SLABS ON GRADE

1. ALL SLABS ON GRADE SHALL BE ON COMPACTED SUBGRADE WITH 4 INCHES MINIMUM OF POROUS FILL MATERIAL. SEE SUBGRADE PREPARATION NOTES.
2. POROUS FILL MATERIAL SHALL BE A CLEAN GRANULAR MATERIAL WITH 100% PASSING 1-1/2" SIEVE AND NO MORE THAN 5% PASSING A NO. 4 SIEVE. POROUS FILL SHALL BE COMPACTED TO 95% MAX. DRY DENSITY PER ASTM D 698.
3. THE CONTRACTOR SHALL COORDINATE ALL LIMITS AND DEPTHS OF DEPRESSIONS FOR FLOOR FINISHES WITH ARCHITECTURAL DRAWINGS AND SCHEDULES. LIMITS SHOWN ON STRUCTURAL DRAWINGS ARE SCHEMATIC.
4. THE USE OF POLYPROPYLENE FIBERS IN LIEU OF WELDED WIRE FABRIC IS PROHIBITED WITHOUT THE WRITTEN AUTHORIZATION OF THE ENGINEER.
5. THE FINISH TOLERANCE OF ALL SLABS SHALL BE IN ACCORDANCE WITH ACI 301, TYPE A.
6. SLABS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING FLATNESS / LEVELNESS REQUIREMENTS:
   a. FF = 35
   b. FL = 25
7. FF AND FL TOLERANCES SHALL BE TESTED IN ACCORDANCE WITH ASTM E 1155. ACTUAL OVERALL F-NUMBERS SHALL BE CALCULATED USING THE INFERIOR / SUPERIOR AREA METHOD. ALL FLOOR TOLERANCE MEASUREMENTS SHALL BE MADE WITHIN 48 HOURS AFTER SLAB INSTALLATION. IN ALL CASES, TOLERANCE MEASUREMENTS SHALL PRECEDE THE REMOVAL OF SHORES AND FORMS. RESULTS OF ALL FLOOR PROFILE TESTS INCLUDING A RUNNING TABULATION OF THE OVERALL FF AND FL VALUES FOR ALL OF THE RANDOM TRAFFIC SLABS INSTALLED TO DATE SHALL BE PROVIDED TO THE CONTRACTOR WITHIN 72 HOURS AFTER EACH SLAB INSTALLATION.
8. WALKWAYS AND OTHER EXTERIOR SLABS ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS. SEE THE SITE PLAN AND ARCHITECTURAL DRAWINGS FOR LOCATIONS, DIMENSIONS, ELEVATIONS, JOINTING DETAILS AND FINISH DETAILS.
9. SAW-CUT CONTRACTION JOINTS SHALL BE CUT AS SOON AS THE CONCRETE CAN BE CUT WITHOUT RAVELING. CONVENTIONAL CAW-CUT JOINTS SHOULD BE RUN WITHIN 4-12 HOURS AFTER THE CONCRETE HAS BEEN FINISHED. JOINTS PLACED WITH AN EARLY ENTRY SAW MAY BE CUT 1-4 HOURS AFTER THE SLAB HAS BEEN FINISHED.
10. SLAB JOINTS SHALL BE FILLED WITH APPROVED MATERIAL. THIS SHOULD TAKE PLACE AS LATE AS POSSIBLE PRIOR TO FILLING, REMOVE ALL DEBRIS FROM THE SLAB JOINTS, THEN FILL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AS FOLLOWS:
    a. CONTROL JOINT SEALANT = EUCLID CHEMICAL DURAL 340 SL OR APPROVED EQUAL
    b. EXPANSION/ISOLATION JOINT SEALANT = EUCLID CHEMICAL EUCOLASTIC 1 SL OR APPROVED EQUAL
11. CONCRETE FINISH FLOORS SHALL HAVE A HARD STEEL TROWELED FINISH UNLESS INDICATED OTHERWISE ON THE DRAWINGS. PLACE, STRIKE OFF, CONSOLIDATE, LEVEL AND FLOAT TO THE PROPER ELEVATION. TROWELING SHALL BEGIN AFTER SURFACE HAS RECEIVED A FLOAT FINISH. THE SLAB DRYING MUST PROCEED NATURALLY AND MUST NOT BE HASTENED BY THE DUSTING ON OF DRY CEMENT OR SAND. LIGHTLY TOOL ALL EDGES AT CONSTRUCTION JOINTS AND EXERCISE CARE THAT SLAB EDGES ARE NOT DEPRESSED ALONG BULKHEADS DURING FINISHING OPERATIONS, PARTICULARLY HAND TROWELING. EXTERIOR SLABS, SIDEWALKS, PADS AND RAMPS SHALL HAVE A LIGHT BROOM FINISH UNLESS INDICATED OTHERWISE ON THE DRAWINGS. PROVIDE STANDARD TROWEL FINISH AT ALL SUB-SLABS.
12. PROVIDE 1/2" PREMOLDED EXPANSION JOINT (P.E.J.) FILLER AROUND PERIMETER OF SLABS WHERE THEY ABUT VERTICAL SURFACES AND AT COLUMN ISOLATION JOINTS AS DETAILED.

REINFORCING STEEL

1. FABRICATING, PLACING, AND SUPPORTING REINFORCEMENT SHALL COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE."
2. REINFORCING BARS SHALL BE ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE.
3. REINFORCING BARS IN WELDED CONDITIONS, WHERE PERMITTED, SHALL BE ASTM A 706, DEFORMED.
4. STEEL WELDED-WIRE REINFORCEMENTS SHALL BE ASTM A 1064 WITH 70 KSI MINIMUM YIELD STRENGTH.
5. NO REINFORCEMENT SHALL BE FLAME-CUT OR BENT IN FIELD WITHOUT GUIDANCE FROM STRUCTURAL ENGINEER.
6. REINFORCING STEEL SHALL HAVE COVER PROTECTION AS FOLLOWS:

CONCRETE COVER PROTECTION TABLE	
CONDITION	MINIMUM COVER
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3 INCHES
CONCRETE EXPOSED TO EARTH OR WEATHER:	
WALL PANELS, SLABS, JOISTS	1 INCH
OTHER MEMBERS	1½ INCHES
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	
SLABS, WALLS, JOISTS	¾ INCHES
BEAMS, COLUMNS:	
PRIMARY REINFORCEMENT	1½ INCHES
TIES, STIRRUPS, SPIRALS	1 INCH

CONCRETE UNIT MASONRY

1. ALL CONCRETE UNIT MASONRY CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING ACI PUBLICATIONS:
   a. ACI 530-13 - BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES
   b. 530.1-13 - SPECIFICATION FOR MASONRY STRUCTURES
2. CONCRETE MASONRY UNITS SHALL BE ASTM C 90 AND MEET THE FOLLOWING THE FOLLOWING CRITERIA:
   a. UNIT COMPRESSIVE STRENGTH = 1900 PSI
   b. DENSITY CLASSIFICATION = LIGHTWEIGHT
   c. RUNNING BOND PLACEMENT
3. MORTAR SHALL COMPLY WITH ASTM C 270 AND THE FOLLOWING CRITERIA:
   a. TYPE = S
   b. ACCEPTABLE MORTAR CEMENT:
      - PORTLAND CEMENT - ASTM C 150, TYPE II
      - HYDRATED LIME - ASTM C 207, TYPE S
      - PORTLAND CEMENT-LIME MIX
      - MASONRY CEMENT - ASTM C 91
   c. BEDDING = FULL
   d. MORTAR AGGREGATE, ASTM C 144
4. GROUT FOR UNIT MASONRY SHALL COMPLY WITH ASTM C 476 AND THE FOLLOWING CRITERIA:
   a. GROUT TYPE = COARSE
   b. GROUT DENSITY = 140 PCF
   c. COMPRESSIVE STRENGTH = 3000 PSI
   d. GROUT AGGREGATE = 1/2-INCH MAX COARSE AGGREGATE, ASTM C 404
   e. TARGET SLUMP = 9 INCHES (1 INCH)
   f. NO ADMIXTURES UNLESS APPROVED BY ENGINEER
5. MASONRY-JOINT REINFORCEMENT, WHERE INDICATED, SHALL COMPLY WITH ASTM A 951 AND WITH THE FOLLOWING CRITERIA:
   a. HOT-DIP GALVANIZED STEEL
   b. WIRE SIZE FOR SIDE RODS = 0.148 INCHES
   c. WIRE SIZE RODS FOR CROSS RODS = 0.418 INCHES
   d. SPACING OF CROSS RODS = 16 INCHES
   e. PROVIDE IN LENGTHS OF NOT LESS THAN 10 FEET WITH PREFABRICATED CORNER AND TEE UNITS
   f. CONTINUOUS THROUGH VERTICALLY-REINFORCED CELLS
6. ALL CELLS BELOW GROUND FLOOR SLAB SHALL BE FILLED SOLID WITH GROUT.
7. CONCRETE MASONRY UNITS SHALL BE FILLED IN 4-FEET LIFTS MAXIMUM.
8. PLAIN END TWO CELL UNITS SHALL BE USED FOR BLOCKS THAT ARE TO HAVE CELLS REINFORCED OR FILLED.
9. PROVIDE A 4-INCH BY 4-INCH CLEAN-OUT OPENING AT BOTTOM COURSE OF EACH LIFT AT EACH REINFORCED CELL EXCEPT WHERE HOLE OR PATCH CANNOT BE CONCEALED BY BRICK OR WALL FINISH.
10. SEE ARCHITECTURAL DRAWINGS FOR THE EXTENT AND LOCATION OF MASONRY WALLS.
11. ALL MASONRY WALLS SHOWN HEREIN HAVE BEEN DESIGNED TO RESIST THE REQUIRED VERTICAL AND LATERAL FORCES IN THE FINAL CONFIGURATION ONLY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ADEQUATELY BRACE THE WALLS FOR VERTICAL AND LATERAL LOADS THAT COULD POSSIBLY BE APPLIED PRIOR TO COMPLETION OF LATERAL SUPPORT BY CONNECTIONS AT FLOOR OR ROOF FRAMING LOCATIONS.
12. REQUIRED CONCRETE UNIT MASONRY SUBMITTALS TO ENGINEER:
    a. PRODUCT DATA - SUBMIT TECHNICAL PRODUCT DATA FOR ANY CONCRETE MASONRY-RELATED CONSTRUCTION PRODUCTS.
    b. MATERIAL CERTIFICATES - FOR EACH TYPE AND SIZE OF UNIT, SUBMIT DATA ON MATERIAL PROPERTIES AND MATERIAL TEST REPORTS TO SUBSTANTIATE COMPLIANCE WITH REQUIREMENTS.
    c. DESIGN MIXTURES - THE FOLLOWING ITEMS ARE REQUIRED:
       - TEST REPORTS FOR MORTAR MIXES REQUIRED TO COMPLY WITH PROPERTY SPECIFICATION. TEST ACCORDING TO ASTM C 109 FOR COMPRESSIVE STRENGTH, ASTM C 1506 FOR WATER RETENTION, AND ASTM C 91 FOR [illegible] CONTENT.
       - TEST REPORTS FOR GROUT MIXES REQUIRED TO COMPLY WITH COMPRESSIVE STRENGTH REQUIREMENT ACCORDING TO ASTM C 1019.
    d. STEEL REINFORCEMENT SHOP DRAWINGS - PLACING DRAWINGS THAT DETAIL FABRICATION, BENDING, AND PLACEMENT OF REINFORCEMENT.
    e. CONTROL JOINT LOCATION PLAN AND DETAIL

STEEL ROOF AND NON-COMPOSITE FORM DECK

1. STEEL DECKING SHALL COMPLY WITH CALCULATED STRUCTURAL CHARACTERISTICS OF STEEL DECK ACCORDING TO AISI NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.
2. ROOF DECK SHALL BE PANELS WITHOUT TOP-FLANGE STIFFENING GROOVES TO COMPLY WITH SDI SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK IN SDI PUBLICATION NO. 31 AND WITH THE FOLLOWING:
   a. GALVANIZED-STEEL SHEET: ASTM A653 GRADE 33, G90 ZINC COATING
   b. DECK PROFILE: TYPE WR, WIDE RIB
   c. MINIMUM SECTION PROPERTIES: (DECK PRODUCTS WITH DEVIATIONS UP TO 10% FROM LISTED VALUES ARE ACCEPTABLE WITHOUT THE WRITTEN APPROVAL FROM ENGINEER).

ROOF DECK SECTION PROPERTIES						
DECK TYPE	THICKNESS (IN)	I_p (IN^4/FT)	I_n (IN^4/FT)	S_p (IN^3/FT)	S_n (IN^3/FT)	F_y (KSI)
1.5B22	0.0295	0.162	0.175	0.183	0.189	33
1.5B20	0.0358	0.205	0.213	0.227	0.238	33
1.5B18	0.0474	0.281	0.281	0.307	0.315	33
1.5B16	0.0598	0.355	0.355	0.393	0.395	33

3. NON-COMPOSITE FORM DECK SHALL BE RIBBED-STEEL-SHEET FORM-DECK PANELS TO COMPLY WITH SDI SPECIFICATIONS AND COMMENTARY FOR NON-COMPOSITE STEEL FORM DECK IN SDI PUBLICATION NO. 31 AND WITH THE FOLLOWING:
   a. GALVANIZED-STEEL SHEET: ASTM A653, G90 ZINC COATING
      MINIMUM SECTION PROPERTIES: (DECK PRODUCTS WITH DEVIATIONS UP TO 10% FROM LISTED VALUES ARE ACCEPTABLE WITHOUT THE WRITTEN APPROVAL FROM ENGINEER).

FORM DECK SECTION PROPERTIES						
DECK TYPE	THICKNESS (IN)	I_p (IN^4/FT)	I_n (IN^4/FT)	S_p (IN^3/FT)	S_n (IN^3/FT)	F_y (KSI)
0.6FD28	0.0149	0.011	0.011	0.033	0.035	60
0.6FD26	0.0179	0.013	0.013	0.042	0.044	60
0.6FD24	0.0238	0.018	0.018	0.060	0.060	60
0.6FD22	0.0295	0.022	0.022	0.073	0.073	60
1.0FD26	0.0179	0.041	0.041	0.068	0.073	60
1.0FD24	0.0238	0.056	0.056	0.098	0.105	60
1.0FD22	0.0295	0.070	0.070	0.129	0.132	60
1.0FD20	0.0358	0.085	0.085	0.160	0.160	60
1.5FD22	0.0295	0.175	0.162	0.189	0.183	33
1.5FD20	0.0358	0.213	0.205	0.238	0.227	33
1.5FD18	0.0474	0.281	0.281	0.315	0.307	33
1.5FD16	0.0598	0.355	0.355	0.395	0.393	33
2.0FD22	0.0295	0.337	0.330	0.257	0.263	40
2.0FD20	0.0358	0.417	0.412	0.342	0.347	40
2.0FD18	0.0474	0.554	0.556	0.505	0.511	40
2.0FD16	0.0598	0.698	0.702	0.650	0.653	40
3.0FD22	0.0295	0.763	0.755	0.407	0.427	40
3.0FD20	0.0358	0.943	0.939	0.537	0.559	40
3.0FD18	0.0474	1.250	1.260	0.794	0.807	40
3.0FD16	0.0598	1.576	1.588	1.012	1.019	40

4. PROVIDE A MINIMUM END BEARING OF 2" OVER SUPPORTS. END LAPS OF SHEETS SHALL BE A MINIMUM OF 2" AND SHALL OCCUR OVER SUPPORTS.
5. ALL OPENINGS LARGER THAN 12", AND AS DETAILED, SHALL HAVE STEEL FRAMING SUPPORTING ALL EDGES. SEE DETAILS HEREIN.
6. DECK SHALL BE FABRICATED SO THAT DECK RUNS CONTINUOUSLY OVER OPENINGS. THE OPENINGS SHALL NOT BE CUT UNTIL NEEDED.
7. ALL STEEL DECK WELDING SHALL BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY SPECIFICATIONS D1.3. PROVIDE WELDING WASHERS FOR ALL FLOOR DECK WELDS.
8. SUSPENDED CEILINGS, LIGHT FIXTURES, DUCTS AND OTHER PERMANENT SUSPENDED LOADS SHALL NOT BE SUPPORTED BY THE METAL DECKING.
9. REQUIRED STEEL DECKING SUBMITTALS TO THE ENGINEER:
   a. PRODUCT DATA - SUBMIT DATA TO SHOW COMPLIANCE WITH MATERIAL AND SECTION REQUIREMENTS.
   b. SHOP DRAWINGS - SUBMIT DETAILED SHOP DRAWINGS PRIOR TO FABRICATION SHALL INCLUDE LAYOUT AND TYPES OF DECK PANELS, ANCHORAGE DETAILS, REINFORCING CHANNELS, PANS, CUT DECK OPENINGS, SPECIAL JOINTING, ACCESSORIES, AND ATTACHMENTS TO OTHER CONSTRUCTION.

COLD-FORMED METAL FRAMING

1. THE STRUCTURAL FRAMING, FABRICATION, AND ITS INSTALLATION SHALL MEET THE FOLLOWING SPECIFICATIONS AND STANDARDS UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED:
   a. AISI S200: NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS
2. THE FRAMING PROVIDER SHALL BE A SSMA CERTIFIED MANUFACTURER SPECIALIZING IN FABRICATION OF STRUCTURAL FRAMING COMPONENTS.
3. THE CHEMICAL COMPOSITION, COATING, AND PROPERTIES OF THE SHEET STEEL USED TO FORM STEEL FRAMING MEMBERS AND ACCESSORIES SHALL MEET THE FOLLOWING STANDARDS:
   a. ASTM A1003: STANDARD SPECIFICATION FOR STEEL SHEET, CARBON, METALLIC- AND NONMETALLIC-COATED FOR COLD-FORMED FRAMING MEMBERS

SHEET MATERIAL			
SHEET THICKNESS		GRADE	COATING
MILS	GAUGE		
33	20	STRUCTURAL GRADE 33 TYPE H (ST33H)	G60 (Z180) METALLIC
43	18	STRUCTURAL GRADE 33 TYPE H (ST33H)	G60 (Z180) METALLIC
54	16	STRUCTURAL GRADE 50 TYPE H (ST50H)	G60 (Z180) METALLIC
68	14	STRUCTURAL GRADE 50 TYPE H (ST50H)	G60 (Z180) METALLIC
97	12	STRUCTURAL GRADE 50 TYPE H (ST50H)	G60 (Z180) METALLIC
118	10	STRUCTURAL GRADE 50 TYPE H (ST50H)	G60 (Z180) METALLIC

4. THE FRAMING MEMBERS AND MANUFACTURING TOLERANCES SHALL MEET THE FOLLOWING STANDARDS:
   a. ASTM C955: STANDARD SPECIFICATION FOR LOAD-BEARING (TRANSVERSE AND AXIAL) STEEL STUDS, RUNNERS (TRACKS), AND BRACING OR BRIDGING FOR SCREW APPLICATION OF GYPSUM PANEL PRODUCTS AND METAL PLASTER BASES
5. THE FRAMING MEMBERS SHALL CONFORM TO THE FOLLOWING GEOMETRICAL REQUIREMENTS:

FRAMING GEOMETRICAL REQUIREMENTS				
FRAMING TYPE	SHAPE	WEBS	FLANGES	NOTES
STUDS	STANDARD C-SHAPE	PUNCHED	STIFFENED	--
TRACKS	STANDARD U-SHAPE	UNPUNCHED	STRAIGHT	STEEL THICKNESS TO MATCH MINIMUM BASE-METAL THICKNESS OF STEEL STUDS
BOX OR BACK-TO-BACK HEADERS	STANDARD C-SHAPES	UNPUNCHED	STIFFENED	

6. THE FRAMING MEMBERS SHALL HAVE A LEGIBLE LABEL, STAMP, STENCIL, OR EMBOSSMENT AT A MINIMUM OF 48 INCHES ON CENTER INCLUDING THE FOLLOWING INFORMATION:
   a. MANUFACTURER IDENTIFICATION
   b. MINIMUM UNCOATED STEEL THICKNESS
   c. MINIMUM YIELD STRENGTH
   d. GRADE
   e. COATING
7. THE FRAMING MEMBERS SHALL BE IN ONE-PIECE LENGTHS. SPLICING OF FRAMING COMPONENTS, OTHER THAN THE CONTINUOUS TRACK AT THE TOP AND BOTTOM OF WALLS, IS NOT PERMITTED. SPLICING OF TRACK USED FOR THE JAMB, HEAD, OR SILL ASSEMBLIES OF FRAMED WALL OPENINGS IS NOT PERMITTED.
8. THE INSTALLATION OF MEMBERS SHALL MEET THE FOLLOWING STANDARDS:
   a. ASTM C1007: SPECIFICATION FOR INSTALLATION OF LOAD BEARING (TRANSVERSE AND AXIAL) STEEL STUDS AND RELATED ACCESSORIES
9. THE INSTALLER SHALL INSTALL TEMPORARY BRACING AND SUPPORTS TO SECURE FRAMING AND SUPPORT LOADS COMPARABLE IN INTENSITY TO THOSE FOR WHICH STRUCTURE WAS DESIGNED. MAINTAIN BRACES AND SUPPORTS IN PLACE, UNDISTURBED, UNTIL ENTIRE INTEGRATED SUPPORTING STRUCTURE HAS BEEN COMPLETED AND PERMANENT CONNECTIONS TO FRAMING ARE SECURED.
10. PUNCHOUTS, CUTTING, OR NOTCHING OF JOISTS, STUDS, HEADERS, AND OTHER STRUCTURAL MEMBERS SHALL NOT BE PERFORMED WITHOUT AN APPROVED DESIGN.
11. THE FRAMING MEMBERS SHALL HAVE ENDS SQUARELY CUT BY SHEARING OR SAWING, BE INSTALLED PLUMB, SQUARE, TRUE TO LINE AND SECURELY FASTENED PER THE CONTRACT DOCUMENTS OR APPROVED CONNECTION DETAILS.
12. INSTALL HORIZONTAL BRIDGING IN STUD SYSTEM, SPACED VERTICALLY 48 INCHES AND FASTENED AT EACH STUD INTERSECTION USING ONE OF THE METHODS BELOW:
    a. COLD-ROLLED CHANNEL WELDED OR MECHANICALLY FASTENED TO WEBS OF PUNCHED STUD WITH A MINIMUM OF TWO SCREWS INTO EACH FLANGE OF THE CLIP ANGLE FOR FRAMING MEMBERS UP TO 6 INCHES DEEP.
    b. COMBINATION OF FLAT, TAUT, STEEL SHEET TRAPS OF WIDTH AND THICKNESS INDICATED AND STUD-TRACK SOLID BLOCKING OF WIDTH AND THICKNESS TO MATCH STUDS. FASTEN FLAT STRAPS TO STUD FLANGES AND SECURE SOLID BLOCKING TO STUD WEBS OR FLANGES.
    c. PROPRIETARY BRIDGING BARS INSTALLED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
13. THE SCREWS USED FOR ATTACHING FRAMING MEMBERS AND FOR ATTACHING SHEATHING TO FRAMING SHALL MEET THE FOLLOWING STANDARDS:
    a. ASTM C1513: STANDARD SPECIFICATION FOR STEEL TAPPING SCREWS FOR COLD-FORMED STEEL FRAMING CONNECTIONS
    b. ASTM C954: STANDARD SPECIFICATION FOR STEEL DRILL SCREWS FOR THE APPLICATION OF GYPSUM PANEL PRODUCTS OR METAL PLASTER BASES TO STEEL STUDS FROM 0.033 INCH (0.084 MM) TO 0.112 INCH (2.84 MM) IN THICKNESS
    c. ASTM C1002: STANDARD SPECIFICATION FOR STEEL SELF-PIERCING TAPPING SCREWS FOR THE APPLICATION OF GYPSUM PANEL PRODUCTS OR METAL PLASTER BASES TO WOOD STUDS OR STEEL STUDS
14. WELDING PROCEDURE AND PERSONNEL QUALIFICATIONS FOR ATTACHING FRAMING MEMBERS SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
    a. AWS D1.3: STRUCTURAL WELDING CODE - SHEET STEEL
15. ANY WELDING OR ABRASION OF THE GALVANIZED COATING SHALL BE PAINT REPAIRED IN ACCORDANCE WITH ASTM A780: STANDARD PRACTICE FOR REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS.
16. THE MANUFACTURER SHALL SUBMIT PRODUCT DATA AND SHOP DRAWINGS INCLUDING THE FOLLOWING:
    a. PRODUCT DATA: FOR EACH TYPE OF COLD-FORMED STEEL FRAMING PRODUCT AND ACCESSORY UTILIZED FOR THE PROJECT
    b. SHOP DRAWINGS INCLUDING THE FOLLOWING:
       - MEMBER LAYOUT, SPACINGS, SIZES, THICKNESSES, AND TYPES OF COLD-FORMED STEEL FRAMING; FABRICATION; AND FASTENING AND ANCHORAGE DETAILS, INCLUDING MECHANICAL FASTENERS.
       - INDICATE REINFORCING CHANNELS, OPENING FRAMING, SUPPLEMENTAL FRAMING, STRAPPING, BRACING, BRIDGING, SPLICES, ACCESSORIES, CONNECTION DETAILS, AND ATTACHMENT TO ADJOINING WORK.

POST-INSTALLED REBAR, ANCHORS, AND FASTENERS

1. THE PRODUCTS BELOW ARE THE DESIGN BASIS FOR THIS PROJECT. PRODUCT DIAMETER AND EMBEDMENT SHALL BE AS SHOWN IN THE DETAILS. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII). CONTRACTOR SHALL CONTACT MANUFACTURER'S REPRESENTATIVE FOR PRODUCT INSTALLATION TRAINING AND A LETTER SHALL BE SUBMITTED TO THE ENGINEER OF RECORD INDICATING THAT TRAINING HAS TAKEN PLACE. REFER TO THE PROJECT BUILDING CODE AND/OR EVALUATION REPORT FOR SPECIAL INSPECTIONS AND PROOF LOAD REQUIREMENTS. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED BELOW MAY BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER OF RECORD FOR REVIEW. SUBSTITUTIONS WILL ONLY BE CONSIDERED FOR PRODUCTS HAVING A RESEARCH REPORT RECOGNIZING THE PRODUCT FOR THE APPROPRIATE APPLICATION UNDER THE PROJECT BUILDING CODE. SUBSTITUTION REQUESTS SHALL INCLUDE CALCULATIONS THAT DEMONSTRATE THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE EQUIVALENT PERFORMANCE VALUES OF THE DESIGN BASIS PRODUCT.

<u>FOR ANCHORING INTO CONCRETE:</u>

1. MECHANICAL ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. PRE-APPROVED PRODUCTS INCLUDE:
   SCREW ANCHORS
   a. SIMPSON STRONG-TIE TITEN-HD (ICC-ES ESR-2713)
   b. DEWALT SCREW-BOLT+ (ICC-ES ESR-3889)
   c. HILTI KWIK HUS EZ SCREW ANCHORS (ICC-ES ESR-3027)
   EXPANSION ANCHORS
   d. SIMPSON STRONG-TIE STRONG-BOLT 2 (ICC-ES ESR-3037)
   e. DEWALT POWER-STUD+ SD2 (ICC-ES ESR-2502)
   f. HILTI KWIK TZ (ICC-ES ESR-1917)
   UNDERCUT ANCHORS
   g. SIMPSON STRONG-TIE TORQ-CUT (ICC-ES ESR-2705)
   h. DEWALT ATOMIC+ UNDERCUT (ICC-ES ESR-3067)
   i. HILTI HDA UNDERCUT (ICC-ES ESR-1546)
2. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN BOND STRENGTH HAS BEEN BASED ON CRACKED CONCRETE, ACI 355.4 TEMPERATURE CATEGORY B, AND INSTALLATIONS INTO DRY HOLES DRILLED USING A HAMMER DRILL INTO CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-14 17.8.2.2 WHERE INDICATED ON THE CONTRACT DOCUMENTS. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-14 17.8.2.4. PRE-APPROVED PRODUCTS INCLUDE:
   a. SIMPSON STRONG-TIE [illegible]-3G (IAPMO-UES ER-4057)
   b. SIMPSON STRONG-TIE [illegible] (IAPMO-UES ER-[illegible]3)
   c. DEWALT PURE 110 + (ICC-ES ESR-3298)
   d. DEWALT AC200+ (ICC-ES ESR-[illegible]27)
   e. HILTI HIT-HY 200-R (ICC-ES ESR-[illegible])
   f. HILTI HIT-HY [illegible] (ICC-ES ESR-[illegible])
3. POWDER-POWER ACTUATED FASTENERS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED PRODUCTS INCLUDE:
   a. SIMPSON STRONG-TIE GAS ACTUATED PINS (ICC-ES ESR-2811)
   b. SIMPSON STRONG-TIE POWDER ACTUATED PINS (ICC-ES ESR-2138)
   c. DEWALT GAS ACTUATED FASTENERS (ICC-ES ESR-3275)
   d. DEWALT POWDER ACTUATED FASTENERS (ICC-ES ESR-2024)
   e. HILTI X-U (ICC-ES ESR-2269)

<u>FOR ANCHORING INTO SOLID GROUTED CONCRETE MASONRY:</u>

1. MECHANICAL ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC01 OR ICC-ES AC106. PRE-APPROVED PRODUCTS INCLUDE:
   SCREW ANCHORS
   a. SIMPSON STRONG-TIE TITEN-HD (ICC-ES ESR-1056)
   b. DEWALT SCREW-BOLT+ (ICC-ES ESR-1678)
   EXPANSION ANCHORS
   c. SIMPSON STRONG-TIE STRONG-BOLT 2 (IAPMO-UES ER-240)
   d. DEWALT POWER-STUD+ SD1 (ICC-ES ESR-2966)
   e. HILTI KWIK BOLT-3 (ICC-ES ESR-1385)
2. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC58. PRE-APPROVED PRODUCTS INCLUDE:
   a. SIMPSON STRONG-TIE AT-XP (IAPMO-UES ER-263)
   b. SIMPSON STRONG-TIE SET-XP (IAPMO-UES ER-2508)
   c. DEWALT AC100+ GOLD (ICC-ES ESR-3200)
   d. HILTI HIT-HY 70 (ICC-ES ESR-2682)
3. POWER-ACTUATED FASTENERS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED PRODUCTS INCLUDE:
   a. SIMPSON STRONG-TIE GAS ACTUATED PINS (ICC-ES ESR-2811)
   b. SIMPSON STRONG-TIE POWDER ACTUATED PINS (ICC-ES ESR-2138)
   c. DEWALT GAS ACTUATED FASTENERS (ICC-ES ESR-3275)
   d. DEWALT POWDER ACTUATED FASTENERS (ICC-ES ESR-2024)
   e. HILTI X-U (ICC-ES ESR-2269)

<u>FOR ANCHORING INTO HOLLOW CONCRETE MASONRY:</u>

1. MECHANICAL ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC106. PRE-APPROVED PRODUCTS INCLUDE:
   a. SIMPSON STRONG-TIE TITEN-HD (ICC-ES ESR-1056)
2. ADHESIVE FOR REBAR AND ANCHORS WITH SCREEN TUBES SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC58. THE APPROPRIATE SCREEN TUBE SHALL BE USED AS RECOMMENDED BY THE ADHESIVE MFR. PRE-APPROVED PRODUCTS INCLUDE:
   a. SIMPSON STRONG-TIE SET-XP (ICC-ES ESR-2508)
   b. DEWALT AC100+ GOLD (ICC-ES ESR-3200)
3. POWER-ACTUATED FASTENERS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED PRODUCTS INCLUDE:
   a. SIMPSON STRONG-TIE GAS ACTUATED PINS (ICC-ES ESR-2811)
   b. SIMPSON STRONG-TIE POWDER ACTUATED PINS (ICC-ES ESR-2138)
   c. DEWALT GAS ACTUATED FASTENERS (ICC-ES ESR-3275)

<u>FOR FASTENING INTO STEEL:</u>

1. POWER-ACTUATED FASTENERS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC70. PRE-APPROVED PRODUCTS INCLUDE:
   a. SIMPSON STRONG-TIE "GAS ACTUATED PINS" (ICC-ES ESR-2811)
   b. SIMPSON STRONG-TIE "POWDER ACTUATED PINS" (ICC-ES ESR-2138)
   c. DEWALT GAS ACTUATED FASTENERS (ICC-ES ESR-3275)
   d. DEWALT POWDER ACTUATED FASTENERS (ICC-ES ESR-2024)
   e. HILTI X-U (ICC-ES ESR-2269)

THARPE
ENGINEERING GROUP
321 W. Congress St | Suite 301-C | Savannah, GA 31401 912.349.7603 | www.tharpeengineering.com

LYNCH associates architects

PARKER'S CANE BAY

THE PARKER COMPANIES
17 WEST MCDONOUGH ST
SAVANNAH, GA. 21401

Parkers

Revisions

No.	Date	Description

STRUCTURAL NOTES

Scale:
Date: 2/1/2019
Project No.: 18.130
Drawing No.:

S002

2/1/2019 9:39:51 AM

Order Plans @ WWW.LDLine.com