

STRUCTURAL NOTES

GENERAL

- ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND SHOP DRAWINGS AND THE PROJECT SPECIFICATIONS.
- CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE 1997 UNIFORM BUILDING CODE (UBC). THE UBC SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR THESE DOCUMENTS ARE MORE RESTRICTIVE.
- NOTHING SHOWN OR OMITTED FROM THESE DOCUMENTS SHALL RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH ALL APPLICABLE CODES AND ORDINANCES.
- THE CONTRACTOR ALONE IS RESPONSIBLE FOR JOB SITE SAFETY, SITE REVIEW OF THE CONSTRUCTION BY THE ENGINEER IS TO DETERMINE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. IT DOES NOT ENCOMPASS SAFETY PROCEDURES OR OPERATIONS.
- WITHOUT EXCLUSION OF ANY REFERENCE IN THE CONSTRUCTION DOCUMENTS TO ANY RULE OR REGULATION, THE ENGINEER IS NOT ASSUMING ANY PROVISIONS OF SUPERVISION OF CONSTRUCTION METHODS OR PROCESSES.
- STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, BRACING OR SHORING SHALL SUPPORT STRUCTURES WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. BRACING AND SHORING REQUIREMENTS SHALL BE ACCEPTABLE TO THE ENGINEER.
- SEE ALL OTHER PROJECT DOCUMENTS FOR REGlets, PIPE SLEEVES, CONDUITS OR OTHER ITEMS TO BE EMBEDDED OR PASSED THROUGH THE CONCRETE.
- PENETRATIONS THROUGH WALLS OR SLABS LESS THAN 12 INCHES IN DIAMETER MAY NOT BE SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ASSOCIATED DRAWINGS FOR LOCATIONS.
- THE MINIMUM CLEAR DISTANCE BETWEEN PIPE PENETRATIONS SHALL BE 3 TIMES THE DIAMETER OF THE PENETRATION OR 8 INCHES, WHICHEVER IS SMALLER.
- WRITTEN DIMENSIONS SHALL BE USED FOR CONSTRUCTION. DO NOT SCALE DRAWINGS.
- STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL AND/OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND EMBEDMENTS NOT SHOWN ON THE DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR PRIOR TO PLACING CONCRETE.
- CONDUITS OR PIPING SHALL NOT BE PLACED IN THE PLANE OF CONCRETE WALLS, SLABS OR ROOFS.
- ALL DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR. SHOULD CONFLICTS OR INTERFERENCE OCCUR, THEY SHALL BE RESOLVED WITH THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER. EXISTING FIELD CONDITIONS AT VARIANCE WITH THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ANY FURTHER WORK IS PERFORMED.
- USE PERTINENT STANDARD DETAILS SHOWN, EVEN THOUGH THEY MAY NOT BE CALLED OUT AT LOCATIONS WHERE THEY APPLY.
- CONDITIONS NOT SPECIFICALLY SHOWN OR INDICATED SHALL BE CONSTRUCTED SIMILAR TO DETAILS SHOWN FOR THE RESPECTIVE MATERIALS OR CONDITIONS.

SITE WORK

- ALL FOOTINGS SHALL BE FOUNDED A MINIMUM OF 24-INCHES BELOW THE LOWEST ADJACENT FINISH GRADE.
- EXCAVATION FOR FOUNDATIONS, TRENCHES, FOOTINGS, FLOOR SLABS, CONCRETE WALKS, CURBS AS SHOWN ON THE DRAWINGS. THE BOTTOMS OF ALL EXCAVATIONS SHALL BE LEVEL, TAMPED FIRM, CLEAN AND FREE FROM ALL DEBRIS OR FOREIGN MATTER.
- WHERE PRACTICABLE, SIDES OF FOOTINGS SHALL BE CUT NEAT AND CONCRETE POURED DIRECTLY AGAINST THE EXCAVATION. IF FORMING IS REQUIRED, THE TRENCHES SHALL BE EXCAVATED WIDE ENOUGH TO PERMIT THE ERECTION AND REMOVAL OF FORMS.
- THE BOTTOM OF ALL EXCAVATIONS SHALL BE SCARIFIED TO A DEPTH OF 8-INCHES, MOISTURE CONDITIONED TO NEAR OPTIMUM MOISTURE CONTENT, AND COMPACTED TO AT LEAST 90 PERCENT RELATIVE COMPACTION.
- PROVIDE ENGINEERING FILL BELOW FOOTING AND FLOOR SLAB. ENGINEERING FILL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT RELATIVE COMPACTION AS DETERMINED BY ASTM TEST METHOD D1507.

SPECIAL INSPECTION

- UNLESS MODIFIED BY THIS NOTE, SPECIAL INSPECTION SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN CHAPTER 17 OF THE UBC. THE FOLLOWING ITEMS, AS A MINIMUM, SHALL RECEIVE SPECIAL INSPECTION:
 - BOLTS INSTALLED IN CONCRETE SHALL BE INSPECTED PRIOR TO AND DURING CONCRETE PLACEMENT.
 - ADHESIVE ANCHOR SYSTEMS - THE INSPECTOR SHALL RECORD DRILL BIT COMPLIANCE WITH ANSI B94.2-1977, HOLE DEPTH AND CLEANLINESS, PRODUCT DATA AND VERIFICATION OF ANCHOR INSTALLATION WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS AND ICBO EVALUATIONS REPORT.
 - CONCRETE - THE INSPECTOR SHALL SUPERVISE THE PREPARATION OF COMPRESSION TEST SPECIMENS, SLUMP TEST, AND BE PRESENT DURING PLACEMENT OF REINFORCED CONCRETE.
 - REINFORCING STEEL - THE INSPECTOR SHALL INSPECT THE REINFORCING STEEL SIZES, LOCATION AND SPACING PRIOR TO CLOSING THE FORMS OR DELIVERY OF CONCRETE TO JOBSITE.
 - STRUCTURAL MASONRY - DURING PREPARATION AND TAKING TEST SPECIMENS, AT THE START OF LAYING UNITS, AFTER THE PLACEMENT OF REINFORCING STEEL, GROUT SPACE PRIOR TO EACH GROUTING OPERATION AND DURING ALL GROUTING OPERATIONS.
 - OUT OF PLANE ANCHORAGE SYSTEM SHALL BE INSPECTED PER 1707. THE INSPECTOR SHALL INSPECT ALL ITEMS OF OUT OF PLANE ANCHORAGE, SUCH AS, HOLD-DOWNS, DIAPHRAM NAILING, ANCHOR BOLTS, STEEL PLATES, ETC. TO COMPLY WITH DETAILS ON SHEET S-3.

CONCRETE

- REINFORCED CONCRETE SHALL CONFORM TO THE ACI SPECIFICATION 318-99.
- PORTLAND CEMENT SHALL CONFORM TO ASTM C-150 TYPE 1 OR 11, ONE BRAND OF CEMENT SHALL BE USED THROUGHOUT THE WORK.
- ALL AGGREGATES SHALL CONFORM TO ASTM C-33. THE MAXIMUM SIZE AGGREGATE SHALL BE 1 INCH.
- MIXING WATER SHALL BE POTABLE WATER FREE FROM INJURIOUS AMOUNT OF ACID, ALKALI, OR OTHER HARMFUL SUBSTANCES. WATER SHALL BE OBTAINED FROM LOCAL UTILITY COMPANY MAINS UNLESS THE ENGINEER APPROVES ANOTHER SOURCE.
- AIR ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C260.
- CURING COMPOUNDS SHALL CONFORM TO ASTM C309.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE MINIMUM REQUIREMENTS LISTED BELOW. CEMENT CONTENT SHALL BE INCREASED OVER THAT LISTED IF REQUIRED TO OBTAIN THE LISTED COMPRESSIVE STRENGTH.

LOCATION	MIN. 28 DAY STRENGTH (psi)	MIN. CEMENT CONTENT (psf)	MAX. SLUMP (Inch)
STRUCTURAL CONCRETE	3250	560	4

- ALL CONCRETE SHALL HAVE AIR ENTRAINMENT OF 40 +/- 10 PERCENT.
- ALL CONCRETE SHALL BE TRANSIT MIXED IN ACCORDANCE WITH ASTM C-194 EXCEPT THAT SMALL BATCHES OF 1/2 CUBIC YARD OR LESS MAY BE MIXED ON THE SITE.
- TRANSIT MIXED CONCRETE SHALL BE MIXED FOR NOT LESS THAN 10 MINUTES TOTAL OF WHICH NOT LESS THAN 3 MINUTES SHALL BE ON THE SITE JUST PRIOR TO PLACEMENT. MIXING SHALL BE CONTINUOUS WITH NO INTERRUPTIONS FROM THE TIME THE TRUCK IS FILLED UNTIL THE TIME IT IS EMPTIED. CONCRETE SHALL BE PLACED WITHIN ONE HOUR OF THE TIME WATER IS FIRST ADDED. TRANSIT MIX CONCRETE SHALL NOT EXCEED A TEMPERATURE OF 70 DEGREES WITHOUT APPROVAL OF THE ENGINEER.

- CONSTRUCTION JOINTS SHALL NOT BE PLACED AT LOCATIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

- ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE 3/4" MINIMUM CHAMFER, UNLESS NOTED OTHERWISE.

- ALL CONCRETE SHALL BE VIBRATED. VIBRATION SHALL CONTINUE UNTIL WATER SHOWS THE FIRST SIGNS OF RISING.

CONCRETE ANCHORS

- CAST-IN ANCHOR BOLTS SHALL CONFORM TO ASTM A307.
- ADHESIVE ANCHORS SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS AND THE APPROPRIATE ICBO REPORTS. ANCHORS WITHOUT APPROPRIATE ICBO REPORTS SHALL NOT BE USED.
- CONTRACTOR SHALL LOCATE EXISTING REBAR USING NON-DESTRUCTIVE METHODS PRIOR TO DRILLING HOLES FOR ADHESIVE ANCHORS. ADJUST SPACING OF ANCHORS TO MISS EXISTING REINFORCING. TOTAL NUMBER OF ANCHORS PROVIDED SHALL BE EQUAL TO WHAT IS SHOWN ON THE DRAWINGS.
- ADHESIVE ANCHORS SHALL CONSIST OF A TWO-COMPONENT RESIN ADHESIVE. THE PACKAGES CONTAINING EACH COMPONENT SHALL BE ATTACHED TO A DISPENSING MANIFOLD. AN AUGER STYLE NOZZLE SHALL BE ATTACHED FOR PROPER MIXING OF THE ADHESIVE COMPONENTS. WHERE THREADED RODS ARE REQUIRED, RODS SHALL CONFORM TO ASTM A193 GRADE B7, WHERE SST IS CALLED FOR ON THE DRAWINGS, CONTRACTOR SHALL USE ALLOY GROUP 1 TYPE 304 CONDITION CW.

FINISHING, CURING AND PATCHING

- AS SOON AS CONCRETE IN SLABS HAS SET SUFFICIENTLY TO BE WORKABLE, IT SHALL BE HAND FLOATED WITH A WOOD FLOAT. FINAL TROWELING OF THE INTERIOR SHALL BE DONE WITH A STEEL TROWEL EXCEPT WHERE DRAWINGS SPECIFICALLY CALL FOR OTHER TYPE OF FINISH. ALL EXTERIOR SLABS, SHALL BE GIVEN A LIGHT BROOM NON-SLIP FINISH UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- FINISHED SURFACES OF ALL SLABS AND PANELS SHALL BE TRUE AND FLAT IN ACCORDANCE WITH ELEVATIONS AND SLOPES SHOWN ON THE DRAWINGS. THE MAXIMUM VARIATION ALLOWED FROM THE SPECIFIED SLOPES AND SURFACES SHALL BE 1/8" INCH WITH NOT MORE THAN 1/8" INCH VARIATION IN ANY 10-FOOT LENGTH.
- CONCRETE SLABS AND PANELS SHALL BE CURED BY MEANS OF AN APPROVED CURING COMPOUND APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

STRUCTURAL AND MISCELLANEOUS STEEL

- STRUCTURAL SHAPES, PLATES AND BARS SHALL CONFORM TO ASTM A36.
- MACHINE BOLTS (MB) SHALL CONFORM TO ASTM A307.
- ALL WELDING SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STRUCTURAL WELDING CODE OF THE AWS (D11). ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
- ALL WELDING ELECTRODES SHALL CONFORM TO ASTM E70XX. ALL WELDING SHALL BE DONE WITH LOW HYDROGEN ELECTRODES OR USING A LOW HYDROGEN WELDING PROCESS.
- ALL BOLT HOLES SHALL BE PUNCHED OR DRILLED (REAMED). BURNING OF HOLES IS NOT ACCEPTABLE.
- SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.
- ALL STRUCTURAL STEEL SHALL BE GALVANIZED AFTER FABRICATION.

MASONRY

- HOLLOW LOAD BEARING CONCRETE MASONRY UNITS SHALL BE OPEN-END AND SOUD GROUTED AND SHALL CONFORM TO ASTM C90, GRADE N, TYPE I, MEDIUM OR LIGHT WEIGHT UNITS. SIZE, COLOR AND TEXTURE SHALL BE AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
- UNLESS OTHERWISE SHOWN, ALL MASONRY SHALL BE LAID IN FULL RUNNING BOND.
- THE MINIMUM COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS, F_m SHALL BE 1500 PSI FOR NET AREA. SPECIAL INSPECTION SHALL BE PROVIDED DURING MASONRY CONSTRUCTION.
- MASONRY REINFORCEMENT SHALL BE BILLET STEEL CONFORMING TO THE LATEST EDITION OF ASTM A615, GRADE 60.
- MORTAR SHALL CONFORM TO THE REQUIREMENTS OF THE UBC FOR TYPE M OR S MORTAR. COLOR SHALL MATCH THE BLOCK UNLESS NOTED OTHERWISE.
- EXCEPT AT CONTROL JOINTS, OPEN-END UNITS SHALL BE PLACED SUCH THAT NO TWO CLOSED CELLS ARE ADJACENT TO EACH OTHER.

REINFORCING

- REINFORCING STEEL SHALL CONFORM TO THE LATEST EDITION OF ASTM SPECIFICATION A706 OR A615, GRADE 60.
- REINFORCING STEEL FABRICATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CRSI MANUAL OF STANDARD PRACTICE.
- REINFORCING SHALL HAVE THE FOLLOWING CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

CONDITION	COVER (In)
UNFORMED SURFACES IN CONTACT WITH EARTH	3
FORMED SURFACES EXPOSED TO EARTH, WATER AND WEATHER	2
BOTTOM SURFACES FOR SLAB OVER WATER	2
CONCRETE SURFACES FOR DRY CONDITIONS: WALLS, SLABS AND JOISTS, BEAMS AND COLUMNS	2
PRIMARY REINFORCING	2
STIRRUPS, SPIRALS AND TIES	1 1/2

- SPliced BARS SHALL HAVE A CLASS B MINIMUM LAP AS SPECIFIED IN LATEST EDITION OF ACI 315 DETAILING MANUAL AND ACI 318 CHAPTER 20 UNLESS OTHERWISE NOTED IN THESE CONTRACT DOCUMENTS. WHERE SHOWN ON THE DRAWINGS, LAP DEVELOPMENT LENGTH AS DEFINED IN THE STANDARD DETAILS OF THESE DRAWINGS. HOOKS OF REINFORCING STEEL SHALL COMPLY ACI 318.
- WRITTEN SPACING AND LOCATION OF REINFORCING SHALL TAKE PRECEDENCE OVER DEPICTED SPACING AND LOCATION.
- IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED DUE TO THE LIMITED EXTENT OF THE ADJACENT CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND BE TERMINATED WITH A STANDARD HOOK.

ROUGH CARPENTRY

- WORK SHALL INCLUDE ALL MATERIALS AND LABOR TO FABRICATE AND ERECT ALL WOOD CONSTRUCTION AS SHOWN ON THE DRAWINGS.
- ALL LUMBER SHALL BE NEW, UNIFORMLY SIZED AND S4S UNLESS OTHERWISE NOTED. LUMBER SHALL HAVE A MOISTURE CONTENT NOT EXCEEDING 19 PERCENT. ALL LUMBER SHALL BE GRADED IN ACCORDANCE WITH THE RULES LISTED FOR THE SPECIES IN THE NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND ITS FASTENINGS, BY THE NATIONAL FOREST PRODUCTS ASSOCIATION (INCLUDING SUPPLEMENTS).
- UNLESS OTHERWISE NOTED ON THE DRAWINGS, LUMBER SHALL BE OF THE FOLLOWING GRADES OR BETTER:
 - SILLS AND MEMBERS CONTACTING CONCRETE ON GRADE, AND ALL LUMBER USED AS SLEEPERS FOR ROOF MOUNTED EQUIPMENT OR STRUCTURES: DOUGLAS FIR-LARCH, No.2, PRESSURE TREATED WITH AN APPROVED PRESERVATIVE.
 - UNLESS OTHERWISE NOTED BEAMS, JOIST, POSTS, LEDGERS, NAILERS, 2-INCH, 3-INCH, OR 4-INCH NOMINAL THICKNESS DOUGLAS FIR-LARCH, No.1, 6-INCH OR GREATER NOMINAL THICKNESS SELECT STRUCTURAL.
 - STUDS, BLOCKING, PLATES - DOUGLAS FIR-LARCH, No.2.

- WHERE NAILING OR FRAMING CONNECTIONS ARE NOT SHOWN, PROVIDE NAILING IN CONFORMANCE WITH UBC TABLE 23-1.1-B. ALL WALLS SHALL BE COMMON WIRE NAILS.
- BOLTS, NUTS, WASHERS - ASTM A307.
- ROUGH FRAMING HARDWARE SHALL BE SIMPSON OR EQUAL. ALL HOLES SHALL BE FILLED WITH NAILS OR BOLTS OF THE SPECIFIED SIZE.
- ROOF SHEATHING SHALL BE DFPA STRUCTURAL I, THICKNESS AS CALLED FOR ON THE DRAWINGS. WHEN SHEETS MUST BE CUT TO FIT AT WALL OPENINGS, MINIMUM DIMENSIONS OF ANY SHEET SHALL BE 1'-0".
- ALL BEAMS AND GIRDERS SHALL CONFORM TO A1C COMBINATION SHOWN ON THE DRAWINGS.
- ALL MEMBERS SHALL BE END SEALED.

- FRAMING SHALL BE PROPERLY LAID OUT, CLOSELY FITTED AND ALIGNED AND RIGIDLY SECURED IN PLACE. SET ALL PURLINS WITH TOP EDGE 3/8" INCH ABOVE TOP OF SUPPORTING MEMBER TO ALLOW FOR SHRINKAGE. ALL EDGES OF ALL PLYWOOD SHEETS SHALL BEAR ON PURLINS OR BEAMS. PLYWOOD BUTT JOINTS SHALL HAVE A MAXIMUM GAP OF 3/8" INCH. NAIL PLYWOOD TO ALL PURLINS AND PURLINS SUPPORTING MEMBERS AT SPACING INDICATED ON THE DRAWINGS.
- PLYWOOD SHEATHING SHALL BE IN GOOD CONDITION WHEN INSTALLED, FREE OF DELAMINATIONS, SPLITTING, OR EXCESSIVE WARPING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT DECK FROM WEATHER UNTIL THE ROOFING CONTRACTOR BEGINS WORK. DEFECTIVE PLYWOOD SHEETS AND SHEETS DAMAGED BY THE WEATHER WITHIN THIS PERIOD SHALL BE REPLACED UPON NOTIFICATION FROM THE ENGINEER.
- LUMBER SHALL BE STORED OFF THE GROUND IN A MANNER WHICH ALLOWS VENTILATION AND DRAINAGE, PREVENTS TWISTING, AND AFFORDS PROTECTION FROM TERMITES, DECAY, AND SHALL BE ADEQUATELY PROTECTED FROM THE WEATHER.
- BRIDGING AND BLOCKING - NEATLY CUT, FITTED TIGHT, AND SECURELY NAILED. INSTALL 2-INCH BLOCKING AT ALL INTERSECTIONS OF FINISHED SURFACES TO PROVIDE ADEQUATE BEARING FOR FINISH MATERIALS. BLOCK AS REQUIRED TO SUPPORT FIXTURES, HARDWARE, AND OTHER SUSPENDED OR WALL MOUNTED EQUIPMENT.
- CUTTING NOTCHING, AND BORING:
 - MINOR CUTTING AND BORING OF THE CARPENTRY FOR THE INSTALLATION OF PIPES, CONDUITS, AND DUCTS MAY BE DONE BY THE SUBCONTRACTOR FOR THE APPLICABLE TRADE, BUT ALL MAJOR CUTTING, BORING, OR MODIFICATION SHALL BE DONE BY THE CONTRACTOR UNDER THIS SECTION.
 - NOTCH ALL JOIST AND RAFTERS AS REQUIRED TO PROVIDE LEVEL FULL BEARING AT HANGERS, PLATES AND SUPPORTS UNLESS SHOWN OTHERWISE.

- APPROVAL SHALL BE OBTAINED FROM THE ENGINEER BEFORE CUTTING OR NOTCHING ANY JOIST, BEAM, TRUSSE, OR GIRDER.
- PROVIDE ADEQUATE PROTECTION FOR THE WORK INSTALLED FROM DAMAGE. REPAIR OR REPLACE ALL DAMAGED WORK.
- ALL SHEET EDGES NOT FALLING OVER JOISTS, BEAMS, PURLINS, OR LEDGERS SHALL BE SOLID BLOCKED WITH 2x4 FLAT BLOCKING, NAILED AS INDICATED ON THE DRAWINGS.

- THE USE OF POWER OPERATED NAILING MACHINES, AIR DRIVEN OR ELECTRIC, IS SUBJECT TO APPROVAL OF THE ENGINEER. ALL SUCH EQUIPMENT SHALL BE IN PERFECT CONDITION AND ADJUSTMENT SO AS TO RESULT IN NAILS PROPERLY DRIVEN, WITH HEADS FLUSH WITH THE SURFACE OF THE WOOD AND NOT UNDER-DRIVEN OR OVER-DRIVEN. CONTRACTOR SHALL ADVISE THE ENGINEER UPON BEGINNING OF ROOF NAILING SO AS TO PERMIT INSPECTION OF THE QUALITY OF THE ROOF NAILING AT THE OUTSET.

- PLYWOOD DIAPHRAGM ROOF SHEATHING SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO COVERING WITH ROOFING.

- RE-TIGHTEN ALL BOLTS PRIOR TO MAKING THE BOLTED CONNECTION INACCESSIBLE.

ABBREVIATIONS

DIA	DIAMETER	F'C	CONCRETE COMPRESSIVE STRENGTH	PJF	PREMOLDED JOINT FILLER
AB	ANCHOR BOLT	F'm	MASONRY PRISM STRENGTH	PL	PLATE
ADDL	ADDITIONAL	FAB	FABRICATE (OR,ED)	PWYD	PLYWOOD
AL	ALUMINUM	FD	FLOOR DRAIN	PM	PRESSED METAL
ALT	ALTERNATE(ING)	FDN	FOUNDATION	PRCST	PRECAST
ANCH	ANCHOR	FHM	FLATHEAD MACHINE SCREW	PRFAB	PRE-FABRICATED
APPROX	APPROXIMATE(LY)	PREST	PRESSURE TREATED	PT	POLYVINYL CHLORIDE
ARND	AROUND	FHWS	FLATHEAD WOOD SCREW	PVC	PAVEMENT
		FIG	FIGURE	PVMT	
B TO B	BACK TO BACK	FIN	FINISH (ED)	R	RISE
BLDG	BUILDING	FL	FLOOR	RA	RADIUS
BLK	BLOCKING	FLEX	FLEXIBLE	RC	REINFORCED CONCTETE
BM	BEAM	FRP	FIBERGLASS REINFORCED	RD	ROOF DRAIN
B/O	BOTTOM OF	FTG	FOOTING	REF	REFERENCE / REFER
BOT	BOTTOM	FURN	FURNISHED	REINF	REINFORCE (D,ING)
BRG	BEARING			RQDD	REQUIRED
BTWN	BETWEEN	GA	GAGE	REV	REVISION
		GALV	GALVANIZED	RM	ROOM
C TO C	CENTER TO CENTER	GAUS	GALVANIZED STEEL	RO	ROUGH OPENING
CHKD	CHECKED	GEN	GENERAL	RT	RIGHT
CIRC	CIRCUMFERENTIAL	GR	GUARD RAIL	SCHED	SCHEDULE
CJ	CONSTRUCTION JOINT	GRTG	GRATING	SECT	SECTION
CL	CENTERLINE	HAS.	HAS. HEADED ANCHOR STUD	SHT	SHEET
CLG	CEILING	HDR	HEADER	SIM	SIMILAR
CLJ	CONTROL JOINT	HMD	HARDWOOD	SUNT	SEALANT
CLK	CALKING	HMR	HARDWARE	SMS	SHEET METAL SCREWS
CLR	CLEAR	HGR	HANGER	SP	SPACE (S,ED)
CMU	CONCRETE MASONRY UNIT	HGT	HEIGHT	SPEC	SPECIFICATION, SPECIFIED
COL	COLUMN	HM	HOLLOW METAL	SQ	SQUARE
COWC	CONCRETE CONNECTION	HOR	HORIZONTAL	SST	STAINLESS STEEL
COVN	CONSTRUCTION CONTINUOUS	HPT	HIGH POINT	STAG	STAGGERED
CONST	CONSTRUCTION CONTINUOUS	HR	HANDRAIL	STD	STANDARD
CRS	COURSE(S)	ID	INSIDE DIAMETER	STIF	STIFFENER
CSK	COUNTERSINK CENTER (ED)	IF.	INSIDE FACE	STIR.	STIRRUP (S)
CTR	CENTER (ED)	INFO	INFORMATION	STL	STEEL
		INT	INTERIOR	STRUC	STRUCTURE (S,URAL)
D	DEEP, DEPTH	INT	INTERIOR	STRWY	STARWAY
#	FEWNY	INVT	INVERT	STM	SYMMETRICAL
DEMO	DEMOLITION	JT	JOINT	T	TREAD (S)
DET	DETAIL	JT FLR	JOINT FILLER	T&B	TOP AND BOTTOM
DF	DOUGLAS FIR			T&G	TONGUE AND GROOVE
DIA	DIAMETER			TD	TRENCH DRAIN
DIAG	DIAGONAL	LG	LONG	THD	THREADED
DM	DIMENSION	LLH	LONG LEG HORIZONTAL	THK	THICK (NESS)
DL	DEAD LOAD	LVV	LONG LEG VERTICAL	TJ	TOOLED JOINT
DN	DOWN	LONG.	LONGITUDINAL	T.O.	TOP OF
DO.	DITTO	LP	LOW POINT	TOC	TOP OF CONCRETE
DP	DAMP-PROOFING DRAIN	LT	LEFT	TOS	TOP OF STEEL
DR	DRAWING(S)	LW	LIGHTWEIGHT	T.D.W.	TOP OF WALL
DWG(S)	DRAWING(S)	MAS	MASONRY	TPER	THERMOPLASTIC ELASTOMERIC RUBBER
DWLS(S)	DOWEL(S)	MATL	MATERIAL	TRNSV	TRANSVERSE
EA	EACH	MAX	MAXIMUM	TYP	TYPICAL
EB	EXPANSION BOLT	MB	MACHINE BOLT	UNO	UNLESS NOTED OTHERWISE
ECC	ECCENTRIC	MCI	MASONRY CONTROL JOINT	VB	VAPOR BARRIER
ED	EQUIPMENT DRAW	MFR	MANUFACTURER	VERT	VERTICAL
EF	EACH FACE	MIN	MINIMUM		
EL	ELEVATION	MO	MASONRY OPENING		
EMBED	EMBEDMENT	MTL	METAL		
EQ	EQUAL (LY)			W	WIDE
EQPT	EQUIPMENT			W/	WITH
EQUIV	EQUIVALENT			W/O	WITHOUT
ES	EACH SIDE			WD	WIDTH / WOOD
ETC	ETCETERA			WP	WORKING POINT
ETCETERA	ETCETERA			WPG	WATERPROOFING
EW	EACH WAY			WS	WATERSTOP, WOOD SCREW
EXP	EXPANSION			WT	WEIGHT
EXP JT	EXPANSION JOINT			WWF	WELDED WIRE FABRIC
EXST	EXISTING	O/E	OR EQUAL		
EXT	EXTERIOR	OC	ON CENTER		
EY	EPOXY	OD	OUTSIDE DIAMETER		
		O.F.	OUTSIDE FACE		
		OPNG(S)	OPENING(S)		
		OPP	OPPOSITE		
		OPP HD	OPPOSITE HAND		
		OPT	OPTION (AL)		

ABBREVIATION NOTES:

- ABBREVIATIONS AND DESIGNATIONS FOR STEEL MEMBERS MAY BE FOUND IN THE CURRENT MANUAL OF STEEL CONSTRUCTION BY AISC.
- ABBREVIATIONS OF TECHNICAL SOCIETIES AND TRADE ASSOCIATIONS MAY BE FOUND IN THE SPECIFICATIONS
- WELDING SYMBOLS AND ABBREVIATIONS MAY BE FOUND IN AWS 2.4.
- ABBREVIATIONS LISTED ARE FOR USE WITH STRUCTURAL DRAWINGS ONLY. SOME ABBREVIATIONS LISTED MAY NOT BE USED ON THE PLANS.

AKM JOB No. 0760890.00

Underground Service Alert



TWO WORKING DAYS BEFORE YOU DIG

0	1/2	1	24x36 FORMAT
IF THIS BAR MEASURES 1" THEN DRAWING SCALE IS AS NOTED			
0	1/4	1/2	12x18 FORMAT
WARNING IF THIS BAR MEASURES 1/2" THEN DRAWING IS NOT FULL SCALE AND IS 50% REDUCED			

Designed by	Drawn by	Checked by	
KEVIN SALEH	CADD	GARY J. HOBSON	
PLANS PREPARED UNDER SUPERVISION OF			
GARY J. HOBSON			
Date	MARCH 2010	R.C.E. No.	40779

Date	By	REVISIONS	App'd



CDWP	
WMWD	

Department of Water and Power Approval	
By	Donald A. Williams, P.E. R.C.E. No. 32333 EXP 12/31/2010

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Approved	
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CITY OF CORONA - ARLINGTON DESALTER CONNECTION		Drawing No.	09-050U
WESTERN MUNICIPAL WATER DISTRICT - PROMENADE CONNECTION			
STRUCT			