GENERAL STRUCTURAL NOTES

000100:

TO THE BEST OF THE ENGINEER'S KNOWLEDGE THE PLANS AND SPECIFICATIONS FOR THIS PROJECT COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES AS DETERMINED BY THE LOCAL AUTHORITY IN ACCORDANCE WITH THE FLORIDA STATUTES.
DO NOT SCALE DRAWINGS, USE DIMENSIONS PROVIDED, TYPICALLY. IN THE CASE OF DIMENSIONAL CONFLICT ARCHITECTURAL DIMENSIONS GOVERN OVER STRUCTURAL DIMENSIONS, TYPICALLY. STRUCTURAL DRAWINGS ARE NOT TO BE REPRODUCED WITHOUT WRITTEN CONSENT FROM R. L. PLOUFIELD & ASSOCIATES, INC. SHOP DRAWING REVIEW SHALL REQUIRE TWO (2) WEEKS FOR COMPLETION FROM TIME OF DELIVERY TO R. L. PLOUFIELD & ASSOCIATES, INC. SHOP DRAWINGS SHALL BE CHECKED & "APPROVED" BY GENERAL CONTRACTOR PRIOR TO SUBMITTAL TO ARCHITECT.
CONTRACTORS SUBMITTING SHOP DRAWINGS TO PROVIDE ONE (1) ELECTRONIC COPY IN PDF FORMAT FOR MARK-UP.

000200 BUILDING CODES:

FLORIDA BUILDING CODE - SIXTH EDITION (2017), ASCE 7-16, RISK CATEGORY = TYPE II, BASIC WIND SPEED, V$_{ult}$ = 130 MPH, (V$_{asd}$ = 101 MPH), EXPOSURE C, INTERNAL PRESSURE COEFFICIENT, GCpi = ±.18 (ENCLOSED), SEISMIC IMPORTANCE FACTOR, I$_E$ = 1.0 MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS, S$_S$=.076g, S$_1$=.023g, SITE CLASS D, DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS, S$_{DS}$=.058g, S$_{D1}$=.029g, SEISMIC DESIGN CATEGORY = A

000500 STRUCTURAL LOADING:

THE STRUCTURE HAS BEEN DESIGNED IN ACCORD WITH THE BUILDING CODE AND/OR MORE RESTRICTIVE REQUIREMENTS FOR LOADS AS GIVEN BELOW UNLESS SPECIFIC AREAS OF THE DRAWING SPECIFICALLY CALL FOR DIFFERENT LOADING CRITERIA.
GRAVITY LOADING UNIFORM LIVE LOAD:
SLAB-ON-GRADE AREAS---------- 150 PSF
SECOND FLOOR OFFICE AREAS---------- 50 PSF
EXITWAY & STAIRS ---------- 100 PSF
ROOFS-SLOPED ---------- 20 PSF (REDUCIBLE)
WIND LOADS PER BUILDING CODE (SEE SECTION 000100)

000510 DRAWING DIMENSIONS AND COORDINATION:

DIMENSIONAL INFORMATION, PRICING, ALL DETAILS AND CONSTRUCTION SHALL BE BASED ON THE ENTIRE SET OF CONTRACT DOCUMENTS. COORDINATE THE REQUIREMENTS OF ALL PROFESSIONALS. USE INFORMATION FROM APPROVED SHOP DRAWINGS TO SUPPLEMENT CONTRACT DOCUMENTS WHERE NECESSARY. REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO PROCEEDING.

001000 SCOPE OF SERVICE FOR DELEGATED ENGINEERING:

R.L. PLOUFIELD & ASSOCIATES HAS DESIGNED AND IS RESPONSIBLE FOR ONLY THE SPECIFIC STRUCTURAL COMPONENTS SHOWN IN THIS SET OF STRUCTURAL CONSTRUCTION DOCUMENTS. IF A SPECIALTY ENGINEER, AS DEFINED BY THE DEPARTMENT OF PROFESSIONAL REGULATION, IS REQUIRED, HIS SERVICES MUST COMPLY WITH THE SCOPE OF SERVICES AS OUTLINED IN THE PROJECT CONSTRUCTION DOCUMENTS.

002000 FOUNDATIONS:

GEOTECHNICAL DATA AND RECOMMENDATIONS HAVE BEEN PROVIDED BY UNIVERSAL ENGINEERING SCIENCES, REPORT NO. 1306040 DATED 5 SEPTEMBER 2013. BASED UPON THIS REPORT, FOUNDATIONS WILL BE SHALLOW STRIP AND SPREAD FOOTINGS, DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 2,500 PSF, TYPICALLY.
GEOTECHNICAL ENGINEER IS RESPONSIBLE FOR SPECIFYING AND MONITORING ALL TESTING, INSTALLATION, EVALUATION, AND REPORTING RELATED TO THE FOUNDATION SYSTEM, INCLUDING ALL WORKMANSHIP PROVISIONS RELATING TO THE SOIL - STRUCTURE INTERFACE. THE STRUCTURAL ENGINEER IS RESPONSIBLE FOR SPECIFYING THE MATERIALS USED TO CONSTRUCT THE FOUNDATION UNITS AND FOR THE SELECTION OF VARIOUS SIZE UNITS TO SUPPORT THE STRUCTURAL FRAME. DO NOT PLACE ANY FOOTINGS OR MATS UNTIL RECEIPT OF WRITTEN AUTHORIZATION BY THE GEOTECHNICAL ENGINEER THAT THE PREPARED SUBGRADE OR DEEP FOUNDATION SYSTEM HAS BEEN PROPERLY EXECUTED IN ACCORD WITH THE DESIGN AND THAT ANY VARYING CONDITIONS ENCOUNTERED DURING CONSTRUCTION HAVE BEEN EVALUATED AND CORRECTED WHERE NECESSARY TO INSURE PROPER FOUNDATION PERFORMANCE.

002100 EARTH-WORK:

CONTRACTOR SHALL DEWATER SITE AS NECESSARY, SO THAT ALL CONCRETE CAN BE PLACED IN THE DRY. ALL BACKFILL SHALL BE ACCOMPLISHED USING MATERIAL CONSISTING OF CRUSHED STONE AND/OR MATERIAL APPROVED BY THE GEOTECHNICAL ENGINEER. THE BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557. NO BACKFILL MATERIAL SHALL BE PLACED AGAINST WALLS WHICH DO NOT HAVE PERMANENT FLOORS AT THE TOP AND BOTTOM WITHOUT PROVISIONS FOR ADEQUATE TEMPORARY BRACING OF THOSE WALLS. PROVIDE ADEQUATE EXCAVATION BRACING IN ACCORD WITH GEOTECHNICAL ENGINEER RECOMMENDATIONS TO MAINTAIN EXISTING FOOTINGS, UTILITIES, AND OTHER IMPROVEMENTS IN A SAFE CONDITION.

002200 STRUCTURAL FILL:

FOUNDATIONS PLACED ON COMPACTED STRUCTURAL FILL HAVE BEEN DESIGNED FOR A BEARING OF 2,500 PSF. FILL TO BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557. PLACE FILL IN LAYERS OF 8" THICK MAXIMUM AND UNDER THE DIRECT SUPERVISION OF A GEOTECHNICAL ENGINEER. FILL TO BE TESTED TO VERIFY COMPACTION.

002600 PROOF-ROLLING:

SHALLOW FOOTINGS SHALL NOT BE LESS THAN 3'-0" SQUARE AND 1'-8" EMBEDMENT OR 2'-0" WIDE STRIP AND 1'-8" EMBEDMENT AT 2,500 POUNDS PER SQUARE FOOT ALLOWABLE NET BEARING ON SOIL IMPROVED BY PROOF-ROLLING NOT LESS THAN THREE COVERAGES. FOR FOOTING WIDTHS OR EMBEDMENTS LESS THAN THOSE SPECIFIED, THE ALLOWABLE BEARING PRESSURES ARE REDUCED PROPORTIONALLY. PERFORM ALL PROOF-ROLLING OPERATIONS IN ACCORD WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER IN THE PRESENCE OF THE OWNER'S AUTHORIZED AGENCY.

031000 FORMWORK:

CONTRACTOR SHALL DESIGN AND ERECT FORMWORK IN STRICT COMPLIANCE WITH ACI 347. CONTRACTOR SHALL COORDINATE ALL OPENINGS AS REQUIRED FOR OTHER TRADES. OPENINGS WHERE SHOWN ON THE STRUCTURAL DRAWINGS ARE TO IDENTIFY DESIGN INTENT ONLY. THE SPECIFIC DIMENSIONS AND LOCATIONS SHALL BE FURNISHED OR CONFIRMED BY THE TRADE REQUIRING THE OPENING.

032000 CONCRETE REINFORCEMENT:

WORK SHALL BE IN ACCORD WITH THE LATEST VERSION OF ACI 318, ACI 318R, ACI 315, CRSI "MANUAL OF STANDARD PRACTICE", CRSI "PLACING REINFORCING BARS", WIRE REINFORCEMENT INSTITUTE(WRI) "MANUAL OF STANDARD PRACTICE-STRUCTURAL WELDED WIRE REINFORCEMENT". BARS SHALL CONFORM TO THE LATEST VERSION OF ASTM SPECIFICATION A615, GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO THE LATEST VERSION OF ASTM A1064. CONCRETE COVER REQUIRED AS FOLLOWS:
A.) CAST AGAINST AND EXPOSED TO EARTH 3"
B.) FORMED, EXPOSED TO EARTH OR WEATHER
#6 AND LARGER 2"
#5 AND SMALLER 1-1/2"
C.) SLABS AND WALLS - NO EARTH OR WEATHER EXPOSURE
#11 AND SMALLER 3/4"
3 HOUR FIRE RATING AND LESS 3/4"
D.) BEAMS - 1½" (3 HOUR FIRE RATING AND LESS)
LAP SPLICE LENGTHS SHALL BE AS FOLLOWS:
1. ALL LAP SPLICES SHALL BE TENSION CLASS "B" UNLESS OTHER LAP CONDITIONS ARE SPECIFICALLY SHOWN ON THE DRAWINGS.
2. SPLICE LENGTHS SHALL BE SHOWN ON SHOP DRAWINGS.
3. USE GENERAL HOOK BAR DEVELOPMENT LENGTHS UNLESS SPECIAL CONFINEMENT CONDITIONS ARE SATISFIED IN ACCORD WITH ACI 318.

033000 CAST-IN-PLACE CONCRETE:

TO BE MIXED AND PLACED IN ACCORDANCE WITH THE LATEST VERSION OF ACI 301. ALL REINFORCED CONCRETE TO HAVE 28 DAY COMPRESSIVE STRENGTHS AS FOLLOWS:
ALL STRUCTURAL ELEMENTS f'c = 4000 PSI UNLESS NOTED OTHERWISE.
COLUMNS: f'c = 4000 PSI
BEAMS: f'c = 4000 PSI
ELEVATED SLABS f'c = 4000 PSI
FOUNDATION f'c = 3000 PSI
SLAB ON GRADE f'c = 3000 PSI
ALL CONCRETE MIX DESIGN SUBMITTALS SHALL INCLUDE A WRITTEN DESCRIPTION INDICATING WHERE EACH PARTICULAR MIX IS TO BE PLACED WITHIN THE STRUCTURE.

033100 CONCRETE TESTING:

OWNER WILL EMPLOY AN INDEPENDENT TESTING LABORATORY TO PERFORM THE FOLLOWING TESTS AND SUBMIT TEST REPORTS ON CAST IN PLACE CONCRETE:
ASTM C143 "STANDARD TEST METHOD FOR SLUMP OF PORTLAND CEMENT CONCRETE." SLUMP SHALL NOT EXCEED LIMIT INDICATED ON APPROVED MIX DESIGN, OR 6" (WHICHEVER IS SMALLER), ASTM C39 "STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS." CYLINDERS SHALL BE TAKEN FOR EACH MIX DESIGN USED, AND FOR EVERY 50 CUBIC YARDS OF CONCRETE PLACED. TEST CYLINDERS AT THE FOLLOWING AGES: 1 AT 3 DAYS, 1 AT 7 DAYS, 2 AT 28 DAYS.
HOLD ONE RESERVE CYLINDER TO BE TESTED AS REQUESTED BY THE ENGINEER. IF REQUIRED 28 DAY STRENGTH IS ACHIEVED, THE RESERVE CYLINDER MAY BE DISCARDED.

036000 GROUT:

GROUTING IS CLASSIFIED AS "PRECISION GROUTING" FOR SUPPORT OF OPERATING MACHINE BASES, EQUIPMENT SUBJECT TO THERMAL MOVEMENT, AND BASE PLATES, BEARING PLATES, AND EXPANSION BEARINGS EXCEEDING 6" IN LEAST DIMENSION. ALL OTHER GROUTING MAY BE "ORDINARY GROUTING". METALLIC AGGREGATE GROUT SHALL CONFORM TO CRD-C621-80 WHEN APPLICATIONS NOT EXPOSED TO VIEW IN FINISHED BUILDING AREAS. USE ORDINARY CEMENT GROUT ONLY WHERE SPECIFICALLY NOTED AS "CEMENT GROUT" ON DETAILS. USE NON-SHRINK GROUT FOR ALL OTHER LOCATIONS. PRECISION GROUT SHALL CONFORM TO CRD-C621-80 WHEN MIXED TO FLUID CONSISTENCY OF 22 TO 25 SECONDS (FLOW CONE METHOD, CRD-C611). REQUIRED 28 DAY STRENGTHS SHALL BE AS FOLLOWS: CEMENT GROUT 1800 PSI, NON-SHRINK GROUT 5000 PSI.

042200 CONCRETE UNIT MASONRY:

ALL MASONRY CONSTRUCTION TO BE IN ACCORDANCE WITH "BUILDING CODE REQUIREMENTS AND SPECIFICATIONS FOR MASONRY STRUCTURES", TMS 402 AND ALL APPLICABLE LOCAL BUILDING CODE PROVISIONS. ALL MASONRY WALLS TO BE CONSTRUCTED ENTIRELY OF UNITS CONFORMING TO THE LATEST VERSION OF ASTM C90 AND REINFORCED WITH 9 GAGE LADDER TYPE HORIZONTAL MASONRY REINFORCING LOCATED AT 16" O.C. ALL MASONRY TO BE LAID IN TYPE "S" MORTAR (1800 PSI ON THE JOB) WITH FULL HEAD AND BED JOINTS. ALL MASONRY CONSTRUCTION TO BE EITHER BOUND BY TIE BEAM, TIE COLUMN MEMBERS OR TIED TO FRAME WITH 16 GAUGE CORRUGATED METAL TIES AT SLOT AND 12 GAUGE DOVETAIL ANCHOR SPACED @ 16" O.C. (TOP AND TWO VERTICAL SIDES).

042210 REINFORCED UNIT MASONRY:

ALL REINFORCED MASONRY CONSTRUCTION SHALL BE IN ACCORD WITH APPLICABLE PROVISIONS OF CONCRETE REINFORCEMENT, CAST-IN-PLACE CONCRETE, AND CONCRETE MASONRY. VERTICAL REINFORCING SHALL ANCHOR INTO SUPPORTING CONCRETE MEMBERS A CLASS "B" LAP LENGTH PLUS 3" OR FULL DEPTH PLUS A STANDARD HOOK. LAPS WITHIN REINFORCED MASONRY SHALL BE 48 BAR DIAMETERS. CONTRACTOR SHALL COORDINATE PLACING OF DOWELS TO ACCOMMODATE MODULE OF MASONRY UNITS. ALL VERTICAL CELLS AND BEAMS WITH REINFORCING SHALL BE FILLED WITH COARSE GROUT CONSISTING OF 3000 PSI CONCRETE WITH #8 COARSE AGGREGATE. USE HIGH-SLUMP (SUPERPLASTICIZED) WHERE HEIGHT OF LIFT EXCEEDS 4', WHERE HEIGHT OF OPEN CELL EXCEEDS 4', USE HIGH-LIFT GROUTING TECHNIQUE WHICH REQUIRES A FULL CLEANOUT OPENING AT THE BOTTOM OF CELLS AND PLACING THE GROUT IN MAXIMUM 4' LIFTS WITH A 30 TO 60 MINUTE DELAY BETWEEN LIFTS. ALL WALLS TO BE REINFORCED WITH #5@48" O.C. MIN. VERTICAL U.N.O.

050550 WELDING:

ALL WELDING TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY (AWS) "STRUCTURAL WELDING CODE-STEEL". D1.1 AND AS INDICATED ON THE STRUCTURAL DRAWINGS. WELDING ELECTRODES SHALL BE E70XX, UNLESS NOTED OTHERWISE. WELDING ELECTRODES, WELDING PROCESS, MINIMUM PREHEAT AND INTERPASS TEMPERATURES TO BE IN ACCORDANCE WITH THE AWS SPECIFICATIONS. ANY STRUCTURAL STEEL DAMAGED IN WELDING TO BE REPLACED OR ACCEPTABLY REINFORCED. ALL FULL PENETRATION GROOVE WELDS TO BE SUBJECT TO RADIOGRAPHIC, MAGNETIC PARTICLE, ULTRASONIC, AND LIQUID PENETRANT INSPECTION CONDUCTED BY AN INDEPENDENT TESTING AGENCY PAID BY THE OWNER.

051200 STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
STRUCTURAL STEEL TO CONFORM TO:
WF SHAPES---------- ASTM A572, GRADE 50 OR A992
SHAPES & PLATES ----- ASTM A36
PIPE ---------- ASTM A 53 GRADE B
TUBES ---------- ASTM A 500 GRADE B
ALL SHOP AND FIELD CONNECTIONS SHALL BE MADE WITH ASTM A325 HIGH STRENGTH BOLTS OR WELDING. BOLTING TO BE IN ACCORDANCE WITH RCSC SPECIFICATIONS. ANY CONNECTION NOT SPECIFICALLY DETAILED SHALL BE DESIGNED BY THE SPECIALTY ENGINEER FOR THE FORCES SHOWN ON THE STRUCTURAL CONSTRUCTION DOCUMENTS. WHERE FORCES ARE NOT PROVIDED DESIGN SHALL BE BASED ON THE MAXIMUM LOAD CAPACITIES OF THE CONNECTING MEMBERS. ALL STRUCTURAL SUBMITTALS REQUIRING ENGINEERING INPUT SHALL BE ACCOMPANIED BY DESIGN CALCULATIONS AND BE SIGNED AND SEALED BY THE SPECIALTY ENGINEER. ALL STEEL AT AND BELOW FINISHED GRADE TO BE FIELD PAINTED AND COVERED WITH A MINIMUM OF 2" CONCRETE. ALL BEAMS BEARING ON CONCRETE TO HAVE A 3/8" x 7½" x 8" BEARING PLATE WITH TWO (2) 1/2" HEADED ANCHOR BOLTS 12" LONG, UNLESS NOTED OTHERWISE. STRUCTURAL STEEL EXPOSED TO WEATHER OR CORROSIVE ENVIRONMENTS SHALL BE HOT DIPPED GALVANIZED PER ASTM A123 AND A385. FABRICATOR TO COORDINATE DRAINAGE AND VENTING REQUIREMENTS FOR GALVANIZING PROCESS.

052100 STEEL JOISTS:

THE DETAILING, FABRICATION AND ERECTION TO CONFORM TO THE LATEST STANDARD SPECIFICATIONS OF THE STEEL JOIST INSTITUTE (SJI). PROVIDE BRIDGING AND ANCHORS WITH SIZE AND SPACING IN ACCORD WITH SJI WHERE BRIDGING IS NOT SHOWN ON FRAMING PLANS FOLLOW LATEST SJI SPECIFICATIONS. MINIMUM BRIDGING SIZE TO BE L 1 x 1 x 1/8 IN LIEU OF ROUND BARS. PROVIDE ADDITIONAL BRIDGING AS REQUIRED TO SATISFY NET UPLIFT REQUIREMENTS OR UNBRACED TOP CHORDS WHERE SHOWN ON THE DRAWINGS. PROVIDE CONTINUOUS ANGLE 2 1/2 x 2 1/2 x 1/4 (WELDED TO JOIST ENDS) TO RECEIVE DECK WHERE JOISTS CHANGE DIRECTION. PROVIDE DESIGN CAPACITY FOR A MAXIMUM CONCENTRATION OF DESIGN LOADS TO BE AS FOLLOWS:
AT ANY PANEL POINT 400#
BETWEEN TOP CHORD PANEL POINTS 150#
BETWEEN BOTTOM CHORD PANEL POINTS 50#
(CONCENTRATED LOADS ARE NOT ADDITIVE TO UNIFORM DESIGN LOADS)
SEE STRUCTURAL DRAWINGS FOR SUSPENDED EQUIPMENT SUPPORTS.
ALL STRUCTURAL SUBMITTALS PROVIDED BY THE JOIST MANUFACTURER MUST BE SIGNED AND SEALED BY A SPECIALTY ENGINEER. THE REVIEW OF ALL STRUCTURAL SUBMITTALS BY THE STRUCTURAL ENGINEER OF RECORD SHALL BE TO INSURE THAT HIS INTENT HAS BEEN UNDERSTOOD AND THAT THE SPECIFIED CRITERIA HAVE BEEN USED. A COPY OF ALL STRUCTURAL SUBMITTAL WILL BE RETAIN FOR RECORD KEEPING PURPOSES ONLY.
NOTE: NET UPLIFT FOR DESIGN OF BAR JOISTS AND BRIDGING SHALL BE 25 PSF U.N.O.

053110 STEEL COMPOSITE FLOOR DECK:

THIS SECTION COVERS RIBBED DECK WHICH ACTS AS PERMANENT FORM AND POSITIVE BENDING REINFORCEMENT FOR STRUCTURAL CONCRETE. CONFORM TO STEEL DECK INSTITUTE (SDI) "SPECIFICATIONS AND COMMENTARY FOR COMPOSITE STEEL FLOOR DECK" AND AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS." DEPTH AND GAUGE GIVEN ON DRAWINGS SHALL BE TAKEN AS MINIMUM FOR TYPICAL CONDITIONS. WHERE SHEETS SPAN LESS THAN THREE SPANS OR WHERE OTHER NON-TYPICAL CONDITIONS CONTROL, SUPPLY DECK WHICH MEETS DESIGN CRITERIA. WHERE FIRE RATING IS REQUIRED, FURNISH DECK LISTED IN UL ASSEMBLY. WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) D1.3-81 "STRUCTURAL WELDING CODE-SHEET STEEL". SIDE LAP FASTENERS SHALL BE #12 SELF-DRILLING SCREWS OR BUTTON PUNCHING, DEPENDING ON THE DECK STYLE. FASTENERS TO CONCRETE OR MASONRY SHALL BE ¼" DIAMETER TAPCON OR KWIK-CON. TYPICAL FASTENER SPACING SHALL BE AT 12" O.C. MINIMUM TO ALL SUPPORTS, TYPICALLY (UNLESS NOTED OR DETAILED OTHERWISE).

G.C. TO ACCOUNT FOR ADDITIONAL VOLUME OF CONCRETE DURING SLAB POUR FOR DEFLECTION DUE TO THE DEAD LOAD OF WET CONCRETE ON UNSHORED STEEL BEAMS, OR G.C. MAY PROVIDE SHORING OF STEEL BEAMS UNTIL CONCRETE REACHES 75% OF 28-DAY STRENGTH.

053120 STEEL ROOF DECK:

THIS SECTION COVERS NOMINALLY FLAT-TOP ROOF DECK TO SUPPORT RIGID BOARD TYPE ROOF INSULATION SYSTEMS. CONFORM TO STEEL DECK INSTITUTE (SDI) "SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK" AND AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS." DRAWING SHOW DECK STYLES IN STANDARD SDI NOTATION WHERE "NR" IS NARROW RIB, "IR" IS INTERMEDIATE RIB, "WR" IS WIDE RIB, "3 DR" IS 3" DEEP RIB, AND THE TWO DIGIT NUMBER IS THE NOMINAL GAGE THICKNESS. ATTACHMENTS SHALL BE WITH SELF-DRILLING SCREWS INTO JOIST CHORDS WITH THICKNESSES LESS THAN 3/16" THICK, WELDING MAY BE USED INTO THICKER MEMBERS. 16 GAGE WELDING WASHERS SHALL BE USED FOR 22 GAGE DECK. WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) D1.3-98, "STRUCTURAL WELDING CODE-SHEET STEEL". SIDE LAP FASTENERS SHALL BE #12 SELF-DRILLING SCREWS OR BUTTON PUNCHING, DEPENDING ON THE DECK STYLE. FASTENERS TO CONCRETE OR MASONRY SHALL BE 1/4" DIAMETER TAPCON OR KWIK-CON. TYPICAL FASTENER SPACING SHALL BE AS FOLLOWS: NR/IR/WR
5/8" DIAMETER PLUG WELD TO STEEL 18" 16"
#12 SELF-DRILLING SCREWS TO STEEL 12" 8"
1/4" TAPCON OR KWIK-CON TO CONCRETE 12" 8"
SIDE LAP WITH #12 STITCH SCREWS 24" 36"
SIDE LAPS BUTTON-PUNCHED 12" 15"
DECREASE FASTENER SPACING WHERE DRAWINGS NOTE SPECIAL DIAPHRAGM CONSIDERATIONS. PROVIDE CONTINUOUS ANGLE 2 1/2 x 2 1/2 x 1/4 (WELDED TO JOIST ENDS) TO RECEIVE DECK WHERE SUPPORT MEMBERS CHANGE DIRECTION.

054100 PRE-ENGINEERED COLD-FORMED METAL FRAMING:

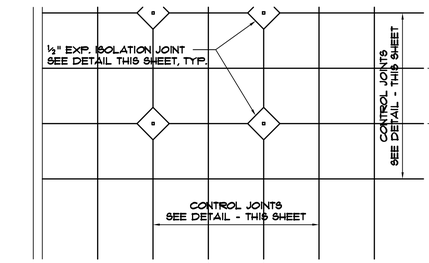
THESE ARE SYSTEMS OF PRE-ENGINEERED EXTERIOR WALL & ROOF MEMBERS, COMPONENTS, AND CONNECTIONS WHICH SHALL BE DESIGNED BY A SPECIALTY ENGINEER. SUBMIT COMPLETE SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA. SEE SPECIFICATION "05-400" FOR SUBMITTAL REQUIREMENTS FOR PRE-ENGINEERED EXTERIOR WALL FRAMING. DESIGN FABRICATION AND ERECTION SHALL CONFORM TO AISI SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" 1991 INCLUDING COMMENTARY AND SUPPLEMENTARY INFORMATION. WELDING SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE-SHEET STEEL" D1.3 AND PERFORMED ONLY BY WELDERS CERTIFIED UNDER D1.3. SELF-DRILLING SCREWS SHALL BE EQUIVALENT TO BUILDEX TEKS AND HAVE ALLOWABLE SERVICE LOAD CAPACITIES WITH 4:1 FACTOR OF SAFETY FROM TEST DATA. THE ENTIRE SYSTEM INCLUDING ALL STRUCTURAL STUDS, CONNECTORS BETWEEN STUDS AND COMPONENTS, BRIDGING, TEMPORARY BRACING FOR ERECTION, ANCHORAGE, AND ATTACHMENTS TO THE STRUCTURAL FRAMING SYSTEM SHALL BE DESIGNED BY A SPECIALTY ENGINEER. THE REVIEW OF ALL STRUCTURAL SUBMITTALS BY THE STRUCTURAL ENGINEER OF RECORD SHALL BE TO INSURE THAT HIS INTENT HAS BEEN UNDERSTOOD AND THAT THE SPECIFIED DESIGN CRITERIA HAS BEEN USED. A COPY OF ALL STRUCTURAL SUBMITTALS WILL BE RETAINED FOR RECORD KEEPING PURPOSES ONLY. COMPLETE STRUCTURAL CALCULATIONS OF ALL FRAMING CONDITIONS, COMPLETE SHOP DRAWINGS OF ALL FRAMING CONDITIONS, CALCULATIONS, AND ERECTION PLANS SHALL BE SIGNED AND SEALED BY DELEGATED SPECIALTY ENGINEER AND SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION AND ERECTION. THE WALL SYSTEM SHOULD BE DESIGNED TO WITHSTAND WIND LOADS AS OUTLINED IN SECTION 000500 OF THE GENERAL STRUCTURAL NOTES, UNLESS NOTED OTHERWISE. IN THE ABSENCE OF SPECIFIC LOADS SHOWN IN THE ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS, USE APPLICABLE LOCAL CODE FOR LIVE LOAD AND ACTUAL WEIGHT OF BUILDING MATERIALS FOR DEAD LOAD. IF BUILDING EXPANSION JOINT EXISTS PROVIDE FRAMING ACCORDINGLY, COORDINATING WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS. COLD-FORMED STEEL SUPPLIER IS TO COORDINATE ALL DETAILS WITH ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS, TYPICALLY.

055100 METAL STAIRS:

STACK STEEL STAIR SYSTEM INCLUDING MEMBERS, COMPONENTS, AND CONNECTIONS WHICH SHALL BE DESIGNED BY A SPECIALTY ENGINEER & DETAILED BY THE SUPPLIER. SUBMIT COMPLETE SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA. DESIGN LOADS SHALL BE A MINIMUM OF 100 PSF UNIFORM OR 300# APPLIED TO ANY 6" X 6" AREA, WHICHEVER CONTROLS. PROVIDE DETAILS SO THAT STAIR CAN BE ASSEMBLED AND INSTALLED IN PROPER SEQUENCE WITH ADJACENT WORK. TREADS AND LANDINGS SHALL HAVE NOT LESS THAN 2" NOR MORE THAN 3" OF CONCRETE FILL FOR WALKING SURFACES. COORDINATE WITH ARCHITECTURAL DRAWINGS AND MEET ALL APPLICABLE LOCAL BUILDING CODES.

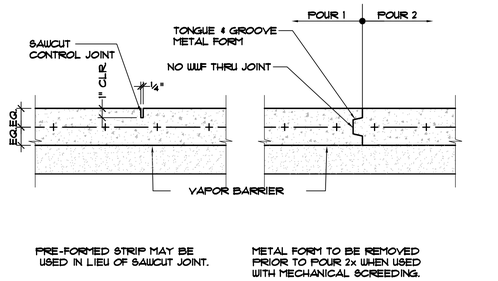
055200 METAL RAILINGS:

HANDRAILS SHALL BE DESIGNED PER CODE LISTED IN 000200. MINIMUM DESIGN LOADS SHALL BE 50 LBS/FT LINEAR LOAD OR 200 LBS. POINT LOAD AT ANY LOCATION AND IN ANY DIRECTION. FABRICATOR SHALL SUBMIT SHOP DRAWINGS SIGNED & SEALED BY REGISTERED PROFESSIONAL ENGINEER IN FLORIDA TO THE ENGINEER OF RECORD.



NOTES:
1. CAST SLAB USING LASER SCREED METHOD.
2. DIVIDE SLAB BY CONTROL JOINTS @ ℄ OF COLUMNS & SUBDIVIDED @ A MAXIMUM OF 20'-0 CENTERS.
3. IN AREAS WHERE COLUMNS DO NOT OCCUR, PROVIDE CONTROL JOINTS AS SHOWN.
4. SAWCUT JOINTS TO BE COMPLETED WITHIN 24 HOURS OF CONCRETE PLACEMENT.

1 / S1.101 — CONCRETE SLAB-ON-GRADE
SCALE: N.T.S.



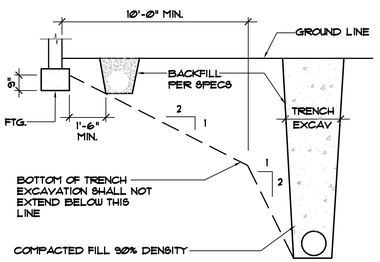
PRE-FORMED STRIP MAY BE USED IN LIEU OF SAWCUT JOINT.

METAL FORM TO BE REMOVED PRIOR TO POUR 2x WHEN USED WITH MECHANICAL SCREEDING.

Ⓐ CONTROL JOINT DETAIL

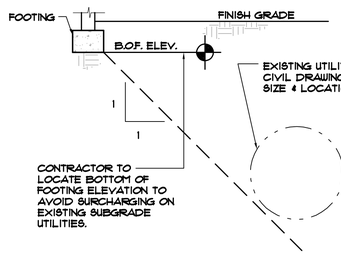
Ⓑ COLD JOINT DETAIL

2 / S1.101 — SLAB-ON-GRADE JOINT DETAILS
SCALE: N.T.S.



NOTE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING, SHEATHING OR OTHERWISE MAINTAINING THE SIDES OF THE EXCAVATION FROM CAVE-INS UNTIL ALL BACKFILL IS COMPLETED PER SPECIFICATIONS

3 / S1.101 — EXCAVATIONS PARALLEL TO FOOTING
SCALE: N.T.S.



4 / S1.101 — FOOTING PARALLEL TO EXISTING UTILITY
SCALE: N.T.S.

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HOUSEMAN ARCHITECTURE
931 S SEMORAN BLVD. #2048 WINTER PARK, FL 32792
AR0017645

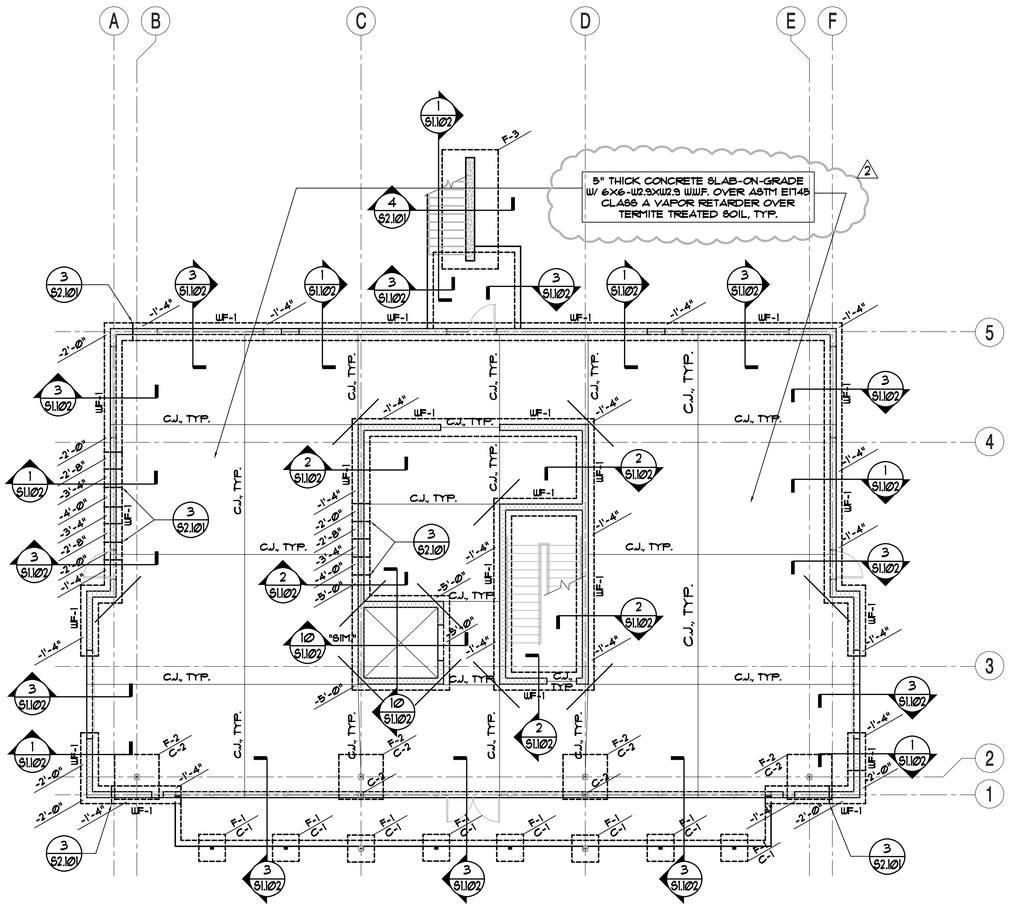
REVISION	DATE	DRAWN	CHECKED
2 ADDENDUM 2	01/15/2020	NLC	RLP

ADDENDUM NO. 2 - 01/15/2020

GENERAL STRUCTURAL NOTES & DETAILS

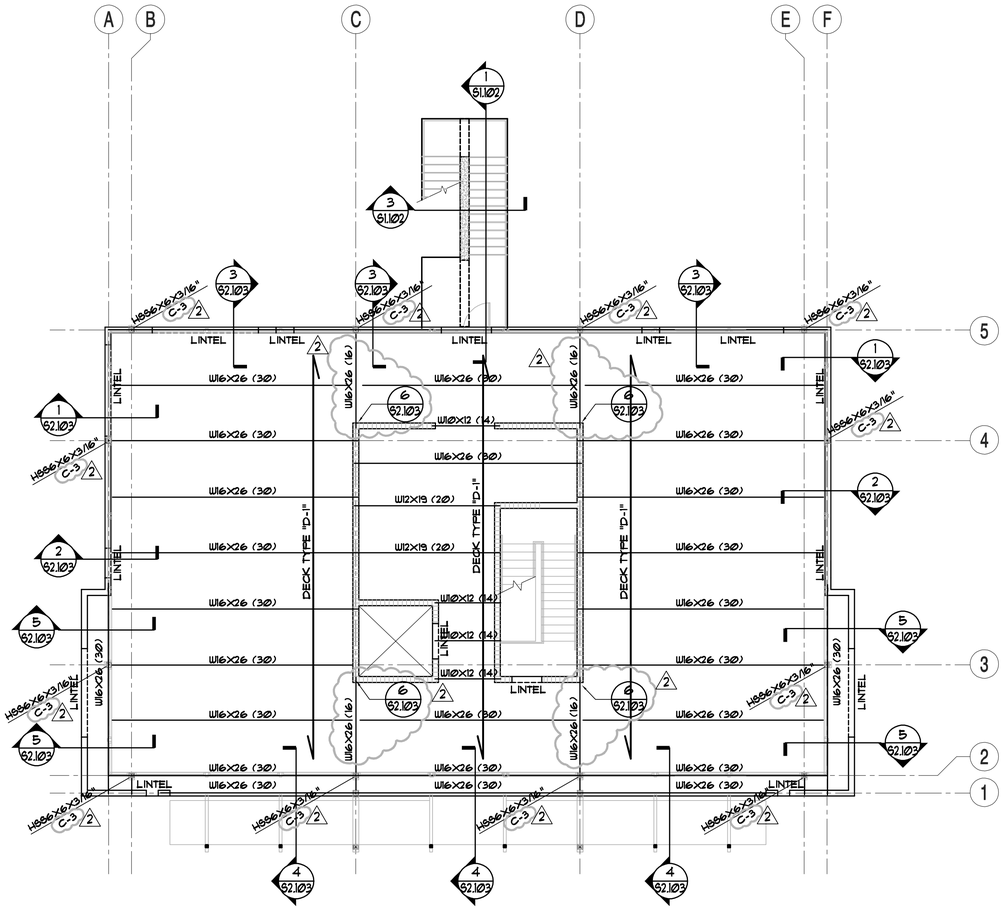
ERAU PRODUCTION BUILDING
EMBRY-RIDDLE AERONAUTICAL UNIVERSITY, DAYTONA BEACH, FLORIDA

Date:	12/2019
Job no.	19-007
Sheet no.	S1.101



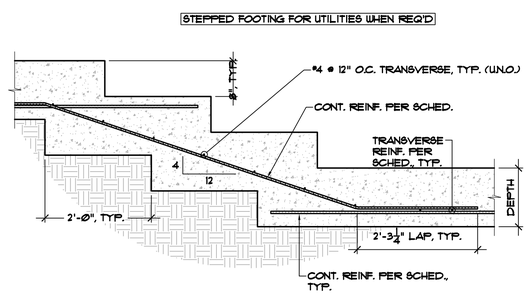
1 S2.101 FOUNDATION PLAN

SCALE: 1/8" = 1'-0"



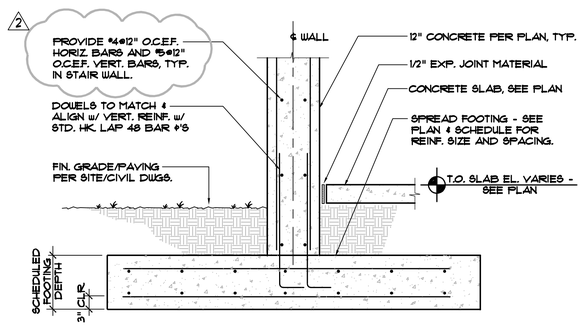
2 S2.101 SECOND FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"



3 S2.101 STEPPED FOOTING DETAIL

SCALE: ¾" = 1'-0"



4 S2.101 STAIR WALL FOOTING

SCALE: ¾" = 1'-0"

FOOTING SCHEDULE

MARK	SIZE	DEPTH	REINFORCING			REMARKS
			BOTTOM	TOP	TRANSVERSE	
F-1	3'-0" X 3'-0"	1'-0"	4-#5 EA WAY	----------	----------	SPREAD FOOTING
F-2	5'-0" X 5'-0"	1'-0"	6-#5 EA WAY	———	———	SPREAD FOOTING
F-3	7'-0" X 14'-0"	1'-4"	8-#5 LONG WAY 15-#5 SHORT WAY	———	———	SPREAD FOOTING
WF-1	2'-0" CONT.	1'-0"	3-#5 CONT.	———	#4 @ 24" O.C.	STRIP FOOTING

5 S2.101 FOOTING SCHEDULE

SCALE: N.T.S.

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FOUNDATION & SECOND FLOOR FRAMING

ERAU PRODUCTION BUILDING

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY, DAYTONA BEACH, FLORIDA

Date: 12/2019
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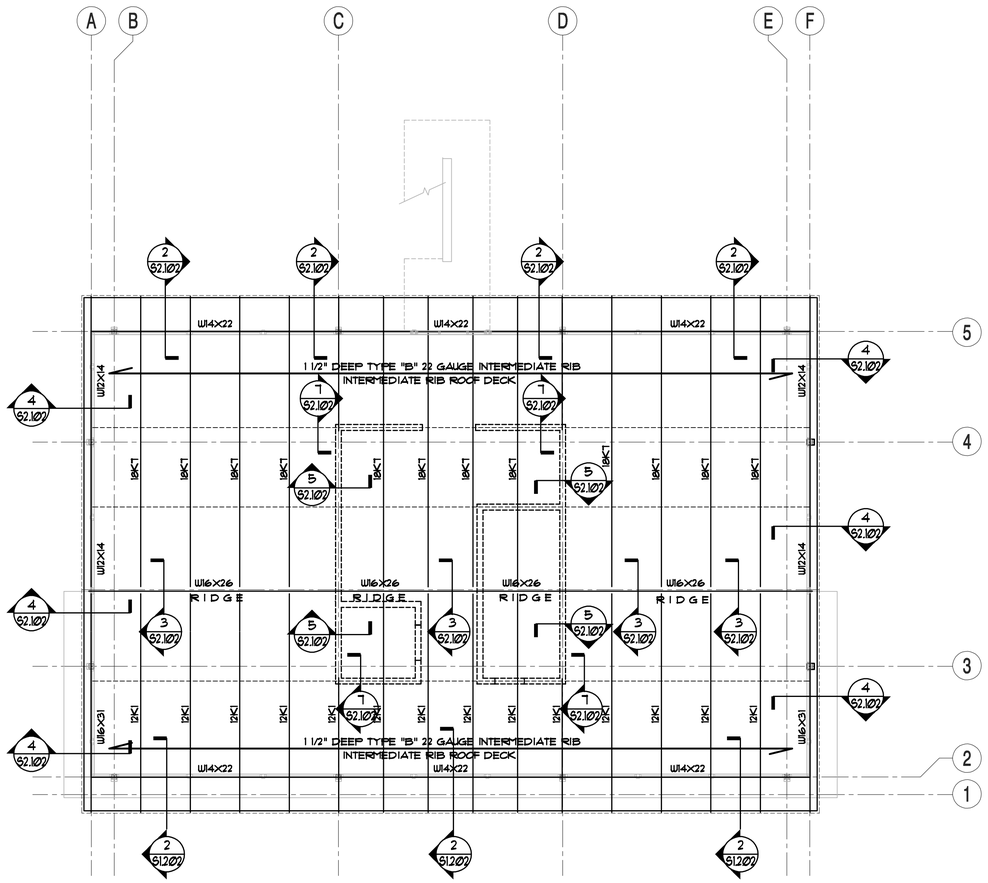
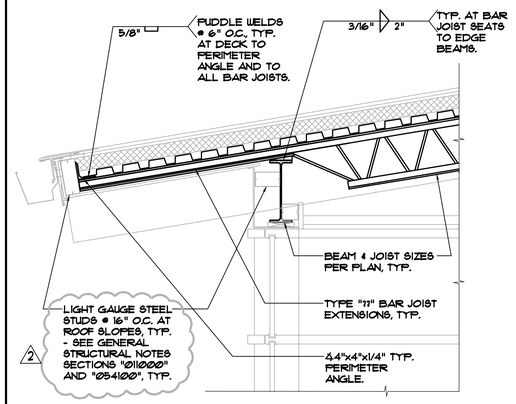


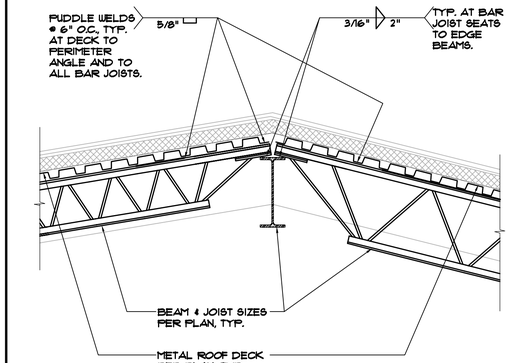
1 S2.102 ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"



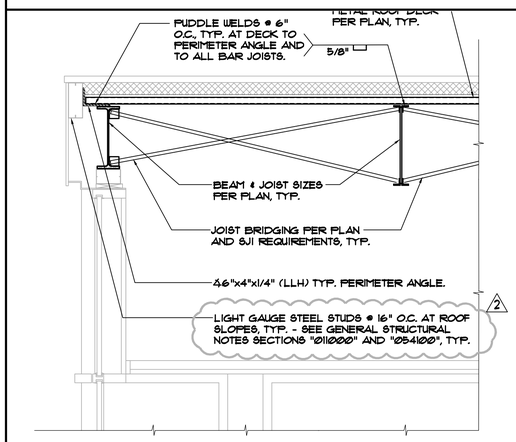
2 S2.102 ROOF JOIST BEARING

SCALE: 3/4" = 1'-0"



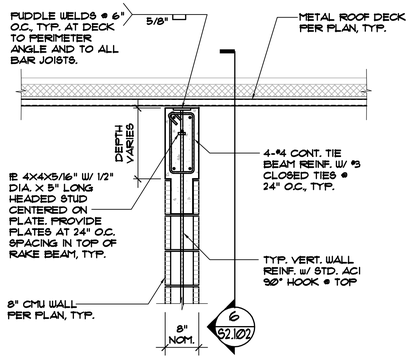
3 S2.102 ROOF JOIST BEARING

SCALE: 3/4" = 1'-0"



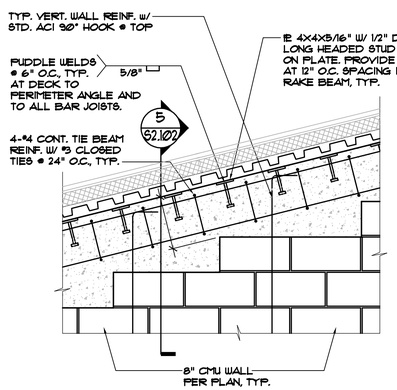
4 S2.102 ROOF DECK BEARING

SCALE: 3/4" = 1'-0"



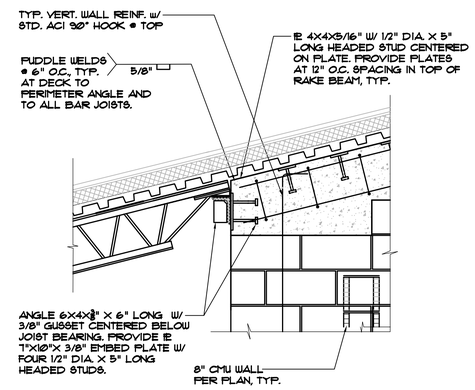
5 S2.102 ROOF DECK BEARING

SCALE: 3/4" = 1'-0"



6 S2.102 RAKED TIE BEAM

SCALE: 3/4" = 1'-0"

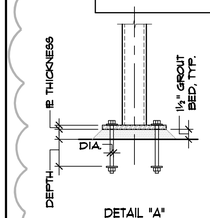


7 S2.102 RAKED TIE BEAM

SCALE: 3/4" = 1'-0"

BASE PL / ANCHOR BOLT SCHEDULE

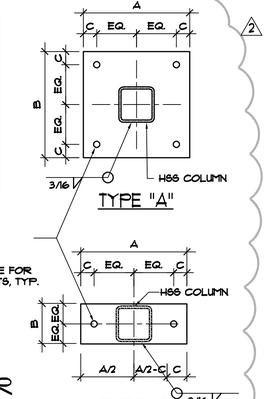
COLUMN SIZE	PLATE TYPE	BASE PLATE DIMS.			PLATE THICKNESS	ANCHOR BOLT DIMS.		
		A	B	C		DIA.	DEPTH	NUM.
"C-2": HSS 6X6X3/16"	A	12"	12"	1½"	¾"	¾"	9"	4
"C-3": HSS 6X6X3/16"	B	12"	7 1/2"	1½"	¾"	¾"	9"	2



DETAIL "A"

NOTE: ALL BASE PL'S SHALL BE SET IN NON-SHRINK GROUT BED (1½") W/ ⅛" STEEL LEVELER PL OR LEVELER NUTS ON EACH BOLT, TYP.

SEE SCHEDULE FOR ANCHOR BOLTS, TYP.



8 S2.102 BASE PLATE & ANCHOR BOLT SCHEDULE

SCALE: N.T.S.

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ROOF FRAMING PLAN & DETAILS

ERAU PRODUCTION BUILDING

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY, DAYTONA BEACH, FLORIDA

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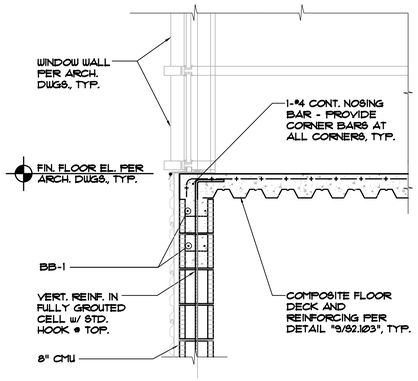
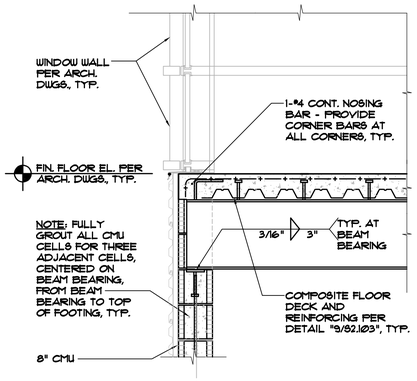


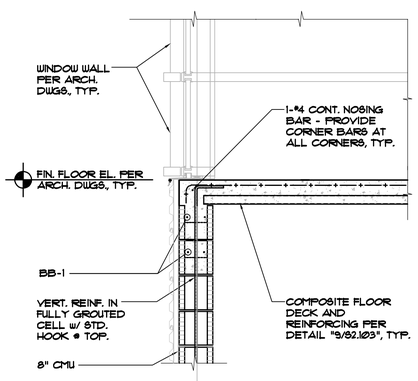
1 / S2.1Ø3 SLAB BEARING DETAIL

SCALE: 3/4" = 1'-Ø"



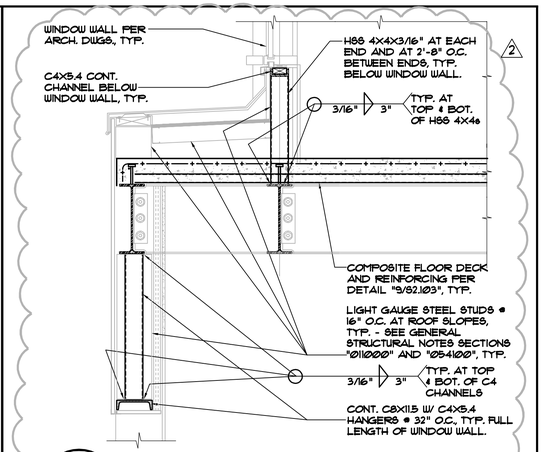
2 / S2.1Ø3 BEAM BEARING DETAIL

SCALE: 3/4" = 1'-Ø"



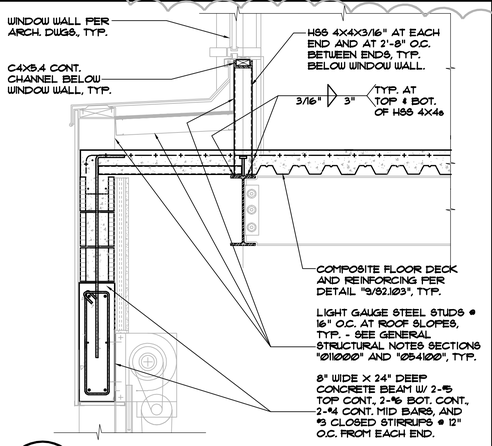
3 / S2.1Ø3 SLAB BEARING DETAIL

SCALE: 3/4" = 1'-Ø"



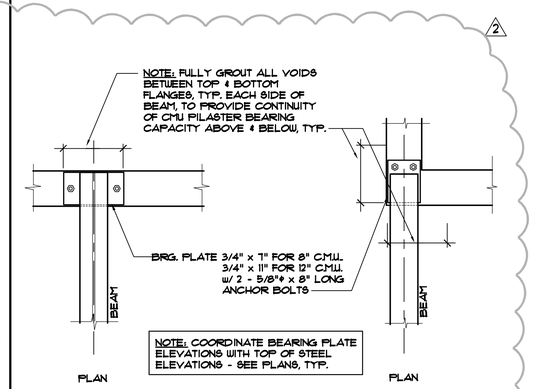
4 / S2.1Ø3 EXTENDED ROOF DETAIL

SCALE: 3/4" = 1'-Ø"



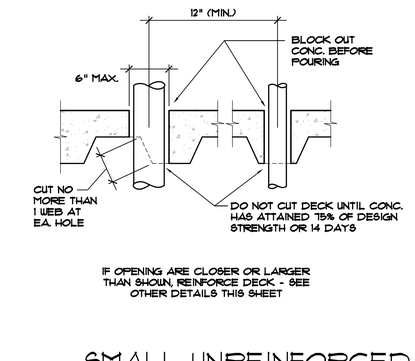
5 / S2.1Ø3 EXTENDED ROOF DETAIL

SCALE: 3/4" = 1'-Ø"



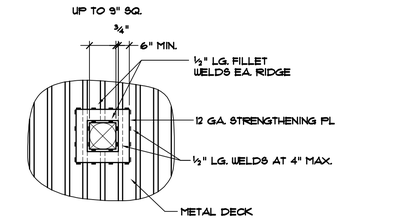
6 / S2.1Ø3 BEAM BEARING DETAIL

SCALE: 3/4" = 1'-Ø"



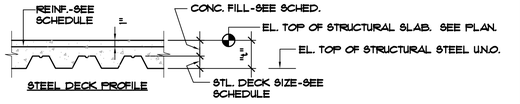
7 / S2.1Ø3 SMALL UNREINFORCED DECK OPENING DETAIL

SCALE: 3/4" = 1'-Ø"



8 / S2.1Ø3 SMALL REINFORCED DECK OPENING DETAIL

SCALE: 3/4" = 1'-Ø"



STEEL DECK PROFILE

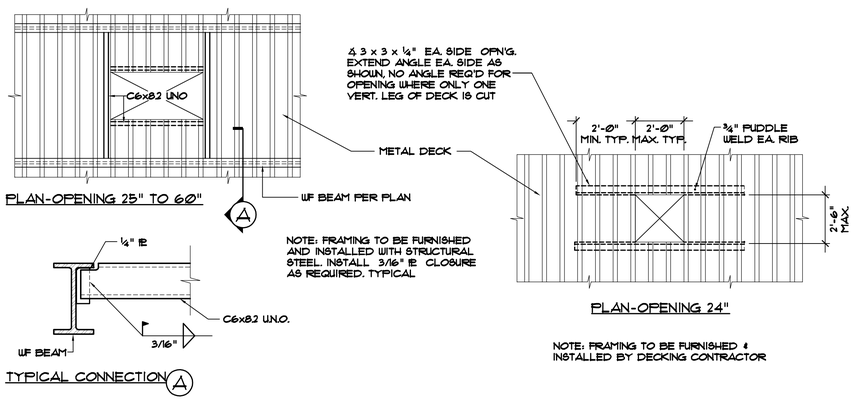
MARK	DECK SIZE	CONC. FILL	"t"	STEEL DECK PROPERTIES	DECK REINFORCING	MAX. UNSHORED CLR SPAN (SEE NOTE 2)	
						DECK SPAN	LENGTH
"D-1"	2.0 VL.I 20 GA.	3" N.W.	5"	S_+ = Ø.Ø43 IN^3 S_- = Ø.Ø43 IN^3 I_+ = Ø.Ø15 IN^4	6x6-W2.9xW2.9 W.W.F.	1-SPAN 2-SPAN 3-SPAN	2'-5" 3'-1" 3'-2"

NOTES:

1. STEEL DECK SHALL BE VULCRAFT (OR APPROVED EQUAL).
2. STEEL DECK TYPE SHALL BE SHORED @ MIDSPAN WHERE SPAN EXCEEDS MAXIMUM UNSHORED LENGTH.
3. STEEL DECK SHALL BE ATTACHED TO THE STRUCTURAL MEMBERS PER MANUFACTURERS RECOMMENDATIONS AND SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS U.N.O. 3/8"ø PUDDLE WELDS AT 6" O.C. PERIMETER & 12" O.C. ALL INTERMEDIATE SUPPORTS, W/ 2-#10 TEK SIDELAP FASTENEERS, TYP.
4. G.C. TO ACCOUNT FOR ADDITIONAL VOLUME OF CONCRETE DURING SLAB POUR FOR DEFLECTION DUE TO THE DEAD LOAD OF WET CONCRETE ON UNSHORED STEEL BEAMS, OR G.C. MAY PROVIDE SHORING OF STEEL BEAMS UNTIL CONCRETE REACHES 75% OF 28-DAY STRENGTH.

9 / S2.1Ø3 COMPOSITE STEEL DECK

SCALE: N.T.S.



10 / S2.1Ø3 OPENINGS IN COMPOSITE METAL FLOOR DECK

SCALE: 3/4" = 1'-Ø"

SIMPLE BEAM CONNECTION SCHEDULE			
SHEAR PL CONNECTION			
MEMBER DEPTH	# OF BOLTS 3/4"ø A325	CONN. PL "t"	WELD SIZE "A"
6"	2	5/16"	1/4"
8" - 10"	2	5/16"	1/4"
12" - 14"	3	5/16"	1/4"
15" - 16"	4	3/8"	5/16"
18"	5	3/8"	5/16"
20" - 21"	5	1/2"	3/8"

NOTES:

1.) FILLET WELDS SHALL BE AS SHOWN UNLESS A GREATER SIZED IS REQUIRED BY A.I.S.C. TABLE J2.4

2.) ALL BOLTS TO BE A325 BOLTS (U.N.O.)

3.) DOUBLE ANGLES MAY BE SUBSTITUTED FOR CONNECTOR PLATES, PROVIDED THEY MEET OR EXCEED THE REQUIREMENTS OF THE A.I.S.C.

4.) ALL CONNECTIONS TO COLUMNS AND ALL CONNECTIONS AT VIBRATION LOAD AREAS TO BE NON SLIP (A325 S.C.). ALL OTHER CONNECTIONS MAY BE BEARING TYPE (A325 N.).

11 / S2.1Ø3 CONNECTION SCHEDULE

SCALE: N.T.S.

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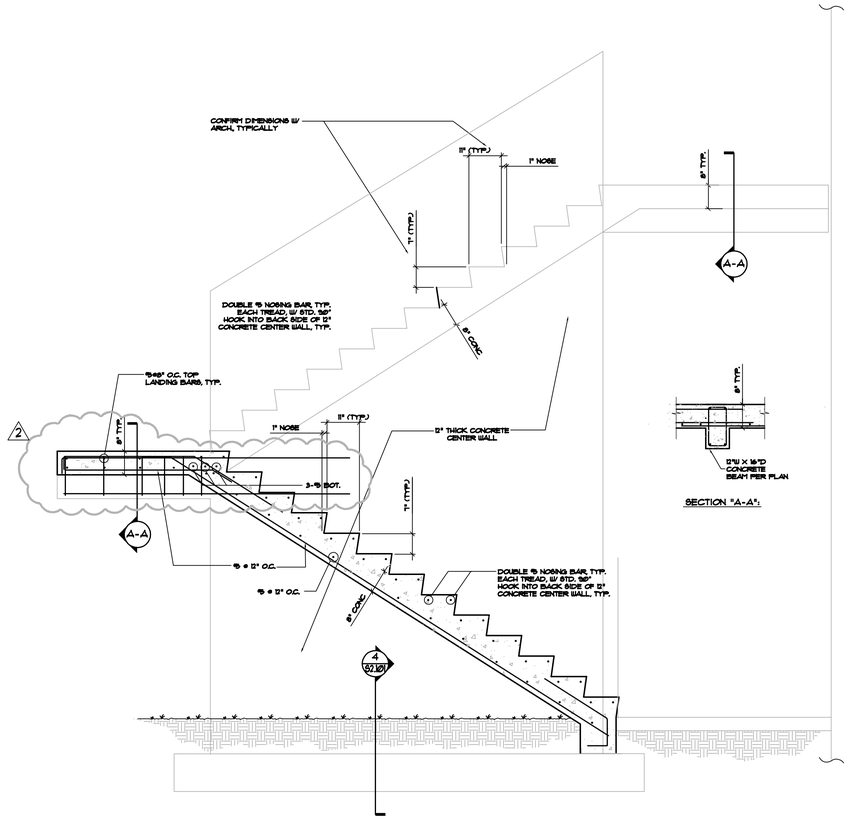
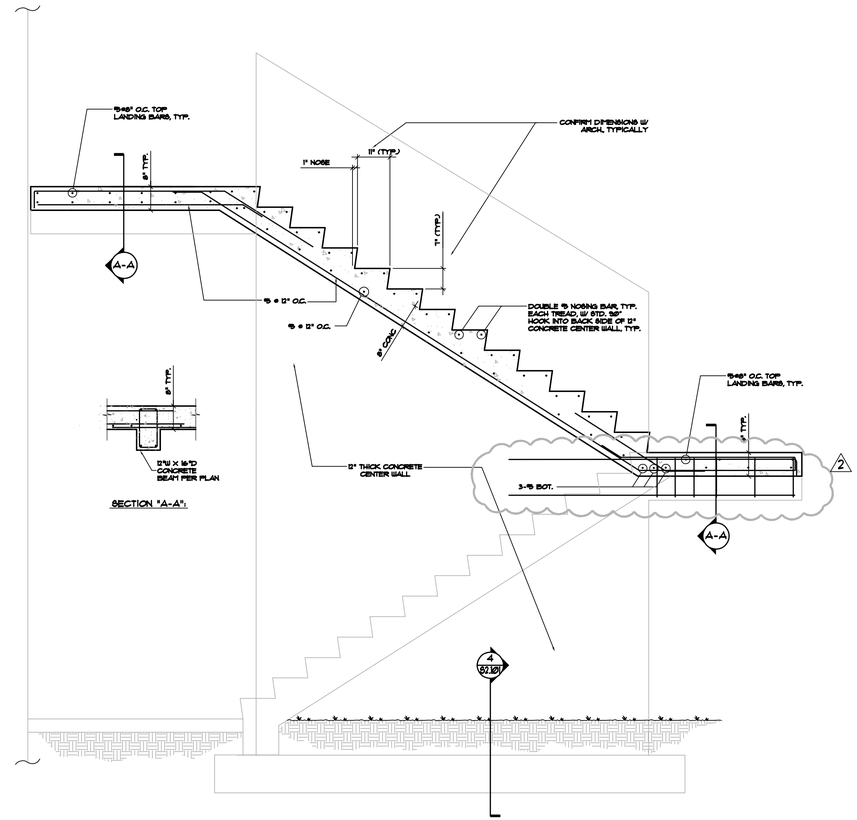


1 S2.104 CAST-IN-PLACE CONCRETE STAIR SECTION

SCALE: 3/4" = 1'-0"



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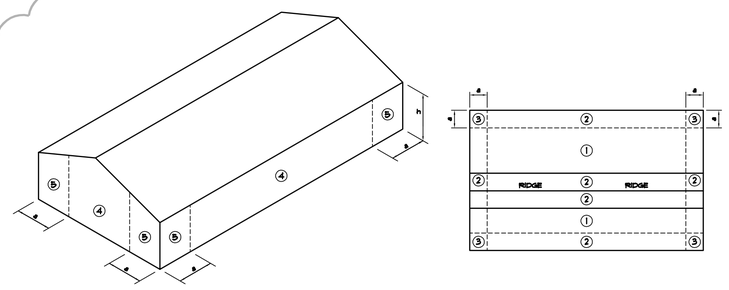

3 S2.104 COMPONENT & CLADDING WIND SCHEDULE

N.T.S.

2

COMPONENT & CLADDING WIND LOADS

BASIC WIND SPEED, V(ult)= 135 MPH		MEAN ROOF HEIGHT= 35.00 FT.	
ZONE	WIND AREA (S.F.)	DESIGN PRESSURE (PSF)	
		POSITIVE	NEGATIVE
1	10	19.4	-47.6
1	20	18.1	-46.4
1	50	16.6	-44.8
1	100	15.4	-43.6
2	10	27.4	-78.8
2	20	25.0	-71.4
2	50	21.8	-60.1
2	100	19.4	-51.6
3	10	27.4	-126.2
3	20	25.0	-99.6
3	50	21.8	-72.3
3	100	19.4	-51.6
4	10	47.6	-57.6
4	20	45.3	-49.3
4	50	42.6	-46.7
4	100	40.3	-44.5
5	10	47.6	-63.7
5	20	45.3	-54.5
5	50	42.6	-53.7
5	100	40.3	-49.3

* END ZONE a = 17'-0"
** PRESSURES PROVIDED ABOVE ARE UNFACTORED, ULTIMATE LOADS AND MAY BE FACTORED AS ALLOWED BY FBC CHAPTER 1605 "LOAD COMBINATIONS".

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STRUCTURAL STAIR DETAILS

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