST FIXTURES MAY BE APPLIED CLOSE TO THE ANCHOR BEING TESTED, PROVIDED THE ANCHOR IS NOT RESTRAINED FROM WITHDRAWING BY A BASEPLATE OR OTHER FIXTURE. IF RESTRAINT IS FOUND, LOOSEN AND SHIM OR REMOVE THE FIXTURE PRIOR TO TESTING.
12. TEST 25% WEDGE OR SLEEVE ANCHORS PER ONE OF THE FOLLOWING METHODS:
    A. HYDRAULIC RAM METHOD: APPLY PROOF TEST LOAD WITHOUT REMOVING THE NUT. IF IT IS NOT POSSIBLE TO TEST WITH THE NUT INSTALLED, REPLACE THE NUT WITH A THREADED COUPLER TO THE SAME TORQUE MEASURED WITH A TORQUE WRENCH, AND THEN APPLY THE LOAD. ANCHOR IS ACCEPTABLE IF NO MOVEMENT IS OBSERVED AT THE TEST LOAD. MOVEMENT MAY BE DETERMINED WHEN THE WASHER UNDER THE NUT BECOMES LOOSE.
    B. TORQUE WRENCH METHOD: TEST ANCHORS TO THE TORQUE LOAD INDICATED IN THE TABLE BELOW WITHIN THE FOLLOWING LIMITS:

TEST VALUES (HARD ROCK OR LIGHTWEIGHT CONCRETE)				
	WEDGE		SLEEVE	
ANCHOR DIA. (IN.)	TENSION LOAD (LBS)	TORQUE LOAD (FT-LBS)	TENSION LOAD (LBS)	TORQUE LOAD (FT-LBS)
1/4	800	10	400	4
5/16	-	-	400	5
3/8	1100	25	700	10
1/2	2000	50	900	20
5/8	2300	80	700	45
3/4	3700	150	1400	90
1	5800	250	-	-

    1. FOR 3/8" SLEEVE ANCHORS, ONE-QUARTER TURN OF THE NUT. FOR OTHER SLEEVE ANCHORS, ONE-HALF TURN OF THE NUT.
    2. FOR WEDGE ANCHORS, ONE-HALF TURN OF THE NUT.
13. TEST 25% OF HSL ANCHORS IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS.

IX. ADHESIVE ANCHORS AND DOWELS

1. ANCHORS AND DOWELS INSTALLED INTO CONCRETE: HIT RE-500 SD BY HILTI (ICC ESR-2322), SET-XP BY SIMPSON STRONG-TIE (ICC ESR-2508), POWERS PE1000+ BY POWERS FASTENERS (ICC ESR- 2583), OR EQUAL. IF USE OF AN EQUIVALENT PRODUCT IS REQUESTED, CONTRACTOR TO PROVIDE DOCUMENTATION TO THE RESIDENT ENGINEER THAT PROVES TECHNICAL EQUIVALENCE. EMBEDMENT DEPTH FOR ANCHORS AND DOWELS IS AS FOLLOWS: UNLESS OTHERWISE NOTED. THE TESTING LABORATORY WILL PERFORM TENSION TESTS ON 25% OF ANCHORS AND DOWELS TO THE FOLLOWING TEST LOADS:

ROD DIA OR BAR SIZE	EMBEDMENT	TEST LOAD	BASE MATERIAL
3/8"	4"	1800#	CONCRETE
1/2"	5"	3200#	CONCRETE
5/8"	6"	5000#	CONCRETE
3/4"	7"	7100#	CONCRETE
7/8"	9"	9700#	CONCRETE
1"	11"	12800#	CONCRETE

#3	5"	3000#	CONCRETE
#4	6-1/2"	5400#	CONCRETE
#5	8"	8400#	CONCRETE
#6	10"	11900#	CONCRETE
#7	12"	16200#	CONCRETE
#8	14"	21300#	CONCRETE

2. ANCHORS: ASTM A36 THREADED RODS WITH ASTM A 563 GRADE A NUTS AND ANSI B18.22.1 TYPE A WASHERS, UNLESS OTHERWISE NOTED. ANCHORS DESIGNATED AS ASTM A193 GRADE B7 THREADED RODS TO USE ASTM A 563 GRADE DH HEAVY HEX NUTS AND ASTM F 436 WASHERS.
3. DOWELS: ASTM A615 GRADE 60 REINFORCING STEEL.
4. REMOVE GREASE, OIL, RUST, AND OTHER LAITANCE FROM RODS AND DOWELS PRIOR TO INSTALLATION.
5. REPLACE ANCHORS AND DOWELS THAT FAIL DURING TESTING AND RETEST. IF MORE THAN 10% OF THE TESTED DOWELS AND ANCHORS FAIL TO ACHIEVE THE SPECIFIED TEST LOAD, TEST 100% OF THE DOWELS AND ANCHORS INSTALLED IN THE LAST 2 DAYS OF ANCHOR INSTALLATION.
6. THE DIAMETER OF THE HOLES IS PER THE MANUFACTURER'S INSTRUCTIONS. DRILL HOLES FOR ANCHORS AND DOWELS IN UNREINFORCED BRICK MASONRY WITH A NON-IMPACT ROTARY DRILL. PRIOR TO INSTALLING ANCHORS OR DOWELS, WIRE BRUSH HOLES TO REMOVE RESIDUE, BLOW OUT WITH OIL-FREE COMPRESSED AIR, AND ALLOW HOLE TO DRY.
7. PLACE ADHESIVE WITH THE MANUFACTURER'S RECOMMENDED APPLICATION TOOL TO A DEPTH AS SPECIFIED BY THE MANUFACTURER AND TO MINIMIZE THE AMOUNT OF ADHESIVE THAT WILL OVERFLOW OUT OF THE HOLE WHEN THE BAR IS INSERTED. REMOVE EXCESS ADHESIVE ON THE ADJACENT SURFACES.
8. INSERT THE ANCHOR OR DOWEL IN THE HOLE WITH A TWISTING MOTION TO THE REQUIRED EMBEDMENT DEPTH. DO NOT PUMP THE ANCHOR OR DOWEL IN AND OUT OF THE HOLE.
9. WEDGE BARS TIGHT AND CENTERED IN THE HOLE WITH WOODEN WEDGES (GOLF TEES) TO HOLD IT IN PLACE UNTIL THE ADHESIVE SETS.
10. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.
11. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH ADHESIVE ANCHORS.

X. STRUCTURAL TESTS, INSPECTIONS, AND OBSERVATIONS

1. AN INDEPENDENT TESTING AGENCY AND SPECIAL INSPECTORS WILL BE RETAINED BY THE OWNER TO PERFORM THE FOLLOWING TESTS AND INSPECTION. PROVIDE ACCESS AND FURNISH SAMPLES TO THE AGENCY AS REQUIRED BY THE CONTRACT DOCUMENTS.
2. IF INITIAL TESTS OR INSPECTIONS MADE BY THE OWNER'S TESTING AGENCY REVEAL THAT ANY PORTION OF THE WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, ADDITIONAL TESTS, INSPECTIONS, AND NECESSARY REPAIRS WILL BE MADE AT THE CONTRACTOR'S EXPENSE.
3. THE FOLLOWING ITEMS REQUIRE TESTS AND INSPECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF THE CHAPTER "STRUCTURAL TESTS AND INSPECTIONS" OF THE CODE OF THE GOVERNING JURISDICTION AS NOTED IN THE GENERAL SECTION OF THESE GENERAL NOTES. ADDITIONAL ITEMS AND REQUIREMENTS FOR TESTS AND INSPECTIONS ARE IDENTIFIED IN THE SPECIFICATIONS.

STRUCTURAL STEEL						
✓	REVIEW MILL CERTIFICATE & TEST REPORTS					
✓	REVIEW WELDING PROCEDURE SPECIFICATION & WELDER CERTIFICATION					
✓	SAMPLE & TEST SECTIONS		AS SPECIFIED	✓	AS REQUIRED	
	SAMPLE & TEST HIGH-STRENGTH BOLTS & WASHERS					
✓	SHOP MATERIAL IDENTIFICATION					
✓	FIELD ERECTION INSPECTION					
✓	FABRICATION INSPECTION	✓	SHOP	✓	FIELD	
✓	WELDING INSPECTION	✓	SHOP	✓	FIELD	
✓	NON-DESTRUCTIVE WELD TEST	✓	SHOP	✓	FIELD	
✓	BOLTING INSPECTION	✓	SHOP	✓	FIELD	
✓	COMPOSITE STUD INSPECTION & TESTING					
	STEEL JOIST LOAD TEST					
METAL DECK						
✓	REVIEW MILL CERTIFICATES & TEST REPORTS					
✓	PLACEMENT INSPECTION					
✓	WELDING & FASTENING INSPECTION					
REINFORCING STEEL						
✓	REVIEW MILL CERTIFICATES & TEST REPORTS					
✓	SAMPLE & TEST	✓	REINFORCING BARS		WELDED WIRE FABRIC	
✓	PLACEMENT INSPECTION					
✓	WELDING INSPECTION					
✓	TEST EXISTING REINFORCING FOR WELDABILITY					
MISCELLANEOUS						
✓	DRILLED-IN CONCRETE ANCHORS					
✓	EPOXY OR GROUTED DOWELS					
✓	BOLTS CAST IN CONCRETE					
	CEILING HANGER & BRACING WIRES					
	COLD FORM METAL FRAMING WELDING					
CONCRETE, SHOTCRETE, GROUT & MORTAR						
CONCRETE	GROUT					
		AGGREGATE TESTS				
		CEMENT TEST				
✓	✓	MIX DESIGN REVIEW				
		CONTINUOUS BATCH PLANT INSPECTION				
✓	✓	BATCH PLANT INSPECTIONS				
✓	✓	CAST, PICK-UP, AND COMPRESSION TEST SAMPLES				
✓	✓	SLUMP, ENTRAINED AIR, & TEMPERATURE TEST				
✓		UNIT WEIGHT TEST	WET	-	DRY: 120 LBS/FT^3	
	✓	SHRINKAGE TEST				
✓	✓	PLACEMENT INSPECTION				
		CORE & TEST				

4. NOTIFY THE ENGINEER AT SIGNIFICANT CONSTRUCTION STAGES 72 HOURS IN ADVANCE AND PROVIDE ACCESS FOR THE FOLLOWING STRUCTURAL OBSERVATIONS:
   A. STEEL FRAMING
      1. GENERAL
      2. BRACED FRAMES
      3. METAL DECKING AND SHEAR CONNECTORS
   B. CONCRETE
      1. WALL REINFORCEMENT AND BOUNDARY ELEMENTS
      2. SLABS AND SLABS-ON-GRADE

XI. NONSTRUCTURAL UPGRADES

1. CONTRACTOR TO PROVIDE NON-STRUCTURAL DESIGNAND ANCHORAGE PER SPEC 13541 FOR ANCHORAGE/BRACING, INCLUDING THE FOLLOWING EXISTING AND NEW ITEMS:
2. ALL LIGHTS, INCLUDING EMERGENCY LIGHTING, SHALL BE ANCHORED OR BRACED TO PREVENT FALLING DURING AN EARTHQUAKE.
3. LIGHT FIXTURES IN SUSPENDED GRID CEILINGS SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING SUSPENSION SYSTEM BY A MINIMUM OF TWO WIRES AT DIAGONALLY OPPOSITE CORNERS OF THE FIXTURES.
4. CABINETS, SHELVING UNITS, AND OTHER SLENDER CONTENTS SHALL BE ANCHORED TO THE FLOOR SLAB OR ADJACENT STRUCTURAL WALLS. 1
5. EMERGENCY POWER SYSTEMS: THE EMERGENCY POWER SYSTEM SHALL BE MOUNTED SUCH THAT IT IS OPERATIONAL AFTER AN EARTHQUAKE.
6. ALL SYSTEMS USING OR CONTAINING HAZARDOUS MATERIALS SHALL BE BRACED SUCH THAT THE HAZARDOUS WASTE IS NOT RELEASED DUE TO AN EARTHQUAKE. SUPPLY LINES SHOULD BE PROTECTED TO PREVENT DAMAGE IN AN EARTHQUAKE.
7. EQUIPMENT WEIGHING OVER 20 LB. THAT IS ATTACHED TO CEILINGS, WALLS, OR OTHER SUPPORTS 4 FT. ABOVE THE FLOOR LEVEL S