

GENERAL REQUIREMENTS

1. CODES. COMPLY WITH THE 2001 CALIFORNIA BUILDING CODE AND THE 1997 UNIFORM BUILDING CODE INCLUDING ALL APPROVED REVISIONS.
2. VERIFICATION. VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS. NOTIFY THIS ENGINEER OF ANY DISCREPANCIES BEFORE STARTING WORK.
3. CONFLICTS. NOTES AND DETAILS ON THE DRAWINGS TAKE PRECEDENCE OVER THE GENERAL NOTES AND TYPICAL DETAILS IN CASE OF CONFLICT.
4. SUBSTITUTIONS. SUBMIT CURRENTLY APPROVED PRODUCT ICBO EVALUATION REPORT AND A LIST OF ALL PROPOSED SUBSTITUTIONS TO THIS ENGINEER FOR REVIEW AND WRITTEN APPROVAL BEFORE ORDERING PRODUCT OR FABRICATION.
5. SIMILAR WORK. WHERE CONSTRUCTION DETAILS ARE NOT SHOWN OR NOTED FOR ANY PART OF THE WORK, SUCH DETAILS SHALL BE THE SAME AS FOR SIMILAR WORK SHOWN ON THE DRAWINGS.
6. DISCREPANCIES. INFORM THE ENGINEER IN WRITING, DURING THE BIDDING PERIOD, OF ANY DISCREPANCIES OR OMISSIONS NOTED ON THE DRAWINGS OR OF ANY VARIATIONS NEEDED IN ORDER TO CONFORM TO CODES, RULES AND REGULATIONS. UPON SUCH NOTIFICATION, THE ENGINEER WILL SEND WRITTEN INSTRUCTIONS TO ALL CONCERNED. ANY SUCH DISCREPANCY, OMISSION, OR VARIATION NOT REPORTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND THE WORK SHALL BE PERFORMED IN A MANNER AS DIRECTED BY THE ENGINEER.
7. OTHER TRADES. SEE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR WORK AND DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.
8. PIPES, DUCTS, SLEEVES, CHASES, VENTS ETC. : SHALL NOT BE PLACED IN SLABS, BEAMS, OR WALLS UNLESS SPECIFICALLY SHOWN OR NOTED NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, VENTS, ETC., UNLESS SPECIFICALLY SHOWN. OBTAIN PRIOR WRITTEN APPROVAL FOR INSTALLATION OF ANY ADDITIONAL PIPES, DUCTS, ETC.
9. CONSTRUCTION METHODS AND JOB SAFETY. THE CONTRACT DRAWING(S) AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE METHODS, PROCEDURES OR SEQUENCE OF CONSTRUCTION. TAKE NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE DURING CONSTRUCTION. NEITHER THE OWNER NOR THE ARCHITECT/ENGINEER WILL ENFORCE SAFETY MEASURES OR REGULATIONS. DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING, AND BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS. PROTECT ADJACENT PROPERTY(ES) AND THE PUBLIC.
10. EXCAVATION: THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, AND PROTECTION OF ADJACENT PROPERTY.
11. SHORING: IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING, AND FORMWORK, ETC. AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING THE CONSTRUCTION OF THIS STRUCTURE.
12. MATERIALS AND WORKMANSHIP- SUPPLY ALL LABOR, MATERIALS, EQUIPMENT, INCIDENTALS AND SERVICES, INCLUDING WATER AND POWER, NECESSARY FOR THE PROPER EXECUTION OF THE WORK SHOWN OR INDICATED ON THESE DRAWINGS. ALL MATERIALS SHALL BE NEW, UNLESS OTHERWISE NOTED ON THE PLANS, AND ALL MATERIALS AND WORKMANSHIP SHALL BE GOOD QUALITY. ALL WORKMEN AND SUBCONTRACTORS SHALL BE SKILLED IN THEIR TRADES.
13. DEFECTIVE MATERIALS OR WORK AND WORKMANSHIP WARRANTY: REPLACE ANY DEFECTIVE MATERIALS AND CORRECT POOR WORKMANSHIP AT NO ADDITIONAL COST TO THE OWNER. REMEDY ANY DEFECTS IN MATERIAL OR WORKMANSHIP WHICH APPEAR WITHIN ONE YEAR FROM THE DATE OF COMPLETION OF THE JOB.
14. CONSTRUCTION LOADS. CONSTRUCTION MATERIALS SHALL BE PLACED EVENLY, IF PLACED ON FLOORS OR ROOFS. CONSTRUCTION LOADS SHALL NOT EXCEED THE ALLOWABLE LOADING FOR THE SUPPORTING MEMBERS AND THEIR CONNECTIONS. ALLOWABLE LOADING INCLUDES PARTITION, LIVE AND ANY OTHER DEAD LOAD NOT IN PLACE AT THE TIME OF APPLICATION OF CONSTRUCTION LOADS.
15. UNDERGROUND UTILITIES. LOCATE AND PROTECT UNDERGROUND OR CONCEALED UTILITIES. CALL UNDERGROUND SERVICE ALERT (U.S.A.) AT 1-800-227-2600 AT LEAST 72 HOURS IN ADVANCE OF ANY PLANNED EXCAVATION TO REQUEST THE MARKING OF UTILITIES AT THE SITE.
16. JOB SITE CONDITION: KEEP JOB SITE FREE FROM ACCUMULATION OF WASTE MATERIALS AND DEBRIS. AT THE END OF THE JOB REMOVE ALL RUBBISH, SURPLUS MATERIALS, AND TOOLS, AND BROOM CLEAN THE SITE AND THE STRUCTURE.

OBSERVATIONS

1. THE OWNER SHALL EMPLOY THIS ENGINEER TO OBSERVE THE PROGRESS NO. OF OF CONSTRUCTION. THIS ENGINEER, UPON 7 DAYS ADVANCE NOTIFICATION VISITS WILL VISIT THE JOB SITE TO OBSERVE AND GAIN FAMILIARITY WITH THE PROGRESS OF THE FOLLOWING TYPES OF STRUCTURAL WORK:
- 1.1. FOUNDATION OBSERVATION: TO BE MADE AFTER EXCAVATIONS FOR FOOTINGS ARE COMPLETE AND ANY REQUIRED REINFORCING STEEL IS IN PLACE. 2
- 1.2. WALLS & SLAB OBSERVATION: TO BE MADE AFTER THE REQUIRED REINFORCING STEEL HAS BEEN ERECTED. 2
- 1.3. RESIDENTIAL FRAME OBSERVATION: TO BE MADE AFTER ALL FRAMING HAS BEEN ERECTED. 2

SPECIAL INSPECTION

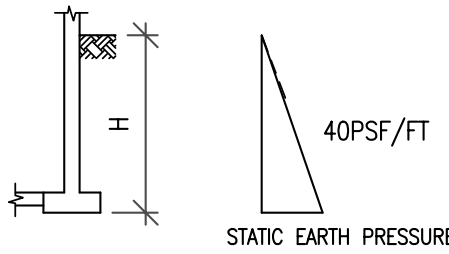
1. GENERAL: IN ADDITION TO THE INSPECTIONS REQUIRED BY UBC SECTION 108 WHICH WILL BE MADE BY THE BUILDING OFFICIAL OR HIS/HER REPRESENTATIVE, THE OWNER SHALL EMPLOY A SPECIAL INSPECTOR DURING THE CONSTRUCTION OF THE FOLLOWING TYPES OF WORK. ALL SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH UBC CHAPTER 17. ALL SPECIAL INSPECTIONS TO BE MADE ON A CONTINUOUS BASIS, U.N.O.
- 1.1. CONCRETE: DURING THE TAKING OF TESTS SPECIMENS AND PLACING OF ALL REINFORCED CONCRETE, U.N.O. UNDER "CONCRETE" NOTES.
- 1.2. REINFORCING STEEL AND PRESTRESSING STEEL TENDONS FOR CONCRETE, SEE ITEM 1.1.
- 1.2.1 DURING ALL STRESSING AND GROUTING OF TENDONS IN PRESTRESSED CONCRETE
- 1.2.2 DURING THE PLACING OF REINFORCING STEEL.
- 1.2.3 DURING THE PLACING OF ALL INSERTS.
- 1.3. WELDING: DURING ALL STRUCTURAL WELDING, INCLUDING WELDING OF REINFORCING STEEL.
- 1.4. HIGH STRENGTH BOLTING.
- 1.5. BOLTS INSTALLED IN CONCRETE
- 1.6. DURING CONSTRUCTION OF DRILLED CAST-IN-PLACE PIERS.
- 1.7 DURING PAD PREPARATION WITH ENGINEERED FILL.
- 1.8 DURING TAKING OF TESTS AND PLACING OF ALL SHOTCRETE
2. SELECTION OF THE SPECIAL INSPECTOR: THE OWNER SHALL SUBMIT TO THE ENGINEER A LIST OF (3) FIRMS CHOSEN TO PERFORM THE SPECIAL INSPECTION DUTIES. THE SPECIAL INSPECTION FIRM SHALL HAVE AT LEAST (5) YEARS EXPERIENCE IN THE WORK TO BE INSPECTED. THE ENGINEER SHALL RECOMMEND ONE FIRM FROM THOSE SUBMITTED. UPON APPROVAL OF THE BUILDING OFFICIAL THIS ENGINEER MAY PERFORM THE SPECIAL INSPECTION DURING HIS SITE OBSERVATION.
3. FIELD INSPECTOR: ALL FIELD INSPECTORS SHALL HAVE A MINIMUM OF (1) YEAR EXPERIENCE IN THE SPECIFIC CONSTRUCTION BEING INSPECTED.
4. THE INSPECTOR SHALL PREPARE AND SUBMIT REPORTS TO THE ARCHITECT, THIS ENGINEER AND THE BUILDING DEPARTMENT OF THE CITY OF OAKLAND.

SOIL

1. FOUNDATION DESIGN CRITERIA: THE FOUNDATIONS HAVE BEEN DESIGNED IN COMPLIANCE WITH THE "GEOTECHNICAL SITE INVESTIGATION" BY J. YANG AND ASSOCIATES, 2758 CANYON CREEK DRIVE, SAN RAMON, CA 94583, TEL (925) 831-8678, FAX (925) 831-3645, REPORT NO. J02-1060, DATED DECEMBER 15, 2002.
2. FOUNDATIONS
- 2.1 FOOTING SIZES.
- MINIMUM DEPTH OF BTM OF FTG (BELOW ADJACENT GRADE) = 30 inches
- MINIMUM DEPTH OF BTM OF EDGE OF SLAB (BELOW ADJACENT GRADE) =12 inches
- MINIMUM WIDTH (CONT. FOOTINGS) = 18 inches
- MINIMUM WIDTH (ISOLATED FOOTINGS) = 24 inches
- 2.2 ALLOWABLE BEARING PRESSURES TO VERTICAL LOADS:
- FOOTINGS
- DEAD LOADS 2000 PSF
- DEAD PLUS LIVE LOADS 2500 PSF
- INCREASE BY 120 PSF PER FT BELOW THE NATURAL GRADE
- DEAD PLUS LIVE LOADS PLUS SEISMIC 3300 PSF
- MAXIMUM LATERAL SLIDING RESISTANCE = .30 * DL
- 325 PSF/FT
- PASSIVE RESISTANCE
- ANGLE OF INTERNAL FRICTION 35'

DESIGN REQUIREMENTS

1. LOADS: ACTUAL IN PLACE WEIGHTS OF ALL MATERIALS AS SHOWN ON CONSTRUCTION DOCUMENTS.
- 1.1. SUPERIMPOSED DEAD LOADS.
- i. ROOF PITCHED = 10 PSF
- ii. ROOF FLAT = 6 PSF
- iii. FLOOR FINISH (PATIO) = 6 PSF
- iv. FLOOR FINISH (INSIDE UNIT) = 6 PSF
- 1.2. LIVE LOADS
- i. PITCHED ROOF WITH RISE 3 INCHES PER FOOT OR LESS = 20 PSF
- ii. PITCHED ROOF WITH RISE 4 INCHES PER FOOT OR MORE = 16 PSF
- iii. FLOOR ~ 2ND FLOOR PLAZA = 100 PSF
- iv. FLOOR ~ INSIDE UNIT = 40 PSF
- v. CEILINGS = 10 PSF
- v. BALCONIES = 60 PSF
- 1.3. WIND LOADS:
- i. BASIC WIND SPEED = 70 MPH
- ii. EXPOSURE = B
- iii. OCCUPANCY CATEGORY = STANDARD STRUCTURE
- iv. IMPORTANCE FACTOR I_w = 1.0
- 1.4. EARTHQUAKE LOADS:
- 1.4.1 PRIMARY STRUCTURAL SYSTEM
- OCCUPANCY CATEGORY = STANDARD STRUCTURE
- CONFIGURATION = PLAN IRREGULARITY (UBC
- 16-N-2. RE-ENTRANT CORNER)
- = 4
- SEISMIC ZONE = 1.0
- SEISMIC ZONE FACTOR Z = 0.4
- SEISMIC COEFFICIENT C_a = 0.44 I_w
- SEISMIC COEFFICIENT C_v = 0.64 I_w
- | SOURCE NAME | SOURCE TYPE | DISTANCE (km) | FACTOR N_a | FACTOR N_v |
|---------------|-------------|---------------|--------------|--------------|
| HAYWARD FAULT | A | 2 | 1.5 | 2.0 |
- 1.4.2. ELEMENTS OF STRUCTURE
- HORIZONTAL FORCE FACTOR ϕ_p = 1.0 WALLS, R_p = 3.0
- HORIZONTAL FORCE FACTOR ϕ_p = 2.5 PARAPETS, R_p = 3.0
- IMPORTANCE FACTOR I_p = 1.0
- FORCE ON PART F_p = $\phi_p^* C_a^* I_p/R_p^*(1+3h_x/hr)^*W_p$
- MIN. FORCE ON PART F_p = $0.7^* C_a^* I_p^*W_p$
- 1.5. LATERAL EARTH PRESSURES
- i. UNRESTRAINED WALLS



CONCRETE

1. CODES AND STANDARDS: IN ADDITION TO THE SPECIFIED CODES COMPLY WITH THE CURRENT EDITIONS OF ACI, ASTM OR CRSI PUBLICATIONS OR SPECIFICATIONS RELATED WITH THE SPECIFIED WORK INCLUDING BUT NOT LIMITED TO THE FOLLOWING.
- 1.1 ACI 117. STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS;
- 1.2 ACI 301. SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
- 1.3. ACI 302. GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION;
- 1.4. ACI 308. STANDARD PRACTICE FOR CURING CONCRETE.
- 1.5. ACI 309. STANDARD PRACTICE FOR CONSOLIDATION OF CONCRETE.
- 1.6. ACI 315. DETAILS AND DETAILING OF CONCRETE REINFORCEMENT.
- 1.7. ACI 318. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
- 1.8. ACI 347. RECOMMENDED PRACTICE FOR CONCRETE FORMWORK.
2. CONCRETE QUALITY:
- | CONCRETE USE: | 28-DAY STRENGTH (psi) | MAX. AIR (%) | MAX. W/C (%) | MIN. CEMENTITIOUS MATERIAL (LBS/YD) | MAX. FLY ASH BY WGT (%) | AGGREGATES (4) | | | SRA (3) GAL/YD |
|----------------------------|-----------------------|--------------|--------------|-------------------------------------|-------------------------|----------------|---------------------|------------|----------------|
| | | | | | | COARSE SIZE | MAX.(5) SAND VOLUME | SOURCE (2) | |
| FOOTINGS & PIERS | 3000 (1) | 1.5 | 0.5 | — | 15 | 1"—No. 4 | 40% | A,B,C | — |
| SLABS ON GRADE & SIDEWALKS | 3000 (1) | 1.5 | 0.44 | 540 | 15 | 1"—No. 4 | 40% | A,B,C | 1 |
| COLUMNS, AND WALLS | 4000 | 1.5 | 0.44 | 540 | 15 | 1"—No. 4 | 40% | A,B,C | 1 |
| PT SLABS | 4000 | 1.5 | 0.4 | 540 | 15 | 1"—No. 4 | 40% | A,B | 1.5 |
- FOOTNOTES
- (1) SPECIAL INSPECTION IS NOT REQUIRED. DESIGN f_c' IS 2500 psi.
- (2) INDICATES ACCEPTABLE SOURCES OF AGGREGATES; SEE PARAGRAPH 3, MATERIALS, BELOW.
- (3) SRA . . . SHRINKAGE REDUCING ADMIXTURE, SEE BELOW.
- (4) ASSUMED 4"ø MINIMUM HOSE PUMP. IF SMALLER SIZE HOSE IS SELECTED AND PROPOSED SAND WILL EXCEED SPECIFICATIONS, SRA SHALL BE INCREASED OR ADDED AS DIRECTED BY ENGINEER AT NO ADDITIONAL EXPENSE TO THE OWNER.
- (5) RATIO OF VOLUME OF SAND VERSUS TOTAL VOLUME OF AGGREGATES.
- 2.1 WORKABILITY AND WATER CONTENT:
- | CONCRETE USE: | SLUMP (in) |
|--|------------|
| SLABS ON GRADE, PAVEMENTS, FOOTINGS FOUNDATIONS, CAISSONS OR DRILLED PIERS, ABUTMENTS, LARGE REINFORCED SECTIONS | 1-3 |
| COLUMNS, BEAMS, WALLS, STRUCTURAL SLABS, CONCRETE FOR PUMPING | 2-4 |
- UPON APPROVAL OF THE ENGINEER THE CONCRETE WORKABILITY MAY BE INCREASED AT THE OPTION AND EXPENSE OF THE CONTRACTOR WITH THE ADDITION OF ADMIXTURES.
3. MATERIALS:
- 3.1 AGGREGATES. NORMAL WEIGHT CONFORMING WITH ASTM C33.
- SOURCE, AS LISTED BELOW OR EQUAL IN TERMS LINEAR DRYING SHRINKAGE.
- | SOURCE CODE | SOURCE | LINEAR DRYING SHRINKAGE (%) |
|-------------|---|-----------------------------|
| A | SECHLT COARSE & SAND | 0.027 ± 0.004 |
| B | LIMESTONE COARSE & GRANITIC SAND (MIN. SG 2.65) | 0.030 ± 0.004 |
| C | CLAYTON COARSE & GRANITIC SAND (MIN. SG 2.65) | 0.037 ± 0.004 |
- AGGREGATES. NORMAL WEIGHT CONFORMING WITH ASTM C33 FROM ONE OF THE SOURCES LISTED BELOW OR EQUAL IN TERMS LINEAR DRYING SHRINKAGE.
- 3.2 WATER. COMPLY WITH GOVERNING CODE AND STANDARDS.
- 3.3 CEMENT: TYPE II PORTLAND CEMENT CONFORMING TO ASTM C 150.
- 3.4 METAL REINFORCEMENT
- DEFORMED REINFORCING SHALL BE NEW STOCK CONFORMING TO ASTM A615 INCLUDING SUPPLEMENT S1.
- #3 AND LARGER BARS - GRADE 60
- WELDED PLAIN WIRE FABRIC TO COMPLY WITH ASTM 185 GRADE 60.
- REINFORCING STEEL ALLOWANCE: PROVIDE 1000 LBS OF STEEL REINFORCEMENT FOR THE ENGINEER TO USE AT HIS DISCRETION DURING CONSTRUCTION. REIMBURSE OWNER FOR UNUSED STEEL.
- 3.5 WATER REDUCING ADMIXTURES: NON-CHLORIDE BASED MEDIUM RANGE WATER REDUCING ADMIXTURE COMPLYING WITH ASTM C494 REQUIREMENTS FOR TYPE A AS NEEDED TO PRODUCE COMPLYING AND WORKABLE MIX. APPROVED PRODUCT. POLYHEED FC100 BY MASTER BUILDERS OR APPROVED NY ENGINEER EQUAL.
- 3.6 AIR ENTRAINING ADMIXTURES: COMPLY WITH ASTM C 260.
- 3.7 FLY ASH: COMPLY WITH ASTM C 618 CLASS F. SEE TABLE ABOVE FOR MAXIMUM CONTENT OF TOTAL CEMENTITIOUS MATERIALS BY WEIGHT.
- 3.8 SHRINKAGE REDUCING ADMIXTURE. "ECLIPSE" BY GRACE CONSTRUCTION PRODUCTS.
4. FORMWORK EMBEDDED PIPES AND OTHER ITEMS, CONSTRUCTION JOINTS, MIXING AND DEPOSITING. COMPLY WITH GOVERNING CODE AND REFERENCED STANDARDS.
5. FINISHING CONCRETE SURFACES. COMPLY WITH ACI 301
- SURFACE FINISHES ARE CLASSIFIED AS FOLLOWS:
- 5.1 CLASS 1. ROUGH FORM FINISH
- CLASS 2. SMOOTH FORM FINISH
- CLASS 3. SMOOTH RUBBED FINISH
- CLASS 4. GROUT CLEANED FINISH
- CLASS 5. FLOATED FINISH
- CLASS 6. TROWELLED FINISH
- CLASS 7. LIGHT BROOM-SIDEWALK FINISH
- CLASS 8. HEAVY BROOM OR GROOVED (1/8" DEEP)-DRIVEWAY FINISH
- 5.2 CONCRETE SHALL BE GIVEN A CLASS 2, SMOOTH FORM FINISH, AND IN ADDITION IF FURTHER FINISHING IS REQUIRED, SUCH OTHER TYPE OF FINISH AS IS SPECIFIED. U.N.O EXPOSED SURFACES EXCEPT THE TOPS AND BOTTOMS OF FLOOR SLABS AND THE INTERIOR FACES AND BOTTOMS OF BEAMS OR GIRDERS SHALL BE GIVEN A CLASS 3, SMOOTH RUBBED FINISH.
- 5.3 TOPS OF FLOOR SLABS SHALL BE GIVEN A CLASS 6 TROWELLED FINISH, SIDEWALKS SHALL BE GIVEN A CLASS 7 LIGHT BROOM SIDEWALK FINISH AND THE GARAGE FLOOR SHALL BE GIVEN A CLASS 8 HEAVY BROOM FINISH.
- 5.4 THE QUALITY OF THE FLATNESS AND LEVELNESS OF THE TOP SURFACE OF THE FLOOR SLABS TO BE CONVENTIONAL STRAIGHT EDGE AS IS CLASSIFIED BELOW AND IN ACCORDANCE WITH ACI 117:
- | CLASS | F_f FLATNESS NUMBER | (1) | F_L LEVELNESS NUMBER |
|----------------------------|-----------------------|-------|------------------------|
| CONVENTIONAL-BULL FLOATED | 15 | 3/8" | 13 |
| CONVENTIONAL-STRAIGHTEDGED | 20 | 5/16" | 15 |
| FLAT | 30 | 3/16" | 20 |
| VERY FLAT | 50 | 1/8" | 20 |
| SUPERFLAT | 100+ | — | 20 |
- (1) GAP UNDER AN UNLEVELED 10-FOOT STRAIGHT EDGE
6. CURING. MAINTAIN CONCRETE ABOVE 50°F AND IN MOIST CONDITION FOR AT LEAST THE FIRST SEVEN DAYS AFTER PLACEMENT, CURING USING CHEMICAL COMPOUNDS IS NOT ALLOWED.
7. FIELD FOREMAN: THE FIELD FOREMAN RESPONSIBLE FOR THE PLACEMENT OF ALL STRUCTURAL CONCRETE SHALL HAVE A MINIMUM OF THREE (3) YEARS EXPERIENCE IN THIS CAPACITY FOR THIS TYPE OF CONSTRUCTION.
8. SUBMITTALS: SUBMIT FOR ENGINEER'S REVIEW AND APPROVAL THE FOLLOWING:
1. CONCRETE MIX DESIGN, CERTIFICATES FOR ALL MIX INGREDIENTS, SHOW MIX DESIGN METHOD.
2. REBAR SHOP DRAWINGS. 3. CURING AND FINISHING METHOD.
- ALLOW TWO WEEKS FOR REVIEW AND TURN AROUND TIME.

PRESTRESSED CONCRETE

1. POST-TENSIONING MATERIALS AND ANCHORAGES: COMPLY WITH "PTI GUIDE SPECIFICATIONS FOR POST-TENSIONING MATERIALS". TENSONS TO BE UNBONDED, SHEATHED AND FULLY ENCAPSULATED FOR CORROSION PROTECTION SYSTEM. STEEL TO BE LOW RELAXATION AND SHALL CONFORM TO THE FOLLOWING:
- UNCOATED SEVEN-WIRE STRESS-RELIEVED STEEL STRAND ASTM A416
- 1/2" DIAMETER TENDON AREA 0.153 sq. in./tendon
- ULTIMATE STRENGTH, f_{pu} 270 ksi
- YIELD STRENGTH, f_{py} 229 ksi
- JACKING STRESS 216 ksi
- ANCHORING STRESS 189 ksi
- EFFECTIVE DESIGN STRESS f_{se} 175 ksi OR 26.8 Kips/Tendon
2. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL BY THIS ENGINEER.
3. SUBMITTALS: 1) FRICTION CALCULATIONS.
- 2) SHOP DRAWINGS SHOWING A TENDON LAYOUT, B. DEAD-END AND STRESSING-END ANCHORAGE, C. FINAL MINIMUM ELONGATION REQUIRED FOR EACH TENDON TO PROVIDE SPECIFIED FORCES AND VERIFICATION THAT THIS ELONGATION IS OBTAINABLE CONSIDERING FRICTION AND SEATING LOSS CHARACTERISTICS OF THE PROPOSED MATERIALS AND E. DETAILS FOR THE ENGINEER'S APPROVAL. KEEP A RECORD OF ALL JACKING FORCES AND FIELD-MEASURED ELONGATIONS AND SUBMIT TO THE ENGINEER AND BUILDING DEPARTMENT BEFORE STRESSING OF TENDONS.
- 4) CALIBRATION SHEETS FOR ALL JACKS TO BE USED TO STRESS TENDONS CORRELATING JACKING PRESSURE TO TENDON FORCE.
4. TWISTING: OR ENTWINING OF INDIVIDUAL WIRES OR STRANDS WITHIN A BUNDLE OR A BEAM IS NOT BE PERMITTED.
5. ELONGATIONS: FIELD READINGS OF ELONGATIONS AND/OR STRESSING FORCES SHALL NOT VARY BY MORE THAN ±5% FROM CALCULATED REQUIRED VALUES.
6. TENDON ENDS: DO NOT BURN OFF TENDON ENDS UNTIL THE ENTIRE SLAB HAS BEEN SATISFACTORILY STRESSED.
7. PROFILES: SHALL CONFORM TO CONTROLLING POINTS SHOWN ON THE DRAWINGS AND SHALL BE IN AN APPROXIMATE PARABOLIC DRAPE BETWEEN SUPPORTS, UNLESS NOTED OTHERWISE. LOW POINTS ARE AT MIDSPAN UNLESS NOTED OTHERWISE. HARPED TENDONS SHALL BE STRAIGHT BETWEEN CONTROL POINTS.
8. TENDON ADJUSTMENTS: SLIGHT DEVIATIONS IN THE SPACING OF THE SLAB TENDONS MAY BE PERMITTED WHEN REQUIRED TO AVOID OPENINGS, INSERTS AND DOWELS WHICH ARE SPECIFICALLY LOCATED. WHERE LOCATIONS OF TENDONS SEEM TO INTERFERE WITH EACH OTHER, ONE TENDON MAY BE MOVED HORIZONTALLY IN ORDER TO AVOID THE INTERFERENCE.
9. CHLORIDES: GROUT OR CONCRETE CONTAINING CHLORIDES SHALL NOT BE USED.
10. PUMPED CONCRETE: IF CONCRETE IS PLACED BY THE PUMP METHOD, HORSES SHALL BE PROVIDED TO SUPPORT THE HOSE. THE HOSE SHALL NOT BE ALLOWED TO RIDE ON THE TENDONS. THIS REQUIREMENT IS MANDATORY.
11. CONCRETE CONSOLIDATION: CONTRACTOR SHALL TAKE PRECAUTIONS TO ASSURE COMPLETE CONSOLIDATION AND DENSIFICATION OF CONCRETE BEHIND ALL POST-TENSIONING ANCHORAGES AND IN COLUMN DROP PANELS.
12. BLOCKOUTS: ALL POCKETS OR BLOCKOUTS REQUIRED FOR ANCHORAGE SHALL BE ADEQUATELY REINFORCED SO AS NOT TO DECREASE THE STRENGTH OF THE STRUCTURE. ALL POCKETS SHOULD BE WATERPROOFED SO AS TO ELIMINATE WATER LEAKAGE THROUGH OR INTO THE PCKET.
13. DE-SHORING: SLAB OR BEAMS MAY BE DE-SHORED WHEN ALL TENDONS HAVE BEEN STRESSED, UNLESS SHORING IS REQUIRED TO CARRY FLOORS ABOVE.
14. PT HARDWARE QUALITY: ALL ANCHORAGES, COUPLERS AND MISCELLANEOUS HARDWARE SHALL BE STANDARD AND APPROVED BY GOVERNING AGENCIES AND THIS ENGINEER.
15. ANCHOR BARS: PLACE TWO (2) #4 BARS BEHIND ALL ANCHORAGES. #4 TO BE CONTINUOUS, UNLESS NOTED OTHERWISE. SPLICES SHALL BE 24 INCHES MINIMUM AND STAGGERED.
16. MINIMUM CHAIRING: TENDONS SHALL BE SECURED TO A SUFFICIENT NUMBER OF POSITIONING DEVICES TO ENSURE CORRECT LOCATION DURING AND AFTER THE PLACING OF CONCRETE, SUPPORT SPACING SHALL NOT EXCEED 4 FEET 6 INCHES ON CENTER. CHAIRS GREATER THAN ONE INCH IN SIZE SHALL BE STAPLED TO THE FORM.
17. SUPPORT BARS: SUPPORT BARS LOCATED AT FACES OF DROP PANELS SHALL BE #6 OR GREATER. DROP PANELS GREATER THAN 4 FEET IN SIZE SHALL HAVE AN ADDITIONAL #6 OR GREATER SUPPORT BAR AT THE CENTER.
18. INSERTS: ALL INSERTS AND SLEEVES SHALL BE CAST IN PLACE WHENEVER POSSIBLE. DRILLED AND POWER-DRIVEN FASTENERS WILL BE PERMITTED ONLY WHEN IT CAN BE SHOWN THAT THE INSERTS WILL NOT SPALL THE CONCRETE AND ARE LOCATED SO AS TO AVOID THE TENDONS AND ANCHORAGES.
19. ANCHOR PAINTING: THE STRESSING END ANCHORS AND WEDGES SHALL BE SPRAY PAINTED WITH RUST-OLEUM OR SIMILAR BEFORE THE RECESS IS GROUTED.
20. POST-TENSIONED ALLOWANCE: THE CONTRACTOR SHALL PROVIDE 1000 POUNDS OF POST-TENSIONING REINFORCEMENT FOR THE ENGINEER TO USE AT HIS DISCRETION DURING CONSTRUCTION. THE CONTRACTOR SHALL REIMBURSE THE OWNER FOR UNUSED PORTION.
21. CONCRETE STRENGTH AT STRESSING: AT TRANSFER OF PRESTRESS. CONCRETE STRENGTH SHALL BE 75% OF THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH.
22. RAM CALIBRATION: THE RAM AND ATTENDANT GAUGE TO BE USED SHALL HAVE BEEN CALIBRATED WITHIN (30) DAYS OF THEIR USE.
23. STRESSING SEQUENCE: UNIFORMLY DISTRIBUTED TENDONS SHALL BE STRESSED BEFORE CONCENTRATED BEAM STRIP (BANDED) TENDONS, AND SLAB TENDONS SHALL BE STRESSED BEFORE BEAM TENDONS.
24. PIPES: PLASTIC OR SHEET METAL ELECTRICAL CONDUITS MAY BE EMBEDDED IN SLAB PROVIDED THAT THE FOLLOWING CRITERIA ARE MET:
- A) DIAMETER DOES NOT EXCEED ONE THIRD OF THE SLAB THICKNESS.
- B) CENTER TO CENTER SPACING OF THE CONDUITS IS NOT LESS THAN THREE (3) TIMES THE DIAMETER OF THE LARGEST CONDUIT.
- C) CONDUITS GREATER THAN OR EQUAL TO 1-1/2" DIAMETER SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THE POST-TENSIONED SLAB.
- D) CONDUITS SMALLER THAN 1-1/2" DIAMETER MAY BE LOCATED AT ANY DEPTH WITHIN THE SLAB AS LONG AS MINIMUM COVER REQUIREMENTS ARE OBSERVED.
- E) CONDUITS MUST NOT INTERRUPT THE POST-TENSIONING TENDONS AND
- F) COLUMN DROP CAP AREAS SHOULD BE AVOIDED.
25. TENDON COVERS: ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLEAR", ARE TO CENTER OF STEEL. UNLESS NOTED OTHERWISE ON THE DRAWINGS MINIMUM REBAR AND TENDON COVER IN POST-TENSIONED BEAMS AND SLABS SHALL BE AS FOLLOWS:
- | LOCATION | MINIMUM COVER (in) | TOLERANCES ±(in) |
|--|--------------------|------------------|
| EXPOSED TO EARTH OR WEATHER: WALL PANELS, SLABS | 1 | ½ |
| BEAM PRIMARY REINFORCING | 1½ | ¾ |
| BEAM STIRRUPS | 1½ | ¾ |
| NOT EXPOSED TO WEATHER OR NOT IN CONTACT WITH EARTH: SLABS | 3/4 | ½ |
| BEAM PRIMARY REINFORCING | 1½ | ¾ |
| BEAM STIRRUPS | 1 | ¾ |
26. TENDON PLACEMENT TOLERANCES:
- | LOCATION | VERTICAL (in) | TOLERANCES (in) | MIN. RADIUS (FT) |
|----------|---------------|---------------------------------------|------------------|
| SLABS | ±½ | 12 AT PLUMBING OR OTHER OBSTRUCTIONS. | 21 |
| BEAMS | ±½ | ±½ | 21 |
27. FIELD FOREMAN: THE FIELD FOREMAN RESPONSIBLE FOR THE PLACEMENT OF ALL POST-TENSIONING SHALL HAVE A MINIMUM OF (3) YEARS EXPERIENCE IN THIS CAPACITY FOR THIS TYPE OF CONSTRUCTION.

ABBREVIATIONS

A.B.	ANCHOR BOLT	MATL	MATERIAL
B/	BOTTOM	MAX	MAXIMUM
B.N.	BOUNDARY NAIL	M.B.	MAXIMUM BOLT
BD	BOARD	MECH	MECHANICAL
BLDG	BUILDING	MEMB	MEMBRANE
BLK	BLOCK	MIN	MINIMUM
BLKG	BLOCKING	MTL	METAL
BM	BEAM	(N)	NEW
B.O.C.	BOTTOM OF CONCRETE	N.A.	NOT APPLICABLE
B.O.S.	BOTTOM OF STEEL	N.I.C.	NOT IN CONTRACT
B.O.W.	BOTTOM OF WALL	NLG	NAILING
B.S.	BOTH SIDES	N.O.	NUMBER
BRG	BEARING	N.S.	NEAR SIDE
BTM	BOTTOM	N.T.S.	NOT TO SCALE
BTW	BETWEEN	O.C.	ON CENTER
CANT	CANTILEVER	O.F.S.	OUTSIDE FACE OF STUD
C.J.	CONTROL JOINT	O.H.	OVERHANG
CLG	CEILING	OPP	OPPOSITE
CLR	CLEAR	OPNG	OPENING
COL	COLUMN	P.D.F.	POWER DRIVEN FASTENER
CONC	CONCRETE	PL	PLATE
COND	CONDITION	P.L.	PLYWOOD
CONN	CONNECTION	PLWD	PLYWOOD
CONSTR	CONSTRUCTION	PR	PAIR
CONT	CONTINUOUS	PSF	POUNDS PER SQUARE FEET
CONTR.	CONTRACTOR	P.S.W.	PERFORATED SHEAR WALL
CR. S.	CRIPPLE STUD	PT	POINT
CTR	COUNTERSINK	P.T.	PRESSURE TREATED
CTRD	CENTER	R.	RADIUS
DBL	DOUBLE	REF	REFERENCE
DF	DOUGLAS FIR	REINF	REINFORCEMENT
DF/L	DOUGLAS FIR-LARCH	REQD	REQUIRED
DIA	DIAMETER	RETG	RETAINING
DIAG	DIAGONAL	R.J.	ROOF JOIST
DTL	DETAIL	RM	ROOM
DWG	DRAWING	R.O.	ROUGH OPENING
EA	EACH	R.R.	ROOF RAFTER
ELEV	ELEVATION	RWD	REDWOOD
E.N.	EAGE NAIL	S.A.D.	SEE ARCHITECTURAL DRAWINGS
E.S.	EACH SIDE	S.B.	SOLID BLOCKING
E.W.	EACH WAY	SCHED	SCHEDULE
(E)	EXISTING	SHT	SHEET
EXP	EXPOSED	SHTG	SHEATHING
EXPAN	EXPANSION	SM	SIMILAR
EXT	EXTERIOR	SPEC	SPECIFICATIONS
FDN	FOUNDATION	SQ	SQUARE
F.F.	FINISH-FLOOR	S.S.	SELECT STRUCTURAL
FIN	FLOOR FINISH	STG	STAGGERED
F.J.	FLOOR JOIST	STD	STANDARD
FLR	FLOOR	STIFF	STIFFENER
F.N.	FIELD NAILING	STL	STEEL
F.O.S.	FACE OF STUDS	STRUCT	STRUCTURAL
FRMG	FRAMING	SW	SHEAR WALL
F.S.	FACE OF STUDS	T & B	TOP AND BOTTOM
FT	FEET	T & C	TONGUE AND GROOVE
FTG	FOOTING	TB	TIE BEAM
G & N	GLUE & NAIL	TD	TEDOWN
GA	GAGE	T.N.	TOE NAIL
GALV	GALVANIZED	T.O.C.	TOP OF CONCRETE
GB	GRADE BEAM		TOP OF CURB
GEN	GENERAL	T.O.F.	TOP OF FOOTING
GL	GLUE-LAM	T.O.P.	TOP OF PAVEMENT
GR	GRADE	T.O.S.	TOP OF STEEL
GYP	GYPSPUM	T.O.W.	TOP OF WALL
HD	HOLDOWN	T/	TOP OF
HDR	HEADER	TYT	TYPICAL
HGR	HANGER	U.N.O.	UNLESS NOTED OTHERWISE
HORIZ	HORIZONTAL		
H.P.	HIGH POINT	VERT	VERTICAL
HT	HEIGHT	WD	WOOD
INFO	INFORMATION	W.P.	WORKING POINT
INSUL	INSULATION		WEIGHT
INT	INTERIOR		
I.N.	INTERMEDIATE SUPPORT NAIL		
J	JOINT		
JST	JOIST		
K.S.	KING STUD		
LG	LONG		
L.P.	LOW POINT		
LT	LIGHT		

CONCRETE ACCESSORIES

1. BEARING STRIPS, NEOPRENE BEARING PADS BY KOROLATH OF NEW ENGLAND, INC. TELEPHONE 800-225-9340

THEOPHANOUS

STRUCTURAL ENGINEERS

ANALYSIS ■ DESIGN ■ PLAN CHECKING

BUILDINGS, BRIDGES, AND RELATED STRUCTURES

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REGISTERED PROFESSIONAL ENGINEER

No. 500607

Exp. 09-30-09

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CLIENT:

PROJECT TITLE:

REVISIONS

JOB NUMBER

DRAWN BY: TO

CHECKED BY: NCT

SCALE (1/8"=1')

AS SHOWN

DATE

2/29/08

SHEET NUMBER

S0.1

1 OF 1 SHEETS

FRUITVALE COMMONS

1242 35th Ave Oakland, CA 94601

STRUCTURAL NOTES