



STRUCTURAL GENERAL NOTES

CODES AND SPECIFICATIONS

- A. GENERAL BUILDING CODE
1. FLORIDA BUILDING CODE, 7TH EDITION (2020), INCLUDING HV/HZ PROVISIONS.
 2. ASCE 7-16 STANDARD, MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES.

B. CONCRETE

1. ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
2. ACI 301-16 SPECIFICATIONS FOR STRUCTURAL CONCRETE.
3. CRSI MANUAL OF STANDARD PRACTICE, 28TH EDITION.

C. CONCRETE MASONRY

1. TMS 402/602-16 BUILDING CODE REQUIREMENTS AND SPECIFICATIONS FOR MASONRY STRUCTURES.

D. STRUCTURAL STEEL

1. AISC 360-16 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 16TH EDITION.
2. AISC 325-17 STEEL CONSTRUCTION MANUAL, 15TH EDITION.
3. AWS D1.1-2020 STRUCTURAL WELDING CODE - STEEL.

E. LIGHT-GAGE COLD FORMED STEEL

1. AISI S100-16 NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.

- F. CONFLICTS BETWEEN PUBLICATIONS WHERE CONFLICT EXIST BETWEEN THE VARIOUS PUBLICATIONS AS SPECIFIED HEREIN, THE STRICTEST REQUIREMENTS OF THE VARIOUS PUBLICATIONS SHALL GOVERN.

GENERAL

- A. TYPICAL DETAILS: DETAILS LABELED "TYPICAL DETAILS" ON THE DRAWINGS APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY DETAILED. SUCH DETAILS APPLY WHETHER OR NOT THEY ARE KEYED IN AT EACH LOCATION.

- B. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS. THE CONTRACTOR SHALL COMPARE THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND IF THERE IS A DISCREPANCY BETWEEN THEM IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ARCHITECT/ENGINEER PRIOR TO FABRICATION AND INSTALLATION OF ANY STRUCTURAL WORK, UNLESS OTHERWISE DOCUMENTED IN WRITING BY THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL ASSUME THE STRICTER REQUIREMENTS OF CONFLICTING PROVISIONS ON THE ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS AND SPECIFICATIONS.

- C. AT ALL TIMES THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONDITIONS OF THE JOBSITE INCLUDING SAFETY OF PERSONS AND PROPERTY. THE ARCHITECT'S OR ENGINEER'S PRESENCE OR REVIEW OF WORK DOES NOT INCLUDE THE ADEQUACY OF THE CONTRACTOR'S MEANS OR METHODS OF CONSTRUCTION OR SAFETY ISSUES.

- D. SHORING, BRACING AND PROTECTION OF EXISTING AND ADJACENT STRUCTURES DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. HE SHALL PROTECT AND MAINTAIN THE INTEGRITY OF ADJACENT STREETS, BUILDINGS AND STRUCTURES.

- E. RESPONSIBILITIES OF THE CONTRACTOR FOR STABILITY OF THE STRUCTURE DURING CONSTRUCTION: ALL STRUCTURAL ELEMENTS OF THE PROJECT HAVE BEEN DESIGNED BY THE STRUCTURAL ENGINEER TO RESIST THE REQUIRED CODE VERTICAL AND LATERAL FORCES THAT COULD OCCUR IN THE FINAL COMPLETED STRUCTURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL REQUIRED BRACING DURING CONSTRUCTION TO MAINTAIN THE STABILITY AND SAFETY OF ALL STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PROCESS UNTIL THE STRUCTURE IS TIED TOGETHER AND COMPLETED.

- F. DO NOT SCALE DRAWINGS, USE DIMENSIONS.

- G. THE DIMENSIONS SHOWN ON THESE DRAWINGS FOR BEAMS AND COLUMNS WITHIN MASONRY WALLS ARE NOMINAL DIMENSIONS.

- H. EXISTING CONDITIONS: DRAWINGS HAVE BEEN PREPARED BASED ON AVAILABLE KNOWLEDGE OF EXISTING CONDITIONS. IF DURING DEMOLITION, EXCAVATION OR CONSTRUCTION, ACTUAL CONDITIONS ARE DISCOVERED TO DIFFER FROM THOSE INDICATED ON DRAWINGS, THE ARCHITECT/ENGINEER SHALL BE NOTIFIED.

DESIGN CRITERIA

A. LIVE LOADS

1. FIRST AND SECOND FLOORS: 40 PSF
2. STAIRS: 40 PSF
3. BALCONIES / TERRACES: 60 PSF
4. ROOFS: 30 PSF

B. DEAD LOADS / SUPERIMPOSED DEAD LOADS

- DEAD LOAD OF MATERIALS ASSUMED IN THE DESIGN ARE AS SHOWN ON THE DRAWINGS. ANY CHANGES IN CONSTRUCTION MATERIAL FROM THOSE SHOWN ON THE ARCHITECTURAL, MECHANICAL OR STRUCTURAL DRAWINGS MUST BE REPORTED TO THE STRUCTURAL ENGINEER FOR VERIFICATION OF LOAD CARRYING CAPACITY OF THE STRUCTURE.

1. SELF WEIGHT OF FRAMING MEMBERS
2. PARTITIONS: 15 PSF
3. FLOORING: 15 PSF
4. CEILING AND MECH.: 15 PSF
5. ROOFING: 10 PSF

C. WIND LOADS

1. BASED ON ASCE 7-16, MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES.
2. BASIC WIND SPEED: 175 MPH
3. RISK CATEGORY: II
4. EXPOSURE: C
5. ENCLOSED BUILDING.

FOUNDATION

A. FOUNDATION - GENERAL

1. FOUNDATION DESIGN IS BASED ON THE REPORT OF SUBSOIL INVESTIGATION FOR PROPOSED RESIDENCE @ 6200 SW 123RD TERRACE, PINECREST, FL, PREPARED BY DYNATECH ENGINEERING CORP., AND DATED SEPTEMBER 1, 2023.
2. ATTENTION IS CALLED TO CONTRACTOR FOR THE POTENTIAL CONSTRUCTION DEWATERING OF EXCAVATIONS. REFER TO THE GEOTECHNICAL REPORT FOR GROUND WATER ELEVATION MEASURED AT THE TIME BORINGS WERE PERFORMED. DEWATERING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR NOT TO UNDERMINE EXISTING FOUNDATIONS. METHOD OF DEWATERING AND CALCULATIONS FOR THE APPROPRIATE SYSTEM ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
3. UNLESS NOTED OTHERWISE, PROVIDE DOWELS IN FOUNDATIONS FOR ALL WALLS AND COLUMNS OF SAME NUMBER AND SIZE AS THE VERTICAL REINFORCEMENT.
4. ALL FOOTINGS ARE TO BE CENTERED ON COLUMNS OR WALLS UNLESS NOTED OTHERWISE.
5. CONTRACTOR MUST FAMILIARIZE HIMSELF WITH ABOVE REFERENCED GEOTECHNICAL REPORT.

B. SPREAD FOOTING FOUNDATION

1. ALLOWABLE SOIL BEARING CAPACITY: 3,000 PSF.
2. TOP OF FOOTING ELEVATIONS: AS SHOWN ON FOUNDATION PLAN.
3. THE BEARING STRATUM OF EACH SPREAD FOOTING SHALL BE PREPARED AS SPECIFIED IN THE GEOTECHNICAL REPORT AND SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO POURING CONCRETE.
4. FOOTING EXCAVATION FOOTINGS SHALL BE NEAT EXCAVATED WHERE POSSIBLE WITH SLOES AND TOP EDGES FREE OF LOOSE OR WET MATERIALS. WHERE NEAT EXCAVATION IS NOT POSSIBLE, FOOTING EXCAVATIONS SHALL BE OPEN CUT WITH EDGES FORMED AND BRACED. THE BOTTOM EXCAVATION SHALL BE CLEAN AND DRY, WITH ALL LOOSE MATERIAL REMOVED FOR AN ESSENTIALLY FLAT BEARING SURFACE. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL EXCAVATION REQUIREMENTS.
5. CONCRETE PLACEMENT:
 - a. WHERE POSSIBLE, CONCRETE PLACEMENT SHALL OCCUR IMMEDIATELY AFTER FOOTING EXCAVATION AND PLACEMENT OF REINFORCING STEEL CAGES. FOOTING EXCAVATIONS SHALL NOT BE LEFT OVERNIGHT UNLESS A 2" UNREINFORCED SEAL (MUO) SLAB IS PLACED AT THE BEARING ELEVATION IMMEDIATELY AFTER EXCAVATION.
 - b. ANY FREE STANDING WATER SHALL BE PUMPED OUT OF THE EXCAVATION PRIOR TO CONCRETE PLACEMENT.
 - c. ALL FOOTING CONCRETE SHALL BE VIBRATED AT PLACEMENT. THE TOP OF ALL FOOTINGS SHALL BE SCREENED LEVEL AND SMOOTH.
 - d. THERE SHALL BE NO HORIZONTAL OR VERTICAL CONSTRUCTION JOINTS IN ANY FOOTINGS WITHOUT PRIOR ENGINEER APPROVAL AND DESIGN.

SLAB-ON-GRADE CONSTRUCTION

- A. AREAS HAVING SLAB-ON-GRADE CONSTRUCTION SHALL FOLLOW THE RECOMMENDATIONS OF "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION", ACI 302.1R-15 AND THE RECOMMENDATIONS GIVEN IN THE ABOVE MENTIONED GEOTECHNICAL REPORT.

B. SUBGRADE PREPARATION:

1. AREAS WHERE SLAB-ON-GRADE CONSTRUCTION IS TO TAKE PLACE SHALL BE STRIPPED TO SUFFICIENT DEPTH TO REMOVE ALL VEGETATION, TOP SOIL, ORGANIC, OR OTHER UNSUITABLE MATERIALS FOR A DISTANCE OF 5 FEET BEYOND EXTERIOR BUILDING LIMITS.
2. SUBGRADE SOILS SHALL BE SCARIFIED TO 6 INCH DEPTH (MINIMUM), PROOF ROLLED AND COMPACTED TO 95 PERCENT MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557) TO A DEPTH OF AT LEAST 12" BELOW THE COMPACTED SURFACE.
3. ALL UNSUITABLE MATERIALS AND SOFT SPOTS SHALL BE EXCAVATED APPROXIMATELY 2 FEET AND REPLACED WITH COMPACTED STRUCTURAL FILL.
4. SELECT FILL SHALL CONSIST OF EITHER CRUSHED LIMESTONE, OR AN INORGANIC, NON-PLASTIC GRANULAR SOIL FREE OF DELETERIOUS MATTER, DEBRIS AND ROCKS, CONTAINING LESS THAN 10 PERCENT MATERIAL PASSING THE NO. 200 MESH SIEVE. FILL SHALL BE PLACED IN LIFTS OF LESS THAN 8 INCHES AND COMPACTED TO AT LEAST 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557).
5. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL REQUIREMENTS.

- C. PROVIDE A VAPOR BARRIER OF 10 MIL POLYETHYLENE SHEET OVER THE FINAL PREPARED SUBGRADE PRIOR TO CONCRETE PLACEMENT. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

D. REINFORCING STEEL:

1. ALL WELDED WIRE FABRIC SHALL BE FURNISHED IN FLAT SHEETS. LAP ENDS AND SIDES OF WELDED WIRE FABRIC ONE CROSS WIRE SPACING PLUS 2" AT SPLICES.
2. LAP CONTINUOUS SLAB-ON-GRADE REINFORCING STEEL 30 BAR DIAMETERS AT SPLICES BUT NOT LESS THAN 12".

CONCRETE FORMWORK

- A. THE DESIGN, CONSTRUCTION, AND SAFETY OF ALL FORMWORK SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. ALL FORMS, SHORES, BACK-SHORES, FALSE WORK, BRACING, AND OTHER TEMPORARY SUPPORTS SHALL BE ENGINEERED TO SUPPORT ALL LOADS IMPOSED INCLUDING THE WET WEIGHT OF CONCRETE, CONSTRUCTION EQUIPMENT, LIVE LOADS, LATERAL LOADS DUE TO WIND, AND WET CONCRETE IMBALANCE. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DETERMINING WHEN TEMPORARY SUPPORTS, SHORES, BACK-SHORES AND OTHER BRACINGS MAY BE SAFELY REMOVED.

- B. THE DESIGN OF ALL CONCRETE FORMWORK, FORMWORK REMOVAL, SHORING AND BACK-SHORING SHALL BE PERFORMED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA (SPECIALTY ENGINEER) AND EMPLOYED BY THE CONTRACTOR. CALCULATIONS, SIGNED AND SEALED BY THE SPECIALTY ENGINEER, SHALL BE SUBMITTED FOR RECORD.

- C. CONCRETE MUST REACH THE FOLLOWING PERCENTAGES OF ITS 28-DAY COMPRESSIVE STRENGTH (f_c) BEFORE FORMS MAY BE REMOVED.
1. WALLS, COLUMNS, BEAM SIDES: 40%
 2. SLAB AND BEAM BOTTOMS: 75%

CONCRETE

- A. ALL CONCRETE SHALL BE NORMAL WEIGHT AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH (f_c) OF 4,000 PSI UNLESS NOTED OTHERWISE ON THE DRAWINGS.

- B. ONCE THE STRUCTURE IS COMPLETED, CONTRACTOR SHALL SUBMIT A LETTER TO THE OWNER AND THE A/E CERTIFYING CONCRETE COMPLIANCE WITH SPECIFIED COMPRESSIVE STRENGTH AND ALL OTHER CONCRETE REQUIREMENTS SPECIFIED IN THE CONTRACT DOCUMENTS.

C. SLUMP RANGE (EXCEPT AS REQUIRED BY ADDITIVES):

1. SLOPING SURFACES: 2" TO 4"
2. ALL OTHER MEMBERS: 3" TO 5"

D. CONSTRUCTION JOINTS

1. ALL CONSTRUCTION JOINTS SHOWN ON THE DRAWINGS SHALL BE INCORPORATED INTO THE STRUCTURE UNLESS THEIR ELIMINATION IS APPROVED BY THE ARCHITECT/ENGINEER. ADDITIONAL CONSTRUCTION JOINTS REQUIRED TO FACILITATE CONSTRUCTION SHALL BE LOCATED AT POINTS OF MINIMUM SHEAR AND DETAILED ON SHOP DRAWINGS. REINFORCEMENT SHALL PASS CONTINUOUSLY THROUGH JOINT AND ADEQUATE SHEAR TRANSFER STEEL SHALL BE ADDED. SEE TYPICAL DETAILS.
2. ALL KEYS SHALL BE 2"x4" NOMINAL UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

E. OPENINGS:

1. NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL ELEMENTS NOR ANY OPENINGS OR SLEEVES SHALL BE MADE THROUGH ANY STRUCTURAL ELEMENT WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
2. OPENINGS IN SLABS AND WALLS SMALLER THAN 16" ARE GENERALLY NOT SHOWN ON THE DRAWINGS.
3. SLEEVES THROUGH CONCRETE BEAMS SHALL BE OF STANDARD STEEL PIPE HAVING 3" (MINIMUM) OF CONCRETE ON EACH SIDE WITH ONE #4 STRIRRUP EACH SIDE.

F. ARCHITECTURALLY EXPOSED CONCRETE

1. ARCHITECTURALLY EXPOSED CONCRETE ELEMENTS ARE IDENTIFIED IN THE ARCHITECTURAL DRAWINGS. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE LOCATIONS OF THESE ELEMENTS AND THEIR REQUIRED SURFACE FINISHES SPECIFIED IN THE ARCHITECTURAL DRAWINGS.
2. FORM-FACING PANELS USED FOR ARCHITECTURALLY EXPOSED CONCRETE ELEMENTS SHALL BE EXTERIOR GRADE PLYWOOD PANELS, NON-ABSORPTIVE, HIGH DENSITY OVERLAY CLASS 1 OR BETTER, THAT WILL PROVIDE CONTINUOUS, TRUE AND SMOOTH ARCHITECTURAL CONCRETE SURFACES.
3. USE A COMMERCIALY FORMULATED, COLORLESS FORM-RELEASE AGENT THAT DOES NOT BOND WITH, STAIN, OR ADVERSELY AFFECT ARCHITECTURAL CONCRETE SURFACES.
4. OBTAIN CONCRETE MIXTURES FROM SINGLE MANUFACTURER WITH RESOURCES TO PROVIDE CAST IN PLACE ARCHITECTURAL CONCRETE OF CONSISTENT QUALITY IN APPEARANCE AND PHYSICAL PROPERTIES.

G. MISCELLANEOUS:

1. ALL EXPOSED EDGES OF CONCRETE MEMBERS SHALL BE CHAMFERED 3/4" UNLESS SHOWN OTHERWISE ON THE ARCHITECTURAL DRAWINGS.
2. SEE ARCHITECTURAL AND MEP DRAWINGS FOR DOOR OPENINGS, MASONRY ANCHORS, MISCELLANEOUS EMBEDDED ITEMS, CONCRETE FINISHES, AND OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS.

REINFORCING STEEL

A. SPECIFICATION:

1. REINFORCING STEEL: ASTM A615 GRADE 60
2. REINFORCING STEEL TO BE WELDED: ASTM 706
3. SMOOTH WELDED WIRE FABRIC: ASTM A185 GRADE 65 (FLAT SHEETS)
4. DEFORMED WELDED WIRE FABRIC: ASTM A497 (FLAT SHEETS)
5. DEFORMED BAR ANCHORS: ASTM A496
6. DUCTILE IRON INSERTS: ASTM A563

- B. ALL REINFORCEMENT SHALL BE SECURELY HELD IN POSITION WHILE PLACING CONCRETE. IF NECESSARY, ADDITIONAL BARS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT.

C. PLACEMENT OF WELDED WIRE FABRIC:

1. WHEREVER WELDED WIRE FABRIC IS SPECIFIED AS REINFORCEMENT IN SLAB, IT SHALL BE CONTINUOUS AND PROPERLY LAPPED ONE CROSS WIRE SPACING PLUS 2" ACROSS THE ENTIRE CONCRETE SURFACE AND NOT INTERRUPTED BY BEAMS OR GIRDERS.
2. WELDED WIRE FABRIC IN SLABS-ON-GRADE SHALL BE GALVANIZED AND PROVIDED IN FLAT SHEETS. SLAB BOLSTERS AND OTHER ACCESSORIES SHALL BE PLASTIC OR STEEL WITH PLASTIC COVERED LEGS.

- D. HAVE A MINIMUM CLEAR COVER AS FOLLOWS, UNLESS OTHERWISE NOTED IN THE DRAWINGS.

1. FOUNDATION MEMBERS:
 - a. FOOTINGS: 2" TOP / SIDES, 3" BOTTOM
2. REINFORCED MEMBERS:
 - a. COLUMNS, WALLS: 1 1/2"
 - b. BEAMS: 1 1/2"
 - c. SLABS: 3/4" (INTERIOR EXPOSURE)
1 1/2" (EXTERIOR EXPOSURE)

- E. FURNISH THE FOLLOWING LIST OF REINFORCING TO BE STOCK PILED AT THE JOB SITE AND TO BE USED AT THE DISCRETION OF THE ENGINEER:
- 50 - #4 x 20'-0"
 - 50 - #5 x 20'-0"

SPLICES IN REINFORCING STEEL

A. SPLICE NOTATION:

- CD - COMPRESSION DEVELOPMENT LENGTH, 22 BAR DIAMETERS
TD - TENSION DEVELOPMENT LENGTH
CS - COMPRESSION SPLICE, 30 BAR DIAMETERS
A - CLASS "A" TENSION SPLICE
B - CLASS "B" TENSION SPLICE
M - MECHANICAL ANCHORAGE SPLICE OR TENSION SPLICE TYPE DEVELOPING 125% FY IN TENSION

- B. WHERE LAP SPLICE CLASS IS NOT CALLED OUT ON THE DRAWINGS, USE CLASS "B" SPLICE, WHERE DEVELOPMENT LENGTH, [A], IS CALLED FOR ON THE DRAWINGS, USE CLASS "A" SPLICE LENGTH.

- C. LAP ALL WELDED WIRE FABRIC A MINIMUM DISTANCE OF ONE CROSS WIRE SPACING PLUS 2 INCHES.

D. HOOK BARS AND DOWELS:

1. ALL HOOKS SHOWN ON DRAWINGS SHALL BE STANDARD HOOKS, UNLESS NOTED OTHERWISE. BAR LENGTHS GIVEN ON DRAWINGS DO NOT INCLUDE LENGTH OF STANDARD HOOK.
2. PROVIDE DOWELS OF EQUAL SIZE TO THE REINFORCING IN ALL ADJACENT ABUTTING CONCRETE COMPONENTS. DOWELS SHALL EXTEND TO FAR SIDE MEMBER AND TERMINATE WITH A STANDARD HOOK.

- E. SCHEDULE OR DETAILED REINFORCING STEEL SHALL NOT BE TACK WELDED. WELDED REINFORCING STEEL SPLICES ARE NOT PERMITTED.

- F. UNSCHEDULED BEAMS AND SLABS SHALL HAVE CONTINUOUS TOP BARS LAPPED AT MID-SPAN BETWEEN SUPPORTS WITH A CLASS "A" TENSION SPLICE. CONTINUOUS BOTTOM BARS SHALL BE LAPPED 12" OVER SUPPORTS.

G. DOWEL BAR REPLACEMENT:

- REINFORCING STEEL BARS SHOWN ON THE DRAWINGS CROSSING CONCRETE CONSTRUCTION JOINT SURFACES MAY BE FORMED WITH INSERTS CAST FLUSH AGAINST THE FORM AND HAVE DOWELS CONNECTED TO THE INSERT IN A SUBSEQUENT CONCRETE POUR. THIS CONNECTION SHALL CONFORM TO THE FOLLOWING:
1. SPLICE CONNECTION AT INSERT SHALL DEVELOP THE FULL TENSILE CAPACITY OF THE REINFORCING STEEL.
 2. INSERTS SHALL BE ON OF THE FOLLOWING:
 - a. "L" ENTION FORM SAVER; TAPERED THREADED DOWEL AND INSERT AS MANUFACTURED BY ERICO PRODUCTS, INC.
 - b. "DOWEL BAR SPLICER"; DOWEL BAR SUBSTITUTION AND REBAR SPLICE SYSTEM (DB-SAE SPLICER) AS MANUFACTURED BY RICHMOND SCREW ANCHOR CO., INC.

CONCRETE ANCHORS

A. ADHESIVE ANCHORS:

1. ADHESIVE ANCHORS SHALL CONSIST OF A THREADED STEEL ROD MEETING THE REQUIREMENTS OF ASTM A325 AND A SEALED GLASS CAPSULE CONTAINING A POLYESTER RESIN, QUARTZ SAND AGGREGATE AND A HARDENER. NUTS AND WASHERS SHALL BE FURNISHED BY THE MANUFACTURER AND USED WITH THE BOLTS.
2. ADHESIVE ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PARTICULAR ATTENTION SHALL BE PAID TO DRILLING OF HOLES, HOLE CLEANING AND PREPARATION, AND CURING.

B. EXPANSION BOLTS:

1. EXPANSION BOLTS IN CONCRETE SHALL BE ONLY WEDGE TYPE EXPANSION BOLTS. NUTS AND WASHERS SHALL BE FURNISHED FROM THE MANUFACTURER AND USED WITH THE BOLTS.
2. EXPANSION BOLTS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PARTICULAR ATTENTION SHALL BE PAID TO DRILLING OF HOLES AND BOLT TIGHTENING.

CONCRETE MASONRY

A. MATERIALS:

1. HOLLOW LOAD BEARING CONCRETE MASONRY UNITS (CMU): ASTM C90 UNITS WITH MINIMUM NET AREA COMPRESSIVE STRENGTH OF 1,900 PSI
2. PORTLAND CEMENT: ASTM C150, TYPE I OR TYPE II
3. LIME-HYDRATED LIME, ASTM C207, TYPE S.
4. SAND: ASTM C144
5. COARSE AGGREGATE FOR GROUP: ASTM C404
6. REINFORCED MASONRY ASSEMBLY STRENGTH: $f_m = 1,500$ PSI AT 28 DAYS.
7. MORTAR: ASTM C270, TYPE EXCEPT FOR MASONRY IN CONTACT WITH EARTH SHALL BE TYPE "M".
8. GROUT: ASTM C476, MINIMUM 28-DAY COMPRESSIVE STRENGTH SHALL BE 2,500 PSI AND A MAXIMUM SLUMP OF 8" TO 11".

B. REINFORCEMENT:

1. HORIZONTAL JOINT REINFORCING AND TIES:
 - a. HORIZONTAL JOINT REINFORCING AND TIES SHALL BE BUTT-WELDED WIRE UNITS FABRICATED FROM COLD DRAWN STEEL WIRE COMPLYING WITH ASTM A82. FABRICATED UNITS SHALL HAVE DEFORMED CONTINUOUS SIDE RODS AND PLAIN CROSS RODS AND SHALL BE PREFABRICATED IN STRAIGHT LENGTHS OF NOT LESS THAN 10 FEET. OUT-TO-OUT WIDTH OF UNITS SHALL BE APPROXIMATELY 2" LESS THAN THE NOMINAL WIDTH OF THE WALL POSITIONED SO THAT THE SIDE RODS HAVE FULL EMBEDMENT IN MORTAR WITH MORTAR COVERAGE OF NOT LESS THAN 5/8" ON JOINT FACES EXPOSED TO THE EXTERIOR AND NOT LESS THAN 1/2" ELSEWHERE. ALL UNITS SHALL BE FABRICATED FROM 8 GAUGE RODS MINIMUM. EXTERIOR WALLS SHALL HAVE UNITS HOT-DIP GALVANIZED AFTER FABRICATION TO COMPLY WITH ASTM A153, CLASS "B-2" COATING (1.5 OZ PER SQ.FT.). INTERIOR WALLS IN CONDITIONED SPACE SHALL HAVE UNITS THAT ARE MILL GALVANIZED ACCORDING TO ASTM A641 CLASS "3". PREFABRICATED MATCHING CORNER ("C") AND INTERSECTING ("T") SECTIONS SHALL BE USED TO FORM CONTINUOUS REINFORCEMENT AROUND ALL CORNERS AND FOR ANCHORING ABUTTING WALL AND PARTITIONS.
 - b. MASONRY WALLS SHALL BE REINFORCED WITH LADDER TYPE UNITS WITH A SINGLE PAIR OF SIDE RODS AND CONTINUOUS DIAGONAL OR PERPENDICULAR CROSS RODS AT ATTACHED TO SIDE RODS NOT FARTHER APART THAN 18" ON CENTER. UNITS IN THE WALL SHALL BE SPACED AS FOLLOWS:
 - 1) TYPICALLY NOT MORE THAN 18" O.C. VERTICALLY
 - 2) PROVIDE HORIZONTAL WALL REINFORCEMENT IN THE BED JOINT OF THE SECOND COURSE AND TOP COURSE OF MASONRY IN ADDITION TO THE TYPICAL REINFORCING SPECIFIED.
 - 3) PROVIDE ADDITIONAL HORIZONTAL REINFORCING IN THE FIRST AND SECOND BED JOINTS 8" APART IMMEDIATELY ABOVE LEVEL AND BELOW SILLS OF ALL OPENINGS. EXTEND REINFORCEMENT A MINIMUM OF TWO FEET PAST THE OPENING ON EACH SIDE. HORIZONTAL REINFORCEMENT INTERRUPTED BY THE JAMB OF AN OPENING SHALL HAVE THE CROSS ROD OR SIDE ROD BENT AND HOOKED AT THE JAMB. PROVIDE AN ADDITIONAL RECTANGULAR ADJUSTABLE TIE AT THE JAMB FOR EACH JOINT NOT CONTAINING THE NORMAL HORIZONTAL REINFORCING UNIT.
- c. HORIZONTAL WALL REINFORCING SHALL BE A SPLICED WITH A MINIMUM 6" SPLICE LENGTH.
2. VERTICAL REINFORCEMENT:
 - a. VERTICAL REINFORCING SHALL BE ASTM A615, GRADE 60 DEFORMED BARS.
 - b. VERTICAL REINFORCEMENT SHALL BE AS INDICATED ON THE DRAWINGS, BUT NOT LESS THAN #3@2' O.C.

C. MASONRY ANCHORING DEVICES:

1. ATTACH MASONRY TO COLUMNS WITH GALVANIZED DOVETAIL ANCHORS IN EVERY SECOND COURSE.

D. INSTALLATION:

1. ALL BLOCK SHALL BE PLACED IN RUNNING BOND.
2. CONTROL JOINTS:
 - a. CONTROL JOINT LOCATIONS SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS.
3. HORIZONTAL WALL REINFORCING SHALL BE STOPPED AT EACH SIDE OF CONTROL JOINTS. SIDE RODS OF HORIZONTAL REINFORCING SHALL BE BENT AND HOOKED AT THE END OF THE WALL. ADDITIONAL RECTANGULAR TIES SHALL BE PLACED AT EACH HORIZONTAL JOINT BETWEEN NORMAL HORIZONTAL REINFORCED JOINTS AT THE END OF THE WALL EACH SIDE OF THE CONTROL JOINT.

- E. ALL MASONRY WALLS HAVE BEEN DESIGNED TO RESIST THE REQUIRED CODE VERTICAL AND LATERAL LOADS APPLIED TO THEM IN THE FINAL CONSTRUCTED CONFIGURATION. THE WALLS HAVE BEEN DESIGNED ASSUMING FULL BRACING TOP, BOTTOM, AND/OR SIDE OF WALLS ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADEQUATELY BRACE ALL MASONRY WALLS AT ALL STAGES DURING CONSTRUCTION TO RESIST ERECTION LOADS AND LATERAL LOADS THAT COULD BE APPLIED PRIOR TO COMPLETION OF CONSTRUCTION.

STRUCTURAL STEEL

A. SPECIFICATION:

1. HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 GRADE B STEEL.
2. CHANNELS, ANGLES, PLATES AND BENT PLATES SHALL CONFORM TO ASTM A36 STEEL.
3. HEADED STUDS SHALL CONFORM TO ASTM A108 AND ASTM A29 STEEL.

- F. FIELD CUTTING OF STRUCTURAL STEEL OR ANY FIELD MODIFICATION TO STRUCTURAL STEEL IS NOT PERMITTED EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

G. WELDING:

1. ALL SHOP AND FIELD WELDERS SHALL BE CERTIFIED ACCORDING TO AWS PROCEDURE FOR THE WELDING PROCESS AND WELDING POSITION USED.
2. MINIMUM SIZE AND STRENGTH:
 - a. FILLET WELDS: MINIMUM SIZE OF FILLET WELDS SHALL BE AS SPECIFIED IN TABLE J2.4 IN THE AWS MANUAL OF STEEL CONSTRUCTION BUT NOT LESS THAN 1/4"
- b. SHOP AND FIELD WELDS SHALL DEVELOP THE FULL TENSILE STRENGTH OF THE MEMBER JOINED.

- D. UNLESS SPECIFICALLY NOTED, STEEL DETAILS SHOWN ON THE DRAWINGS ARE FOR CONCEPT ONLY AND DO NOT INDICATE REQUIRED NUMBER OF BOLTS, SIZE OF WELDS, ETC. STEEL CONNECTIONS SHALL BE DESIGNED BY A FLORIDA REGISTERED PROFESSIONAL ENGINEER HIRED BY THE STEEL SUPPLIER. CONNECTION CRITERIA IS GIVEN IN THE STEEL DETAILS. SIGNED AND SEALED CONNECTION CALCULATIONS SHALL BE SUBMITTED TO THE EOR FOR REVIEW AND APPROVAL.

- H. HOT-DIP GALVANIZE: AFTER FABRICATION, ALL STRUCTURAL STEEL ITEMS AND THEIR CONNECTIONS PERMANENTLY EXPOSED TO THE OUTSIDE WHETHER NOTED ON THE DRAWINGS OR NOT, GALVANIZED ALL NUTS, BOLTS, AND WASHERS USED IN THE CONNECTION OR SUCH STEEL. FIELD WELDED CONNECTIONS SHALL HAVE WELDS PROTECTED WITH "Z.R.C. COLD GALVANIZING COMPOUND" AS MANUFACTURED BY Z.R.C. PRODUCT COMPANY.

F. STRUCTURAL BOLTS AND THREADED FASTENERS:

1. MATERIALS:
 - a. BOLTS: ASTM A325 TYPE 1, HIGH STRENGTH BOLTS FOR STRUCTURAL STEEL JOINT OR ASTM A490 TYPE 1, HEAT-TREATED STRUCTURAL STEEL BOLTS, 150 KSI MINIMUM TENSILE STRENGTH.
 - b. THREADED ROD STOCK: ASTM A372 GRADE 92
 - c. BOLTS AND NUTS, HIGH STRENGTH BOLTS: HEAVY HEX HEAD CONFORMING TO ANSI STANDARDS B18.2.1 AND B18.2.2. NUTS SHALL CONFORM TO ASTM A563, STANDARD SPECIFICATION FOR CARBON AND ALLOY STEEL NUTS.
 - d. WASHERS: ALL WASHERS SHALL BE CIRCULAR, FLAT AND SMOOTH AND SHALL CONFORM TO THE REQUIREMENTS OF TYPE "A" WASHERS IN ANSI STANDARD B2.3.1. WASHERS FOR HIGH STRENGTH BOLTS SHALL BE HARDENED AND CONFORM TO ASTM F436, SPECIFICATION FOR HARDENED STEEL WASHERS.

LIGHT GAGE COLD FORMED STEEL EXTERIOR FRAMING

A. FRAMING MEMBERS

1. ALL LIGHT GAGE COLD-FORMED STEEL FRAMING MEMBERS SHALL BE SYMMETRICAL SHAPES WITH A MINIMUM YIELD STRENGTH OF 33 KSI MEETING THE REQUIREMENTS OF ASTM C555. ALL LIGHT GAGE COLD-FORMED STEEL SECTIONS SHALL HAVE A PRIME HOT-DIPPED GALVANIZED STEEL COATING MEETING THE REQUIREMENTS OF ASTM A653 WITH A G-90 CLASS COATING.
2. ALL LIGHT GAGE STEEL FRAMING MEMBERS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF AISI "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL MEMBERS" AND OTHER APPLICABLE CODES AND SPECIFICATIONS.
3. THE LIGHT GAGE METAL SUPPLIER SHALL SUBMIT DETAILED SHOP DRAWINGS TO THE A/E FOR REVIEW AND APPROVAL.

B. WELD AND FASTENERS

1. ALL SHOP AND FIELD WELDS FOR LIGHT GAGE STEEL MEMBERS SHALL BE MADE WITH LOW AMP WIRE FEED TYPE WELDER. PAINT ALL LIGHT GAGE STEEL MEMBER WELDS AND DAMAGED GALVANIZED AREAS WITH RUST-INHIBITIVE PAINT.
2. FASTENERS SHALL BE CORROSION RESISTANT COATED, SELF DRILLING, SELF THREADING METAL SCREWS MEETING THE REQUIREMENTS OF ASTM C64.

C. INSTALLATION

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND INFORMATION INDICATED ON THE ARCHITECTURAL, STRUCTURAL, AND MEP DRAWINGS AND MAKE ANY NECESSARY FIELD MEASUREMENTS, AND SHALL BE FULLY RESPONSIBLE FOR ACCURACY AND LAYOUT OF THE WORK.

SPECIALTY ENGINEERING SYSTEMS

- A. SPECIALTY ENGINEERING SYSTEMS (METAL STAIRS, LOUVERS, METAL TRELLISES, RAILINGS, ETC.) ARE IDENTIFIED IN THE STRUCTURAL AND ARCHITECTURAL DRAWINGS.