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**SAN MATEO COUNTY  
 COMMUNITY COLLEGE  
 DISTRICT  
 ATHLETIC FIELDS  
 PHASE 2**

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**SPECIFICATIONS**

ISSUE:	DATE:	DESCRIPTION:
	4/20/07	ISSUED FOR CONSTRUCTION

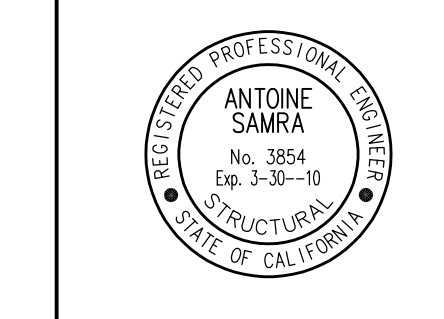
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DES PROJECT NO.: 9126.12

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SHEET NO.

- S1

**I. CONCRETE REINFORCEMENT:**

- A. FOR ALL STRUCTURAL CLASSES OF CONCRETE WITH SPECIFIED STRENGTH OF 2500 PSI OR MORE, INSPECT REINFORCEMENT SIZE, PLACEMENT, CLEARANCES, ETC., ALL INSPECTIONS TO BE DONE 48 HOURS PRIOR TO PLACEMENT OF CONCRETE. REPORT ANY DISCREPANCIES TO ENGINEER.
- B. REINFORCING STEEL: THE REINFORCING BARS SHALL CONFORM TO ASTM 615 GRADE 60 FOR ALL LARGER THAN 1/2" BARS AND 1/4" BARS AND SMALLER SHALL BE GRADE 40.

**II. CAST-IN-PLACE CONCRETE**

**1. QUALITY ASSURANCE:**

**A. REFERENCE STANDARDS:**

1. UNIFORM BUILDING CODE (UBC) 1997, LATEST ADOPTED EDITION, CHAPTER 19 - CONCRETE AND UBC STANDARDS.
2. ACI 304 - RECOMMENDED PRACTICE FOR MEASURING, MIXING AND PLACING CONCRETE.
3. ACI 305 - RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING.
4. ACI 306 - RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING.

**B. CONCRETE MIX DESIGNS:**

1. THE MIX DESIGN(S) OF CONCRETE IS TO BE PREPARED BY A RECOGNIZED TESTING LABORATORY WITH A LICENSED CIVIL ENGINEER BEING THE PREPARER, OR BY A QUALIFIED LICENSED CIVIL ENGINEER.

2. CONCRETE CYLINDER TESTS: TAKE A SET OF FOUR SPECIMENS AT THE JOB OF EACH CLASS OF CONCRETE FOR EACH 100 YARDS OR FRACTION THEREOF PLACED EACH DAY FOR STANDARD 8" X 16" CYLINDER TESTS IN ACCORDANCE WITH ASTM C-31. A RECORD OF THE LOCATION IN THE BUILDING OF EACH CONCRETE BATCH WILL BE KEPT AND NOTED ON THE SPECIMEN. STANDARD COMPRESSION TEST OF CYLINDERS WILL BE MADE, ONE AT 1 DAY AND TWO AT 28 DAYS IN ACCORDANCE WITH ASTM C-39. THE FOURTH CYLINDER TO BE HELD UNTIL THE SPECIFIED CONCRETE STRENGTHS HAVE BEEN ATTAINED.

3. SLUMP TEST AND AIR TESTS WILL BE MADE AT THE TIME OF TAKING TEST CYLINDERS, AND/OR AT ONE-HOUR INTERVALS DURING PLACING CONCRETE IN ACCORDANCE WITH ASTM D-143.

4. MEASURE AND RECORD CONCRETE TEMPERATURE UPON ARRIVAL OF TRANSIT MIXERS AND WHEN TAKING SPECIMENS NOTE WEATHER CONDITIONS AND TEMPERATURE.

**2. MATERIALS:**

- A. PORTLAND CEMENT: ASTM C-150, TYPE I, LOW ALKALI.
1. FLY ASH (POZZOLAN) IS NOT PORTLAND CEMENT AND MAY NOT BE SUBSTITUTED FOR PORTLAND CEMENT.
- B. CONCRETE AGGREGATES: ASTM C-33-T1A, STONE AGGREGATE AND SAND.
- C. WATER: POTABLE, CLEAN, FROM DOMESTIC SOURCE.
- D. ADMIXTURES: ALL ADMIXTURES SHALL BE USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ADMIXTURES CONTAINING CALCIUM CHLORIDES OR OTHER ACCELERATORS SHALL NOT BE USED.
- E. GROUT FOR BASE PLATES: NON-SHRINK, HIGH STRENGTH GROUT SHALL BE USED FOR ALL GROUTING; CONFORMING TO CRD-C671. GROUT SHALL BE METALLIC TYPE FOR CONCRETE WORK AND NON-METALLIC TYPE FOR EXPOSED WORK. ACCEPTABLE MANUFACTURERS INCLUDE THE BURKE COMPANY, MASTER BUILDERS AND W.R. MEADOWS, INC.
- F. CURING COMPOUNDS: ASTM C-309, TYPE I, CLASS B, WATER BASE ACRYLIC CURE/SEALER WHICH WILL NOT DISCOLOR CONCRETE OR AFFECT BONDING OF OTHER FINISHES. PRODUCTS MAY BE "WOCOMP-20" BY W.R. MEADOWS, INC. OR APPROVED EQUIVALENT.
- G. EVAPORATION RETARDANT: "CON-FILM", BY MASTER BUILDERS.

**3. CONCRETE MIXES:**

1. THE PROPORTIONS OF THE CONCRETE MIXES SHALL BE SUCH AS TO PRODUCE CONCRETE OF REQUIRED AVERAGE STRENGTH AS DEFINED BY UNIFORM BUILDING CODE SECTION 1909; SLUMPS, AGGREGATE SIZES AND OF A CONSISTENCY THAT WILL ALLOW THOROUGH COMPACTION WITHOUT EXCESSIVE FIDDLING, SPADING, OR VIBRATION, AND WITHOUT PERMITTING THE MATERIALS TO SEGREGATE, OR FREE WATER TO COLLECT ON THE SURFACE. THE SIZE OF AGGREGATES SHALL BE SUCH THAT IT WILL PRODUCE DENSE AND UNIFORM CONCRETE FREE FROM ROCK POCKETS, HONEYCOMBS AND OTHER IRREGULARITIES. ALL CONCRETE MIXES SHALL HAVE ENTRAINED AIR FOR WORKABILITY (4% MAXIMUM). MIX DESIGNS SHALL INCLUDE ADEQUATE WATER REDUCING AND RETARDING ADMIXTURES TO MEET OR EXCEED MINIMUM SET TIMES AND TO MINIMIZE WATER CEMENT RATIOS. MINIMUM AND MAXIMUM CRITERIA PRESENTED HEREIN IS A GUIDELINE AND DOES NOT REPRESENT A SPECIFIC MIX DESIGN. MINIMUM CEMENT CONTENT INDICATES MINIMUM BAGS OF CEMENT; NOT CEMENTIOUS MATERIAL.

CLASS	COURSE AGGREGATE SIZE (INCHES) AND FINE AGGREGATE	MAXIMUM NOMINAL SLUMP TOLERANCE (INCHES)	MINIMUM 28-DAY DESIGN STRENGTH	MINIMUM CEMENT BAGS PER C.Y.
FOUNDATION WALLS	1" x 4"	3 1/2" ± 1/4"	2500	50

**4. CURING:**

**A. GENERAL:**

1. ALL CONCRETE SHALL BE KEPT AT OR ABOVE 50 DEGREES F. DURING AND FOR THE FIRST SEVEN (7) DAYS AFTER PLACEMENT.

**B. CURING:** CURING SHALL IMMEDIATELY FOLLOW FINISHING.

1. WATER CURING: FLATWORK MAY BE CONTINUOUSLY WATER CURED WITH A FOG SPRAY OR FLOODED WHEN CURE/SEALERS CANNOT BE UTILIZED. FOR A PERIOD OF SEVEN (7) DAYS MINIMUM (INCLUDING HOLIDAYS AND WEEKENDS), ALTERNATIVELY COVER WITH NON STAINING WATER RETAINING MATERIALS AND KEEP SATURATED FOR SAME PERIOD.

2. FOUNDATIONS:

1. WET TRENCHES PRIOR TO PLACING CONCRETE AND KEEP EXPOSED SURFACES DAMP FOR 1 DAYS MINIMUM.

3. ANCHOR BOLTS: FOR GRADE SEE DETAILS.

**GLUE-LAMINATED CONSTRUCTION**

MATERIALS MANUFACTURED AND QUALITY CONTROL SHALL BE IN CONFORMANCE WITH COMMERCIAL STANDARD, CS 253, "STRUCTURAL GLUED TIMBER", UNIFORM BUILDING CODE, LATEST ADOPTED EDITION, AITC 17.

EACH GLUE-LAMINATED MEMBER SHALL BEAR THE QUALITY MARK OF AN INDEPENDENT AUDITING AGENCY. IN ADDITION, A CERTIFICATE OF CONFORMANCE SHALL BE ISSUED TO INDICATE CONFORMANCE WITH THE STANDARDS NOTED ABOVE AND THE PRODUCTS SPECIFIED HEREIN. ACCEPTABLE AGENCIES INCLUDE AITC AND TIMBER PRODUCT INSPECTION INC.

**A. LUMBER:**  
EACH PIECE SHALL HAVE A MAXIMUM MOISTURE CONTENT LESS THAN 16% AT TIME OF MANUFACTURE.

**B. ADHESIVE:**  
SHALL BE EXTERIOR FOR WET SURFACE CONDITION (ABOVE 16%) AND SHALL MEET REQUIREMENTS OF ASTM D2599-10.

**C. GLUE-LAMINATED MEMBERS:**

1. MOISTURE CONTENT: AVERAGE MOISTURE CONTENT OF ANY SINGLE BEAM AFTER MANUFACTURE NOT TO EXCEED 12%.
2. INTERIOR USE GLUE-LAMINATED BEAMS SHALL BE CONSTRUCTED OF DOUGLAS FIR.

- a. SIMPLE BEAMS SHALL BE STRESS GRADE 24F-V4.
- b. CONTINUOUS AND CANTILEVER BEAMS SHALL BE STRESS GRADE 24F-V8.

**ROUGH CARPENTRY**

**1. QUALITY ASSURANCE:**

**A. ALL LUMBER:** UNIFORM BUILDING STANDARD NO. 23-1, "CLASSIFICATION, DEFINITION AND METHODS OF GRADING FOR ALL SPECIES OF LUMBER".

**B. PLYWOOD:** UNIFORM BUILDING CODE STANDARD NO. 23-2, "PRODUCT STANDARD PS 1/35".

**C. "TIMBER CONSTRUCTION STANDARDS" (AITC), LATEST EDITION.**

**D. UNIFORM BUILDING CODE, CHAPTER 23, LATEST LOCALLY ADOPTED EDITION.**

**E. "WCLIB" WESTCOAST LUMBER INSPECTION BUREAU.**

**2. MATERIALS:**

**A. PROVIDE WASHERS, PRE-DRILLING, ETC. REQUIRED FOR PROPER INSTALLATION.**

**B. FOR EXTERIOR WORK, FASTENERS SHALL BE HOT-DIP GALVANIZED, NON-FERROUS, OR MADE RUST-RESISTANT BY APPROVED METHODS.**

**C. BOLTS IN WOOD:**

1. ASTM A-307 STANDARD SEMI-FINISHED MACHINE BOLTS AS SHOWN OR REQUIRED, MALLEABLE IRON WASHERS OR STEEL PLATE WASHERS UNLESS OTHERWISE SHOWN SHALL BE PROVIDED UNDER ALL BOLT HEADS AND NUTS. BOLTS AND WASHERS SUBJECTED TO WEATHER OR MOISTURE TO BE GALVANIZED OR STAINLESS STEEL. BOLTS SUBJECTED TO MOIST CORROSIVE ATMOSPHERE SHALL BE STAINLESS STEEL.

2. WEDGE OR EXPANSION ANCHORS SET AFTER CASTING SHALL BE UEL-JT, ITU R4MBET/REDHEAD TRIBOLT, ITU DYNABOLT, OR HILTI KWIK BOLT II.

3. ANCHOR BOLTS ARE FROM ASTM A36 STEEL, OR TO BE ASTM A307 MACHINE BOLTS. NO UPSET THREADS ALLOWED.

**D. POWDER-ACUATED FASTENINGS: HILTI NK.**

**E. FRAMING HARDWARE:** PROVIDE FRAMING HARDWARE AS CALLED FOR ON THE DRAWINGS OR ACCEPTABLE EQUIVALENT. HARDWARE CALLED FOR ON THE DRAWINGS IS MANUFACTURED BY SIMPSON CO, SAN LEANDRO, CATALOG C-2000. THE USE OF ALL OTHER CONNECTORS IS A SUBSTITUTION AND REQUIRES SUBMITTAL OF COMPLETE EQUIVALENCE DATA, WHERE SUBJECTED TO A MOIST AND CORROSIVE ATMOSPHERE, FABRICATE FROM STAINLESS STEEL.

**3. STRUCTURAL LUMBER AND STRUCTURAL SHEATHING:**

**A. LUMBER:**

1. SIZE PER INDUSTRY STANDARDS FOR NOMINAL SIZES SHOWN, S4S.
2. SILLB ON CONCRETE OR MASONRY: NO. 2 PRESURE TREATED DOUGLAS FIR.

3. INTERIOR STRUCTURAL FRAMING SHALL BE DOUGLAS FIR WITH GRADES AS NOTED BELOW. ALL GRADES ARE PER WCLIB STANDARD GRADING RULES 11.

- a. ALL PERMANENTLY EXPOSED (INTERIOR OR PROTECTED FROM WEATHER) FRAMING SHALL BE SELECT STRUCTURAL GRADE WITH NO BOX HEART.
4. EXCEPT PER 1 ABOVE, UNO, MINIMUM GRADES ARE:
- a. FLOOR AND ROOF JOISTS AND RAFTERS (2x) AND 2x8 STUDS, DFM.
- b. 2x4 AND 2x6 STUDS AND PLATES, DPF.
- c. 4x AND LARGER DFM, BLOCKING, DPF.
- d. 6x8 AND LARGER POSTS AND BEAMS SHALL BE PER 4c WHEN SO NOTED ON THE DRAWINGS.

**B. STRUCTURAL WOOD SHEATHING:**

1. PLYWOOD: ALL STRUCTURAL PLYWOOD SHALL BE GRADE MARKED FOR CONFORMANCE WITH UNIFORM BUILDING CODE STANDARD 23-2, "PRODUCT STANDARD PS 1/35" AND SHALL BE FABRICATED WITH EXTERIOR GLUE. GRADES SHALL BE AS REQUIRED ON THE DRAWINGS.

2. ORIENTED STRAND BOARD (OSB): APA GRADE STAMPED AND MANUFACTURED WITH EXTERIOR GLUE MAY BE SUBSTITUTED FOR PLYWOOD WHEN GRADE STAMPS AND THICKNESSES ARE EQUIVALENT IN STRENGTH, STIFFNESS AND QUALITY TO THE PLYWOOD SPECIFIED.

3. PLYWOOD NAILING SHALL BE AS REQUIRED ON THE DRAWINGS. DO NOT OVERDRIVE (DO NOT BREAK SKIN OF PLYWOOD FACE SHEET) OVER DRIVING WILL BE CAUSE FOR REJECTION.

4. PNEUMATIC NAILING DEVICES SHALL BE ADJUSTABLE SO THAT NAIL HEADS DO NOT PENETRATE SKIN OF PLYWOOD. CONTRACTOR SHALL SUBMIT EQUIPMENT AND NAILS FOR REVIEW PRIOR TO USE.

5. ROOF AND FLOOR SHEATHING: EXCEPTING "PANELIZED ROOFS", LAY WITH FACE GRAIN PERPENDICULAR TO ROOF RAFTERS, ROOF TRUSSES OR FLOOR JOISTS; STAGGER PLYWOOD SHEETS. BLOCK ALL UNSUPPORTED SHEET EDGES WITH 2x MATERIAL UNLESS NOTED OTHERWISE.

6. WALL SHEATHING: LAY WITH FACE GRAIN EITHER PARALLEL OR PERPENDICULAR TO STUDS. EXPOSED BOTTOM EDGES SHALL BE SEALED AS RECOMMENDED BY MANUFACTURER. BLOCK ALL UNSUPPORTED SHEET EDGES WITH 2x MATERIALS UNLESS NOTED OTHERWISE.

**4. ROUGH HARDWARE:**

**A. BOLTS, LAG SCREWS AND WASHERS:**

1. BOLTS IN WOOD SHALL BE MACHINE BOLTS AND OF SUCH LENGTH THAT NOT MORE THAN 1/2" OF THREAD WILL BEAR AGAINST WOOD. BOLT HOLES IN WOOD SHALL BE 1/32" OVERSIZED. BOLT HOLES FOR SILL PLATES MAY BE 1/16" MAXIMUM OVERSIZED. HOLES IN STEEL SHALL BE 1/16" OVERSIZED.

2. PROVIDE SQUARE PLATE OR MALLEABLE IRON WASHER AND NUT AT HEAD WHERE BEARING IS AGAINST WOOD, CUT WASHER UNDER NUT WHERE IT IS AGAINST STEEL. WASHER WILL NOT BE REQUIRED UNDER HEAD OF CARRIAGE BOLTS. PROVIDE MALLEABLE IRON WASHERS WHERE EXPOSED.

3. ALL NUTS SHALL BE TIGHTENED WHEN PLACED AND RETIGHTENED AT COMPLETION OF THE JOB OR IMMEDIATELY BEFORE CLOSING WITH FINAL CONSTRUCTION.

4. LAG SCREWS SHALL BE SCREWED (NOT DRIVEN) INTO PLACE, DRILL HOLES SAME DIAMETER AND DEPTH AS SHANK, THEN DRILL PILOT HOLES SAME DIAMETER AS AT BASE OF THREAD FOR THE THREADED PORTION.

**STRUCTURAL STEEL**

**1. QUALITY ASSURANCE:**

**A. REFERENCE STANDARDS:**

1. UNIFORM BUILDING CODE, CHAPTER 22, LATEST LOCALLY ADOPTED EDITION, 1997
2. UNIFORM BUILDING CODE STANDARDS, LATEST LOCALLY ADOPTED EDITION, 1997

3. "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC).

4. "STANDARD CODE FOR WELDING IN BUILDING CONSTRUCTION", AMERICAN WELDING SOCIETY (AWS).

**B. STEEL MATERIALS, TESTING AND WELDING:**

1. THE CONTRACTOR SHALL PROVIDE ALL CERTIFICATION, VERIFICATIONS, AND OTHER TEST DATA THAT IS OR MAY BE REQUIRED TO SUBSTANTIATE SPECIFIED MATERIAL PROPERTIES AT NO ADDITIONAL COST TO THE OWNER.

**C. WELDING INSPECTION:**

1. ALL STRUCTURAL WELDS SHALL BE INSPECTED AND CERTIFIED BY THE OWNER'S TESTING LABORATORY UNLESS THE FABRICATING SHOP IS CERTIFIED ACCEPTABLE BY ICBO OR THE LOCAL BUILDING OFFICIAL.

2. QUALIFICATION OF WELDERS: THE WELDING INSPECTOR WILL VERIFY THAT ALL THE WELDERS ARE PROPERLY QUALIFIED PRIOR TO STEEL FABRICATION.

3. WELD INSPECTION: WELDING INSPECTION SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED BELOW. THE WELDING INSPECTOR WILL CHECK THE MATERIALS, EQUIPMENT AND PROCEDURE AS WELL AS THE WELDS. THE INSPECTOR WILL FURNISH REPORTS THAT THE WELDING IS PROPER AND HAS BEEN DONE IN CONFORMITY WITH THE PLANS, SPECIFICATIONS AND CODES. THE INSPECTOR WILL USE ULTRA-SONIC OR ANY OTHER AID TO VISUAL INSPECTION WHICH MAY BE NECESSARY TO ASSURE ADEQUACY OF WELDS. UP TO 1/4 INCH SINGLE PASS FILLET WELDS AND WELDING OR STUDS TO BEAMS MAY HAVE PERIODIC INSPECTION. ULTRASONIC INSPECTION FOR DISCONTINUITIES OF PLATES THICKER THAN 1" IS REQUIRED WHEN SUBJECTED TO THROUGH THICKNESS WELD SHRINKAGE STRAINS.

**2. SUBMITTALS:**

- A. SHOP DRAWINGS: PREPARE COMPLETE SHOP DRAWINGS SHOWING BOLT AND ANCHOR SETTING PLANS, AND ALL DETAILS OF LAYOUT FABRICATION AND ERECTION.

**3. MATERIALS:**

- A. STRUCTURAL STEEL, SHAPES AND PLATES: CONFORM TO ASTM A36. DUAL GRADE STRUCTURAL STEEL IS NOT ACCEPTABLE WITHOUT PRIOR APPROVAL OF USE. ASTM A572 GRADE 50 WHEN SO NOTED ON THE DRAWINGS. ( # MOMENT FRAME) ASTM A572 DUAL GRADE ACCEPTABLE UNLESS NOTED OTHERWISE

- B. STEEL PIPE: CONFORM TO ASTM A-53, GRADE B, COLD-FORMED STEEL TUBES, A-500, GRADE B.

**C. BOLTS:**

1. MACHINE BOLTS: BEARING AND SHEAR CONNECTIONS CONFORM TO ASTM A-307, A325SC # MOMENT FRAMES.

2. HIGH STRENGTH BOLTS, NUTS AND HARDENED WASHERS: BEARING AND SHEAR CONNECTIONS, ASTM A-325, ASTM A-563 AND ASTM F-436.

- D. ARC-WELDING ELECTRODES CONFORM TO AWS STANDARDS E70 OR EQUIVALENT.

- E. PRIMERS: BUILDING STRUCTURAL STEEL: INTERIOR EXPOSED: TNEIEC FD-88 (3.0 DRY MILS MIN) EXTERIOR EXPOSED/INTERIOR WITH CORROSIVE ENVIRONMENT: TNEIEC 68-102 (4.0 MILS DRY MIN).

- F. GALVANIZING: CONFORM TO ASTM A153, AND A153.

- G. GALVANIZE REPAIR: GAL-VIZ BY HARRIS WELCO.