9/2/2020 3:41:00 PM BIM 360://019216.00_Jackson County Animal Rescue Center/19168 - Jackson County Animal Shelter - R19.rvt

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DRAWING NOTES

GENERAL REQUIREMENTS

1. THE STRUCTURE DESCRIBED BY THESE DOCUMENTS IS INTENDED TO WORK AS A COMPLETED STRUCTURE. THE CONTRACTOR IS SOLEY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION INCLUDING TEMPORARY SHORING AND BRACING AND TEMPORARY SUPPORTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR COORDINATION OF HIS OR HER WORK WITH ALL OTHER TRADES, AND FOR PERFORMING ALL WORK IN A SAFE AND SATISFACTORY MANNER.
2. ENGINEER/ARCHITECT'S APPROVAL MUST BE OBTAINED IN WRITING FOR ALL DEVIATIONS AND SUBSTITUTIONS. THE ENGINEER/ARCHITECT IS NOT RESPONSIBLE FOR THE FAILURE OF THE CONTRACTOR TO BUILD THE STRUCTURE ACCORDING TO THE DOCUMENTS.
3. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO DETAILING, FABRICATION AND CONSTRUCTION; AND SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY DISCREPANCIES.
4. FOR ADDITIONAL INFORMATION, SEE THE PROJECT SPECIFICATIONS. IN THE CASE OF A DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN UNLESS APPROVED OTHERWISE IN WRITING BY THE ENGINEER AND ARCHITECT.
5. OWNER SHALL EMPLOY AND PAY A QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS SPECIFIED IN OTHER SECTIONS, AND THOSE REQUIRED BY AUTHORITIES HAVING JURISDICTION, INCLUDING ALL SPECIAL INSPECTIONS. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTIONS AND TESTS. RETESTING: OWNER SHALL PAY FOR RETESTING WHERE RESULTS OF INSPECTIONS AND TESTS PROVE UNSATISFACTORY AND INDICATE NONCOMPLIANCE WITH REQUIREMENTS. THE OWNER RESERVES THE RIGHT TO DEDUCT COSTS OF RETESTING FROM CONSTRUCTION CONTRACT COSTS.
6. SECTIONS SHOWN ON STRUCTURAL DRAWINGS PROVIDE TYPICAL DETAILING INFORMATION THAT SHALL BE APPLIED TO ALL SIMILAR AND LIKE CONDITIONS U.N.O. SHOP DRAWINGS SHALL DETAIL ALL CONDITIONS IN ACCORDANCE WITH PROJECT SPECIFIC DRAWINGS AND SPECIFICATIONS.
7. COORDINATE FLOOR, ROOF, AND WALL OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL PLANS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

D

EARTHWORK

1. AN INDEPENDENT TESTING AGENCY SHALL BE RETAINED BY THE OWNER TO PERFORM TESTING OF EARTHWORK. ALL FOOTING AND SLAB SUB-GRADES SHALL BE INSPECTED, AND TESTED IF REQUIRED, BY THE TESTING AGENCY. ALL FILL PLACEMENT AND COMPACTION SHALL BE MONITORED BY THE TESTING AGENCY. ALL BACKFILL MATERIALS SHALL BE APPROVED BY TESTING AGENCY PRIOR TO PLACEMENT. THE ENGINEER IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD CONTRARY TO THOSE ASSUMED FOR DESIGN.
2. THE FOUNDATIONS ARE DESIGNED FOR 1,500 PSF ALLOWABLE SOIL BEARING PRESSURE AND A SOIL SUBGRADE MODULUS (K) OF 100 PCI. CAPACITY SHALL BE APPROVED BY THE TESTING AGENCY PRIOR TO CONCRETE PLACEMENT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL SERVICE AND UTILITY LINES ON THE SITE. SEE CIVIL FOR ADDITIONAL INFORMATION.
4. SEE SPECIFICATIONS IN DIVISION 31 - EARTHWORK FOR ADDITIONAL REQUIREMENTS.

CAST-IN-PLACE CONCRETE

1. ALL WORK SHALL COMPLY WITH ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"; ASTM C94; AND CRSI'S "MANUAL OF STANDARD PRACTICE" AND SPECIFICATION SECTION 03 30 00 - CAST IN PLACE CONCRETE, IN THE PROJECT MANUAL.
2. DESIGN OF ALL FORMWORK AND BRACING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR
3. DEFORMED REINFORCING BARS: ASTM A 615, GRADE 60.
4. WELDED STEEL WIRE FABRIC: ASTM A1064, FLAT SHEETS, NOT ROLLS. LAP A MINIMUM OF ONE CROSS WIRE SPACING PLUS 2 INCHES.
5. PORTLAND CEMENT: ASTM C 150, TYPE 1.
6. AGGREGATE: NORMAL WEIGHT CONCRETE, ASTM C33.
7. FLY ASH: ASTM C 618, TYPE F.
8. PROPORTION MIX DESIGNS TO PROVIDE THE FOLLOWING PROPERTIES:
   A. UNIT WEIGHT: NORMAL WEIGHT CONCRETE 145 PCF
   B. AIR CONTENT: INTERIOR - 0% +2%
      EXTERIOR - 6% ±1%
   C. CEMENTITIOUS MATERIAL: LIMIT FLY ASH TO 15 PERCENT OF TOTAL CEMENT CONTENT

APPLICATION	AIR CONTENT	28 DAY STRENGTH	MAX W/C	MAX AGGREGATE
ISOLATED SPREAD FOOTINGS	0% + 2%	4000 PSI	0.53	1"
INTERIOR SLAB ON GRADE & MONOLITHIC FOOTINGS	0% +2%	4000 PSI	0.53	1"
EXTERIOR SLAB ON GRADE & MONOLITHIC FOOTINGS	6% ±1%	4000 PSI	0.40	1"

9. DO NOT ADD WATER TO CONCRETE DURING DELIVERY, AT PROJECT SITE, OR DURING PLACEMENT, UNLESS APPROVED BY ENGINEER.
10. PROTECT CONCRETE FROM PHYSICAL DAMAGE OR REDUCED STRENGTH DUE TO WEATHER EXTREMES DURING MIXING, PLACING, AND CURING. COMPLY WITH ACI 305R "GUIDE TO HOT WEATHER CONCRETEING" AND ACI 306R "GUIDE TO COLD WEATHER CONCRETING"
11. OWNER SHALL ENGAGE AN INDEPENDENT TESTING AGENCY TO PERFORM TESTS AND TO SUBMIT TEST REPORTS TO THE ENGINEER. OBTAIN ONE COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE EXCEEDING 5 CU. YD., BUT LESS THAN 25 CU. YD. PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD OR FRACTION THEREOF. WHEN FREQUENCY OF TESTING PROVIDES FEWER THAN FIVE COMPRESSIVE-STRENGTH TESTS FOR EACH CONCRETE MIXTURE, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED. A COMPOSITE SAMPLE CONSISTS OF FIVE CYLINDERS: ONE CYLINDER TO BE TESTED AT 7 DAYS, THREE CYLINDERS TO BE TESTED AT 28 DAYS AND ONE CYLINDER TO BE RESERVED FOR 56 DAYS IF NEEDED. THE TESTING AGENCY SHALL ALSO RECORD SLUMP, AIR CONTENT, AND TEMPERATURE OF EACH CYLINDER.
12. SLAB FINISHES: REFER TO THE ARCHITECT FOR FLOOR FINISHES. PROVIDE A TROWELED FINISH FOR FLOOR SURFACES TO RECEIVE FLOOR COVERINGS, PAINT, OR OTHER THIN FILM-FINISH COATINGS. SPECIFIED OVERALL VALUES OF FLATNESS, F(F) 35; AND LEVELNESS, F(L) 25; WITH MINIMUM LOCAL VALUES OF FLATNESS, F(F) 24; AND LEVELNESS, F(L) 17. NONSLIP BROOM FINISH TO EXTERIOR CONCRETE PLATFORMS, STEPS, AND RAMPS.
13. PROVIDE A 3/4" CHAMFER ON ALL EXPOSED CONCRETE EDGES, U.N.O.
14. FOR SLAB ON GRADE, FORM 1/8" WIDE CONTRACTION JOINTS WITH POWER SAWS WHEN CUTTING ACTION WILL NOT TEAR, ABRADE OR OTHERWISE DAMAGE SURFACE AND BEFORE CONCRETE DEVELOPS RANDOM CONTRACTION JOINTS. SEE DETAILS FOR ADDITIONAL INFO. UNLESS NOTED OTHERWISE, LOCATE CONTRACTION JOINTS AT COLUMN LINES WITH A MAX RATIO OF 1.5 LENGTH TO WIDTH AND NO FARTHER APART THAN 36 TIMES SLAB THICKNESS.
15. BEGIN CURING UNFORMED CONCRETE AFTER FINISHING. KEEP CONCRETE CONTINUOUSLY MOIST FOR AT LEAST 7 DAYS OR APPLY MEMBRANE-FORMING CURING COMPOUND TO CONCRETE. CONTRACTOR SHALL VERIFY COMPOUND IS COMPATIBLE WITH FLOOR COVERING/COATINGS.
16. PROTECT CONCRETE FROM DAMAGE. REPAIR SURFACE DEFECTS IN CONCRETE.

C

FOUNDATIONS

17. SLEEVE PLUMBING OPENINGS IN SLABS BEFORE PLACING CONCRETE AND BEND REINFORCING AROUND SLEEVES. CORING NOT PERMITTED IN FLOOR SLABS, UNLESS APPROVED BY STRUCTURAL ENGINEER. DO NOT PLACE PIPES OR DUCTS EXCEEDING ONE-THIRD THE SLAB OR WALL THICKNESS WITHIN THE SLAB OR WALL UNLESS SPECIFICALLY SHOWN AND DETAILED ON STRUCTURAL DRAWINGS. SEE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR LOCATION OF SLEEVES, ACCESSORIES, ETC.

REINFORCING STEEL

18. PROVIDE DEFORMED REBAR EMBEDMENT, LAP SPLICES, AND HOOKS AS DETAILED ON DRAWINGS. IF NOT SPECIFIED, FOLLOW ACI 301 STANDARD DETAILING REQUIREMENTS FOR THE APPROPRIATE CONDITIONS WITH CLASS B LAPS.
19. REINFORCING STEEL MARKED "CONTINUOUS" SHALL BE LAPPED WITH CLASS "B" LAP SPLICE UNLESS SPECIFICALLY DETAILED OTHERWISE. PROVIDE CONTINUOUS REINFORCEMENT WHERE EVER POSSIBLE; SPLICE ONLY AS SHOWN OR APPROVED; STAGGER SPLICES WHERE POSSIBLE; USE TENSION SPLICE (CLASS "B") UNLESS NOTED OTHERWISE. DOWELS SHALL MATCH THE SIZE AND SPACING OF THE WALL OR COLUMN SPECIFIED REINFORECMENT AND SHALL BE LAPPED WITH TENSION SPLICES (CLASS "B") UNLESS NOTED OTHERWISE.
20. HORIZONTAL REINFORCEMENT IN FOOTINGS, TURNDOWN SLABS, AND WALLS SHALL BE CONTINUOUS AROUND CORNERS. HORIZONTAL REINFORCEMENT SHALL CONTINUE AT BENDS AND CORNERS WITH BEND TO FAR FACE OF INTERSECTING ELEMENT IN EACH DIRECTION. ADDITIONAL HORIZONTAL CORNER BARS OF SAME SIZE AND SPACING MAY BE PROVIDED. PROVIDE CORNER BARS AT ALL TURNDOWN SLAB CORNERS AND C.I.P. CONCRETE WALL CORNERS. PROVIDE LAP SLPLICE 48 TIMES BAR DIAMETER. WHERE PERPENDICULAR WALLS ARE NOT POURED CONTINUOUS, PROVIDE A KEYED JOINT WITH CORNER BARS.
21. PROVIDE SPACERS, CHAIRS, BOLTERS, ETC. AS REQUIRED TO ASSEMBLE, PLACE AND SUPPORT ALL REINFORCING IN PLAN.

UNIT MASONRY ASSEMBLIES

1. ALL CONCRETE MASONRY WORK SHALL CONFORM TO TMS 402/ACI 530/ASCE 5 LATEST EDITION, "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", AND TSM 602/ACI 5301.1/ASCE 6 LATEST EDITION, "SPECIFICATION FOR MASONRY STRUCTURES".
2. AN INDEPENDENT TESTING AGENCY SHALL BE RETAINED BY THE OWNER TO PERFORM FIELD INSPECTION AND TESTING OF MAONRY CONSTRUCTION. TESTING AGENCY SHALL INSPECT PLACEMENT OF ALL REINFORCEMENT AS SHOWN OR DESCRIBED IN THE CONTRACT DOCUMENTS IN ACCORDANCE WITH ACI 530.1.
3. CONCRETE MASONRY UNITS: SHALL MEET ASTM C 90; LIGHTWEIGHT (105 PCF MAX.). PROVIDE 8"x16" CMU WITH SCORE JOINT ON BOTH SIDES AT CENTER POINT, U.N.O. PROVIDE SPECIAL SHAPES FOR LINTELS, CORNERS, JAMBS, SASH, CONTROL JOINTS, AND OTHER SPECIAL CONDITIONS.
4. PROVIDE MATERIALS TO ACHIEVE THE NTET COMPRESSIVE STRENGTH OF CONCRETE UNIT MASONRY EQUAL TO OR GREATER THAN f'M = 1500 PSI.
5. MORTAR: COMPLY WITH ASTM C 270, PROPORTION SPECIFICATION; ALL MORTAR FOR CMU WORK SHALL BE TYPE S. DO NOT USE CALCIUM CHLORIDE IN MORTAR.
6. GROUT: COMPLY WITH ASTM C476, PROPORTION SPECIFICATION, WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI. ALL CELLS AND BOND BEAMS CONTAINING REINFORCING BARS SHALL BE FILLED WITH GROUT. PLACE VERTICAL REINFORCING IN MASONRY CELLS AND SECURE IN PLACE PRIOR TO PLACEMENT OF GROUT. GROUT POUR HEIGHT SHALL NOT EXCEED 60 INCHES. WEBS OF HOLLOW UNITS CONTAINING VERTICAL REINFORCING SHALL BE FULLY MORTARED TO CONFINE GROUT DURING PLACEMENT
7. CONSTRUCT ALL MASONRY IN RUNNING BOND PATTERN WITH 3/8" JOINTS. UNLESS NOTED OTHERWISE. TOOL EXPOSED JOINTS CONCAVE.
8. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60. LAP BARS AS FOLLOWS: #4 - 26", #5 - 32", #6 - 38".
9. VERTICAL REINFORCEMENT: PROVIDE VERTICAL REINFORCING IN WALLS AS SPECIFIED ON THE FRAMING PLAN - S101. SECURE REINFORCEMENT WITH VERTICAL BAR POSITIONERS, "WIRE-BOND CORELOCK" SINGLE AND/OR DOUBLE REBAR POSITIONERS, OR EQUAL.
10. HORIZONTAL REINFORCEMENT: PROVIDE 9 GAGE, LADDER TYPE JOINT REINFORCEMENT FORMED FROM GALVANIZED CARBON-STEEL WIRE, ASTM A 153, CLASS B-2, FOR BOTH INTERIOR AND EXTERIOR WALLS. PROVIDE PREFABRICATED "T" AND "L" SECTIONS AT WALL INTERSECTIONS AND CORNERS. PROVIDE A MINIMUM 6" LAP. CUT OR INTERRUPT REINFORCING AT CONTROL JOINTS. INTERLOCK EVERY OTHER BLOCK AT CORNERS AND INTERSECTIONS. SPACE JOINT REINFORCEMENT AS FOLLOWS:
    A. 8" O.C. BELOW GRADE AND RETAINING WALLS
    B. 16" O.C. ABOVE GRADE.
11. ADDITIONAL REINFORCEMENT: PROVIDE A MINIMUM OF (1) #5 AT CORNERS, WITHIN 16" OF EACH SIDE OF OPENINGS, WITHIN 8" OF EACH SIDE OF CONTROL JOINTS AND WITHIN 8" OF THE ENDS OF WALLS.
12. BOND BEAMS SHALL BE MINIMUM 8" DEEP AND HAVE (2) #4'S CONTINUOUS AND REINFORCEMENT SHALL BE TURNED AND LAPPED AT ALL CORNERS AND INTERSECTIONS. PROVIDE BOND BEAMS AT THE FOLLWOING LOCATIONS:
    A. WITHIN 8" OF TOP OF WALLS
    B. FLOOR OR ROOF PLANES
    C. ABOVE AND BELOW OPENINGS (SEE LINTEL SCHEDULE FOR ADDITIONAL INFORMATION)
    D. 48" O.C. IN TYPE MW1 WALLS SHOWN ON FRAMING PLAN - S101.
13. PROVIDE VERTICAL CONTROL JOINTS AT LOCATIONS SHOWN ON THE FRAMING PLAN - S101. BOND BEAMS AT TOPS OF WALLS AND FLOOR LEVELS SHALL BE CONTINUOUS THROUGH THE CONTROL JOINT. SEE A/S101 FOR CONTROL JOINT DETAILS.
14. MASONRY SHALL BE PROTECTED FROM FREEZING DURING PLACEMENT AND CURING. COLD WEATHER MASONRY PROCEDURES SHALL COMPLY WITH ACI530 AND ACI 530.1.

B

METAL BUILDING SYSTEMS

1. THE METAL BUILDING SYSTEM, INCLUDING FRAMES, GIRTS AND PURLINS, SHALL BE DESIGNED BY A REGISTERED ENGINEER IN THE STATE OF BUILDING JURISDICTION TO COMPLY WITH THE APPLICABLE BUILDING CODES, THE CONSTRUCTION DRAWINGS, AND SPECIFICATION 13 34 19 - METAL BUILDING SYSTEMS IN THE PROJECT MANUAL.
2. THE METAL BUILDING MANUFACTURER SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR REVIEW, AND STRUCTURAL CALCULATIONS SEALED BY THE ENGINEER IN ACCORDANCE WITH SPECIFICATION SECTION 01 33 00 SUBMITAL PROCEDURES LOCATED IN THE PROJECT MANUAL.
3. THE METAL BUILDING MANUFACTURER MUST BE A MEMBER COMPANY OF THE INTERNATIONAL ACCREDITATION SERVICE AC472 AND SHALL PROVIDE A CURRENT CERTIFICATE OF ACCREDITATION IN ACCORDANCE WITH SPECIFICATION SECTION 01 33 00 SUBMITTAL PROCEDURES LOCATED IN THE PROJECT MANUAL.
4. THE METAL BUILDING AND IT'S COMPONENTS SHALL BE DESIGNED FOR THE LOADS SHOWN IN THE STRUCTURAL DESIGN CRITERIA AND AS SPECIFIED IN THE APPLICABLE BUILDING CODES.
5. FIXED COLUMN BASES ARE NOT PERMITTED UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
6. THE METAL BUILDING SHALL BE DESIGNED FOR A MAXIMUM LATERAL DRIFT OF H/200 USING 10 YEAR WIND LOAD OCCURRENCE.
7. PURLINS SHALL BE DESIGNED FOR A MAXIMUM DEFLECTION OF L/180 UNDER TOTAL LOAD.
8. FABRICATION TOLERANCES SHALL COMPLY WITH THE MBMA'S "METAL BUILDING SYSTEMS MANUAL" FOR FABRICATION AND ERECTION TOLERANCES.
9. ERECT STRUCTURAL STEEL ACCORDING TO AISC SPECIFICATIONS AND WITHIN ERECTION TOLERANCES OF AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."
10. COMPLY WITH AISC 360-05 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS," AND AWS D1.1 "STRUCTURAL WELDING CODE--STEEL."
11. STRUCTURAL-STEEL: COMPLY WITH AISC 360, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," FOR DESING REQUIREMENTS AND ALLOWABLE STRESSES.
12. COLD-FORMED STEEL: COMPLY WITH AISI's "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" FOR DESIGN REQUIREMENTS AND ALLOWABLE STRESSES.
13. ANCHOR RODS, BOLTS, NUTS: ASTM F1554, GRADE 55, UNHEADED (SUPPLIED BY GENERAL CONTRACTOR PER STRUCTURAL DRAWINGS). SEE METAL BUILDING DRAWINGS FOR BOLT DIAMETER AND QUANTITIES.

A

STRUCTURAL STEEL

1. COMPLY WITH AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", LATEST EDITION. BOLTED CONNECTIONS SHALL COMPLY WITH RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS", LATEST EDITION.
2. STRUCTURAL-STEEL SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:
   A. WIDE FLANGE SHAPES - ASTM A992, GRADE 50
   B. HSS RECTANGULAR - ASTM A500 GRADE C.
   C. HSS ROUND - ASTM A500 GRADE C: Fy=46 KSI
   D. STEEL PIPE - ASTM A53, TYPE E, GRADE B
   E. OTHER SHAPES, PLATES, AND BARS - ASTM A36, Fy=36 KSI
   F. ANCHOR RODS, BOLTS, NUTS - ASTM F1554, GRADE 55, UNHEADED RODS.
3. BOLTS, NUTS, AND WASHERS: ASTM A325-N, TYPE 1, HIGH-STRENGTH HEAVY HEX STEEL STRUCTURAL BOLTS, HEAVY HEX CARBON-STEEL NUTS, AND HARDENED CARBON-STEEL WASHERS, UNCOATED.
4. WELDS: E70XX PER AWS.
5. PRIMER: LEAD-FREE AND CHROMATE-FREE, NONASPHALTIC, RUST-INHIBITING PRIMER, IN ACCORDANCE WITH SPECIFICATION SECTION 09 91 13 - EXTERIOR PAINTING..
6. GROUT: ASTM C1107, NONMETALLIC, SHRINKAGE RESISTANT, PREMIXED, MINIMUM COMPRESSIVE STRENGTH = 5000 PSI.
7. FABRICATE STRUCTURAL STEEL ACCORDING TO AISC SPECIFICATIONS AND TOLERANCE LIMITS OF AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" FOR STRUCTURAL STEEL, 2016 EDITION.
8. SHOP PRIMING: PREPARE EXPOSED AND CONCEALED SURFACES ACCORDING TO SSPC-SP 2 OR SSPC-SP 3. SHOP PRIME STEEL TO A DRY FLM THICKNESS OF AT LEAST 2.0 MILS. DO NOT PRIME SURFACES TO BE EMBEDDED IN CONCRETE OR MORTAR OR TO BE FIELD WELDED.
9. ERECT STRUCTURAL STEEL ACCORDING TO AISC SPECIFICATIONS AND WITHIN ERECTION TOLERANCES OF AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."
10. SET BASE AND BEARING PLATES ON WEDGES, SHIMS, OR SETTING NUTS. TIGHTEN ANCHOR BOLTS, CUT OFF WEDGES OR SHIMS FLUSH WITH EDGE OF PLATE, AND PACK GROUT SOLIDLY BETWEEN BEARING SURFACES AND PLATES.
11. PROVIDE 3" CONCRETE COVER OVER ALL STEEL BELOW GRADE.

CONNECTIONS

12. BOLTED CONNECTIONS SHALL CONFORM TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS"
13. WELDING SHALL CONFORM TO AWS D1.1 "STRUCTURAL WELDING CODE-STEEL", LATEST EDITION. ALL WELDS MUST BE MADE BY CERTIFIED WELDERS. PROVIDE MINIMUM FILLET WELD SIZES PER AISC 360 TABLE J2.4, UNLESS SPECIFICALLY NOTED OTHERWISE.
14. ALL BOLTED CONNECTIONS SHALL BE SNUG-TIGHTENED JOINTS USING 3/4" DIAMETER A325-N BOLTS WITH THREADS INCLUDED IN THE SHEAR PLANE, U.N.O. ALL CONNECTIONS SHALL BE DOUBLE ANGLE CONNECTIONS CITED FROM TABLE 10-1, OR TABLE 10-2, AISC STEEL CONSTRUCTION MANUAL, UNLESS NOTED. UNLESS REACTIONS ARE NOTED ON PLAN, CONNECTIONS SHALL DEVELOP AT LEAST ONE-HALF OF THE MAXIMUM TOTAL UNIFORM LOAD CAPACITY TABULATED IN THE MANUAL FOR THE GIVEN SHAPE AND SPAN OF THE BEAM. AS A MINIMUM, ALL SHEAR CONNECTIONS SHALL CONTAIN AT LEAST THE NUMBER OF ROWS OF 3/4" DIAMETER A325-N BOLTS (AT 3" PITCH) AS CAN BE FIT IN A CLIP ANGLE OF ONE-HALF THE BEAM T-DISTANCE IN LENGTH.

COLD-FORMED METAL FRAMING

1. THE STRUCTURAL DESIGN, FRAMING, FABRICATION AND ITS INSTALLATION SHALL MEET THE FOLLOWING SPECIFICATIONS AND STANDARDS UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED:
   A. AISI S100-07/S1-10: NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, WITH SUPPLEMENT 1, DATED 2010.
   B. AISI S200-07: NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS.
2. ALL STRUCTURAL AND NON-STRUCTURAL MEMBERS SHALL BE DESIGNED BY A REGISTERED ENGINEER IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE, "SPECIFICATION FOR THE DESIGN OF COLD FORMED STRUCTURAL MEMBERS," LATEST EDITION. SHOP DRAWINGS AND STAMPED CALCULATIONS SHALL BE SUBMITTED FOR ALL STRUCTURAL MEMBER DESIGNS INCLUDING LOAD-BEARING STUDS, EXTERIOR STUDS, JOISTS, RAFTERS, HEADERS, JAMBS, ETC. WHERE SIZES OR GAUGES ARE INDICATED ON THE DRAWINGS, THEY SHALL BE CONSIDERED AS A MINIMUM STANDARD.
3. DESIGN CONSTRAINTS SUCH AS DEPTH AND WIDTH LIMITATIONS, MINIMUM STEEL. THICKNESSES, AND CRITICAL DIMENSIONING ARE PROVIDED WITH THE PLANS AND DETAILS OF THE CONSTRUCTION DOCUMENTS.
4. ALL DEVIATIONS FROM THE DOCUMENTS MUST BE APPROVED BY THE ARCHITECT/ENGINEER. EQUIVALENT TYPE LIGHT GAUGE METAL FRAMING WILL NOT BE ACCEPTED.
5. OUT-OF-PLANE DESIGN LOADING SHALL BE DETERMINED FROM THE COMPONENTS AND CLADDING WIND PRESSURE TABLE AND THE SEISMIC INFORMATION LISTED UNDER THE STRUCTURAL DESIGN CRITERIA.
6. WELDING SHALL COMPLY WITH AWS D1.1, "STRUCTURAL WELDING CODE--STEEL," AND AWS D1.3, "STRUCTURAL WELDING CODE--SHEET STEEL." ALL WELDERS SHALL BE AWS CERTIFIED TO WELD LIGHT GAUGE MATERIALS AND THEIR CERTIFICATION SHALL BE CURRENT.
7. ALL STRUCTURAL STUDS AND JOISTS SHALL BE FORMED FROM CORROSION RESISTANT STEEL MEETING THE MINIMUM REQUIREMENTS OF ASTM A-653-SS. MEMBERS UNDER 16 GAUGE SHALL MEET THE REQUIREMENTS OF GRADE 33, WITH A MINIMUM YIELD STRENGTH OF 33,000 PSI. MEMBERS 16 GAUGE AND OVER SHALL MEET THE REQUIREMENTS OF GRADE 50, WITH A MINIMUM YEILD STRENGTH OF 55,000 PSI.
8. ALL STRUCTURAL TRACK AND BRIDGING SHALL BE FORMED FROM CORROSION RESISTANT STEEL MEETING THE REQUIREMENTS OF ASTM-A-653-SQ GRADE 33, WITH A MINIMUM YIELD STRENGTH OF 33,000 PSI.
9. ALL RUNNER TRACK TO HAVE MINIMUM 11/4" FLANGES.
10. ALL SLIP TRACK TO BE 6TR14 W/ MINIMUM 2" FLANGES.
11. BARE STEEL THICKNESS FOR ALL FRAMING TO BE AS FOLLOWS: 14 GAUGE: 0.0713" (DESIGN), 0.0677" (MINIMUM) 16 GAUGE: 0.0566" (DESIGN), 0.0538" (MINIMUM) 18 GAUGE: 0.0451" (DESIGN), 0.0428" (MINIMUM) 20 GAUGE: 0.0346" (DESIGN), 0.0329" (MINIMUM)
12. FOR ALL SCREW CONNECTIONS, USE #10 - 16 TEKS/3 HWH TEKS SCREW BY ITW BUILDEX OR EQUAL UNLESS NOTED OTHERWISE.
13. ALL POWDER DRIVEN FASTENERS TO BE 0.157" DIAMETER (HILTI OR EQUAL). MIN. PENETRATION = 11/4" (CONCRETE), FULL PENETRATION (STEEL) MIN. SPACING = 3" (CONCRETE), 1" (STEEL) MIN. EDGE DISTANCE = 3" (CONCRETE), 1/4" (STEEL)
14. ALL WELD RODS TO BE E60XX MINIMUM.
15. 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(S) USED FOR THE JAMB, HEAD, OR SILL ASSEMBLIES OF FRAMED WALL OPENINGS IS NOT PERMITTED.
16. PUNCHOUTS, CUTTING, OR NOTCHING OF JOISTS, STUDS, HEADERS, AND OTHER STRUCTURAL MEMBERS SHALL NOT BE PERFORMED WITHOUT AN APPROVED DESIGN.
17. 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.

FABRICATION

18. INSULATION WILL BE PROVIDED EQUAL TO THAT SPECIFIED ELSEWHERE IN ALL DOUBLE JAMB STUDS AND DOUBLED HEADERS NOT ACCESSIBLE TO INSULATION CONTRACTORS.
19. COMPONENTS SHALL BE FASTENED WITH SELF DRILLING SCREWS OR WELDING. SCREWS OR WELDS SHALL BE OF CORRECT SIZE TO INSURE PROPER CONNECTION.
20. ALL WELDS SHALL BE PAINTED WITH ZINC RICH PAINT.

SHOP DRAWING SUBMITTALS

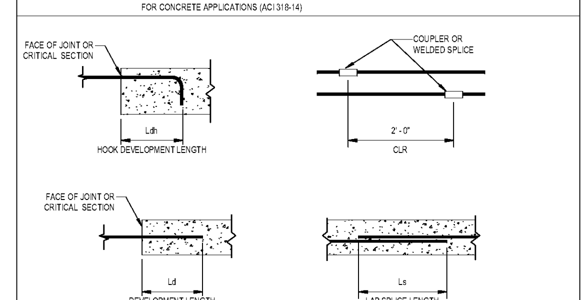
1. IN ADDITION TO SUBMITTAL INSTRUCTIONS BELOW, COMPLY WITH SUBMITTAL REQUIREMENTS ESTABLISHED IN SECTION 01 33 00 SUBMITTAL PROCEDURES.
2. SUBMIT NEWLY PREPARED INFORMATION DRAWN TO SCALE. INDICATE DEVIATIONS FROM CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION. DOCUMENTS REPRODUCED FROM FULLER GROUP, INC. DOCUMENTS WITHOUT WRITTEN PERMISSION, WILL BE REJECTED. COMPLIANCE WITH SPECIFIED REQUIREMENTS REMAINS CONTRACTOR'S RESPONSIBILITY.
3. SHOP DRAWINGS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO ENGINEER.
4. THE CONTRACT DOCUMENTS SHALL NOT BE SCALED FOR DETERMINNG DIMENSIONS OR QUANTITIES. USE ONLY PRINTED DIMENSIONS. ANY SCALED DIMENSIONS SHALL ASK FOR VERIFICATION ON THE SHOP DRAWING REVIEW.
5. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR DIMENSIONS. THE DETAILER SHALL REFER TO ARCHITECTURAL DRAWINGS FOR WALL, DOOR, AND WINDOW LOCATIONS. NOTIFY THE ENGINEER AND ARCHITECT OF ANY DISCREPANCIES IN ACCORDANCE WITH RFI PROCEDURES ESTABLISHED IN SPECIFICATION SECTION 01 31 00 PROJECT MANAGEMENT AND COORDINATION.
6. PROVIDE THE FOLLOWING SUBMITTALS:
   A. CONCRETE
      1. CONCRETE MIX DESIGNS WITH SAMPLE LABORATORY TEST REPORTS PER ACI 318
      2. CONCRETE ADMIXTURE PRODUCT DATA
      3. REBAR SHOP DRAWINGS
   B. STEEL
      1. STRUCTURAL STEEL SHOP DRAWINGS
   C. COLD FORM METAL FRAMING
      1. PRODUCT DATA
      2. SHOP DRAWING PACKAGE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER FOR ALL EXTERIOR AND LOAD BEARING STUDS
   D. MASONRY
      1. GROUT MIX DESIGN (ASTM 476 PROPORTION MIX DESIGN)
      2. MASONRY ACCESSORIES PRODUCT DATA
      3. REBAR SHOP DRAWINGS
   E. PRE-ENGINEERED METAL BUILDING
      1. SHOP DRAWINGS
      2. FOUNDATION REACTIONS AND CALCULATION PACKAGE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER
      3. SAMPLES OF MATERIALS AND FINISHES AS NOTED IN SPECIFICATION SECTION 13 34 19 - METAL BUILDING SYSTEMS

CONCRETE COVER TABLE

	MINIMUM COVER	TOLERANCES
CAST AGAINST EARTH / EXPOSED TO EARTH	3"	3/8"
EXPOSED TO EARTH OR WEATHER		
NO. 5 AND SMALLER BARS	1 1/2"	[illegible]
NO. 6 AND LARGER BARS	2"	3/8"
CONCRETE SLAB NOT EXPOSED TO EARTH OR WEATHER	[illegible] 1/2"	1/4"

2015 IBC REBAR LAP SPLICE SCHEDULE

FOR CONCRETE APPLICATIONS (ACI 318-14)



BAR SIZE		f'c = 4000 psi	#3	#4	#5	#6	#7	#8	#9	#10	#11
MISC BARS	Ld		15	19	24	29	42	48	54	61	67
	SPLICE		20	25	32	38	55	63	71	80	88
TOP BARS (SEE NOTE 3)	Ld		19	25	31	37	54	62	70	79	87
	SPLICE		25	33	41	49	71	81	91	103	114
HOOKED BARS	Ldh		6	7	9	10	12	14	15	17	19

NOTES:

1. MECHANICAL COUPLERS MAY BE USED IN LIEU OF LAP SPLICES SHOWN. SEE STRUCTURAL NOTES FOR MINIMUM COUPLER CAPACITY. WHERE MECHANICAL COUPLERS ARE USED, STAGGER ADJACENT SPLICES A MINIMUM OF 24" AS INDICATED ABOVE.
2. DEVELOPMENT LENGTHS SHALL BE INCREASED BY 50% FOR STRAIGHT BAR DEVELOPMENT AND 20% FOR HOOKED BARS WHERE EPOXY COATING IS USED.
3. WHEN SPLICING BARS OF DIFFERENT SIZES, USE LAP SPLICE LENGTH OF LARGER BARS U.N.O.
4. VALUES FOR UNCOATED REINFORCING AND NORMAL WEIGHT CONCRETE WITH CLEAR SPACING > $3d_b$, CLEAR COVER > d_b AND MINIMUM STIRRUPS OR TIES THROUGHOUT Ld OR CLEAR SPACING > 2db AND CLEAR COVER > db.
5. DEVELOP ALL REINFORCING IN STRUCTURAL SLABS WITH MINIMUM DEVELOPMENT LENGTH Ld.
6. TOP BAR = HORIZONTAL BAR WITH MORE THAN 12" OF FRESH CONCRETE BELOW (EXCLUDING WALL HORIZONTAL REINFORCING) OR AS NOTED ON DOCUMENTS AS "TOP BAR"
7. ALL TABULATED VALUES ARE IN INCHES.
8. HOOKED BARS SHALL RECIEVE ACI STANDARD HOOK, 12db, IN THE STRAIGHT SECTION BEYOND THE BEND.

ABBREVIATIONS

ARCH.	ARCHITECT
B/XXX	BOTTOM OF XXX
BOH	BOTTOM OF HEADER
BOS	BOTTOM OF STEEL
CL	CENTER LINE
CLR	CLEAR
CJ	CONTROL JOINT
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONN.	CONNECTION
CONT.	CONTINUOUS
DIA	DIAMETER
DWG	DRAWING
(E)	EXISTING
EA.	EACH
EF	EACH FACE
ELEV.	ELEVATION
EOS	EDGE OF SLAB
EQ	EQUAL
E.W.	EACH WAY
(F)	FUTURE
FFE	FINISHED FLOOR ELEVATION
FLR.	FLOOR
FIN.	FINISHED
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FS	FAR SIDE
FTGS.	FOOTINGS
GALV.	GALVANIZED
GC	GENERAL CONTRACTOR
(H)	HOOK
HDG	HOT-DIP GALVANIZED
HORIZ.	HORIZONTAL
HS	HIGH STRENGTH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
LT. GA.	LIGHT GAUGE
MANUF.	MANUFACTURER
MAX.	MAXIMUM
MECH.	MECHANICAL
MIN.	MINIMUM
MSH	METAL STUD HEADER
NIC	NOT IN CONTRACT
NS	NEAR SIDE
O.C.	ON CENTER
O.H.	OPPOSITE HAND
P.A.F.	POWER-ACTUATED FASTENER
PL	PLATE
P.T.	PRESSURE TREATED
REINF.	REINFORCING
REF.	REFERENCE
REQ'D	REQUIRED
R.O.	ROUGH OPENING
RTU	ROOF TOP UNIT
SCHED.	SCHEDULE
SIM	SIMILAR
SJ	SLAB JOINT
SOG	SLAB-ON-GRADE
T&B	TOP AND BOTTOM
T/XXX	TOP OF XXX
TOS	TOP OF STEEL
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
W/	WITH
W.P.	WORK POINT
WWF	WELDED WIRE FABRIC

DESIGN LOAD CRITERIA

This analysis is made utilizing the North Carolina Building Code, 2018 edition.

ROOF DESIGN LOADS	
Dead Load	Actual Weight
Live Load	20 psf / Reducible
FLOOR DESIGN LOADS	
Live Load	100 psf
SNOW LOADS	
Ground Snow Load, P_g	15 psf
Flat Roof Snow Load, P_f	20 psf + Rain on Snow
WIND LOADS	
Basic Design Wind Speed, V	115 mph
Allowable Stress Design Wind Speed, V_{asd}	89.1 mph
Wind Exposure	B
Internal Pressure Coefficient	+.18, -.18
Risk Category	II
Height & Exposure Adjustment, λ	1.0
Wind Directionality Factor, Kd	0.85
Topographic Factor, Kzt	1.0

ULTIMATE WIND PRESSURES — COMPONENTS AND CLADDING

ROOF (AREA = 100 SF)			
ZONE 1 & 2e		ZONE 2n, 2r & 3e	
16 psf	-25.7 psf	16 psf	-30.5 psf
ZONE 3r		ZONE 1'	
16 psf	-30.5 psf	16 psf	-30.5 psf
OVERHANG (AREA = 100 SF)			
ZONE 1 & 2e		ZONE 2n & 2r	
16 psf	-25.7 psf	16 psf	-30.5 psf
ZONE 3e		ZONE 3r	
16 psf	-30.5 psf	16 psf	-30.5 psf
WALL (AREA = 20 SF)			
ZONE 4		ZONE 5	
26.8 psf	-29.2 psf	26.8 psf	-35.2 psf

SEISMIC LOADS	
Importance Factor, I_e	1.0
Risk Category	II
Site Class	D
S_s (Mapped)	0.344 g
S_1 (Mapped)	0.115 g
S_{DS}	0.35 g
S_{D1}	0.179 g
Design Category	C
Basic Seismic Force-Resisting System	Not Detailed for Seismic
Resisting System	Rigid Frames
Response Coefficient, C_s	0.154
Response Modification Factor, R	3.00
Design Base Shear	Cs x W
Analysis Procedure	Equivalent Lateral Force

mcmillan pazdan smith ARCHITECTURE

CONSULTANT LOGO

FULLER structural

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FULLER GROUP PROJECT # 19168

SEALS

NORTH CAROLINA PROFESSIONAL SEAL 023762 ENGINEER WILLIAM T. FULLER 9/2/2020

JACKSON COUNTY

ANIMAL RESCUE CENTER AND GREEN ENERGY PARK

DILLSBORO, NORTH CAROLINA

SHEET ISSUE:

NO.	DATE	DESCRIPTION	BY
1	9/2/2020	ISSUE FOR BID + PERMIT	

PRINCIPAL IN CHARGE:	CP
PROJECT ENGINEER:	CP
DRAWN BY:	MEW

SHEET TITLE:

GENERAL NOTES & DESIGN CRITERIA

SHEET NO. S000

PROJ. NO. 019216.00