

# GENERAL STRUCTURAL NOTES

## GENERAL NOTES:

- CONTRACTOR IS RESPONSIBLE FOR AND SHALL VERIFY AND COORDINATE ALL DIMENSIONS AND DETAILS BEFORE PROCEEDING WITH WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND ENGINEERS.
- DETAILS SHOWN IN ANY SECTION APPLY TO ALL SIMILAR SECTIONS AND CONDITIONS UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL FULLY BRACE AND OTHERWISE PROTECT ALL WORK IN PROGRESS UNTIL THE BUILDING IS COMPLETED.
- ALL STRUCTURAL ITEMS FOR THIS PROJECT HAVE BEEN DESIGNED IN ACCORDANCE WITH APPROPRIATE PROVISIONS OF EACH OF THE FOLLOWING:
  - THE FLORIDA BUILDING CODE, (FIFTH EDITION) 2014.
  - ACI STANDARD 318-11 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
  - BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-11) (ASCE 7-10 TMS 402-11).
  - AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" 360-10.
  - AMERICAN FOREST AND PAPER ASSOCIATION, NATIONAL DESIGN SPECIFICATION 2007 EDITION.
  - ASCE 7-10 (WITH ERRATA DATED JANUARY 11, 2011) "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES".
- THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS AND THE ARCHITECTURAL AND MECHANICAL DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN DRAWINGS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ARCHITECT PRIOR TO PERFORMING WORK. IN CASE OF CONFLICT THE MOST STRINGENT CONDITION SHALL APPLY.
- ALL DIMENSIONS MUST BE COORDINATED WITH ARCHITECTURAL DRAWINGS AND WITH MECHANICAL DRAWINGS. CONTRACTOR MUST OBTAIN AN ARCHITECTURAL DIRECTIVE IN CASE OF ANY CONFLICT REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN IN STRUCTURAL DRAWINGS.
- ROOF TOP EQUIPMENT ANCHORAGE & OUTDOOR RACK MOUNTED EQUIPMENT ANCHORAGE: ALL ROOF TOP EQUIPMENT CURBS, ROOF TOP MECHANICAL EQUIPMENT, EQUIPMENT THE DOWNS, AND CONNECTIONS OF ALL EQUIPMENT TO OUTDOOR RACKS OR BUILDING STRUCTURE FOR WIND LOADING ARE TO BE DESIGNED AND REGISTERED BY A REGISTERED SPECIALTY ENGINEER RETAINED BY THE MECHANICAL EQUIPMENT SUPPLIER. SIGNED AND SEALED DRAWINGS AND CALCULATIONS ARE TO BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL. THE EQUIPMENT MANUFACTURER SHALL PROVIDE THE ATTACHMENT OF THE UNIT TO THE STRUCTURE AND SUBMIT TO THE ENGINEER LOADS, LOCATIONS, AND CONNECTIONS OF ATTACHMENT. THE STRUCTURAL ENGINEER WILL MAKE PROVISIONS IN THE DESIGN OF THE PRIMARY STRUCTURAL FRAME TO ACCOMMODATE THE LOADS AND ATTACHMENTS SUBMITTED BY THE MANUFACTURER.

## CONCRETE AND REINFORCING:

- ALL CONCRETE WORK SHALL CONFORM TO THE LATEST ACI BUILDING CODE REVISIONS FOR REINFORCED CONCRETE.
- ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTHS AS INDICATED BELOW:
 

CONCRETE STRENGTH	MAX WATER CEMENT RATIO	TYPE AGGREGATE	LOCATION USED
4000 PSI	0.45	STONE	CONCRETE U.O.
3000 PSI	0.52	STONE	SLAB ON GRADE / FOUNDATIONS
- ALL REINFORCING STEEL SHALL BE INTERMEDIATE GRADE, NEW BILLET STEEL, CONFORMING TO ASTM A-615, GRADE 60. ALL BARS SHALL BE SECURELY SUPPORTED AND WIRED IN PLACE PRIOR TO POURING CONCRETE. ALL REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A-706.
- ALL WELDED WIRE FABRIC (W.W.F.) IN FLAT SHEETS ONLY AND SHALL CONFORM TO ASTM A-185.
- UNLESS NOTED, ALL BARS MARKED CONTINUOUS SHALL BE SPLICED AT ALL LAP POINTS AND CORNERS AND DEVELOPED AT NON-CONTINUOUS ENDS AS PER TYPICAL DETAILS. SPLICE CONTINUOUS TOP BARS AT CENTER BETWEEN SUPPORTS AND SPLICE CONTINUOUS BOTTOM BARS AT SUPPORTS.
- CONCRETE COVER FOR REINFORCING BARS SHOWN IN TYPICAL DETAILS. UNLESS NOTED, TEMPERATURE REINFORCING (ASTM A-615-60) TO BE 0.0015 X CONCRETE AREA.
- PROVIDE #4 @ 12" O.C. WITH STANDARD HOOK, TOP BARS IN ALL SLABS AT DISCONTINUOUS ENDS UNLESS OTHERWISE NOTED ON PLANS. LENGTH OF BARS 1/4 OF SPAN, MINIMUM 3'-0". UNLESS OTHERWISE NOTED, PROVIDE #4 @ 12" O.C. IN ALL CANTILEVER. BAR LENGTH SHALL BE CANTILEVER SPAN PLUS 10'-0" PLUS STANDARD HOOK AT CANTILEVER ENDS.
- WHERE PIPE SLEEVES (UP TO 2" IN DIAMETER) PASS THROUGH CONCRETE BEAMS, PROVIDE ADDITIONAL SUPPORTS EACH SIDE OF SLEEVE. SLEEVES FOR PIPES 2" IN DIAMETER OR LARGER MUST BE STEEL OR CAST IRON, AND THE LOCATION MUST BE APPROVED BY THE STRUCTURAL ENGINEER.
- ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED JUST BEFORE PLACING NEW CONCRETE IN ACCORDANCE WITH THE BUILDING CODE.
- FOR CHAMFER OF EXPOSED CORNERS OF BEAMS AND/OR COLUMNS, SEE ARCHITECTURAL DRAWINGS.
- CONTRACTOR SHALL COORDINATE PLACEMENT OF, OR BOX OUT FOR, ALL PIPE SLEEVES, OPENINGS, ETC. REQUIRED FOR VARIOUS TRADES.
- CONTRACTOR SHALL COORDINATE AND NOTIFY OTHER TRADES IN SUFFICIENT TIME TO ALLOW THEM TO SET ANCHORS, INSERTS, BOLTS, HANGERS, ETC. AS REQUIRED FOR THEIR USE.
- SEE ARCHITECTURAL DRAWINGS FOR DETAILS OF FLASHING, REGLETS, FASCIA DETAILS, ETC.
- UNDER NO CIRCUMSTANCES SHALL CONCRETE BE PUMPED THROUGH ALUMINUM PIPES. CONCRETE SHALL NOT BE PLACED IN CONTACT WITH ALUMINUM MIXING DRUMS, TRUCK MIXER DRUMS, GEGGIES, CHUTES, CONVEYORS, TREMIE PIPES, AND OTHER EQUIPMENT MADE OF ALUMINUM SHALL NOT BE USED ON THIS PROJECT.
- LUMPS OF OVER 4 INCHES WILL NOT BE PERMITTED UNLESS THE HRWR ADMIXTURE (SUPER PLASTICIZER) IS USED. MAXIMUM LUMP IS THEN 8 INCHES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- NO ADMIXTURE SHALL BE USED IN CONCRETE EXCEPT WITH THE PERMISSION OF THE ENGINEERS AND APPROVED BY LABORATORY MIX APPROVAL. ALL ADMIXTURES SHALL CONTAIN NO MORE CHLORIDE THAN ARE PRESENT IN MUNICIPAL DRINKING WATER.
- WATER REDUCING ADMIXTURE SHALL CONFORM TO THE ASTM C 494, TYPE A.
- AIR ENTRAINING ADMIXTURE SHALL CONFORM TO ASTM C 260. AIR CONTENT OF CONCRETE SHALL BE USED AS FOLLOWS:
  - FOR CONCRETE EXPOSED TO SOIL AND WEATHER, 5%.
  - FOR INTERIOR WALLS, COLUMNS, AND SLABS, 3%.
- ELYASTIC ASTMC 309 TYPE 2 F SHOULD BE USED BUT NOT TO EXCEED 2% BY WEIGHT OF CEMENT.
- ALL EXPOSED CONCRETE SLABS SHALL RECEIVE A CURING COMPOUND. THE CURING COMPOUND SHALL CONFORM TO ASTM C 309 AND SHALL HAVE 30% MINIMUM WATER/BLANKET CURING AS PER ACI RECOMMENDATIONS MAY BE USED AS ALTERNATE.

## FOUNDATION NOTES:

- FOUNDATIONS FOR THIS PROJECT HAVE BEEN DESIGNED ASSUMING THE SOIL IS SUITABLE TO SUPPORT 2000 PSF SPREAD FOOTINGS WITH SETTLEMENT NOT TO EXCEED 1/8". CONTRACTOR MUST CONTACT A GEOTECHNICAL ENGINEER TO DO A SOIL EXPLORATION WHICH MUST INCLUDE BORINGS AT A MINIMUM RATE OF ONE FOR EVERY 3000 SQUARE FOOT OF BUILDING BUT NOT LESS THAN TWO BORINGS. THE BORINGS MINIMUM DEPTH SHOULD BE TWENTY FIVE FEET (25'-0") OR TWICE THE LARGEST DIMENSION OF THE LARGEST FOUNDATION WHICH EVER IS GREATER. THESE REQUIREMENTS MAY BE MODIFIED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. A REPORT SIGNED AND SEALED BY A PROFESSIONAL GEOTECHNICAL ENGINEER MUST BE SUBMITTED TO THE CONTRACTOR PRIOR TO ANY FOUNDATION WORK.
- FILL AND SURGRADE PREPARATION SHALL BE AS NEEDED TO OBTAIN THE SAFE BEARING PRESSURE INDICATED ON NOTE 1. ALL ORGANICS AND UNSUITABLE SOIL SHOULD BE REMOVED AND A MINIMUM OF 98% MUST BE OBTAINED UNLESS GEOTECHNICAL ENGINEER RECOMMENDATIONS ALLOW A LOWER PERCENT OF COMPACTION.
- ALL COLUMN FOOTINGS SHALL BE CENTERED UNDER COLUMN CENTERLINES UNLESS OTHERWISE NOTED.
- BACKFILLING AGAINST FOUNDATION WALLS SHALL BE DONE CAREFULLY WITH SMALL COMPACTION EQUIPMENT. AFTER SLABS ON GROUND ARE IN PLACE AND CONCRETE HAS SET, NO TRUCKS, BULLDOZERS, ETC. SHALL BE ALLOWED CLOSER THAN 6'-0" TO ANY FOUNDATION WALL. ANY WALL 3'-0" OR HIGHER MUST BE BRACED DURING THE CONSTRUCTION PROCESS.
- NO FOUNDATIONS SHALL BE PLACED ABOVE 1 VERTICAL ON 2 HORIZONTAL SLOPES EXTENDED FROM THE CLOSEST EDGE OF ANY UNDISTURBED SOIL OR OTHER FOUNDATION STRUCTURE. BOTTOM OF FOOTINGS SHALL NOT BE LESS THAN 1'-0" BELOW FINISH GRADE.
- FOR FOUNDATIONS SIZE AND REINFORCING SEE SCHEDULE.
- ELEVATOR PIT DIMENSIONS = VERIFY WITH ELEVATOR MANUFACTURERS APPROVED SHOP DRAWINGS.
- WATER PROOFING MATERIALS SHALL BE PROVIDED ON ALL SIDES AND BOTTOM OF ELEVATOR CORE AND ESCALATOR PIT.
- CONTRACTOR SHALL TREAT SOIL BENEATH BUILDING FOR TERMITES.

## MASONRY:

- DESIGN AND CONSTRUCTION SHALL CONFORM TO BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-11) (ASCE 7-10) / TMS 402-11 AND SPECIFICATIONS FOR MASONRY STRUCTURES ACI 530-11 / ASCE 7-10 (WITH ERRATA DATED JANUARY 11, 2011).
- MINIMUM NET COMPRESSIVE STRENGTH OF BLOCK ASSEMBLY SHALL BE 2000 P.S.I. (fm) MORTAR FOR MASONRY SHALL BE TYPE "S" OR "M".
- FOR ALL EXTERIOR AND INTERIOR BEARING, BED JOINTS ARE TO COVER 100% OF THE MASONRY SURFACES AND ALL HEAD JOINTS ARE TO COVER 100% OF THE PROTECTED AREA OF THE FACE SHELLS.
- FILL ALL CELLS AS REQUIRED WITH 3000 P.S.I. GROUT. SLUMP SHALL BE 8 TO 11 INCHES. SUBMIT DESIGN MIX FOR APPROVAL.
- MINIMUM HORIZONTAL JOINT REINFORCING SHALL BE 9 GAUGE HOT DIP GALVANIZED TRUSS LADDER TYPE JOINT REINFORCING AT 18" O.C. PROVIDE MANUFACTURE "T" AND "L" SHAPES FOR INTERSECTIONS AND CORNERS. (MINIMUM LAP 8").
- MINIMUM VERTICAL REINFORCING SHALL BE #5 @ 48" OR 1-#4 @ 32" O.C. (U.O.)
- PROVIDE ADDITIONAL VERTICAL REINFORCING BAR AT EVERY CORNER, INTERSECTION, CONTROL JOINT, AND OPENING EDGES (U.N.O.).
- MINIMUM SPLICE FOR VERTICAL REINFORCING IS SHOWN IN DETAIL 4-223. SPLICE FOR HORIZONTAL JOINT REINFORCING = 12".
- WALLS ARE DESIGNED TO BE BRACED BY FLOOR OR ROOF MEMBERS. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING DURING CONSTRUCTION.
- ALL STEEL ROOF DECK SHALL BE CAPABLE OF SUPPORTING FULLY GROUT FILLED.
- ALL KNOCK OUT BLOCK HORIZONTAL BARS SHALL HAVE CORNER BARS AT ALL CORNERS AND WALL INTERSECTIONS. SIZE AND NUMBER OF CORNER BARS SHALL BE AS SHOWN IN DETAIL 4-223.
- ALL INTERSECTING WALLS AND CORNER WALLS SHALL BE LAID IN AN OVERLAPPING MASONRY BONDING PATTERN, WITH ALTERNATE UNITS HAVING A BEARING OF NOT LESS THAN 3 INCHES ON UNIT BELOW.

## COMPOSITE METAL FLOOR DECK:

- STEEL FLOOR DECK SHALL BE AS SPECIFIED IN THE FLOOR FRAMING NOTES ON THE FLOOR PLAN.
- ALL STEEL FLOOR DECK SHALL BE PHOSPHORIZED TOP AND PAINTED BOTTOM.
- ALL STEEL FLOOR DECK SHALL BE CAPABLE OF SUPPORTING ALL CONSTRUCTION LOADS.
- ALL STEEL FLOOR DECK SHALL BE CONTINUOUS OVER FOUR OR MORE STRUCTURAL SUPPORTS (I.E. DECK SHOULD BE DETAIL 4-202A THREE SPAN CONDITION).
- STEEL FLOOR DECK SHALL HAVE NESTING SIDE LAPS (AS REQUIRED BY MECHANICAL MEANS) WITH CENTER OF EACH LAP 18" OR 30" O.C., WHICHEVER IS LEAST.
- IF DECK IS CUT IN SINGLE SPAN CONDITION, EACH END SECTION SHALL BE SUPPORT THROUGH WELDING WASHERS IN THE BOTTOM OF EACH LAP.
- IN AREAS WHERE THE DECK IS CUT PER NOTE 6, THE GAGE OF THE SINGLE SPAN DECK SHALL BE ADJUSTED UPWARDS AS REQUIRED BY THE ENGINEER TO SUPPORT THE LOADS.
- ANY ELECTRICAL WORK WEIGHING MORE THAN 25 PSF SHALL BE HUNG FROM THE FLOOR DECK. ALL MECHANICAL WORK AND PIPING SHALL BE HUNG FROM STEEL BEAMS. ALL STRUCTURAL STEEL NOTE 12 (OF STRUCTURAL STEEL NOTES) AND ADDITIONAL STEEL REQUIRED BY MECHANICAL/ELECTRICAL TRADES SHALL BE SUPPORT THROUGH WELDING WASHERS IN THE BOTTOM OF EACH LAP.
- MIDDLE SPAN CONTRACTOR TO PROVIDE 18 GAUGE RIDGE PLATE, VALLEY PLATE, EDGE STRIP, ETC. AS REQUIRED.
- STEEL FLOOR DECK SHALL BE WELDED AT ENDS AND ALL INTERMEDIATE SUPPORTING MEMBERS WITH 5/8" DIAMETER PUDDLE WELDS OR ELONGATED WELDS OF EQUAL STRENGTH SPACED PER SPECIFICATIONS IN THE BOTTOM OF THE RIB ACROSS THE WIDTH OF THE DECK UNIT.
- CUT OUT METAL DECK WHERE BOLT PROJECTIONS INTERFERE WITH METAL DECK.
- ANY SINGLE SPAN FLOOR DECK SHALL BE SHORED AT MIDSPAN DURING CONCRETE PLACEMENT. SHORES SHALL REMAIN UNTIL CONCRETE HAS REACHED ITS 28-DAY STRENGTH.
- DIRECTION OF METAL DECK SHOWN THIS → ON PLAN.

## LIGHT GAUGE METAL FRAMING:

- ALL STRUCTURAL MEMBERS SHALL BE DESIGNED IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE "SPECIFICATION FOR THE DESIGN OF COLD FORMED STRUCTURAL MEMBERS", 2007 EDITION WITH 2009 SUPPLEMENTS. PROVIDE SIGNED AND SEALED CALCULATIONS AND DRAWINGS FOR ALL LIGHT GAUGE STRUCTURAL ELEMENTS OF THE BUILDING, INCLUDING THE EXTERIOR METAL STUDS (CURTAIN WALL), AND ALL EXTERIOR CEILING.
- ALL STRUCTURAL STUDS AND JOISTS 22, 20, AND 18 GAUGES SHALL BE FORMED FROM GALVANIZED STEEL PER ASTM A653, G60 COATING MEETING THE REQUIREMENTS OF ASTM C955 WITH A YIELD STRENGTH OF 33,000 PSI.
- ALL STRUCTURAL STUDS AND JOISTS 16, 14, AND 12 GAUGES SHALL BE FORMED FROM GALVANIZED STEEL PER ASTM A653, G60 COATING MEETING THE REQUIREMENTS OF ASTM C955, WITH YIELD STRENGTH OF 50,000 PSI.
- ALL STRUCTURAL TRACK AND BRIDGING SHALL BE FORMED FROM GALVANIZED STEEL PER ASTM A653, G60 COATING MEETING THE REQUIREMENTS OF ASTM C955, WITH YIELD STRENGTH OF 33,000 PSI.
- WITH EACH TYPE OF FRAMING REQUIRED, PROVIDE MANUFACTURER'S STANDARD STEEL RUNNERS (TRACKS), BLOCKING, LINTELS, CLIP ANGLES, SHOES, REINFORCEMENTS, FASTENERS, AND ACCESSORIES AS RECOMMENDED BY MANUFACTURER FOR APPLICATIONS INDICATED, AS NEEDED TO PROVIDE A COMPLETE METAL FRAMING SYSTEM.
- PROVIDE GALVANIZED FINISH TO METAL FRAMING COMPONENTS COMPLYING WITH ASTM A653 FOR MINIMUM G60 COATING. ATTACH SIMILAR COMPONENTS TO METAL FRAMING, ATTACH DISSIMILAR COMPONENTS BY WELDING, BOLTING OR SCREW FASTENERS, AS STANDARD WITH MANUFACTURER. ALL WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED AND EXPERIENCED IN LIGHT GAUGE STRUCTURAL STEEL FRAMING WORK.
- INSTALL METAL FRAMING SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S PRINTED OR WRITTEN INSTRUCTIONS AND RECOMMENDATIONS, UNLESS OTHERWISE INDICATED.
- INSTALL CONTINUOUS TRACKS SIZED TO MATCH STUDS.
- SET STUDS PLUMB EXCEPT AS NEEDED FOR DIAGONAL BRACING OR REQUIRED FOR NON-PLUMB WALLS OR WARPED SURFACED AND SIMILAR REQUIREMENTS.
- WHERE STUD SYSTEM ABUTS STRUCTURAL COLUMN OR WALLS, INCLUDING MASONRY WALL, ANCHOR ENDS OF STIFFENERS TO SUPPORTING STRUCTURE.
- SECURE STUDS TO TOP AND BOTTOM RUNNER TRACKS BY EITHER WELDING OR SCREW FASTENERS AT BOTH INSIDE AND OUTSIDE FLANGES.

## STEEL JOIST:

- STEEL JOIST CONSTRUCTION SHALL CONFORM TO THE LATEST SPECIFICATIONS OF, AND THE JOISTS SHALL BE APPROVED BY, THE STEEL JOIST INSTITUTE.
- UNLESS OTHERWISE NOTED, BEAR SHORT SPAN JOISTS MINIMUM OF 2-1/2" ON STEEL BEAMS AND BEAR LONG SPAN JOIST MINIMUM OF 4" ON STEEL SUPPORTS. IN CASES WHERE JOISTS BEAR ON BEAMS FROM ONE SIDE ONLY, JOIST SEATS SHALL EXTEND A MINIMUM OF 1" PAST THE CENTERLINE OF SUPPORTING BEAM.
- ALL JOISTS BEARING ON BEAMS SHALL BE WELDED OR BOLTED TO THOSE BEAMS.
- PROVIDE BRIDGING FOR ALL JOISTS AS SHOWN ON PLAN BUT NOT LESS THAN WHAT IS REQUIRED BY THE STEEL JOIST INSTITUTE OR THE STEEL JOIST DESIGNER. BRIDGING SHALL CONSIST OF MINIMUM 1-1/4" X 1-1/4" X 7/8" ANGLES, (U.N.O.).
- ALL BRIDGING SHALL BE PROVIDED AND INSTALLED BY JOIST SUPPLIER.
- ALL CLIPS AND CONNECTIONS SHALL BE SHOP WELDED.
- NO FIELD WELDING TO BAR JOISTS EXCEPT ITEMS SPECIFICALLY SHOWN ON STRUCTURAL DRAWINGS SHALL BE ALLOWED WITHOUT SPECIFIC PERMISSION FROM THE ENGINEER.
- NO JOIST SHALL BE FIELD SPLICED.
- MAXIMUM DEFLECTION OF STEEL JOISTS = L/240.
- FOR PAINTING OF STEEL JOIST, SEE SPECIFICATIONS.
- JOIST MANUFACTURER SHALL SUBMIT WITH THE SHOP DRAWINGS HIS CATALOG USED FOR THE MANUFACTURE OF JOISTS, INDICATING THE LOAD TABLES AND SIZES OF ALL MEMBERS USED.
- NO LOADS EXCEEDING 40 POUNDS MAY BE HUNG FROM JOISTS WITHOUT SPECIFIC PERMISSION FROM THE STRUCTURAL ENGINEER. LOADS LESS THAN 40 POUNDS MAY BE HUNG AT PANEL POINTS ONLY. ANY COST INVOLVED IN REINFORCING OF JOISTS SHALL BE BORNE BY THE PRIME CONTRACTOR REQUIRING ADDED LOADS.
- ALL SHORT SPAN JOISTS, AND DEEP LONG SPAN JOISTS SHALL HAVE UNIFORM CROSS SECTION, WITH STANDARD DEAD LOAD CAMBER SATISFACTORY TO THE MANUFACTURE OF JOISTS.
- ADJUST JOIST SEATS AS SHOWN ON DRAWINGS.
- FOR SPECIFIC JOIST ENDS, SEE ROOF SECTIONS.
- RIGID CONNECTIONS OF BOTTOM CHORDS OF JOISTS TO COLUMNS SHALL BE MADE ONLY AFTER THE APPLICATION OF ALL THE DEAD LOADS. PROVIDE LOOSE BOLTED CONNECTION OF THESE BOTTOM CHORDS DURING ERECTION.

## STEEL ROOF DECK:

- STEEL ROOF DECK SHALL BE A MINIMUM OF 1-1/2" - 20 GAGE WIDE RIB FOR SPANS UP TO 6'-0" OR 3" TYPE N - 20 GAGE FOR SPANS UP TO 12'-0". THE SIZE, TYPE AND GAGE INDICATED ABOVE SHOULD BE USED UNLESS A DIFFERENT ONE IS INDICATED IN THE ROOF FRAMING NOTES OF THE ROOF PLAN DRAWING.
- ALL STEEL ROOF DECK SHALL BE GALVANIZED G90 AS PER ALL SPECIFICATIONS.
- ALL STEEL ROOF DECK SHALL BE CAPABLE OF SUPPORTING ALL CONSTRUCTION LOADS.
- ALL STEEL ROOF DECK SHALL BE CONTINUOUS OVER FOUR OR MORE STRUCTURAL SUPPORTS (I.E. DECK SHOULD BE DETAIL 4-202A THREE SPAN CONDITION).
- STEEL ROOF DECK SHALL HAVE NESTING SIDE LAPS (AS REQUIRED BY MECHANICAL MEANS) WITH CENTER OF EACH LAP 18" OR 30" O.C., WHICHEVER IS LEAST.
- IF DECK IS CUT IN SINGLE SPAN CONDITION, EACH END OF SUCH SECTIONS SHALL BE WELDED THROUGH WELDING WASHERS IN THE BOTTOM OF EACH LAP.
- IN AREAS WHERE THE DECK IS CUT PER NOTE 6, THE GAGE OF THE SINGLE SPAN DECK SHALL BE ADJUSTED UPWARDS AS REQUIRED BY THE ENGINEER TO SUPPORT THE LOADS.
- ANY ELECTRICAL WORK WEIGHING MORE THAN 25 PSF OR 50 LBS CONCENTRATED SHALL BE HUNG FROM STEEL BEAMS ONLY. FOR MECHANICAL WORK AND PIPING, SEE MECHANICAL WORK AND PIPING NOTES OF THE ROOF PLAN DRAWING.
- ALL INTERSECTING WALLS AND CORNER WALLS SHALL BE LAID IN AN OVERLAPPING MASONRY BONDING PATTERN, WITH ALTERNATE UNITS HAVING A BEARING OF NOT LESS THAN 3 INCHES ON UNIT BELOW.
- CUT OUT METAL DECK WHERE BOLT PROJECTIONS INTERFERE WITH METAL DECK.
- DIRECTION OF METAL DECK SHOWN THIS → ON PLAN.

## SHOP DRAWINGS:

- NO STRUCTURAL DRAWINGS SHALL BE REPRODUCED FOR USE AS SHOP DRAWINGS.
- ALL SHOP DRAWINGS SHALL BE SUBMITTED ELECTRONICALLY IN PDF FORMAT. DISTRIBUTION AS PER ARCHITECT'S INSTRUCTIONS.
- PROVIDE SUFFICIENT SPACE ON SHOP DRAWINGS NEAR TITLE BOX (ABOUT 4 SQUARE INCHES) FOR STAMPS AND ENGINEERS COMMENTS.
- THE SHOP DRAWINGS SHALL BEAR INITIALS OF DETAILER'S CHECKER AND CONTRACTOR PRIOR TO SUBMISSION.
- COMPLETED ERECTION PLANS SHALL BE SUBMITTED PRIOR TO OR IN CONJUNCTION WITH DETAIL DRAWINGS. BUT IN NO CASE SHALL DETAIL DRAWINGS BE SUBMITTED PRIOR TO ERECTION PLANS.
- DETAILER SHALL SUBMIT AN INDEX OF THE DETAIL DRAWINGS WITH EACH SHOP DRAWING SUBMITTED.
- SHOP DRAWINGS NOT COMPLYING WITH ALL THE ABOVE ITEMS SHALL BE RETURNED FOR CORRECTIONS WITHOUT PROCESSING.
- RESUBMITTED SHOP DRAWINGS SHALL HAVE THE FOLLOWING CHANGES INCORPORATED: FIRST RESUBMISSION TO HAVE LETTER "A" ADDED TO DRAWING.
- NUMBER AND ANY CHANGES MARKED ON THE DRAWING, MARKED 1 AT EACH ITEM CHANGED. ALL ITEMS "X" BE NOTED IN REVISION BOX.
- IF SECOND RESUBMISSION SHALL BEAR LETTERS "B" AND "C" ETC. AS IN 11A.
- CONTRACTOR SHALL HAVE SHOP DRAWINGS WHICH HAVE BEEN SATISFACTORY TO THE ENGINEER OF RECORD, AND THE ENGINEER HAS CONFIRMED BY THE CONTRACTOR BEFORE PROCEEDING WITH ANY WORK. DETAILER SHALL USE THE SAME STRUCTURAL MEMBERS IN ALL DETAILS AS THOSE SHOWN ON CONTRACT DRAWINGS.
- SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHALL BE SUBMITTED WITHIN A MAXIMUM TIME OF 10 BUSINESS DAYS. IN CASE OF LARGE SUBMITTAL MORE THAN ONE SUBMITTAL FOR THE SAME PROJECT, AN ADDITIONAL WORKING DAY IS REQUIRED FOR EVERY 5 DRAWING SHEETS OF 30 DRAWING SHEETS. THIS IS INDICATED BY A NOTE ON ONLY ONE DRAWING. CONTRACTOR MUST INCLUDE ENOUGH TIME FOR DELIVERY OF ARCHITECTURAL REVIEW, AND OWNER REVIEW AND WORK THIS INTO THE PROJECT SCHEDULE AS NEEDED.
- NO DEVIATION FROM THESE CONSTRUCTION DOCUMENTS, IF ANY CHANGES ARE PROPOSED BY THE CONTRACTOR OR THE PROVIDER OF THE SHOP DRAWING, THEY SHOULD BE CLEARLY INDICATED, SIGNED AND SEALED. REVISIONS AND CALCULATIONS BY A FLORIDA PROFESSIONAL ENGINEER. ANY CHANGES WITHOUT PROPER DOCUMENTATION AS INDICATED ABOVE WILL RESULT IN SOME REVISIONS BY THE ENGINEER OF RECORD AND/OR ARCHITECT. THE COST FOR THESE REVISIONS INCLUDING ENGINEER AND ARCHITECTURAL FEES SHALL BE PAID BY THE CONTRACTOR.

## STRUCTURAL STEEL:

- ALL STRUCTURAL STEEL WORK SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST A.I.S.C. SPECIFICATIONS.
- STRUCTURAL STEEL SHALL CONFORM TO:
 

WIDE FLANGE (WF) SHAPES (L.T.C.P.L)	ASTM A992 (50 KSI)
STRUCTURAL TUBE (HSS)	ASTM A36
STEEL PIPE (HSS)	ASTM A500 (48 KSI)
ANCHOR BOLTS	ASTM A500 (42 KSI)
	ASTM F1554 (36 KSI) U.N.O.
	IN PLANS OR SECTIONS
	ASTM A325 OR A490
	ASTM A108
	E70XX
- ALL HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM SPECIFICATION A325 AND SHALL BE PROVIDED WITH HARDENED WASHERS UNDER THE TURNED ELEMENT (NUT OR BOLT HEAD).
- INSTALLATION AND TIGHTENING OF ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
- SHOP CONNECTIONS MAY BE WELDED OR HIGH STRENGTH BOLTED. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM. ALL CONNECTIONS SHALL CONFORM TO THE TYPICAL CONNECTION DETAILS SHOWN ON THE PLANS UNLESS SPECIFICALLY APPROVED BY THE ENGINEER.
- ALL FIELD CONNECTIONS SHALL BE BOLTED WITH HIGH STRENGTH BOLTS. SLIP-CRITICAL (FRICTION) TYPE EXCEPT WHERE SLOTTED HOLES ARE SPECIFIED OR WHERE MOVEMENT OF THE CONNECTED MEMBERS IS EXPECTED. IN THESE CASES THE TIGHTENING OF THE WASHER, HAND TIGHTEN BOLTS, AND TACK WELD WASHER TO NUT TO VERIFY ASSEMBLY IS HELD TOGETHER.
- ALL WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY CODE, AWS D1.1. ALL WELDING SHALL BE PERFORMED USING E70XX U.N.O. CUTS, HOLES, COPINGS, ETC. REQUIRED IN STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES SHALL BE SHOWN IN THE STRUCTURAL STEEL SHOP DRAWINGS AND SHALL BE MADE IN THE SHOP.
- HOLDS SHALL BE REINFORCED AS REQUIRED BY THE ENGINEER.
- BURNING OF HOLES, CUTS, ETC. IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED, EXCEPT WITH THE SPECIFIC APPROVAL OF THE ENGINEER.
- ALL STEEL MEMBERS EXPOSED TO WEATHER (SUCH AS LINTELS, DOOR JAMBS, ETC.) SHALL BE HOT DIPPED GALVANIZED.
- FOR MISCELLANEOUS STEEL, SEE ARCHITECTURAL DRAWINGS.
- ANY STEEL MEMBERS REQUIRED BY THE ELECTRICAL OR MECHANICAL TRADES FOR THE SUPPORT OF THEIR EQUIPMENT, WHICH ARE NOT SHOWN ON ARCHITECTURAL OR STRUCTURAL DRAWINGS, SHALL BE PROVIDED BY THE TRADE REQUIRING SUCH SUPPORT.
- SEE SPECIFICATIONS FOR PAINTING OF STRUCTURAL STEEL. ALL FABRICATED ERECTION MARKS SHALL BE COVERED DURING FIELD TOUCH-UP PAINTING.
- ALL CONNECTIONS TO BE DOUBLE ANGLE FRAMED BEAM CONNECTION PER AISC UNLESS NOTED OTHERWISE. ALL BOLTS TO BE 3/4" MINIMUM DIAMETER UNLESS NOTED OTHERWISE. SHOP CONNECTIONS MAY BE WELDED OR BOLTED. WELDS ARE TO BE EQUAL IN STRENGTH TO BOLTS.
- DESIGN CONNECTIONS FOR THE MAXIMUM SHEAR (V IN KIPS) LISTED IN THE TABLE 3-6 "MAXIMUM TOTAL UNIFORM LOAD" AT THE BOTTOM OF EACH PAGE IN THE "BEAM PROPERTIES" OF THE 13TH EDITION OF THE AISC "MANUAL OF STEEL CONSTRUCTION". MINIMUM CONNECTION SHALL CONSIST OF TWO 3/4" BOLTS. REACTIONS SHOWN ARE BASED ON UNFACTORED LOADS. PROVIDE SIGNED AND SEALED DRAWINGS AND CALCULATIONS BY A PROFESSIONAL ENGINEER.
- DESIGN BASE PLATES FOR LATERAL MEMBERS USING FORCES INDICATED IN DRAWINGS. PROVIDE SIGNED AND SEALED DRAWINGS AND CALCULATIONS BY A PROFESSIONAL ENGINEER.
- WHEN STEEL MEMBERS ARE WELDED TO EMBED PLATES IN CONCRETE, WELDING PROCESS SHOULD BE PERFORMED IN SUCH WAY THAT EMBED PLATE DOES NOT OVERHEAT AND EXPAND. SUCH EXPANSION WILL CRACK THE CONCRETE SURROUNDING THE EMBED PLATE AND MAY WEAKEN THE STRUCTURAL CAPACITY OF THE CONNECTION. WE RECOMMEND TO PROVIDE SERIAL SPLITTING PASSES TO BUILT UP THE WELD SIZE REQUIRE WITH COOLING OFF PERIODS TO AVOID THE EMBED PLATE EXPANSION. UNDER NO CIRCUMSTANCES PROVIDE MORE THAN 6" OF 1/4" WELD WITHOUT ALLOWING A COOLING OFF PERIOD.

## POST-INSTALLED ANCHORS:

- POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. SPECIAL INSPECTIONS (ARE/ARE NOT) REQUIRED PER THE PROVISIONS SET FORTH BELOW. CONTRACTOR TO CONTACT MANUFACTURER'S REPRESENTATIVE FOR PROPER PRODUCT INSTALLATION TRAINING ON INITIAL ANCHORS.
- SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW, SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER OF RECORD ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTION PRODUCT IS CAPABLE OF ACHIEVING THE EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND INITIAL ANCHORS AS REQUIRED BY THE BUILDING CODE.
- EXPANSION ANCHORS SHALL BE STUD TYPE WITH A SINGLE PIECE OF THREE SECTION WEDGE AND ZINC PLATING IN ACCORDANCE WITH ASTM B633. THE ANCHORS SHALL MEET THE MINIMUM SPECIFICATION FF-S-308. TYPICAL TYPE 4 CLASS FOR CONCRETE EXPANSION ANCHORS. ANCHORS SHALL BE INSTALLED WITH 1/2" KWIK BOLT IT AS SUPPLIED BY THE MANUFACTURER. ANCHORS SHALL BE INSTALLED IN HOLES DRILLED WITH CARTRIDGE DRILL BITS OR MATCHED TO CLEARANCE DRILL AND CORE BITS. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. INJECTION ADHESIVE ANCHORS SHALL BE USED FOR INSTALLATION OF REFILL ADHESIVE ANCHORS. REFILL ADHESIVE ANCHORS SHALL BE HILTI HIT 200 AS SUPPLIED BY HILTI INC. TULSA, OKLA. ANCHOR RODS MEET ASTM F1554 (36 KSI), NUTS AND WASHERS MEET ASTM A325 OR A490 TO MEET THE REQUIREMENTS OF AN ASTM F1554 (36 KSI) STEEL ROD.

SHEET LIST	
SHEET NUMBER	SHEET NAME
S1.1	GENERAL STRUCTURAL NOTES
S1.2	THRESHOLD INSPECTION PLAN
S1.3	WIND DESIGN DATA & LOAD SCHEDULE
S2.1	FOUNDATION PLAN
S2.2	SLAB ON GRADE PLAN
S2.3	2ND FLOOR FRAMING PLAN
S2.4	ROOF FRAMING PLAN
S3.1	TYPICAL DETAILS
S3.2	TYPICAL DETAILS
S3.3	TYPICAL DETAILS
S4.1	WALL SECTIONS
S4.2	WALL SECTIONS
S4.3	WALL SECTIONS
S4.4	WALL SECTIONS
S4.5	WALL SECTIONS
S4.6	WALL SECTIONS
S5.1	ELEVATIONS
S5.2	ELEVATIONS
S5.3	ELEVATIONS
S6.1	SCHEDULES
S7.1	ISOMETRIC VIEWS

**HARVARD JOLLY ARCHITECTURE**  
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 PROJ. NO. 1413-130

**THE BENJAMIN SCHOOL - LOWER/MIDDLE SCHOOL**  
 11000 Ellison Wilson Road, North Palm Beach, FL 33408  
**CONSTRUCTION DOCUMENTS**

Comm. No:	Project Number	
Date:	Issue Date	
Drawn:	FR	
Revisions		
No.	Date	Note

JOSE F. VAZQUEZ  
 LICENSED PROFESSIONAL ENGINEER  
 No. 82831  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER

TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THESE STRUCTURAL PLANS CONFORM TO AND SATISFY, THE FLORIDA BUILDING CODE, 2014 EDITION, ACI 318-11 AND LOCAL CODES AS APPLICABLE