STRUCTURAL STEEL WELDING (CONT)

14 A WRITTEN "WELDING PROCEDURE SPECIFICATION" (WPS), PER AWS D1.1, SHALL BE DEVELOPED BY THE FABRICATOR/ERECTOR, AND REVIEWED BY THE OWNER'S REPRESENTATIVE AND BUILDING DEPARTMENT. THE WPS SHALL CONTAIN ALL THE NECESSARY INFORMATION REQUIRED BY THE CODE, THE SPECIFICATIONS, AND ANY OTHER INFORMATION NECESSARY TO PRODUCE WELDS THAT ARE IN COMPLIANCE WITH THESE REQUIREMENTS. THE WPS SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER. ALL WELDERS AND INSPECTORS SHALL ADHERE TO THE WPS AND SHALL RETAIN A COPY.

15. PROVISION FOR WELDING HEAT EFFECTS: A SEQUENCE OF FIELD WELDING SHALL BE PLANNED TO MINIMIZE LOCKED IN STRESSES AND DISTORTION AND SHALL BE SUBMITTED TO THE ENGINEER AT TIME OF SHOP DRAWING SUBMITTAL. THE OWNER'S REPRESENTATIVE SHALL APPROVE ANY PROPOSED DEVIATIONS FROM THE DETAILS SHOWN ON THE DRAWINGS. THE PROCEDURES AND THE DETAILS USED SHALL RESULT IN COMPLETED CONNECTIONS, WHICH ARE IN FULL COMPLIANCE WITH THE INTENT OF THE DETAILS SHOWN ON THE DRAWINGS AND SPECIFICATIONS. THE SEQUENCE OF FIELD WELDING, BOTH IN THE JOINTS AND FRAMES AS A WHOLE, SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT FOR APPROVAL. NO FIELD WELDING SHALL BE PERFORMED PRIOR TO BUILDING DEPARTMENT APPROVAL.

STRUCTURAL ABBREVIATIONS

&	AND	ID	INSIDE DIAMETER
@	AT	IE	INVERT ELEVATION
AB	ANCHOR BOLT	IF	INSIDE FACE
ABV	ABOVE	IN	INCH
ADDL	ADDITIONAL	INFO	INFORMATION
ALT	ALTERNATE	INT	INTERIOR
ANCH	ANCHOR	INTER	INTERMEDIATE
ARCH	ARCHITECT(URAL)		
		JT	JOINT
BC	BOTTOM CHORD		
BEL	BELOW	K	KIP
EBF	ELEVATION BRACED FRAME	KSI	KIP PER SQUARE INCH
BLDG	BUILDING	LLV	LONG LEG VERTICAL
BM	BEAM	LBS	POUNDS
BN	BOUNDARY NAILING	LONG	LONGITUDINAL
BO	BOTTOM OF	LP	LOW POINT
BOC	BOTTOM OF CONCRETE	LT	LIGHT
BOS	BOTTOM OF STEEL	LTWT	LIGHT WEIGHT
BOTT	BOTTOM	LVL	LEVEL (FLOOR)
BRCG	BRACING		
BRG	BEARING	MAX	MAXIMUM
BS	BOTH SIDES	MB	MACHINED BOLT
BSMT	BASEMENT	MECH	MECHANICAL
BTWN	BETWEEN	MF	MOMENT FRAME
		MFR	MANUFACTURER
C	CAMBER(ED)	MIN	MINIMUM
CC	CENTER TO CENTER	MISC	MISCELLANEOUS
CIP	CAST-IN-PLACE	MTL	METAL
CJ	CONSTRUCTION JOINT		
CJP	COMPLETE JOINT PENETRATION	NF	NEAR FACE
CL(℄)	CENTERLINE	NO (#)	NUMBER
CLR	CLEAR	NS	NEAR SIDE
CMU	CONCRETE MASONRY UNIT		
COL	COLUMN	OC	ON CENTER
CONC	CONCRETE	OD	OUTSIDE DIAMETER
CONN	CONNECTION	OF	OUTSIDE FACE
CONST	CONSTRUCTION	OH	OPPOSITE HAND
CONT	CONTINUOUS	OO	OUT TO OUT
COORD	COORDINATE	OPNG	OPENING
CTR	CENTER(ED)	OWG	OPEN WEB GIRDER
		OWJ	OPEN WEB JOIST
DET	DETAIL		
DIA(Ø)	DIAMETER	PARA	PARALLEL
DIM	DIMENSION	PEN	PENETRATION
DN	DOWN	PERP	PERPENDICULAR
DO	DITTO	PJP	PARTIAL JOINT PENETRATION
DP	DEEP	PL (PL)	PLATE
DS	DRAG-STRUT	PLCS	PLACES
DWG	DRAWING	PROJ	PROJECTION
DWL	DOWEL(S)	PSF	POUNDS PER SQUARE FOOT
		PSI	POUNDS PER SQUARE INCH
EA	EACH	PT	POST-TENSIONED (PRE-STRESSED)
EB	EXPANSION BOLT		
EF	EACH FACE	REF	REFERENCE
EJ	EXPANSION JOINT	REQD	REQUIRED
EL	ELEVATION	REINF	REINFORCEMENT(ING)
ELEV	ELEVATION OR ELEVATOR		
EMBED	EMBEDMENT	SCHED	SCHEDULE
EN	EDGE NAILING	SECT	SECTION
EPL	EMBEDDED PLATE	SEP	SEPARATION
EQ	EQUAL	SIM	SIMILAR
EQUIP	EQUIPMENT	SHT	SHEET
ES	EACH SIDE	SLV	SHORT LEG VERTICAL
EW	EACH WAY	SOG	SLAB ON GRADE
EXIST(E)	EXISTING	SP	SPACE (S)
EXP	EXPANSION	SPECS	SPECIFICATIONS
EXT	EXTERIOR	SQ	SQUARE
		STD	STANDARD
FDN	FOUNDATION	STIFF	STIFFENER
FF	FAR FACE	STL	STEEL
FIN	FINISH(ED)	STRUCT	STRUCTURAL
FLR	FLOOR	SYMM	SYMMETRICAL
FOB	FACE OF BLOCK OR BRICK		
FOC	FACE OF CONCRETE	T & B	TOP AND BOTTOM
FOF	FACE OF --	TEMP	TEMPORARY, TEMPERATURE
FRMG	FRAMING	THD	THREAD
FS	FAR SIDE	THK	THICK(NESS)
FT	FOOT	THRU	THROUGH
FTG	FOOTING	TO	TOP OF
		TOC	TOP OF CONCRETE
GA	GAGE	TOF	TOP OF FOOTING
GALV	GALVANIZED	TOPL	TOP OF PLATE
GB	GRADE BEAM	TP	TOP OF PARAPET
GL	GRID LINE	TOS	TOP OF STEEL
GLB	GLUED-LAMINATED BEAM	TOW	TOP OF WALL
GO	GAGE OF	TRANS	TRANSVERSE
GOL	GAGE OF ANGLE	TYP	TYPICAL
GRTG	GRATING		
		UNO	UNLESS NOTED OTHERWISE
HNGR	HANGER		
HORIZ	HORIZONTAL	VERT	VERTICAL
HP	HIGH POINT	W/	WITH
HS	HIGH STRENGTH	WP	WORK POINT
HSB	HIGH STRENGTH BOLT	WT	WEIGHT
HSS	HOLLOW STEEL SECTION	WWF	WELDED WIRE FABRIC
HT	HEIGHT		

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND THE LATEST EDITION OF AISC SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS. WHERE THE STRUCTURAL STEEL IS EXPOSED AND INDICATED AS 'AESS' ON PLANS OR DETAILS, FABRICATION AND ERECTION SHALL ALSO BE IN ACCORDANCE WITH AISC CODE OF STANDARD PRACTICE FOR ARCHITECTURALLY EXPOSED STRUCTURAL STEEL.

2. STRUCTURAL STEEL SHALL CONFORM TO ASTM DESIGNATION AS INDICATED BELOW UNLESS NOTED OTHERWISE:

ALL WIDE FLANGE AND WT SHAPES	A992, GRADE 50
STEEL ANGLES AND CHANNELS	A36 UNO
ALL OTHER STRUCTURAL SECTIONS	A572, GRADE 50
DECK CLOSURE PLATES & SHIM MATERIALS	A36
BEAM SHEAR PLATES & STIFFENER PLATES, ALL OTHER PLATES	A572, GRADE 50 UNO
HSS (RECTANGULAR, SQUARE OR ROUND)	A500, GRADE B
STEEL PIPE (NOT LABELED AS HSS)	A53, GRADE B
STAINLESS STEEL SHAPES, PLATES AND BARS	A276
BOLTS	A325X
MACHINE BOLTS (USE ONLY WHERE INDICATED)	A307
ANCHOR BOLTS	F1554, GRADE 55 S1, HEADED
THREADED AND HANGER ROD	A572, GR50
NUTS FOR BOLTS AND MACHINE BOLTS	A563
HARDENED WASHERS	F436
UNHARDENED WASHERS	F844
PLAIN WASHERS	ANSI B18.22.1

3. HIGH STRENGTH BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF AISC SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325. HIGH STRENGTH BOLTS SHALL BE FRICTION TYPE WITH THREADS EXCLUDED FROM THE FROM THE SHEAR PLANES (I.E. A325-X, SLIP CRITICAL) UNLESS NOTED OTHERWISE.

4. HEADED ANCHOR STUDS AND THREADED STUDS SHALL BE NELSON (ER-2614) GRANULAR FLUX-FILLED, AND SHALL BE MADE FROM COLD FINISHED LOW CARBON STEEL, CONFORMING TO ASTM A-108, GRADES 1010 THROUGH 1020 WITH A MINIMUM TENSILE STRENGTH OF 60,000 PSI. STUD WELDING INSPECTION AND TESTING SHALL CONFORM TO AWS D1.1.

5. HOT DIP GALVANIZE IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STRUCTURAL STEEL, MISCELLANEOUS METAL AND FASTENERS THAT ARE EXPOSED TO THE WEATHER. REPAIR GALVANIZING AFTER WELDING IN ACCORDANCE WITH ASTM A780.

6. WHEN FABRICATING BEAMS, PLACE NATURAL CAMBER UP. PROVIDE UPWARD CAMBER TO ALL MEMBERS SHOWN TO HAVE CAMBER. AMOUNT MEASURED IN THE FIELD PRIOR TO ERECTION SHALL NOT DEVIATE BY MORE THAN ALLOWED BY THE AISC SPECIFICATIONS. DO NOT CAMBER MEMBERS OCCURRING BELOW ELEVATOR ENTRANCE DOORS.

7. SPLICE MEMBERS ONLY WHERE INDICATED.

8. ALL STIFFENER PLATES SHALL BE ORIENTED SO THAT ROLLING DIRECTION OF PLATE IS PARALLEL WITH DIRECTION OF PRINCIPAL STRESS.

9. THE STRUCTURAL STEEL FABRICATOR SHALL FURNISH SHOP DRAWINGS FOR OWNER'S REPRESENTATIVE REVIEW BEFORE FABRICATION.

10. AFTER FABRICATION, ALL STEEL SHALL BE CLEANED FREE OF RUST, LOOSE MILL SCALE AND OIL.

11. BOLT HOLES IN STEEL SHALL STANDARD HOLES, 1/16 INCH LARGER IN DIAMETER THAN NOMINAL SIZE OF BOLT USED, UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL WELDING

1. ALL WELDING SHALL BE IN STRICT CONFORMANCE WITH THE LATEST EDITION OF AWS D1.1 AND THE CALIFORNIA BUILDING CODE WITH ALL APPLICABLE AMENDMENTS. ALL WELDED JOINTS SHALL BE PRE-QUALIFIED PER THE LATEST EDITION OF AWS D1.1. NON PRE- QUALIFIED WELDED JOINTS SHALL BE QUALIFIED BY TEST & PROCEDURE QUALIFICATION TEST RECORD INCLUDED PER THE LATEST EDITION OF AWS D1.1.

2. WELDING OF SHEET METAL AND METAL STUDS SHALL BE IN ACCORDANCE WITH AND AWS D1.3.

3. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WELD SIZE SHALL BE AISC MINIMUM UNLESS A LARGER SIZE IS NOTED. WHERE LENGTH OF WELD IS NOT SHOWN IT SHALL BE FULL LENGTH OF JOINT. ALL BUTT AND GROOVE WELDS SHALL BE FULL PENETRATION, UNLESS NOTED OTHERWISE.

4. ALL WELDING ELECTRODES AND ELECTRODE FLUX COMBINATIONS (FILLER METAL) SHALL BE E7XTX, E7XTXX OR E70XXX (MINIMUM 70 KSI), UNLESS NOTED OTHERWISE, AND SHALL MEET THE REQUIREMENTS FOR H16 PER AISC SEISMIC PROVISIONS.

5. ALL WELDS SHALL HAVE A FILLER METAL WITH CHARPY V-NOTCH TOUGHNESS OF 20 FT-LBS AVERAGE AT MINUS TWENTY DEGREES FAHRENHEIT AND 40FT-LBS AT SEVENTY DEGREES FAHRENHEIT. CERTIFY CONFORMANCE TO CHARPY V-NOTCH TOUGHNESS REQUIREMENTS WITH TESTS BY AN INDEPENDENT TESTING LABORATORY.

6. GMAW AND FCAW-G WELDING PROCESSES SHALL NOT BE PERMITTED WHEN WINDS EXCEEDS 3 MPH.

7. WHERE FIELD WELDING IS NOTED, THE DESIGNATION IS GIVEN AS A SUGGESTED CONSTRUCTION PROCEDURE ONLY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR IDENTIFYING THE METHOD OF FABRICATION.

8. ALL SHOP WELDS SHALL BE PERFORMED BY A FABRICATOR LICENSED BY THE LOCAL JURISDICTION.

9. ALL WELDERS SHALL BE QUALIFIED FOR THE WORK THEY WILL BE PERFORMING AND SHALL HAVE CURRENT VALID CERTIFICATIONS ISSUED BY AWS AND THE GOVERNING JURISDICTION.

10. FACES OF FILLET WELDS EXPOSED TO VIEW SHALL HAVE AS-WELDED SURFACES THAT ARE REASONABLY SMOOTH AND UNIFORM. NO FINISHING OR GRINDING SHALL BE REQUIRED, EXCEPT WHERE CLEARANCES OR FIT OF OTHER ITEMS MAY SO NECESSITATE.

11. ALL PARTIAL AND FULL PENETRATION WELDS WHICH ARE EXPOSED TO VIEW SHALL BE GROUND SMOOTH AND FLUSH WITH FINISH SURFACE OF STEEL. HOLES SHALL BE FILLED WITH WELD METAL OR BODY SOLDER AND SMOOTHED BY GRINDING OR FILING.

12. CLEAN GROOVE PREPARATION THERMAL CUTS BY GRINDING.

13. WELDS SHALL BE TERMINATED AT THE END OF A JOINT IN A MANNER THAT WILL ENSURE SOUND WELDS. WHENEVER NECESSARY THIS SHALL BE DONE BY USE OF EXTENSION BARS AND RUN OFF TABS.

REINFORCING STEEL (CONT)

11. ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION IS MADE.

12. CONTRACTOR SHALL PROVIDE FOR AN ALLOWABLE OF 5 TONS OF REINFORCING TO BE FABRICATED AND PLACED DURING PROGRESS OF WORK AS MAY BE DIRECTED BY THE STRUCTURAL ENGINEER. THE UNUSED PORTION SHALL BE CREDITED TO THE OWNER AT THE COMPLETION OF THE CONCRETE/MASONRY WORK.

MASONRY (CONCRETE BLOCK)

1. MASONRY CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF ACI 530.

2. CONCRETE BLOCK SHALL BE HOLLOW LOAD-BEARING CONCRETE MASONRY UNITS CONFORMING TO C90 GRADE N, NORMAL WEIGHT. USE OPEN END UNITS AS REQUIRED, AND BOND BEAM UNITS AT HORIZONTAL REINFORCING. MINIMUM COMPRESSIVE STRENGTH OF BLOCKS AS REQUIRED TO MEET SPECIFIED COMPRESSIVE STRENGTH OF MASONRY (f'm) SPECIFIED ON THE CONSTRUCTION DOCUMENTS.

3. SPECIFIED COMPRESSIVE STRENGTH OF MASONRY, f'm SHALL BE AS FOLLOWS:
   f'm = 1500 PSI AT 28 DAYS, TYPICAL UNLESS NOTED OTHERWISE.

4. DEPUTY INSPECTOR SHALL VERIFY SPECIFIED COMPRESSIVE STRENGTH OF MASONRY IN ACCORDANCE WITH ONE OF THE FOLLOWING METHODS AS DEFINED IN SECTION 2105 OF THE CALIFORNIA BUILDING CODE:
   UNIT STRENGTH METHOD
   PRISM TEST METHOD

5. CEMENT SHALL BE AS SPECIFIED FOR CONCRETE.

6. MORTAR MIX SHALL CONFORM TO THE ASTM C270 REQUIREMENTS FOR TYPE S. MORTAR SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH AS REQUIRED TO MEET THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY (f'm). IN NO CASE SHALL THE COMPRESSIVE STRENGTH OF THE MORTAR BE LESS THAN OF 2000 PSI AT 28 DAYS.

7. PROVIDE GROUT COMPLYING WITH ASTM C476 ATTAINING A MINIMUM COMPRESSIVE STRENGTH AS REQUIRED TO MEET THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY (f'm). IN NO CASE, THE COMPRESSIVE STRENGTH OF THE GROUT SHALL BE LESS THAN 2000 PSI AT 28 DAYS.

8. ADMIXTURES SHALL BE ADDED TO MORTAR OR GROUT RESPECTIVELY PER MANUFACTURER'S RECOMMENDATIONS.

9. PROVIDE A MINIMUM OF ONE BAR DIAMETER (1/2 INCH MINIMUM) GROUT BETWEEN MAIN REINFORCING AND MASONRY UNITS.

10. PROVIDE A MINIMUM OF ONE BAR DIAMETER (1 INCH MINIMUM) GROUT BETWEEN PARALLEL BARS.

11. MAXIMUM GROUT POUR HEIGHT SHALL COMPLY WITH SECTION 1.16 AND TABLE 1.16.1 OF ACI 530.

12. ALL CELLS IN CONCRETE BLOCKS SHALL BE FILLED SOLID WITH GROUT, UNLESS NOTED OTHERWISE.

13. CELLS SHALL BE IN VERTICAL ALIGNMENT. DOWELS IN FOOTINGS AND FLOORS SHALL BE SET TO ALIGN WITH CORES CONTAINING REINFORCING STEEL AND SHALL MATCH THE SIZE OF THE WALL REINFORCING.

14. REFER TO ARCHITECTURAL DRAWINGS FOR SURFACE AND HEIGHT OF UNITS, LAYING PATTERN, AND JOINT TYPE.

15. IF WORK IS STOPPED FOR AN HOUR OR LONGER, PROVIDE HORIZONTAL CONSTRUCTION JOINT PER TYPICAL DETAILS AND BY STOPPING GROUT 1 1/2" BELOW TOP OF MASONRY UNIT.

METAL DECK

1. THE STEEL DECKING SHALL BE OF TYPE AND GAUGE AS CALLED FOR ON THE DRAWINGS MANUFACTURED BY EPIC METALS CORPORATION (ESR-2047) OR VERCO MANUFACTURING COMPANY, ICC #2078P. DECKING AND ALL ACCESSORIES SHALL BE FORMED FROM STEEL SHEETS HAVING A MINIMUM YIELD STRENGTH OF 33,000 PSI AND CONFORMING TO ASTM A-653. THE STEEL SHALL BE ZINC-COATED CONFORMING TO ASTM A525, CLASS G60. DECK UNITS SHALL BE CONTINUOUS OVER THREE OR MORE SPANS WHERE POSSIBLE.

2. MINIMUM BEARING OF DECKING ON SUPPORTS SHALL BE 2 INCHES. SHEETS SHALL BE ATTACHED TO ALL SUPPORTING STEEL MEMBERS BY WELDING AS INDICATED ON DRAWINGS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. UPON COMPLETION OF ERECTION, ALL WELDS IN EXPOSED DECK AREAS SHALL HAVE TOUCH-UP, DE-SLAG, CLEAN AND PRIME WITH A ZINC RICH PRIMER. DECK WELDING SHALL BE AS NOTED ON PLANS. WHERE NO WELDING IS NOTED, THE SIDE LAP OF EACH PANEL SHALL BE FASTENED BY 1 INCH LONG FILLET WELDS AT 3 FEET ON CENTER MAXIMUM, OR BUTTON PUNCHED AT 18 INCHES ON CENTER.

3. SEE DRAWINGS FOR DETAIL OF REINFORCING OF DECK OPENINGS. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL DRAWINGS, ETC., FOR SIZE AND LOCATION OF REQUIRED OPENINGS.

4. ALL WELDING OF STEEL DECK SHALL BE PERFORMED BY LIGHT GAUGE WELDERS CERTIFIED BY THE GOVERNING JURISDICTION.

5. HANGERS SUPPORTED BY METAL DECKING ONLY OR METAL DECKING WITH INSULATING FILL SHALL BE ATTACHED TO STEEL BARS, 3/8" ROUND X 12" OR 1/8" X 1 1/2" X 12" FLAT, PLACED PERPENDICULAR TO FLUTES. ONLY LIGHT DUCTWORK (12" X 16" MAX.), PIPING (1 1/2" ROUND PIPING MAX), OR CEILINGS MAY BE HUNG FROM SUCH INSTALLATIONS. HANGERS MUST BE TWO FLUTES APART WHERE THEY OCCUR ON THE SAME SPAN.

6. HANGERS SUPPORTED BY METAL DECK WITH STRUCTURAL CONCRETE FILL SHALL BE INSTALLED USING ICC APPROVED ANCHORAGE SYSTEMS. SUCH HANGERS SHALL BE USED TO SUPPORT DUCTWORK (54" X 16" MAX.), PIPING (4" ROUND MAX.), OR CEILINGS, HANGERS MUST BE AT LEAST TWO FLUTES APART ON SAME DECK SPAN. LARGER DUCTWORK AND PIPING SHALL BE SUPPORTED BY STRUCTURAL BEAMS OR COLUMNS.

7. METAL DECK AT ROOFS, EXTERIOR BALCONIES, CANOPIES OR EXPOSED TO WEATHER SHALL BE VENTED.

CONCRETE

1. ALL CONCRETE IS REINFORCED AND CAST_IN_PLACE UNLESS OTHERWISE NOTED.

2. ALL PHASES OF WORK PERTAINING TO THE CONCRETE CONSTRUCTION SHALL CONFORM TO THE 'BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI 318, WITH MODIFICATIONS AS NOTED IN THE CONTRACT DOCUMENTS.

3. CONCRETE MIXING OPERATION, ETC., SHALL CONFORM TO C-94.

4. PLACEMENT OF CONCRETE SHALL CONFORM TO ACI 304 AND CONTRACT DOCUMENTS.

5. ALL STRUCTURAL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS:

LOCATION	STRENGTH	TYPE OF CONCRETE
FILL ON METAL DECK	3000 PSI	LIGHT-WEIGHT
SLAB ON GRADE & FOUNDATION	3000 PSI	NORMAL WEIGHT

6. NO MORE THAN ONE GRADE OF CONCRETE SHALL BE ON THE JOB SITE AT ANY ONE TIME.

7. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE I OR TYPE II, LOW ALKALI.

8. CONCRETE MIXES SHALL BE DESIGNED BY AN APPROVED LABORATORY. THE DESIGN SHALL BE STAMPED BY A CIVIL OR STRUCTURAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA AND SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL. ADMIXTURES CONTAINING CALCIUM CHLORIDE ARE NOT ALLOWED.

9. NORMAL WEIGHT CONCRETE AGGREGATES SHALL CONFORM TO ASTM C-33. LIGHT WEIGHT CONCRETE AGGREGATES SHALL CONFORM TO ASTM C-330.

10. NON-SHRINK CEMENT GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 7000 PSI. USE SIKA GROUT 212" (LARR # 24764) OR "MASTERFLOW 928" (LARR # 23137).

11. THE CONTRACTOR SHALL MAINTAIN A LOG OF STRUCTURAL SLAB ELEVATIONS BASED ON THE ARCHITECTURAL DRAWINGS. THIS LOG SHALL INDICATE SCREED ELEVATIONS PRIOR TO THE CONCRETE POUR, AND TOP OF CONCRETE SLAB PRIOR TO REMOVAL OF FORMS.

12. THE CONCRETE SLAB THICKNESS SHALL BE UNIFORM UNLESS OTHERWISE SHOWN.

13. THOROUGHLY CLEAN AND ROUGHEN ALL EXISTING CONCRETE, CONCRETE PREVIOUSLY POURED AND HARDENED AND MASONRY SURFACES TO RECEIVE NEW CONCRETE. INTERFACE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" UNLESS NOTED OTHERWISE.

14. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT PLACED IN CAST-IN-PLACE CONCRETE:

    A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH — 3"

    B. FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
       #6 THROUGH # 18 BARS — 2"
       #5 BAR, W31 OR D31 WIRE, AND SMALLER — 1 1/2"

    C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
       SLABS, WALLS AND JOISTS:
       #14 AND #18 BARS — 1 1/2"
       #11 BAR AND SMALLER — 1"

18. ALL REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.

19. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. DO NOT CUT ANY REINFORCING WHICH MAY CONFLICT. CORING IN CONCRETE IS NOT PERMITTED EXCEPT AS SHOWN. NOTIFY THE STRUCTURAL ENGINEER IN ADVANCE OF CONDITIONS NOT SHOWN ON THE DRAWINGS.

20. CONDUIT OR PIPE SIZE (O.D.) SHALL NOT EXCEED ONE THIRD OF SLAB THICKNESS AND SHALL BE PLACED BETWEEN THE TOP AND BOTTOM REINFORCING, UNLESS SPECIFICALLY DETAILED OTHERWISE. CONCENTRATIONS OF CONDUITS OR PIPES SHALL BE AVOIDED EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED.

21. CURING COMPOUNDS USED ON CONCRETE TO RECEIVE A FINISH SHALL BE APPROVED BY THE FINISH APPLICATOR BEFORE USE.

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN CONFORMANCE WITH THE 'BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE' (ACI 318), AND THE 'MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION' BY THE C.R.S.I. AND THE W.C.R.S.I., OR AS MODIFIED BY THE CONSTRUCTION DOCUMENTS.

2. REINFORCING BARS SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE.

CLASSIFICATION	TYPE
REINFORCING STEEL #7 AND SMALLER:	ASTM A615, 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

3. WELDING OF REINFORCEMENT SHALL BE WITH LOW HYDROGEN E90XX ELECTRODES FOR WELDING ASTM A615 BARS AND E80XX ELECTRODES FOR WELDING ASTM A706 BARS. ALL WELDING SHALL BE IN CONFORMANCE WITH ' AMERICAN WELDING SOCIETY, AWS-D1.4. ONLY WELDERS SPECIFICALLY CERTIFIED FOR REINFORCING STEEL AND IN ACCORDANCE WITH AWS D1.4 SHALL PERFORM WELDING OF REINFORCING STEEL.

4. DRAWINGS SHOW TYPICAL REINFORCING CONDITIONS. CONTRACTOR SHALL PREPARE DETAILED PLACEMENT DRAWINGS OF ALL CONDITIONS SHOWING QUANTITY, SPACING, SIZE, CLEARANCES, LAPS, INTERSECTIONS AND COVERAGE REQUIRED BY STRUCTURAL DETAILS, APPLICABLE CODE AND TRADE STANDARDS. CONTRACTOR SHALL NOTIFY REINFORCING INSPECTOR OF ANY ADJUSTMENTS FROM TYPICAL CONDITIONS THAT ARE PROPOSED IN PLACEMENT DRAWINGS TO FACILITATE FIELD PLACEMENT OF REINFORCING STEEL AND CONCRETE.

5. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.

6. TERMINATE ALL REINFORCING STEEL IN 90° STANDARD HOOKS UNLESS NOTED OTHERWISE.

7. MINIMUM LAP OF WELDED WIRE FABRIC SHALL BE 12 INCHES, OR ONE FULL MESH PLUS TWO INCHES, WHICHEVER IS GREATER.

8. REINFORCING SPLICES SHALL ONLY BE MADE AS INDICATED ON THE DRAWINGS.

9. DOWELS BETWEEN FOOTINGS AND WALLS SHALL BE THE SAME GRADE, SIZE AND SPACING AS THE VERTICAL REINFORCING, UNLESS NOTED OTHERWISE.

10. DOWELS BETWEEN SLABS AND WALLS SHALL BE THE SAME GRADE, SIZE AND SPACING AS THE VERTICAL REINFORCING, UNLESS NOTED OTHERWISE.

County of Orange
OC PUBLIC WORKS
Architecture & Engineering

Revisions

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Sht Title GENERAL NOTES
Project COUNTY OF ORANGE HEALTH CARE AGENCY
401 SOUTH TUSTIN STREET
401 SOUTH TUSTIN STREET
ORANGE, CA 92866
PROJ. NO. 100-042-P210-4200

Plan No. 52333-03608

Sheet S-1.2