# GENERAL STRUCTURAL NOTES

## STRUCTURAL NOTES

**GENERAL**

1. THESE GENERAL NOTES SHALL APPLY UNLESS NOTED OTHERWISE ON THE PLANS AND DETAILS.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS AND COORDINATE ALL DETAILS AND DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS WITH RELATED REQUIREMENTS ON ARCHITECTURAL, MECHANICAL, ELECTRICAL AND/OR CIVIL DRAWINGS. THE ARCHITECT OR ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO STARTING WORK
3. WHERE A CONFLICT OCCURS BETWEEN THE SPECIFICATIONS, NOTES ON THE DRAWINGS, GENERAL NOTES AND SPECIFIC DETAILS, THE MORE RESTRICTIVE SHALL GOVERN.
4. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE, 2021 EDITION.
5. DO NOT SCALE DRAWINGS.
6. THE DESIGN, ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC., IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND HAS NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE PRIOR TO THE APPLICATION OF ALL PERMANENT LATERAL BRACING, ROOF AND FLOOR DIAPHRAGMS AND FINISH MATERIALS. THE CONTRACTOR SHALL PROVIDE THE NECESSARY BRACING TO INSURE STABILITY PRIOR TO THE APPLICATION OF THE AFOREMENTIONED MATERIALS. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE THE INSPECTION OF THE ABOVE ITEMS.
7. VIBRATIONAL EFFECTS OF MECHANICAL EQUIPMENT ARE ASSUMED TO BE NEGLIGIBLE TO STRUCTURAL MEMBERS. SEE MECHANICAL DRAWING FOR REQUIRED VIBRATION ISOLATORS.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT IN CONJUNCTION WITH THE PERFORMANCE OF THIS WORK.
9. DIMENSIONS AND LOCATIONS OF ALL DOOR AND WINDOW OPENINGS SHALL BE DICTATED BY THE ARCHITECTURAL DRAWINGS. FLOOR, WALL AND ROOF OPENINGS AS REQUIRED BY OTHER TRADES SHALL BE VERIFIED FROM SHOP DRAWINGS, EQUIPMENT DATA, ETC.
10. ITEMS IDENTIFIED BY A TRADE NAME ARE INDICATIVE OF A LEVEL OF PERFORMANCE OR A GRADE OF MATERIAL. IN ALL SUCH CASES, THE PHRASE "OR APPROVED EQUAL" SHALL APPLY.
11. BACKFILL SHALL NOT BE PLACED AGAINST WALLS BEFORE FLOORS OR FRAMING SUPPORTING THE WALLS AT THE BOTTOM AND TOP ARE SECURELY IN PLACE EXCEPT AS SPECIFICALLY STATED IN WRITING BY THE STRUCTURAL ENGINEER.
12. PIPES, CONDUIT, DUCTS, ETC., SHALL NOT BE EMBEDDED INSIDE STRUCTURAL MEMBERS UNLESS SHOWN ON THE DRAWINGS OR PERMITTED IN WRITING BY THE STRUCTURAL ENGINEER.

**CODES AND SPECIFICATIONS**

1. AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION
2. 2021 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC).
3. ASCE 7-10, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
4. AISC, "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
5. AISC, "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
6. AISC, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
7. ASTM STANDARDS FOR THE MATERIALS LISTED.
8. AWS STRUCTURAL WELDING CODES AWS D1.1-2010
9. SSPC MANUALS OF (1) GOOD PAINTING PRACTICE AND (2) SYSTEMS AND SPECIFICATIONS.
10. OSHA STANDARDS.
11. STEEL JOIST INSTITUTE RECOMMENDED PRACTICE FOR STEEL JOISTS (FOR STEEL JOISTS ONLY).
12. ACI 318/2021 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
13. ACI 304, "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE".
14. ACI 301-10 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
15. ACI 305, "RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING".
16. TMS402-13/602-13 BUILDING CODE REQUIREMENTS AND SPECIFICATIONS FOR MASONRY STRUCTURES, 2021
17. NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, 2021
18. ACI 347, "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK"
19. ACI 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT".

**DESIGN CRITERIA**

1. RISK CATEGORY..... CATEGORY III
2. LOAD CRITERIA:
   - 2.1.DEAD LOADS ..... 15 PSF
   - 2.2.LIVE LOADS ..... 40 PSF
   - 2.3.ROOF LOADS
     - 2.3.1. LIVE
       - 2.3.1.1. ROOF ..... 20 PSF
       - 2.3.1.2. MECHANICAL ..... 30 PSF
   - 2.4.SNOW LOAD
     - 2.4.1. SNOW LOAD ..... 0 PSF
   - 2.5. WIND LOAD: (ASCE 7-10/ 2015 IBC)
     - BASIC DESIGN WIND VELOCITY ..... 115 MPH
     - OCCUPANCY CLASSIFICATION ..... CATEGORY III
     - EXPOSURE CATEGORY ..... B
     - INTERNAL PRESSURE COEFFICIENT (GCPI) ..... 0.18
     - DESIGN WIND PRESSURE ..... 25 PSF
   - 2.6.SEISMIC LOADS
     - RISK CATEGORY ..... III
     - IMPORTANCE FACOTE (IE) ..... 1.25
     - SEISMIC SITE CLASS ..... C
     - SDS = 0.051 G; SDI = 0.038 G
     - SEISMIC DESIGN CATEGORY ..... A

**CONCRETE**

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AS FOLLOWS:

| USAGE | COMPREHENSIVE STRENGTH | WATER/CEMENT RATIO (MAX.) |
|---|---|---|
| SLAB-ON GRADE, GRADE BEAMS/FOOTINGS | 3,000 PSI | 0.48 |

**SUBMITTALS**

1. SHOP DRAWINGS SHALL BE PREPARED FOR ALL STRUCTURAL ITEMS AND SUBMITTED FOR REVIEW BY THE ENGINEER. CONTRACT DRAWINGS SHALL NOT BE REPRODUCED AND USED AS SHOP DRAWINGS. ALL ITEMS DEVIATING FROM THE CONTRACT DRAWINGS OR FROM PREVIOUSLY SUBMITTED SHOP DRAWINGS SHALL BE CLOUDED.
2. THE CONTRACTOR SHALL REVIEW SHOP DRAWINGS FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SHALL CERTIFY THAT HE HAS DONE SO BY A STAMP NOTING THAT THE DRAWINGS HAVE BEEN "APPROVED" AND WHICH BEARS THE SIGNATURE (OR INITIALS) OF AN AUTHORIZED REPRESENTATIVE OF THE CONTRACTOR AND THE DATE.
3. CORRECTIONS OR COMMENTS ON SHOP DRAWINGS OR MANUFACTURER'S DATA SHEETS DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. THE ENGINEER'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRECTING ALL QUANTITIES AND DIMENSIONS. SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION AND COORDINATING HIS WORK WITH THAT OF ALL OTHER CONTRACTORS.
4. REFER TO INDIVIDUAL SECTIONS FOR SPECIFIC SUBMITTAL REQUIREMENTS.

**SOILS AND FOUNDATION**

1. ALL PERIMETER BEAMS AND SLAB SHALL EXTEND THROUGH FILL AND INTO UNDISTURBED NATURAL SOILS.
2. LOCATE THE BOTTOM OF ALL EXTERIOR FOOTINGS A MINIMUM OF 24" INTO UNDISTURBED LIMESTONE
3. LOCATE THE BOTTOM OF ALL INTERIOR FOOTINGS A MINIMUM OF 24" BELOW TOP OF FINISH CONCRETE SLAB UNLESS OTHERWISE NOTED
4. ALL COMPACTED FILL SHALL HAVE A MINIMUM DENSITY OF 95% OF THE MAXIMUM OBTAINABLE IN ACCORDANCE WITH TEX-113-E OR IN ACCORDANCE WITH THE SOILS REPORT.
5. THE FOUNDATION DESIGN IS BASED UPON A REPORT BY:

   SEC SOLUTIONS

   PROJECT 22174
6. SHALLOW FOUNDATION

   6.1.BUILDING SLAB

   REMOVE A MINIMUM OF FAT CLAYS (STRATUM I) AND REPLACE WITH COMPACTED SELECT FILL TO THE DESIRED FINAL GRADE ELEVATION. FOLLOW SELECT FILL AND COMPACTION REQUIREMENTS OUTLINE IN THE GEOTECHNICAL REPORT.

   ALLOWABLE BEARING PRESSURE: 3,000 PSF (2FT)

**SUBGRADE PREPARATION**

1. STRUCTURAL FILL MATERIAL SHALL MEET ONE OF THE FOLLOWING REQUIREMENTS AS VERIFIED BY GEOTECHNICAL ENGINEER WHEN PROPERLY SLAKED AND TESTED BY STANDARD LABORATORY METHODS:

   PERCENT FINER ON 2-1/2" SCREEN ..... 100%
   PERCENT FINER ON 1-1/2" SCREEN ..... 75%-100%
   PERCENT FINER ON 7/8" SCREEN ..... 45%-85%
   PERCENT FINER ON NO. 4 SCREEN ..... 25%-55%
   PERCENT FINER ON NO. 40 SCREEN ..... 10%-40%.

2. PRIOR TO PLACING FILL MATERIAL, REMOVE ALL ORGANIC AND OTHER DELETERIOUS MATERIAL FROM THE EXISTING SUB GRADE FOR A DISTANCE OF 2'-0" BEYOND BUILDING LINE. ALL EXPOSED SURFACES SHALL THEN BE SCARIFIED TO A DEPTH OF 6 INCHES. WATERED AS REQUIRED AND RE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DEFINED BY ASTM D 6938 (STANDARD PROCTOR TEST) AT A MOISTURE CONTENT WITHIN 3 PERCENT OF THE OPTIMUM MOISTURE CONTENT.
3. STRUCTURAL FILL SHALL BE PLACED IN 8 INCH LOOSE LIFTS. WATERED PER PLAN AND COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DEFINED IN TEX-113-E AT A MOISTURE CONTENT WITHIN 3 PERCENT OF THE OPTIMUM MOISTURE CONTENT.
4. COMPACTION AND MOISTURE CONTENT OF SUB GRADE AND EACH LIFT OF STRUCTURAL FILL SHALL BE INSPECTED AND APPROVED BY A QUALIFIED ENGINEERING TECHNICIAN, SUPERVISED BY A GEOTECHNICAL ENGINEER.
5. STRUCTURAL FILL SHALL NOT BE PLACED BEYOND THE LIMITS OF THE EXTERIOR BUILDING STRUCTURE.
6. PROVIDE A 10 MIL POLYETHYLENE VAPOR BARRIER. PLACE VAPOR BARRIER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION OF TOP OF STRUCTURAL FILL
7. SUBGRADE PREPARATION SHALL BE INSPECTED AND APPROVED BY A GEOTECHNICAL ENGINEER.

**SLAB ON GROUND**

1. SOIL SUPPORT SYSTEM: THE SOIL SUPPORT SYSTEM SHOULD BE WELL DRAINED AND PROVIDE ADEQUATE AND UNIFORM LOAD-BEARING SUPPORT.
2. BASE MATERIAL: THE MATERIAL SHOULD BE A COMPATIBLE, EASY-TO-TRIM, GRANULAR FILL THAT WILL REMAIN STABLE AND SUPPORT CONSTRUCTION TRAFFIC. A CLEAN, FINE-GRADED MATERIAL WITH AT LEAST 10 PERCENT TO 30 PERCENT OF PARTICLES PASSING A NO: 100 SIEVE BUT NOT CONTAMINATED WITH CLAY, SILT, ORGANIC MATERIAL IS RECOMMENDED.
3. VAPOR BARRIER: IF A VAPOR BARRIER OR VAPOR RETARDER IS REQUIRED DUE TO LOCAL CONDITIONS, THESE PRODUCTS SHOULD BE PLACED UNDER A MINIMUM OF 4" OF TRIMMABLE, COMPACTIBLE, GRANULAR FILL (NOT SAND). A USUALLY GRADED FROM 1 1/2" TO 2" DOWN TO ROCK DUST, IS SUITABLE FOLLOWING COMPACTION. THE SURFACE CAN BE CHOCKED OFF WITH A FINE GRADED MATERIAL TO REDUCE FRICTION BETWEEN THE BASE MATERIAL AND THE SLAB. THE RECOMMENDED POLYETHYLENE FILM A THICKNESS OF LOT LESS THAN 10 MILS BE USED.

**SLAB ON GROUND (CONT.)**

4. SAW-CUT JOINTS: THE RECOMMENDED SAW CUTTING SHOULD BE PERFORMED: (I) BEFORE CONCRETE STARTS TO CURE (II) AS SOON AS THE CONCRETE SURFACE IS FIRM ENOUGH TO BE TORN OR DAMAGED BY THE BLADE, AND (III) BEFORE RANDOM - DRYING - SHRINKAGE CRACKS FAN FORM IN THE CONCRETE SLAB. IF SAWING IS UNDULY DELAYED. THE CONCRETE CAN CRACK RANDOMLY BEFORE IT IS SAWED. ADDITIONALLY, DELAY CAN GENERATE CRACKS THAT RUN OFF FROM THE SAW BLADE TOWARD THE EDGE OF THE SLAB AT AN OBTUSE OR SKEWED ANGLE TO THE SAW CUT.
5. JOINT FILLING: WHERE THERE ARE WET CONDITIONS. HYGIENIC AND DUST -CONTROL REQUIREMENTS, OR WHERE THE FLOOR IS SUBJECTED TO TRAFFIC BY SMALL. HARD-SHEELED VEHICLES SUCH AS FORKLIFTS. CONTRACTION & CONSTRUCTION JOINTS SHOULD BE FILLED AND PROTECTED WITH A SEMIRIGID EPOXY THAT GIVES ADEQUATE SUPPORT TO THE JOINT EDGES AND HAS SUFFICIENT RESISTANCE TO WEAR.

**CONCRETE**

1. CEMENT SHALL CONFORM TO ASTM C150, TYPE V. WATER TO CEMENT RATIO SHALL NOT EXCEED 0.45 UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS IN ACCORDANCE WITH IBC. THE MIX DESIGNS SHALL BE SIGNED AND STAMPED BY A CIVIL ENGINEER REGISTERED IN TEXAS.
3. HARDROCK AGGREGATE SHALL CONFORM TO ASTM C33.
4. APPROXIMATE AIR-DRY DENSITY FOR HARDROCK CONCRETE SHALL BE 145 PCF.
5. LIGHTWEIGHT CONCRETE AGGREGATE SHALL CONFORM TO ASTM C330.
6. APPROXIMATE AIR-DRY DENSITY FOR LIGHTWEIGHT CONCRETE SHALL NOT EXCEED 110 PCF.
7. ALL CONCRETE OF COMPRESSIVE STRENGTH GREATER THAN 2500 PSI SHALL HAVE CONTINUOUS INSPECTION BY A REGISTERED DEPUTY INSPECTOR APPROVED BY THE BUILDING DEPARTMENT.
8. STRIPPING OF FORMS AND SHORING SHALL BE IN STRICT ACCORDANCE WITH ACI 318, LATEST EDITION.
9. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS OF ALL PIPES, CONDUITS, ETC.

**CONCRETE REINFORCEMENT**

1. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. REINFORCING TO BE WELDED SHALL BE ASTM A706, GRADE 60.
2. LOW HYDROGEN WELDING RODS SHALL BE USED FOR ALL WELDING OF REINFORCING BARS.
3. CONTINUOUS REINFORCING SHALL BE SPLICED WITH 30 BAR DIAMETERS MINIMUM (COMPRESSION) IN CONCRETE AND MASONRY AND 48 BAR DIAMETERS MINIMUM (TENSION) IN CONCRETE AND MASONRY UNLESS NOTED OTHERWISE.
4. REINFORCING BARS SHALL NOT BE REBENT WITHOUT PRIOR WRITTEN APPROVAL OF STRUCTURAL ENGINEER.
5. REINFORCING SHALL BE SPLICED ONLY AS SHOWN OR NOTED. SPLICES AT OTHER LOCATIONS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
6. SPLICES IN ADJACENT HORIZONTAL WALL REINFORCING BARS SHALL BE STAGGERED 4'-0" MINIMUM UNLESS OTHERWISE NOTED. PROVIDE DOWELS IN FOOTINGS AND/OR GRADE BEAMS THE SAME SIZE AND NUMBER AS VERTICAL WALL OR COLUMN REINFORCING. DOWELS SHALL HAVE A MINIMUM PROJECTION EQUAL TO STANDARD LAP SPLICE UNLESS OTHERWISE NOTED.
7. ALL REINFORCING, ANCHOR BOLTS AND OTHER INSERTS SHALL BE SECURED IN PLACE PRIOR TO PLACING CONCRETE OR GROUTING MASONRY.
8. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
9. MINIMUM CONCRETE COVER SHALL BE AS SPECIFIED IN ACI 318 9.1.LATEST EDITION.
   - 9.1.1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ..... 3"
   - 9.1.2. CONCRETE EXPOSED TO EARTH OR WEATHER:
     - NO. 6 THROUGH NO. 18 BAR ..... 2"
     - NO. 5 BAR, W31 OR D31 WIRE AND SMALLER ..... 1 1/2"
   - 9.0.1. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:

     SLAB, WALL, JOISTS:
     - NO. 14 AND NO. 18 BAR ..... 1 1/2"
     - NO. 11 BAR AND SMALLER ..... 3/4"

     BEAMS, COLUMNS:

     PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS ... 1 1/2"

     SHELLS, FOLDED PLATE MEMBERS:
     - NO. 6 BAR AND LARGER ..... 3/4"
     - NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER ..... 1/2"
10. BARS WITH A CARBON EQUIVALENT ABOVE 0.75 SHALL NOT BE WELDED. WELDING SHALL NOT BE DONE ON OR WITHIN TWO BAR DIAMETERS OF ANY PORTION OF A BAR THAT HAS BEEN BENT COLD.


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F-15009


SEC SOLUTIONS

22601 RANCH RD 12
ARMADILLO SOUTH 12
Dripping Springs, TX 78620

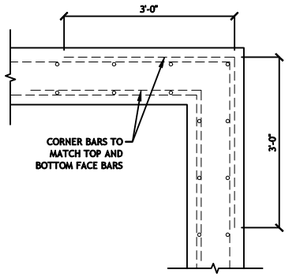
STATE OF TEXAS
MARCOS V. DEQUEIROGA
101049
LICENSED PROFESSIONAL ENGINEER
F-15009

| NO. | REVISION | DATE |
|---|---|---|
| 1. | REVIEW SET | 08-03-22 |

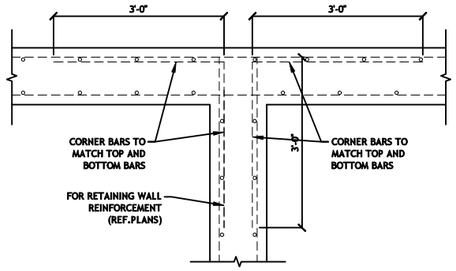
| | |
|---|---|
| PROJECT: | 22174 |
| DATE: | 08-03-22 |
| DRAWN BY: | FJ |

SCALE: AS NOTED

S0.0




## CORNER BAR DETAIL 1
N.T.S.




## BAR @ INTERIOR INTERSECTION DETAIL 2
N.T.S.

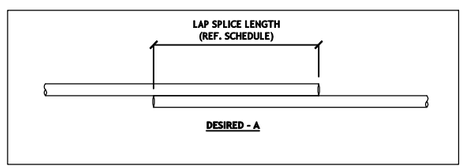
| MINIMUM EMBEDMENT WITH STANDARD 90 DEG. (HOOK GRADE 60 STEEL) | | | |
|---|---|---|---|
| BAR SIZE | CONC F'C = 3000 OR GREATER | CONC F'C = 4000 OR GREATER | CONC F'C = 6000 OR GREATER |
| #3 | 0'-6" | 0'-6" | 0'-6" |
| #4 | 0'-8" | 0'-7" | 0'-6" |
| #5 | 0'-10" | 0'-9" | 0'-8" |
| #6 | 0'-1" | 0'-10" | 0'-9" |
| #7 | 1'-2" | 1'-0" | 0'-11" |
| #8 | 1'-4" | 1'-2" | 1'-0" |
| #9 | 1'-6" | 1'-3" | 1'-2" |
| #10 | 1'-8" | 1'-5" | 1'-4" |
| #11 | 1'-10" | 1'-7" | 1'-5" |
| #14 | 2'-0" | 2'-9" | 2'-5" |
| #18 | 2'-2" | 3'-7" | 3'-3" |

| LAP SPLICE LENGTH (GRADE 60 STEEL) | | | | | | |
|---|---|---|---|---|---|---|
| BAR SIZE | LAP LENGTH (TOP BARS) | LAP LENGTH (OTHER BARS) | LAP LENGTH (TOP BARS) | LAP LENGTH (OTHER BARS) | LAP LENGTH (TOP BARS) | LAP LENGTH (OTHER BARS) |
| #3 | 2'-7" | 2'-0" | 2'-3" | 1'-9" | 2'-1" | 1'-8" |
| #4 | 3'-4" | 2'-7" | 2'-11" | 2'-4" | 2'-8" | 2'-1" |
| #5 | 4'-1" | 3'-3" | 3'-7" | 2'-10" | 3'-3" | 2'-7" |
| #6 | 4'-11" | 3'-10" | 4'-3" | 3'-4" | 3'-10" | 3'-0" |
| #7 | 7'-0" | 5'-5" | 6'-1" | 4'-9" | 5'-6" | 4'-3" |
| #8 | 8'-0" | 6'-2" | 6'-11" | 5'-5" | 6'-3" | 4'-10" |
| #9 | 8'-11" | 6'-11" | 7'-9" | 6'-1" | 7'-0" | 5'-5" |
| #10 | 10'-1" | 7'-9" | 8'-9" | 6'-9" | 7'-10" | 6'-1" |
| #11 | 11'-3" | 8'-7" | 9'-8" | 7'-6" | 8'-8" | 6'-9" |
| #14 | MECH. COUPLERS | MECH. COUPLERS | MECH. COUPLERS | MECH. COUPLERS | MECH. COUPLERS | MECH. COUPLERS |
| #18 | MECH. COUPLERS | MECH. COUPLERS | MECH. COUPLERS | MECH. COUPLERS | MECH. COUPLERS | MECH. COUPLERS |

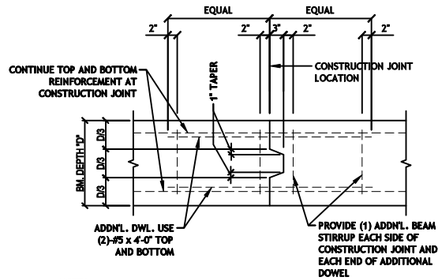
| VERT. BARS | |
|---|---|
| BAR SIZE | LAP SPLICE LENGTH |
| #4 | 1'-11" |
| #5 | 2'-4" |
| #6 | 2'-9" |
| #7 | 3'-3" |
| #8 | 3'-9" |
| #9 | 4'-3" |
| #10 | 4'-9" |
| #11 | 5'-3" |
| #14 | MECH. COUPLERS |
| #18 | MECH. COUPLERS |

**BAR SPLICING NOTES:**
1. SEE DETAILS A THRU B FOR TYPICAL BAR SPLICE CONDITIONS.
2. ALL COLUMN BAR SPLICES ARE TO BE IN ACCORDANCE WITH "SPLICE SCHEDULE T" UNLESS NOTED OTHERWISE.
3. LAP SPLICE LENGTHS ARE TO BE CALCULATED BASED ON THE SMALLER BAR BEING LAPPED.
4. ALL COLUMN BAR SPLICES IN COLUMNS WHERE THE AREA OF REINFORCING DIVIDED BY THE AREA OF THE COLUMN CROSS SECTION IS GREATER THAN 0.04 (4%) SHALL BE MECHANICAL SPLICES SINCE THE CODE DOES NOT ALLOW MORE THAN 8%
5. SPLICE ALL COLUMN BARS AT EACH FLOOR/COLUMN INTERSECTION. DO NOT SPLCIE COLUMN BARS BETWEEN FLOOR/COLUMN INTERSECTIONS EVEN IF THE COLUMN SPANS ACROSS MORE THAN MORE LEVEL WITHOUT ACTUALLY INTERSECTING WITH THE FLOOR FRAMING
6. WHERE VERTICAL BARS ARE OFFSET AT A SPLICE, THE SLOPE OF THE INCLINED POTION OF THE BAR WITH THE AXIS OF THE COLUMN SHALL NOT EXCEED 1:6, AND 3 ADDITIONAL TIES SHALL BE ADDED TO THE TOP OF THE COLUMN CENTERED ON THE BEND.
7. OFFSET LAPPED BARS IN A PLANE NORMAL TO THE TIE.

**NOTES:**
1. TOP BARS ARE DEFINED AS HORIZONTAL BARS LOCATED MORE THAN 12" ABOVE THE BOTTOM OF A POUR
2. LAP SPLICES OF DIFFERENT BAR SIZES MA USE THE SPLICE LENGTH OF THE SMALLER BAR, BUT NOT LESS THAN 80% OF THE SPLICE LENGTH OF THE LARGER BAR

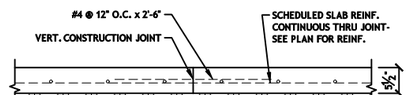



## REBAR SPLICE SCHEDULE 6
N.T.S.




**NOTES:**
1. GENERAL CONTRACTOR SHALL SUBMIT DESIRED CONSTRUCTION JOINT LAYOUT AS A SHOP DRAWING FOR APPROVAL A MINIMUM OF TWO WEEKS PRIOR TO POUR.
2. CONSTRUCTION JOINT LOCATIONS SHALL BE COORDINATED WITH REINFORCING STEEL SUPPLIER AND ERECTOR.
3. JOINT LOCATIONS SHALL BE WITHIN TWO FEET EITHER SIDE OF BEAM MIDSPAN.
4. FOR JOINT LOCATIONS OTHER THAN WITHIN TWO FEET EITHER SIDE OF BEAM MIDSPAN, CONTRACTOR SHALL COORDINATE REQUIRED ADDITIONAL REINFORCEMENT WITH THE ENGINEER ON THE SHOP DRAWINGS.

## GRADE BEAM CONSTRUCTION JOINT 3
N.T.S.



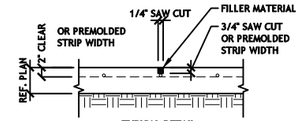

TYPICAL DETAIL
CONSTRUCTION JOINT - SLAB

**SAW CONTROL JOINT NOTES:**
1. MAKE SAW CUT AS SOON AS SLAB IS ABLE TO SUPPORT WEIGHT OF WORKERS AND SAWING EQUIPMENT WITHOUT DAMAGE TO FINISH SURFACE OF SLAB.

**JOINT FILLER MATERIAL NOTES:**
1. FILLER MATERIAL USED SHALL HAVE A MINIMUM SHORE HARDNESS OF 35, AND SHALL CONFORM TO ASTM D2240. JOINT FILLER SHALL BE APPROVED BY ENGINEER PRIOR TO APPLICATION. APPROVED JOINT FILLER IS VULKEM 245 AS MANUFACTURED BY MAMECO INTERNATIONAL OR APPROVED EQUAL.
2. WHERE POSSIBLE, FILLER MATERIAL SHALL BE APPLIED WHEN BUILDING IS UNDER PERMANENT TEMPERATURE CONTROL. THIS SHALL BE EITHER AT THE END OF CONSTRUCTION OF THE COMPLETE BUILDING SHELL, OR A MINIMUM OR 90 DAYS AFTER SLAB CONSTRUCTION.
3. FOLLOW STRICTLY THE MANUFACTURERS RECOMMENDED PROCEDURES FOR APPLYING THE JOINT FILLER.

**NOTES:**
1. CONSTRUCTION JOINTS, IF REQUIRED, SHOULD BE LOCATED ON THE MIDDLE THIRD OF THE SLAB SPAN.
2. CONCRETE SURFACE AT CONSTRUCTION JOINT SHALL BE CLEAN AND FREE OF LAITANCE.

## SLAB CONSTRUCTION JOINT 4
N.T.S.

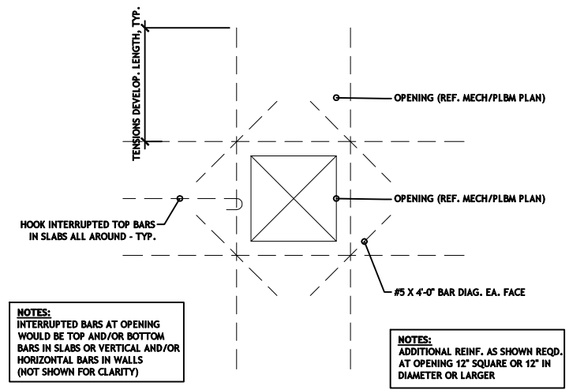



TYPICAL DETAIL
CONSTRUCTION JOINT - SLAB

**FORMED CONTROL JOINT NOTES:**
1. FORM CONTROL JOINTS BY INSERTING PREMOLDED STRIP INTO FRESH CONCRETE UNTIL TOP SURFACE OF STRIP IS FLUSH WITH SLAB SURFACE.
2. TOOL SLAB EDGES ROUND ON EACH SIDE OF INSERT.
3. AFTER CONCRETE HAS CURED, REMOVE INSERTS AND CLEAN GROOVE OF LOOSE DEBRIS.

**DOWEL NOTES:**
1. ALL DOWELS SHALL CONFORM TO ASTM A615.
2. DOWELS SHALL BE CAREFULLY ALIGNED AND SUPPORTED DURING CONCRETING OPERATIONS.

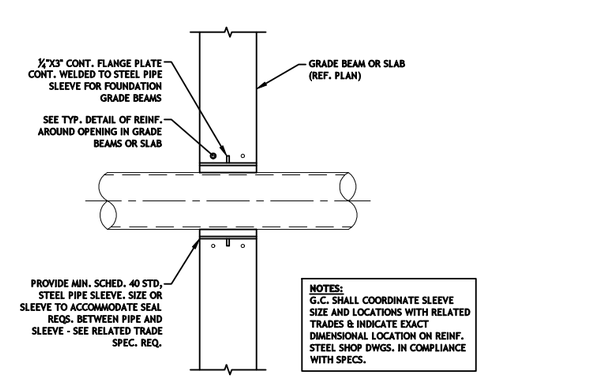
## SLAB CONSTRUCTION JOINT 5
N.T.S.




**NOTES:**
INTERRUPTED BARS AT OPENING WOULD BE TOP AND/OR BOTTOM BARS IN SLABS OR VERTICAL AND/OR HORIZONTAL BARS IN WALLS (NOT SHOWN FOR CLARITY)

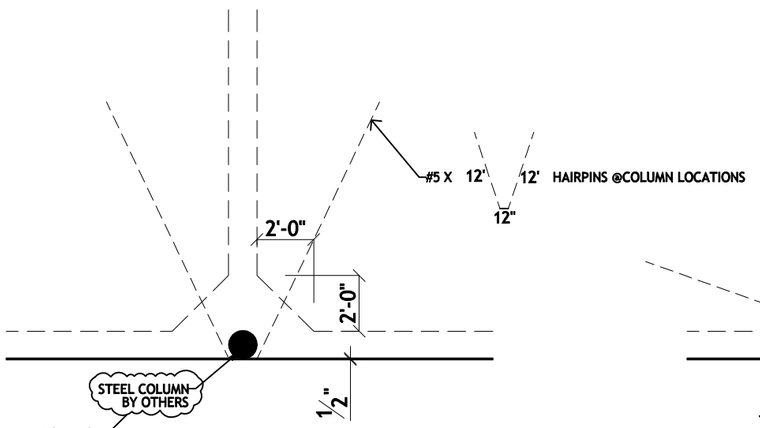
**NOTES:**
ADDITIONAL REINF. AS SHOWN REQD. AT OPENING 12" SQUARE OR 12" IN DIAMETER OR LARGER

## TYPICAL DETAIL REINF. AT SLAB OPENINGS 7
N.T.S.

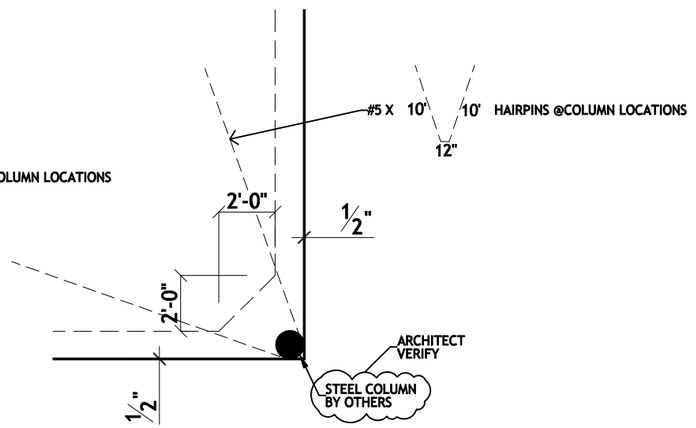



**NOTES:**
G.C. SHALL COORDINATE SLEEVE SIZE AND LOCATIONS WITH RELATED TRADES & INDICATE EXACT DIMENSIONAL LOCATION ON REINF. STEEL SHOP DWGS. IN COMPLIANCE WITH SPECS.

## TYPICAL DETAIL - PIPE/CONDUIT SLEEVE THRU FOUNDATION GRADE BEAM OR SLAB 8
N.T.S.




## DETAIL 9
N.T.S.




## DETAIL 10
N.T.S.

407 Forest St
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SK SOLUTIONS

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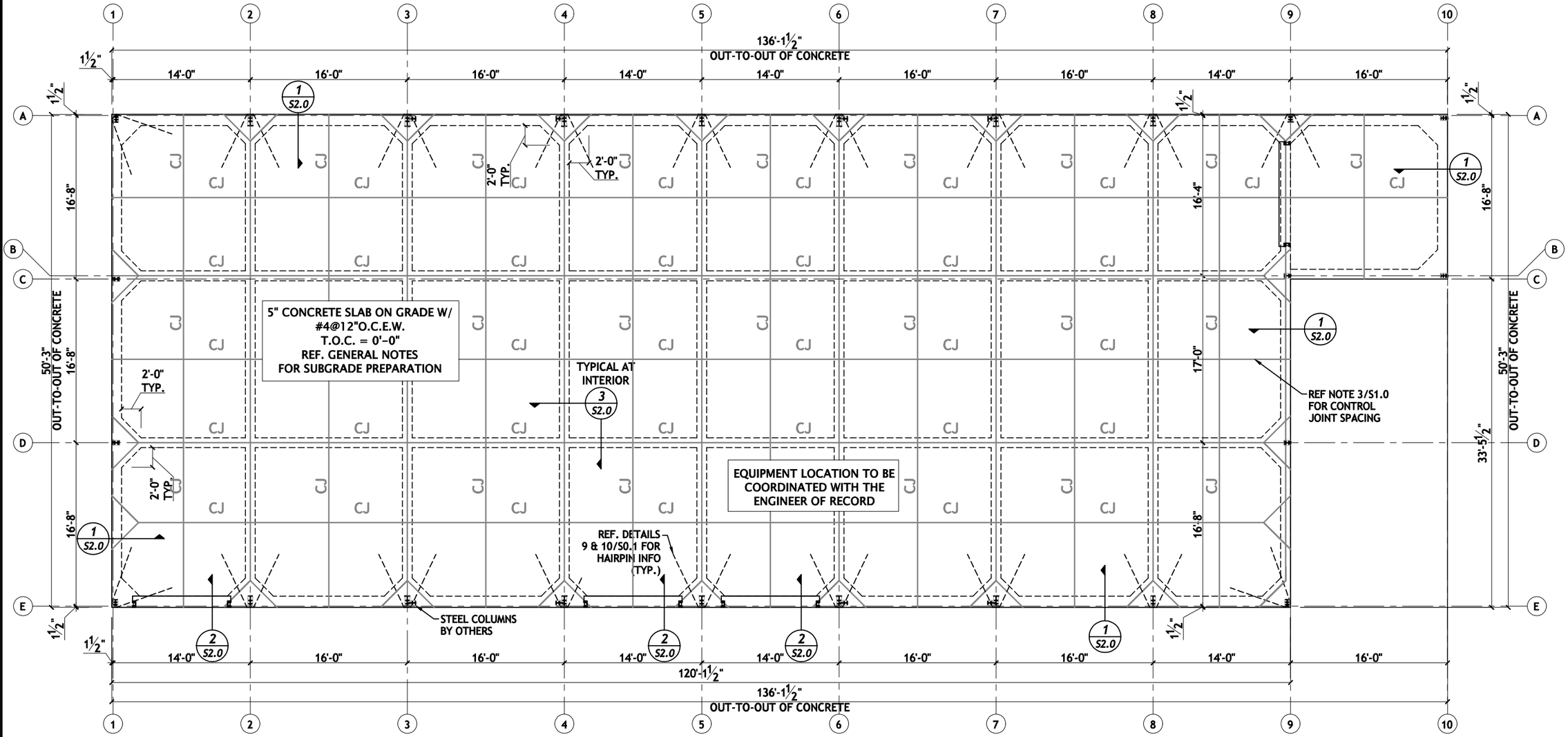
STATE OF TEXAS
MARCOS V. DEQUEIROGA
101049
LICENSED PROFESSIONAL ENGINEER
F-15009

| NO. | REVISION | DATE |
|---|---|---|
| 1. | REVIEW SET | 08-03-22 |

| | |
|---|---|
| PROJECT: | 22174 |
| DATE: | 08-03-22 |
| DRAWN BY: | FJ |

SCALE: AS NOTED

S.01




**PLAN NOTES**

1. FIRST FLOOR TOP OF SLAB ELEVATION 0'-0" (DATUM) UNLESS OTHERWISE NOTED. (REF. CIVIL PLANS FOR FINAL M.S.L.E.)
2. ALL ELEVATIONS SHOWN THUS ARE TO THE TOP OF CONC. ABOVE OR BELOW THE DATUM ELEVATION.
3. CONSTRUCTION/CONTROL JOINT SPACING IN SLAB-ON-GRADE SHALL NOT EXCEED 15'-0" IN ANY DIRECTION. LAYOUT SHOWN ON PLAN IS DIAGRAMMATIC AND A FINAL JOINT LAYOUT PLAN SHALL BE COORDINATED WITH THE ARCHITECT(REF. TYPICAL DETAILS 4 & 5/S0.1)
4. ALL COLUMNS ARE CENTERED ON COLUMN CENTERLINES UNLESS OTHERWISE NOTED.
5. SEE DRAWING S0.0-S0.1 FOR GENERAL NOTES AND ADDITIONAL CONSTRUCTION CRITERIA.
6. CONTROL SURFACE OR SUB-SURFACE WATER TO ALLOW FOUNDATION WORK TO BE PERFORMED/DONE IN DRY UNDISTURBED CONDITIONS.
7. PIPE SLEEVES FOR UTILITIES ARE TO BE TWO PIPE SIZES LARGER THAN THE PIPE SHOWN ON THE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. VERIFY AND COORDINATE WITH THE INDIVIDUAL TRADE CONTRACTOR AS REQUIRED. COORDINATE WITH MEP DRAWINGS FOR REQUIRED LOCATIONS AND INVERT ELEVATIONS.
8. STAKEOUT/LOCATE THE BUILDING REFERENCING THE CIVIL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
9. COORDINATE ALL DIMENSIONS WITH THE ARCHITECTURAL PLANS AND THE SPECIFIC CONTROL PLAN PREPARED FOR EACH LEVEL AND/OR REFER TO THE ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS. NOTIFY THE ARCHITECT/ENGINEER OF ANY DIMENSIONAL DISCREPANCIES.
10. ACI 301-05 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS AND ACI-318-08 BUILDING CODE REQUREMENTS FOR STRUCTURAL CONCRETE.

**DESIGN SUMMARY**

1. CONCRETE COMPRESSIVE STRENGTH (28 DAYS): 3000 PSI
2. SLAB THICKNESS: 4 IN
3. INTERIOR BEAM DIMENSIONS: WIDTH:12" DEPTH: 24"
4. EXTERIOR BEAM DIMENSIONS: WIDTH: 12" DEPTH: 30" (MIN.)(PLAN NOTE 4)

**PLAN NOTES**

1. CONCRETE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND COORDINATE STRUCTURAL PLANS AND DETAILS WITH ARCHITECTURAL DRAWINGS BEFORE CONCRETE WORK.
2. THE ENGINEER OF RECORD SHALL BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
3. REFER TO ARCHITECTURAL DRAWINGS FOR SLAB DROPS & ACCESSIBILITY REQUIREMENTS
4. PERIMETER BEAM TO PENETRATE A MINIMUM OF 24" INTO NATURAL GRADE

**GEOTECHNICAL SUMMARY**

1. GEOTECHNICAL REPORT BY: SEC SOLUTIONS
2. PROJECT NUMBER: 22174
3. DESIGN PVR: 18
4. ALLOWABLE BEARING CAPACITY: 3,000 PSF (2FT)

**PRE-POUR INSPECTION BY SEC REPRESENTATIVE IS REQUIRED.**
**TO SCHEDULE CONTACT OFFICE@SECTEXAS.COM OR CALL 512-215-4364**

# REBAR FOUNDATION PLAN

**SCALE: 3/32"=1'-0"**
**SLAB AREA: 6,305 SF**

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SEC SOLUTIONS

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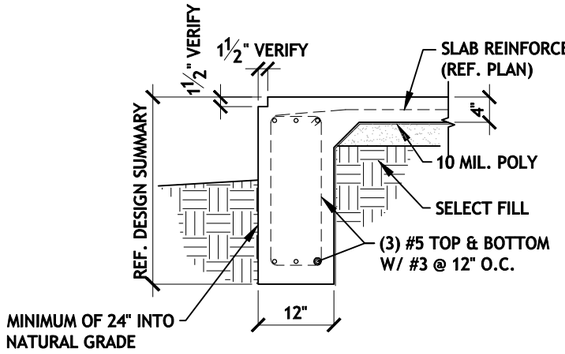
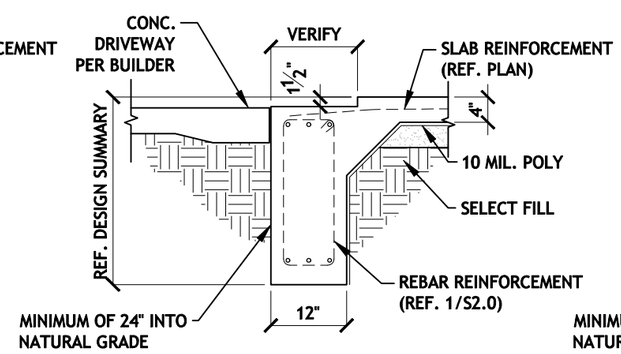


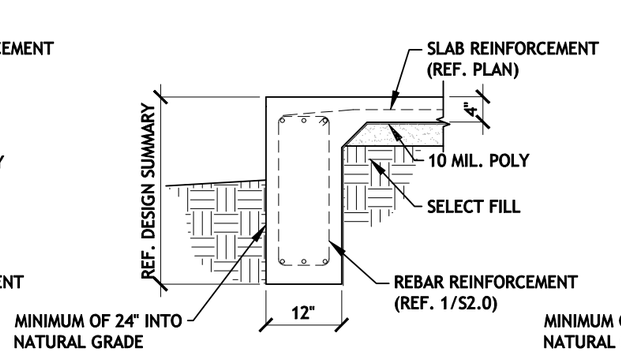

## TYPICAL EXTERIOR BEAM 1

SCALE: NTS



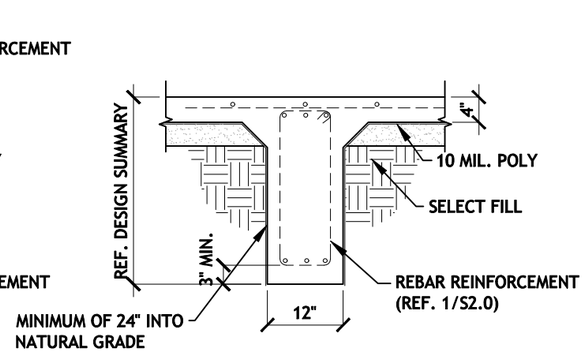

## EXTERIOR BEAM 2

SCALE: NTS



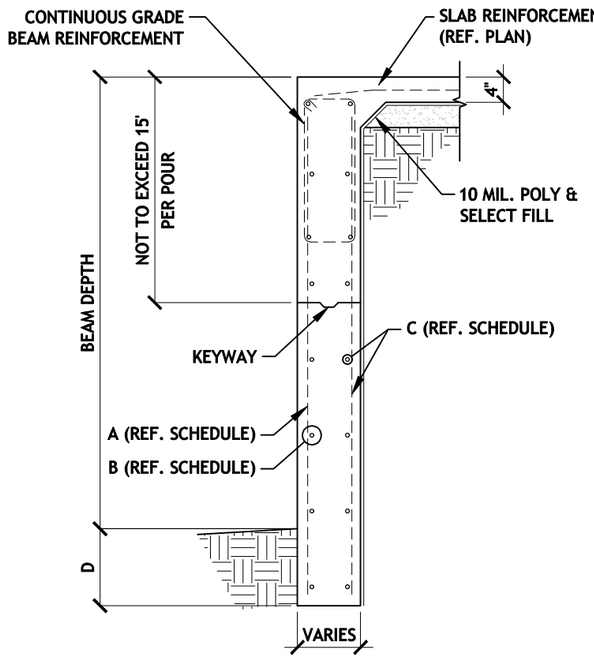

## EXTERIOR BEAM 3

SCALE: NTS




## TYPICAL INTERIOR BEAM 4

SCALE: NTS




## DEEPENED BEAM SECTION 5

**DEEP BEAM REINFORCEMENT SCHEDULE**

| BEAM DEPTH | A VERT. (OUTSIDE MAT) | B HORZ. (OUTSIDE MAT) | C (INSIDE MAT) | BEAM WIDTH | D |
|---|---|---|---|---|---|
| 4'-0" TO 6'-0" | NONE* | NONE* | NONE* | 10" | 6" ROCK 12" SOIL |
| 6'-1" TO 9'-0" | #4 @ 16" O.C. | #4 @ 16" O.C. | NONE | 12" | 6" ROCK 12" SOIL |
| 9'-1" TO 12'-0" | #4 @ 12" O.C. | #4 @ 9" O.C. | NONE | 12" | 6" ROCK 18" SOIL |
| 12'-1" TO 15'-0" | #4 @ 10" O.C. | #4 @ 10" O.C. | #4 @ 12" O.C. E.W. | 12" | 6" ROCK 24" SOIL |
| 15'-1" TO 18'-0" TWO POUR | #5 @ 10" O.C. | #4 @ 12" O.C. | #4 @ 12" O.C. E.W. | 14" | 12" ROCK 30" SOIL |
| 18'-1" TO 21'-0" TWO POUR | #6 @ 10" O.C. *2" CLR | #4 @ 9" O.C. | #4 @ 9" O.C. E.W. | 16" | 18" ROCK 36" SOIL |
| 21'-1" TO 25'-0" TWO POUR | #6 @ 7" O.C. *2" CLR | #4 @ 9" O.C. | #4 @ 9" O.C. E.W. | 18" | 18" ROCK 36" SOIL |
| 25'-1" TO 28'-0" TWO POUR | #6 @ 6" O.C. *2" CLR | #4 @ 9" O.C. | #4 @ 9" O.C. E.W. | 20" | 24" ROCK 48" SOIL |

*PROVIDE CONTINUOUS GRADE BEAM REINFORCEMENT

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