

014200 – ABBREVIATIONS, SYMBOLS & ACRONYMS

THE FOLLOWING DEFINITIONS APPLY UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DOCUMENTS:

#	POUNDS
AB	ANCHOR BOLT
ADBL	ADDITIONAL
ADJ	ADJACENT
AFT	ABOVE FINISHED FLOOR
ALT	ALTERNATE
ARCHT	ARCHITECT (URAL)
BLDG	BUILDING
BLKG	BLOCKING
BN	BEAM
BOT	BOTTOM
BOTT, (B)	BOTTOM
BTWN	BETWEEN
C	CAMBER
CIP	CAST IN PLACE
CJ	CONTROL/CONSTRUCTION JOINT
CJP, CP	COMPLETE JOINT PENETRATION
CLG	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
CTRD	CENTERED
DB	DRAWING
DBL	DEMAND CRITICAL
DC	DEMOLISH, DEMOLITION
DIA, DIAM	DIA
DIAG	DIAGONAL
DM	DIMENSION
DWG	DRAWING
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EMBED	EMBEDMENT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EN	EDGE NAILING
E.O.	EDGE OF
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EXIST, (E)	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FLR	FLOOR
FN	FIELD NAILING
FND	FOUNDATION
F.O.	FACE OF
FS	FAR SIDE
FTG	FOOT, FEET
GA	GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GLBM	GLUED-LAMINATED BEAM
GRD	GRADE
GRD	GRADE
HORIZ, (H)	HORIZONTAL
HS	HIGH STRENGTH
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
ID	INSIDE DIAMETER
INCH	INCH
INT	INTERIOR
JT	JOINT
KIP(S)	KIP(S)
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE
LB, LBS	POUNDS
LF	LINEAR FEET
LFRS	LATERAL FORCE RESISTING SYSTEM
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LWC	LIGHT WEIGHT (CONCRETE)
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MW	MEDIUM WEIGHT
N	NEAR
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT (CONCRETE)
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OPPOSITE HAND
OPP	OPPOSITE
PAF, PDF	POWDER DRIVEN / POWER ACTUATED FASTENER
PJP, PP	PARTIAL JOINT PENETRATION
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUND PER SQUARE INCH
PT	PRESSURE TREATED WOOD, POST/PRE-TENSIONED
R	RADIUS
REF	REFERENCE
REINF	REINFORCING, REINFORCEMENT
REQD	REQUIRED
SC	SLIP CRITICAL
SCHED	SCHEDULE
SM	SIMILAR
SOS, SMS	SELF DRILLING / SHEET METAL SCREW
(SEOR)	(STRUCTURAL) ENGINEER OF RECORD
SN	SIMILAR
SOG	SLAB ON GRADE
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STIFF	STIFFENER
STRUCT	STRUCTURAL
SYM	SYMMETRICAL
TOP	TOP
T&B	TOP AND BOTTOM
T.O.	TOP OF
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT, (V)	VERTICAL
VF	VERTIFY IN FIELD
W, WF	WIDE FLANGE
W/	WITHOUT
WP	WORK POINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

STRUCTURAL SHEET INDEX	
Sheet Number	Sheet Name
S0.01	GENERAL NOTES
S1.01	TYPICAL CONCRETE DETAILS
S3.14	RETAINING WALL PLANS, SECTIONS AND DETAILS

050500 – POST INSTALLED ANCHORS

UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE FOLLOWING APPLIES TO ALL POST INSTALLED ANCHORAGE INTO HARDENED CONCRETE OR MASONRY WHICH INCLUDES TYPES SUCH AS EXPENSION, WEDGE, SLEEVE, ADHESIVE/EPOXY, SHOT-PIN, SCREW AND UNDERCUT.

- INSTALL PER MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (PMPI) EXCEPT AS OTHERWISE STATED IN THE SPECIFIED PRODUCT REPORTS. USE INSTALLATION PROCEDURES FOR CRACKED CONCRETE CONDITIONS. DO NOT USE CORE DRILL BITS FOR ANCHOR HOLES WITHOUT PRIOR SEOR APPROVAL. COPIES OF INSTALLATION INSTRUCTIONS SHALL BE MAINTAINED ON SITE.
- PROVIDE GALVANIZED CARBON STEEL ANCHORS AT DRY INTERIOR LOCATIONS AND STAINLESS STEEL TYPE 304 OR 316 AT EXTERIOR / DAMP INTERIOR LOCATIONS. DOWELS TO RECEIVE CONCRETE COVER MAY BE PLAIN CARBON STEEL. ANCHORS SHALL BE CLEAN AND FREE OF DEBONDING SUBSTANCES. UNLESS OTHERWISE NOTED, THE SPECIFIED EMBEDMENT REFERS TO THE FINAL INSTALLED EFFECTIVE DEPTH "H" AS DEFINED IN THE PRODUCT REPORT. MINIMUM ANCHOR HOLE DEPTH FOR INSTALLATION MAY BE DEEPER. FOR EXPANSION ANCHORS, PROVIDE A MINIMUM ANCHOR HOLE DEPTH PER THE PMPI, BUT NOT LESS THAN THE SPECIFIED EMBEDMENT + THE SMALLER OF 1.5x DIAM OR 1 INCH. WHERE EMBEDMENT IS NOT SPECIFIED, PROVIDE AN EMBEDMENT DEPTH OF THE SMALLER OF 8 TIMES THE ANCHOR DIAMETER AND 2/3 THE THICKNESS OF THE MEMBER THE ANCHOR IS PLACED INTO.
- MAINTAIN A MINIMUM OF 2 INCHES FROM EXISTING REINFORCEMENT, CONDUIT, POST TENSIONING (WHERE OCCURS), ETC. PRIOR TO DRILLING, CORING OR SHOOTING PINS INTO EXISTING CONCRETE OR MASONRY USE NON DESTRUCTIVE TESTING TO LOCATE SUCH ITEMS. FOR INSTALLATION DEEPER THAN 3 INCHES USE GROUND PENETRATING RADAR OR X-RAY METHODS.
- WHERE THE SPECIFIED ANCHOR EMBEDMENT DEPTH, SPACING OR EDGE DISTANCE CANNOT BE PROVIDED, NOTIFY THE SEOR AND IOR.
- PATCH ABANDONED HOLES AND SPALLS USING NON-SHRINK GROUT AND REPAIR FINISHES AS REQUIRED. ANCHORS PENETRATING THROUGH WATER PROOFING OR VAPOR MEMBRANES SHALL BE SEALED OR FLASHED.
- INSTALL IN DRY CONCRETE OR MASONRY HAVING A MINIMUM AGE OF 21 DAYS UNLESS SPECIFICALLY APPROVED BY THE SEOR.
- ADHESIVE/EPOXY ANCHORS ON THIS PROJECT ARE NOT DESIGNED TO SUPPORT, OR INTENDED TO RESIST SUSTAINED TENSION LOADS.
- INSTALLERS PLACING OVERHEAD ADHESIVE ANCHORS SHALL BE CERTIFIED BY ACI OR APPROVED EQUIVALENT.
- DO NOT PLACE POST INSTALLED ANCHORS IN CMU WITHIN 1 1/2" OF HEAD JOINTS OR INTO UNGROUTED CELLS UNLESS SPECIFICALLY INDICATED ON THE STRUCTURAL DOCUMENTS.

ANCHOR TESTING NOTES

- UNLESS NOTED OTHERWISE, PROVIDE SPECIAL INSPECTION AND TESTING OF POST-INSTALLED ANCHORS PER ACI 318 SECTION 17.8, THESE NOTES, AND THE FOLLOWING ANCHOR TEST SCHEDULE. POST-INSTALLED ANCHORS SHALL BE INSPECTED BY A SPECIAL INSPECTOR SPECIFICALLY APPROVED BY THE ENFORCEMENT AGENCY FOR THAT PURPOSE.
 - PROOF LOADING IN TENSION (PULL TESTING) IS TO BE PERFORMED USING A HYDRAULIC RAM. ANCHORS SHALL MAINTAIN THE TEST LOAD FOR A MINIMUM OF 15 SECONDS AND SHALL HAVE NO DISCERNABLE MOVEMENT AS EVIDENCED BY LOOSENING OF THE WASHER UNDER THE NUT OR BY CONTINUOUS LOSS OF JACKING PRESSURE.
 - FOR ACCEPTANCE OF PROOF LOADING BY CALIBRATED TORQUE WRENCH TESTING, THE APPLICABLE TEST LOAD MUST BE REACHED WITHIN 1/2 TURN OF THE NUT.
- EXPANSION ANCHOR TESTING**
- EXPANSION ANCHOR TESTING SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR, AND MUST OCCUR WITHIN 24 HOURS AFTER INSTALLATION OF THE ANCHORS.
 - TEST 50% OF ALL EXPANSION ANCHORS FOR ATTACHMENT OF EQUIPMENT WEIGHING MORE THAN 400 LBS. AND 20% FOR ALL OTHER CONDITIONS ON THIS PROJECT.
 - IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL 20 CONSECUTIVE PASS, THEN RESUME INITIAL TESTING FREQUENCY.

CONDITION	PROOF TEST LOAD	TEST TORQUE
3/8" DIA x 2" EMBED INTO NWC	2250 LBS	25 LB-FT
1/2" DIA x 3" EMBED INTO NWC	3000 LBS	40 LB-FT
5/8" DIA x 4" EMBED INTO NWC	4750 LBS	60 LB-FT
3/4" DIA x 5" EMBED INTO NWC	6000 LBS	110 LB-FT

ADHESIVE ANCHOR TESTING

- ADHESIVE ANCHOR TESTING SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR, AND MUST OCCUR BETWEEN 24 TO 72 HOURS AFTER INSTALLATION OF THE ANCHORS.
- PROOF TEST LOADING SHALL USE A HYDRAULIC CYLINDER WITH A LOADING PLATE HAVING A HOLE DIAMETER OF 1.5 TO 2 TIMES THE ANCHOR HOLE DIAMETER (CONFINED CONFIGURATION).
- TEST 50% OF ALL ADHESIVE ANCHORS FOR ATTACHMENT OF EQUIPMENT WEIGHING MORE THAN 400 LBS. AND 20% FOR ALL OTHER CONDITIONS ON THIS PROJECT. TEST 50% OF ALL VERTICAL WALL DOWELS INTO EXISTING CONCRETE FOUNDATIONS.
- IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL 20 CONSECUTIVE PASS, THEN RESUME INITIAL TESTING FREQUENCY.

CONDITION	PROOF TEST LOAD
3/8" DIA ROD OR #3 REBAR x 2" TO 4" EMBED INTO NWC	2250 LBS
1/2" DIA ROD OR #4 REBAR x 3" TO 5" EMBED INTO NWC	3000 LBS
5/8" DIA ROD OR #5 REBAR x 4" TO 6" EMBED INTO NWC	4750 LBS
3/4" DIA ROD OR #6 REBAR x 5" TO 7" EMBED INTO NWC	6000 LBS
#3 REBAR > 4" EMBED	5200 LBS
#4 REBAR > 5" EMBED	9600 LBS
#5 REBAR > 6" EMBED	15000 LBS
#6 REBAR > 7" EMBED	21000 LBS
#7 REBAR > 8" EMBED	29000 LBS
#8 REBAR > 9" EMBED	38000 LBS

032000 – REINFORCING STEEL - CONT

MINIMUM CONCRETE COVER OF REINFORCEMENT SCHEDULE

CONDITION	MINIMUM COVER
INTERIOR RAISED SLABS & INTERIOR WALL FACES	1"
INTERIOR COLUMNS & BEAMS	1 1/2"
OTHER INTERIOR CONCRETE, #11 BARS & SMALLER	3/4"
FORMED & EXPOSED TO SOIL OR WEATHER, #6 BARS & LARGER, #5 BARS & SMALLER:	2"
CAST AGAINST & PERMANENTLY EXPOSED TO SOIL	3"
STRUCTURAL SLAB-ON-GRADE, FROM BOTTOM OF SLAB, FROM TOP OF SLAB:	2" 1 1/2"

033000 – STRUCTURAL CONCRETE

- CONCRETE SHALL BE MIXED, PLACED AND CURED IN ACCORDANCE WITH ACI 318 AND ACI 301 LATEST EDITION AND THE CONSTRUCTION DOCUMENTS.
 - CONCRETE MIXING OPERATIONS SHALL CONFORM TO ASTM C94. QUANTITIES OF MATERIALS SHALL BE CERTIFIED BY A LICENSED WEIGHT MASTER.
 - RETAIN AN APPROVED TESTING LABORATORY, ACCEPTABLE TO THE OWNER, TO PREPARE CONCRETE MIX DESIGNS. NOTE THAT THE STRUCTURAL DOCUMENTS DO NOT NECESSARILY INDICATE ALL SUBGRADE PREPARATION AND UNDERLAYMENT REQUIREMENTS. SEE THE GEOTECHNICAL REPORT FOR SITE SOIL CONDITIONS, ESPECIALLY REGARDING EXCAVATION, TRENCHING AND COMPACTION METHODS.
 - A GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE OBSERVATION AND TESTING SERVICES DURING THE GRADING AND FOUNDATION PHASE OF THE CONSTRUCTION.
 - FOUNDATION BEARING AND FILL MATERIALS UNDER STRUCTURE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER AND BUILDING INSPECTOR BEFORE PLACING CONCRETE.
 - UNLESS OTHERWISE STATED BY THE GEOTECHNICAL ENGINEER, EXISTING UNDOCUMENTED FILL WITHIN THE BUILDING FOOTPRINT SHALL BE REMOVED AND RECOMPACTED. TOPSOILS, ORGANIC MATERIAL, AND OTHER DEBRIS SHALL BE REMOVED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. NATIVE AND IMPORTED SOILS SHALL BE APPROVED AS FILL BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
 - FOUNDATION ELEVATIONS AND OTHER OVEREXCAVATION REQUIREMENTS ON THE CONSTRUCTION DOCUMENTS SHALL BE USED FOR PRICING. ACTUAL DEPTH OF REMOVAL WILL BE DETERMINED AS DIRECTED BY THE GEOTECHNICAL ENGINEER DURING GRADING.
 - ALL TRENCHES SHALL COMPLY WITH APPLICABLE OSHA REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UNDERGROUND SERVICES WHETHER SHOWN ON THE DRAWINGS OR NOT, AND SHALL PROTECT ALL UTILITY LINES, ETC. ENCOUNTERED DURING EXCAVATION.
 - SUBGRADE WITHIN THE BUILDING FOOTPRINT SHALL BE MECHANICALLY COMPACTED IN LAYERS WITH THE APPROVAL OF THE GEOTECHNICAL ENGINEER. BACKFILL JETTING OR FLOODING IS NOT PERMITTED.
 - BACKFILL BEHIND RETAINING WALLS SHALL BE PERFORMED AFTER NEW CONCRETE OR MASONRY HAS ATTAINED ITS FULL DESIGN STRENGTH. WALL DRAINAGE MUST BE PROVIDED, UNLESS OTHERWISE NOTED IN THE GEOTECHNICAL REPORT OR CONSTRUCTION DOCUMENTS PROVIDE A 12-INCH WIDE CONTINUOUS PEA GRAVEL STRIP IMMEDIATELY BEHIND THE WALL WITH PERFORATED DRAIN LINES AT THE BASE CONNECTED TO A DESIGNED DRAINAGE SYSTEM.
- MINIMUM FOOTING AND SLAB-ON-GRADE SCHEDULE**
- | | |
|---|--|
| MINIMUM FOOTING WIDTH: | 1'-6" FOR CONTINUOUS WALL FOOTING
2'-0" FOR ISOLATED PAD / COLUMN FOOTINGS |
| MINIMUM FOOTING EMBEDMENT: | 1'-6" BELOW LOWEST ADJACENT GRADE AND 1'-0" INTO CERTIFIED COMPACTED FILL OR APPROVED UNDISTURBED NATIVE SOIL. |
| MINIMUM SUBGRADE RELATIVE COMPACTION PER ASTM D1557 | 90% UNDER FOUNDATIONS AND SLAB-ON-GRADE |
| MINIMUM SLAB-ON-GRADE: | 5" THICK WITH #4 @ 1'-6" ON CENTER EACH WAY POSITIONED 2" CLEAR FROM TOP OF SLAB, ON PREPARED SUBGRADE. |
- DESIGN LOAD BEARING VALUES OF SOILS**
- | | |
|--|---|
| ALLOWABLE SOIL BEARING: | 2000 PSF (DL+LL) BEARING ON COMPACTED OR ENGINEERED FILL. AN ADDITIONAL ONE-THIRD INCREASE IS PERMITTED FOR WIND OR SEISMIC EFFECTS. |
| ALLOWABLE COEFFICIENT OF FRICTION: INCREASE IS PERMITTED FOR WIND OR | 0.3 AT FOUNDATIONS WITH DEAD LOAD FORCES ONLY. NO SEISMIC EFFECTS. |
| ALLOWABLE PASSIVE SOIL PRESSURE: | 150 PSF/FT OF DEPTH ON THE SIDES OF FOUNDATIONS POURED AGAINST COMPACTED FILL. A ONE-THIRD INCREASE IS PERMITTED FOR WIND AND SEISMIC EFFECTS. (MAXIMUM 2,000 PSF) |
| LATERAL RESISTANCE: | PROVIDED BY FRICTION AND 80% PASSIVE EARTH PRESSURE, WHEN COMBINED REDUCE THE PASSIVE COMPONENT BY ONE-THIRD. |
| CANTILEVER RETAINING WALL DESIGN EQUIVALENT FLUID PRESSURE: | 40 PSF/FT OF DEPTH - ACTIVE PRESSURE FOR LEVEL SOIL. TRIANGULAR PRESSURE DISTRIBUTION. AN ADDITIONAL EQUIVALENT FLUID PRESSURE OF ONE (1) POUND PER CUBIC FOOT FOR EVERY TWO (2) DEGREES OF SLOPE INCLINATION. WALLS TALLER THAN 6 FEET SHOULD BE DESIGNED TO RESIST ADDITIONAL EARTH PRESSURE 20H. |
| RESTRAINED WALL DESIGN EQUIVALENT FLUID PRESSURE: | 60 PSF / FT OF DEPTH - ACTIVE PRESSURE FOR SOIL (TRIANGULAR PRESSURE DISTRIBUTION) AN ADDITIONAL EQUIVALENT FLUID PRESSURE OF ONE (1) POUND PER CUBIC FOOT FOR EVERY TWO (2) DEGREES OF SLOPE INCLINATION. WALLS TALLER THAN 6 FEET SHOULD BE DESIGNED TO RESIST ADDITIONAL EARTH PRESSURE 20H. |
- NON-SHRINK OR DRYPACK GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI AND SHALL BE MASTERFLO 713, EUCON N5 GROUT, Sika GROUT Z12, OR APPROVED EQUAL. FOR THICK GROUT LAYERS AND LARGE VOLUME PLACEMENTS FOLLOW MANUFACTURER'S GUIDELINES, WHICH MAY INCLUDE THE ADDITION OF WASHED COARSE AGGREGATE AND POUR SEQUENCING. UNDER BASE PLATES LARGER THAN 6 SQUARE FEET, USE MASTERFLO 928 OR OTHER APPROVED HILF-LOW GROUT.
 - THE USE OF CONSTRUCTION JOINTS (CJ) AT LOCATIONS NOT SHOWN ON THE PLANS AND DETAILS SHALL BE APPROVED BY THE SEOR PRIOR TO PLACEMENT OF CONCRETE. CJS SHALL BE USED WHENEVER CONCRETE PLACEMENT IS INTERRUPTED FOR MORE THAN 30 MINUTES.
 - HORIZONTAL LAP CJS MAY BE UNFORMED, VERTICAL CJS SHALL BE FULLY FORMED WITH SHEAR KEYS. CJS SHALL BE CLEANED, LAFTAGE REMOVED, AND ROUGHENED TO AN AMPLITUDE OF 1/4 INCH BY REMOVING THE ENTIRE SURFACE TO EXPOSE CLEAN AGGREGATE SOLIDLY EMBEDDED IN THE MORTAR MATRIX. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED CJS SHALL BE WETTED AND STANDING WATER REMOVED.
 - PIPES, DUCTS OR CONDUIT SHALL NOT BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS. PROVIDE SLEEVES FOR ALL PIPES THROUGH CONCRETE WALLS AND FOOTINGS.
 - REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ALL MOULDS, REVEALS, GROOVES, CHAMFERS, DRIPS, ORNAMENTS AND OTHER FINISH REQUIREMENTS. UNLESS OTHERWISE NOTED, EXPOSED CORNERS OF SLABS, BEAMS, WALLS, ETC. SHALL BE FORMED WITH 3/4 INCH CHAMFER STRIPS OR 1/2 INCH RADIUS TOOLED EDGE.
 - ALL DOWELS, ANCHORS AND OTHER EMBEDMENTS TO BE SET IN CONCRETE OR GROUT SHALL BE SECURED IN POSITION PRIOR TO PLACEMENT, NO WET SETTING, STABBING, RODDING OR OTHER MOVEMENT OF EMBEDDED ITEMS SHALL BE ALLOWED. THE CONTRACTOR SHALL COORDINATE WITH CONTRACT DOCUMENTS AND DISCIPLINES ITEMS SUCH AS: REINFORCEMENT, ANCHORS, INSERTS, HANGERS, NOSING, GUARDS, ELECTRICAL GROUNDS, INTEGRAL FRAMES, ETC.
 - CONCRETE AND GROUT MAINTAINED BETWEEN 50 TO 90 DEGREES FAHRENHEIT AND IN A MOIST, WIND SHELTERED CONDITION FOR A MINIMUM OF 7 DAYS AFTER PLACEMENT DOES NOT REQUIRE A WRITTEN PROTECTION PLAN, WHERE REQUIRED BY WEATHER AND SITE CONDITIONS, THE CONTRACTOR SHALL FOLLOW AN APPROVED COLD- OR HOT-WEATHER PROTECTION PLAN COMPLYING WITH ACI 308.1-301.
 - PRIOR TO ERECTING ANY ELEMENTS THAT LOAD THE FOUNDATION, CONCRETE MUST REACH AN UNCONFINED COMPRESSION STRENGTH OF 2000 PSI MINIMUM AS DETERMINED BY CYLINDER TESTING, AND MUST BE ALLOWED TO CURE FOR A MINIMUM OF 3 DAYS.
 - REVIEW MANUFACTURER REQUIREMENTS FOR OVERLAYMENTS, FINISHES AND FLOORING SYSTEMS TO BE APPLIED TO CONCRETE AS THESE MAY BE MORE RESTRICTIVE.
 - STYROFOAM VOID FILLER SHALL BE A DOW BUILDING SOLUTIONS PRODUCT "BLUE BOARD" TYPE OR APPROVED EQUAL WITH PROPERTIES APPROPRIATE FOR THE CONDITIONS OF USE.

STRUCTURAL CONCRETE SCHEDULE

LOCATION	CEMENT	TYPE	STRENGTH	WC RATIO	AGG SIZE
(E) FOUNDATION	I	NWC	3000	0.45	1"
SLAB-ON-GRADE	II	NWC	3000	0.45	3/4"
(E) WALLS	II	NWC	4000	0.45	3/4"

CONCRETE SCHEDULE NOTES:

- PORTLAND CEMENT TYPE.
- INDICATES NORMAL WEIGHT CONCRETE (NWC), OR SAND LIGHT WEIGHT CONCRETE (LWC).
- MINIMUM 28 DAYS CYLINDER COMPRESSIVE STRENGTH IN PSI.
- MAXIMUM WATER TO CEMENTITIOUS MATERIAL RATIO, INCLUDING FREE MOISTURE ON AGGREGATES.
- 70-45 MAXIMUM W/C RATIO REQUIRED FOR CONCRETE RECEIVING ADHESIVE FINISHES.
- MAXIMUM AGGREGATE SIZE. SEE ACI 318 FOR ADDITIONAL REQUIREMENTS INCLUDING GRADATION.
- MAXIMUM SHRINKAGE AT 28 DAYS.

LEGENDS

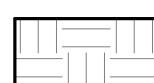
MATERIALS



CAST-IN PLACE CONCRETE



CONCRETE BLOCK



EARTH



METAL STUD



DEPRESSED/RAISED ELEVATION

SYMBOLS



NUMBER REFERENCE



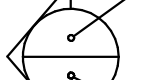
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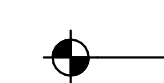
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FULL HEIGHT SECTION



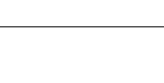
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SHEET REFERENCE

016000 – PRODUCT SPECIFICATION

THE STRUCTURAL PRODUCT SCHEDULE INDICATES BASIS-OF-DESIGN MANUFACTURERS AND PRODUCTS FOR USE ON THIS PROJECT. WHERE STRUCTURAL PRODUCTS ARE NOT EXPLICITLY NAMED IN THE CONSTRUCTION DOCUMENTS, PROVIDE A LISTED PRODUCT.

PRODUCTS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AS AMENDED BY THE REFERENCED PRODUCT ACCEPTANCE REPORTS (ICC, IAPMO, ETC.) FOR THE INTENDED USE.

AT CONTRACTOR'S OPTION, SUBSTITUTION REQUESTS MAY BE MADE FOR LIKE PRODUCTS WHICH DEMONSTRATE QUALITIES THAT EQUAL OR EXCEED THOSE OF SPECIFIED PRODUCTS.

STRUCTURAL PRODUCT SCHEDULE

TYPE	PRODUCT	ICC / IAPMO
ADHESIVE ANCHOR TO CONCRETE	HILTI HIT - HY 200 HILTI HIT - RE 500-V3 SIMPSON AT - X3 SIMPSON SET - XP DEWALT/POWERS PURE+110	ESR-3187 ESR-3814 ESR-0263 ESR-3037 ESR-3298

023000 – FOUNDATION AND SLAB ON GRADE

- FOUNDATION DESIGN BASED UPON GEOTECHNICAL REPORT BY: CONVERSE CONSULTANTS LTD. UPDATED GEOTECHNICAL REPORT, ATHLETIC FIELD RAMP REHABILITATION PROJECT, LA MIRADA HIGH SCHOOL, 13520 ADELA DRIVE, LA MIRADA, CALIFORNIA. CONVERSE PROJECT NO. 20-31-324-01, DATED: SEPTEMBER 17, 2020.
- THE CONTRACTOR SHALL CONFORM TO ALL RECOMMENDATIONS AND CONDITIONS INDICATED IN THE REPORT. NOTE THAT THE STRUCTURAL DOCUMENTS DO NOT NECESSARILY INDICATE ALL SUBGRADE PREPARATION AND UNDERLAYMENT REQUIREMENTS. SEE THE GEOTECHNICAL REPORT FOR SITE SOIL CONDITIONS, ESPECIALLY REGARDING EXCAVATION, TRENCHING AND COMPACTION METHODS.
- A GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE OBSERVATION AND TESTING SERVICES DURING THE GRADING AND FOUNDATION PHASE OF THE CONSTRUCTION.
- FOUNDATION BEARING AND FILL MATERIALS UNDER STRUCTURE SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER AND BUILDING INSPECTOR BEFORE PLACING CONCRETE.
- UNLESS OTHERWISE STATED BY THE GEOTECHNICAL ENGINEER, EXISTING UNDOCUMENTED FILL WITHIN THE BUILDING FOOTPRINT SHALL BE REMOVED AND RECOMPACTED. TOPSOILS, ORGANIC MATERIAL, AND OTHER DEBRIS SHALL BE REMOVED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. NATIVE AND IMPORTED SOILS SHALL BE APPROVED AS FILL BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
- CONTRACTOR SHALL COORDINATE BOTTOM OF FOOTINGS AND GRADE BEAMS WITH FINISH GRADE AND UTILITIES PRIOR TO EXCAVATION. COORDINATE WITH ARCHITECTURAL AND CIVIL PLANS FOR LOCATION OF FINISH GRADE, FINISH FLOOR, SLOPE AND DEPRESSIONS.
- FOUNDATION ELEVATIONS AND OTHER OVEREXCAVATION REQUIREMENTS ON THE CONSTRUCTION DOCUMENTS SHALL BE USED FOR PRICING. ACTUAL DEPTH OF REMOVAL WILL BE DETERMINED AS DIRECTED BY THE GEOTECHNICAL ENGINEER DURING GRADING.
- ALL TRENCHES SHALL COMPLY WITH APPLICABLE OSHA REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UNDERGROUND SERVICES WHETHER SHOWN ON THE DRAWINGS OR NOT, AND SHALL PROTECT ALL UTILITY LINES, ETC. ENCOUNTERED DURING EXCAVATION.
- SUBGRADE WITHIN THE BUILDING FOOTPRINT SHALL BE MECHANICALLY COMPACTED IN LAYERS WITH THE APPROVAL OF THE GEOTECHNICAL ENGINEER. BACKFILL JETTING OR FLOODING IS NOT PERMITTED.
- BACKFILL BEHIND RETAINING WALLS SHALL BE PERFORMED AFTER NEW CONCRETE OR MASONRY HAS ATTAINED ITS FULL DESIGN STRENGTH. WALL DRAINAGE MUST BE PROVIDED, UNLESS OTHERWISE NOTED IN THE GEOTECHNICAL REPORT OR CONSTRUCTION DOCUMENTS PROVIDE A 12-INCH WIDE CONTINUOUS PEA GRAVEL STRIP IMMEDIATELY BEHIND THE WALL WITH PERFORATED DRAIN LINES AT THE BASE CONNECTED TO A DESIGNED DRAINAGE SYSTEM.

MINIMUM FOOTING AND SLAB-ON-GRADE SCHEDULE

MINIMUM FOOTING WIDTH:	1'-6" FOR CONTINUOUS WALL FOOTING 2'-0" FOR ISOLATED PAD / COLUMN FOOTINGS
MINIMUM FOOTING EMBEDMENT:	1'-6" BELOW LOWEST ADJACENT GRADE AND 1'-0" INTO CERTIFIED COMPACTED FILL OR APPROVED UNDISTURBED NATIVE SOIL.
MINIMUM SUBGRADE RELATIVE COMPACTION PER ASTM D1557	90% UNDER FOUNDATIONS AND SLAB-ON-GRADE
MINIMUM SLAB-ON-GRADE:	5" THICK WITH #4 @ 1'-6" ON CENTER EACH WAY POSITIONED 2" CLEAR FROM TOP OF SLAB, ON PREPARED SUBGRADE.

DESIGN LOAD BEARING VALUES OF SOILS

ALLOWABLE SOIL BEARING:	2000 PSF (DL+LL) BEARING ON COMPACTED OR ENGINEERED FILL. AN ADDITIONAL ONE-THIRD INCREASE IS PERMITTED FOR WIND OR SEISMIC EFFECTS.
ALLOWABLE COEFFICIENT OF FRICTION: INCREASE IS PERMITTED FOR WIND OR	0.3 AT FOUNDATIONS WITH DEAD LOAD FORCES ONLY. NO SEISMIC EFFECTS.
ALLOWABLE PASSIVE SOIL PRESSURE:	150 PSF/FT OF DEPTH ON THE SIDES OF FOUNDATIONS POURED AGAINST COMPACTED FILL. A ONE-THIRD INCREASE IS PERMITTED FOR WIND AND SEISMIC EFFECTS. (MAXIMUM 2,000 PSF)
LATERAL RESISTANCE:	PROVIDED BY FRICTION AND 80% PASSIVE EARTH PRESSURE, WHEN COMBINED REDUCE THE PASSIVE COMPONENT BY ONE-THIRD.
CANTILEVER RETAINING WALL DESIGN EQUIVALENT FLUID PRESSURE:	40 PSF/FT OF DEPTH - ACTIVE PRESSURE FOR LEVEL SOIL. TRIANGULAR PRESSURE DISTRIBUTION. AN ADDITIONAL EQUIVALENT FLUID PRESSURE OF ONE (1) POUND PER CUBIC FOOT FOR EVERY TWO (2) DEGREES OF SLOPE INCLINATION. WALLS TALLER THAN 6 FEET SHOULD BE DESIGNED TO RESIST ADDITIONAL EARTH PRESSURE 20H.
RESTRAINED WALL DESIGN EQUIVALENT FLUID PRESSURE:	60 PSF / FT OF DEPTH - ACTIVE PRESSURE FOR SOIL (TRIANGULAR PRESSURE DISTRIBUTION) AN ADDITIONAL EQUIVALENT FLUID PRESSURE OF ONE (1) POUND PER CUBIC FOOT FOR EVERY TWO (2) DEGREES OF SLOPE INCLINATION. WALLS TALLER THAN 6 FEET SHOULD BE DESIGNED TO RESIST ADDITIONAL EARTH PRESSURE 20H.

032000 – REINFORCING STEEL

- PLACING TOLERANCES AND BAR SUPPORTS SHALL CONFORM TO THE "MANUAL OF STANDARD PRACTICE" FOR REINFORCED CONCRETE CONSTRUCTION, BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI).
- ALL REINFORCING BAR (REBAR) STEEL SHALL BE DEFORMED ROUND BARS CONFORMING TO ASTM A615 OR ASTM A706, GRADE 60.
- WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A1064. ADJACENT WWF SHEETS SHALL BE LAPPED 12 INCHES MINIMUM.
- PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING IN POSITIONS INDICATED. CHAIRS OR BOLSTERS WHICH BEAR AGAINST FORMS FOR EXPOSED SURFACES SHALL BE GREY COLORED PLASTIC COATED STEEL OR STAINLESS STEEL.
- REINFORCING BARS SHALL BE KEPT CLEAN AND FREE OF OIL, GREASE AND LOOSE RUST OR MILL SCALE.
- BEND REINFORCING BARS COLD. BARS PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT.
- ALL REINFORCING SHALL BE CONTINUOUS UNLESS NOTED OTHERWISE, WITH CONTACT LAP SPICES PER THE TYPICAL DETAILS OR AS SHOWN.
- PROVISION FOR LAP SPICES OR DOWELS SHALL BE PROVIDED ACROSS ALL CONSTRUCTION JOINTS AND SHALL BE THE SAME GRADE, SIZE AND SPACING AS REINFORCING CONTINUING WITHOUT UNLESS NOTED OTHERWISE. IN LIEU OF SPICES OR DOWELS, THE CONTRACTOR MAY SUBMIT FOR SEOR APPROVAL THE LOCATION AND MANUFACTURER DATA OF FORMSAVERS OR COUPLERS PRIOR TO THEIR USE.
- ALL BENDS WITHIN HOOKS, STIRRUPS, HOOPS AND CROSS-TIES SHALL ENGAGE A LONGITUDINAL BAR. PROVIDE A #5 CONTINUOUS BAR WHERE ONE IS NOT SPECIFICALLY DETAILED.
- CLEARANCE BETWEEN PARALLEL BARS, OR BARS AND CONSTRUCTION JOINTS SHALL BE NOT LESS THAN THE SMALLER OF 1 INCH, 1 BAR DIAMETER, OR THE MAXIMUM AGGREGATE SIZE. UNLESS NOTED OTHERWISE, BARS IN PARALLEL LAYERS SHALL BE PLACED IN ALIGNMENT WITH ONE ANOTHER.
- MAINTAIN A MINIMUM COVER FROM FACE OF CONCRETE TO EDGE OF REINFORCEMENT PER THE MINIMUM CONCRETE COVER OF REINFORCEMENT SCHEDULE OR AS DETAILED. PROVIDE THE LARGEST COVER REQUIRED FOR ALL APPLICABLE CONDITIONS AND BAR SIZES. WHERE #3 STIRRUPS OR TIES ARE USED, ENSURE THAT THE COVER FOR LONGITUDINAL BARS IS ADEQUATE.
- THE FOLLOWING REINFORCEMENT SHALL CONFORM TO ASTM A706:
 - REINFORCEMENT TO BE WELDED.