GENERAL NOTES:

GENERAL:

1. PROVIDE CONSTRUCTION CONFORMING TO THE 2015 INTERNATIONAL BUILDING CODE. REFERENCE TO OTHER STANDARDS, SPECIFICATIONS, OR CODES MEANS THE LATEST STANDARD OR CODE PUBLISHED AND ADOPTED.
2. MATERIAL TESTS AND INSPECTIONS ARE REQUIRED PER CHAPTER 17 OF THE 2015 INTERNATIONAL BUILDING CODE. REFER TO THE PROJECT STATEMENT OF SPECIAL INSPECTIONS FOR REQUIRED TESTS AND INSPECTIONS.
3. THESE NOTES APPLY EXCEPT WHERE OTHERWISE INDICATED BY DRAWINGS OR SPECIFICATIONS.
4. STRUCTURAL DRAWINGS INDICATE TYPICAL AND CERTAIN SPECIFIC CONDITIONS ONLY. SUBMITTED SHOP DRAWINGS DETAIL ALL CONDITIONS IN ACCORDANCE WITH SPECIFIED STANDARDS AND THE SPECIFIC REQUIREMENTS OF THIS PROJECT AS INDICATED ON THE DRAWINGS.
5. COORDINATE THE STRUCTURAL CONTRACT DOCUMENTS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, CIVIL, AND ALL OTHER CONSULTANTS. NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD IN WRITING OF ANY CONFLICT AND/OR OMISSION.
6. COORDINATE AND VERIFY FLOOR AND ROOF OPENING SIZES AND LOCATIONS SHOWN WITH ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS. FOR ADDITIONAL OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS REFER TO THE ARCHITECTURAL AND MECHANICAL DRAWINGS. OBTAIN WRITTEN APPROVAL OF ADDITIONAL OPENINGS LARGER THAN 12” X 12” FROM THE STRUCTURAL ENGINEER OF RECORD.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, ADEQUACY, AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, AND ALL OTHER MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION.
8. COORDINATE THE BUILDING ORIENTATION WITH THE ARCHITECTURAL DRAWINGS.
9. COMPLETE SHOP DRAWINGS FOR CONSTRUCTION OF EACH BUILDING COMPONENT NOT DESIGNED BY THE DESIGN TEAM OF RECORD AND NOT SPECIFIED ON THE PROJECT CONSTRUCTION DOCUMENTS SHALL BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER IN THE STATE WHERE THE PROJECT IS LOCATED AND SHALL BE MADE AVAILABLE AT THE JOB SITE.

FOUNDATION:

1. THE DESIGN OF FOUNDATIONS AND SLABS-ON-GRADE IS BASED ON THE FOLLOWING CRITERIA ESTABLISHED IN THE GEOTECHNICAL REPORT BY MELICK-TULLY AND ASSOCIATES, P.C., DATED DECEMBER 15, 2017 REPORT NUMBER 9478-001*1C AND EMAIL CORRESPONDENCE WITH JAMES BEATTIE WITH GZA.

ALLOWABLE SOIL BEARING PRESSURE:	4000 PSF
EQUIVALENT LATERAL FLUID PRESSURE (ACTIVE):	43 PSF/FT
EQUIVALENT LATERAL FLUID PRESSURE (AT REST):	66 PSF/FT
EQUIVALENT LATERAL PASSIVE PRESSURE:	456 PSF/FT
MODULUS OF SUBGRADE REACTION (ASSUMED):	150 PCI
COEFFICIENT OF SLIDING FRICTION:	0.40
SOIL DENSITY:	140 PCF

   AFTER EXCAVATION, IF THE CONDITION OF THE SOILS DO NOT MEET THE RECOMMENDED DESIGN CRITERIA STATED IN THE GEOTECHNICAL REPORT, NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD SO THAT THE FOUNDATIONS MAY BE REDESIGNED IF NECESSARY.
2. THE GEOTECHNICAL ENGINEER MUST VERIFY THE CONDITION AND/OR ADEQUACY OF ALL SUB-GRADES, FILLS, AND BACKFILLS PRIOR TO THE PLACEMENT OF FOUNDATIONS, FOOTINGS, SLABS, WALLS, ETC. BACKFILL TO BE GRANULAR MATERIAL CONFIRMING TO THE GEOTECHNICAL ENGINEER'S REQUIREMENTS. GEOTECHNICAL ENGINEER TO CONFIRM BACKFILL MATERIAL CONFORMS TO THE ABOVE SOIL PARAMETERS PRIOR TO PLACING THE BACKFILL.
3. COORDINATE TOP OF FOOTING ELEVATIONS WITH THE REQUIREMENTS OF OTHER TRADES (PLUMBING, ELECTRICAL, ETC.).
4. LOCATE BOTTOM OF EXTERIOR FOOTING ELEVATIONS 4'-0” BELOW FINISHED FLOOR, BUT NOT LESS THAN 4'-0” BELOW FINISHED GRADE, UNLESS NOTED OTHERWISE.
5. LOCATE BOTTOM OF INTERIOR FOOTING ELEVATIONS 1'-6” BELOW FINISHED FLOOR, UNLESS NOTED OTHERWISE.
6. CONSTRUCT COLUMN FOOTINGS AND WALL FOOTINGS MONOLITHICALLY WITH TOPS OF ADJACENT FOOTINGS AT THE SAME ELEVATION.
7. SIDES OF FOUNDATIONS MUST BE FORMED UNLESS CONDITIONS PERMIT EARTH FORMING. FOUNDATIONS PLACED AGAINST THE EARTH REQUIRE THE FOLLOWING PRECAUTIONS: SLOPE SIDES OF EXCAVATIONS AS APPROVED BY THE GEOTECHNICAL ENGINEER AND CLEAN UP SLOUGHING BEFORE AND DURING CONCRETE PLACEMENT.
8. WHERE FOOTING STEPS ARE NECESSARY, SLOPE NO STEEPER THAN ONE VERTICAL TO TWO HORIZONTAL.

REINFORCED CONCRETE:

1. PROVIDE REINFORCED CONCRETE CONFORMING TO THE FOLLOWING STANDARDS:
   ACI 301-10, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
   ACI 318-14, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
   ACI 302.1R-04, GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION.
   ACI 360R-10, DESIGN OF SLABS-ON-GROUND.
2. FULLY DOCUMENT AND SUBMIT FOR REVIEW THE PROPOSED MATERIALS AND MIX DESIGN FOR ALL CONCRETE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE REQUIRED DESIGN STRENGTH. ALL CONCRETE TEST DATA MUST BE AVAILABLE AT THE JOB SITE.
3. DETAIL CONCRETE REINFORCEMENT ACCORDING TO ACI SP-66 DETAILING MANUAL. SUBMIT SHOP DRAWINGS FOR APPROVAL, SHOWING ALL FABRICATION DIMENSIONS AND LOCATIONS FOR PLACING CONCRETE REINFORCING AND ACCESSORIES. DO NOT BEGIN FABRICATION UNTIL SHOP DRAWINGS ARE COMPLETED AND REVIEWED BY THE STRUCTURAL ENGINEER OF RECORD. UNLESS SPECIFICALLY APPROVED OTHERWISE, DETAIL ALL CONCRETE WALLS AND BEAMS IN ELEVATION.
4. PROVIDE NORMAL WEIGHT AND LIGHTWEIGHT CONCRETE WITH 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
5. PROVIDE CONCRETE WITH:
   A. 4% TO 6% ENTRAINED AIR BY VOLUME IN CONCRETE PERMANENTLY EXPOSED TO WEATHER.
   B. THE USE OF CALCIUM CHLORIDE, CHLORIDE IONS, OR OTHER SALTS IS NOT PERMITTED.
   C. PLACE CONCRETE AT A SLUMP OF 4” ± 1” UNLESS NOTED OTHERWISE.
6. CONSTRUCT CONCRETE WALLS MONOLITHICALLY WITH ADJOINING COLUMNS UNLESS SPECIFICALLY NOTED OTHERWISE. INSTALL CONCRETE FOR SUCH WALLS THAT IS THE SAME TYPE AND STRENGTH AS SPECIFIED FOR COLUMNS.
7. UNLESS NOTED OTHERWISE, PROVIDE REINFORCING STEEL CONFORMING TO ASTM A 615, GRADE 60.
8. PROVIDE WELDED WIRE REINFORCEMENT (W.W.R.) IN FLAT SHEETS (ROLLS NOT PERMITTED) CONFORMING TO ASTM A 1064. LAP WELDED WIRE REINFORCEMENT A MINIMUM OF 6” AT EACH SPLICE. PLACE WELDED WIRE REINFORCEMENT 1½" BELOW THE TOP OF SLABS-ON-GRADE.
9. FIBER REINFORCING MAY BE SUBSTITUTED FOR WELDED WIRE REINFORCEMENT (W.W.R.) IN SLABS-ON-GRADE WITH THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD. PROVIDE FIBER REINFORCING CONFORMING TO ASTM A 820, TYPE I.
10. WATERSTOPS:
    A. PROVIDE AN ACTIVE SODIUM BENTONITE WATERSTOP IN ALL BELOW GRADE CONCRETE CONSTRUCTION JOINTS THAT IS MANUFACTURED SPECIFICALLY FOR THIS PURPOSE.
    B. INSTALL THE WATERSTOP MATERIAL IN STRICT CONFORMANCE WITH THE MANUFACTURER'S WRITTEN OR PUBLISHED INSTRUCTIONS.
    C. IF AN ADHESIVE IS REQUIRED TO FIX THE WATERSTOP MATERIAL TO THE CONCRETE SUBSTRATE ONLY USE MATERIAL THAT CONFORMS TO THE REQUIREMENTS OF THE WATERSTOP MANUFACTURER.
11. UNLESS NOTED OTHERWISE, PROVIDE THE FOLLOWING CONCRETE COVER ON ALL REINFORCING STEEL:

	CONCRETE COVER
CONCRETE AGAINST EARTH (NOT FORMED):	3”
FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:	
#6 THROUGH #18 BARS:	2”
#5 BARS AND SMALLER:	1½"
FORMED CONCRETE NOT EXPOSED TO EARTH OR WEATHER:	
WALLS:	¾"

12. PROVIDE CONTINUOUS REINFORCEMENT WHEREVER POSSIBLE. SPLICE REINFORCING BARS ONLY AS SHOWN OR APPROVED. STAGGER SPLICES WHERE POSSIBLE. USE CLASS “B” TENSION SPLICES UNLESS NOTED OTHERWISE INCLUDING DOWELS.
13. DO NOT LAP MORE THAN 50 PERCENT OF HORIZONTAL WALL REINFORCING IN A SINGLE VERTICAL PLANE.
14. TIE ALL REINFORCING STEEL AND EMBEDDED ITEMS SECURELY IN PLACE PRIOR TO PLACING CONCRETE. PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN THE POSITION OF THE REINFORCEMENT WITHIN SPECIFIED TOLERANCES DURING ALL CONSTRUCTION ACTIVITIES.
15. “STICKING” DOWELS, ANCHOR RODS, OR OTHER EMBEDDED ITEMS INTO WET CONCRETE IS NOT PERMITTED.
16. PROVIDE CORNER BARS AT ALL CORNERS AND INTERSECTIONS OF ALL FOOTINGS, BEAMS, AND WALLS.
17. CHAMFER OR ROUND ALL EXPOSED CORNERS A MINIMUM OF ¾".
18. PROVIDE CONSTRUCTION OR CONTRACTION JOINTS IN SLABS ON GRADE SO THAT THE MAXIMUM AREA OF SLAB BETWEEN JOINTS IS NO MORE THAN 400 SQUARE FEET AND THE LENGTH BETWEEN CONTROL JOINTS IS NO MORE THAN 1¼ TIMES THE WIDTH BETWEEN CONTROL JOINTS.
19. CONTRACTION JOINTS: PROVIDE JOINTS UTILIZING THE DRY CUT (SOFF-CUT) METHOD.
    A. INITIATE SAW CUTTING AS SOON AS THE SLAB WILL SUPPORT THE WEIGHT OF THE SAW AND OPERATOR WITHOUT CHIPPING, SPALLING, TEARING OR DISTURBING FINAL FINISH (NORMALLY WITHIN 2 HOURS AFTER FINAL FINISHING AT EACH CONTRACTION JOINT LOCATION).
       a. SAW: PROVIDE A HUSQVARNA SOFF-CUT 150 SAW OR APPROVED EQUAL.
       b. SPACING: PROVIDE JOINTS AT SPACING SHOWN ON PLAN.
       c. DEPTH: PROVIDE JOINTS AT DEPTH SHOWN ON PLAN.
       d. SAW CUT JOINTS IN A NEAT, VERTICAL STRAIGHT LINE.
       e. SAW CUT JOINTS TO BE ⅛" WIDTH.
    B. THE SAW OPERATION SHALL BE CARRIED ON AS REQUIRED DURING BOTH DAY AND NIGHT REGARDLESS OF CONDITIONS.
    C. SAW JOINTS AT THE REQUIRED SPACING CONSECUTIVELY IN THE SEQUENCE OF THE CONCRETE PLACEMENT.
       a. A CHALK LINE FOR MARKING JOINT LOCATION SHALL NOT VARY MORE THAN ¼" FROM THE TRUE JOINT ALIGNMENT.
       b. PROTECT ALL JOINT INTERSECTIONS WITH "SOFF-CUT JOINT PROTECTOR, METEGER / MCGUIRE SPAL-PRO ROD" OR EQUAL.
    D. WORKMEN AND INSPECTOR SHALL WEAR CLEAN, RUBBER-SOLED FOOTWEAR, AND THE NUMBER OF PERSONS WALKING ON THE SLAB SHALL BE LIMITED TO THOSE ACTUALLY PERFORMING THE SAWING OPERATION.
    E. INITIAL JOINT CUTTING PROCEDURE:
       a. ATTEMPT A 5 FOOT LONG CUT AND EVALUATE IT FOR REVELING OR SPALLING BEFORE CUTTING ENTIRE SECTION.
       b. WHEN FIBERS ARE PULLED UP, DELAY THE CUTTING AND REPEAT THE ABOVE PROCEDURE UNTIL THE CUT REVEALS FIBERS.
    F. IMMEDIATELY AFTER THE JOINT IS SAWED, THE SAW CUT AND ADJACENT CONCRETE SURFACE SHALL BE THOROUGHLY CLEANED BY LIGHT SWEEP WITH A SOFT BROOM OR DRY VACUUM. ANY MEMBRANE-CURED SURFACE DAMAGED DURING SAWING OPERATIONS SHALL BE RE-SPRAYED.
    G. PROVIDE THE NUMBER OF SAWING UNITS EQUIPMENT POWER TO COMPLETE THE SAWING AT THE REQUIRED TIME.
       a. HAVE AN AMPLE SUPPLY OF BLADES AND ANTI-RAVELING SKID PLATES SHALL BE AVAILABLE ON THE JOB BEFORE CONCRETE PLACEMENT IS STARTED.
       b. PROVIDE AT LEAST ONE STANDBY SAWING UNIT IN GOOD WORKING ORDER AT THE JOBSITE AT ALL TIMES DURING THE SAWING OPERATION.
       c. REPLACE SAW BLADES AND ANTI-RAVELING SKID PLATES AS REQUIRED BY THE SAW MANUFACTURER.
20. THE LOCATION OF CONSTRUCTION JOINTS REQUIRES THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
    A. UNLESS NOTED OTHERWISE, THOROUGHLY ROUGHEN (BY MECHANICAL MEANS) AND CLEAN CONSTRUCTION JOINTS.
    B. PROVIDE KEYS IN BEAMS AT CONSTRUCTION JOINTS.
    C. APPLY SLUSH COAT AS SPECIFIED.
21. UNLESS NOTED OTHERWISE:
    A. PROVIDE VERTICAL CONTROL JOINTS IN FOUNDATION WALLS WITH A MAXIMUM SPACING OF 10'-0” ON CENTER AND ¾" DEEP V-CHAMFER ON BOTH FACES.
    B. PLACE CONSTRUCTION JOINTS AT CONTROL JOINT LOCATIONS. PROVIDE KEYS IN ALL CONSTRUCTION JOINTS.
    C. INTERRUPT HALF OF THE SPECIFIED HORIZONTAL REINFORCEMENT AT CONTROL JOINTS.
    D. CENTER CHAMFER STRIPS BETWEEN VERTICAL REINFORCING BARS.
22. ALL CONDUIT, SLEEVES AND PIPES EMBEDDED IN CONCRETE SHALL CONFORM TO SECTION 20.7 OF ACI 318 AND THE FOLLOWING UNLESS NOTED OTHERWISE:
    A. SLEEVES AND PIPES SHALL BE PLACED SO THAT REINFORCING STEEL CAN BE PLACED WITH THE SPECIFIED COVER AND CLEAR DISTANCE BETWEEN BARS.
    B. THE CONCRETE COVERING OF PIPE AND SLEEVES SHALL NOT BE LESS THAN ONE INCH. CLEAR DISTANCE BETWEEN SUCH PIPES AND SLEEVES SHALL NOT BE LESS THAN ONE AND ONE-HALF INCHES.
    C. CONDUIT AND PIPES PLACED IN SLABS SHALL NOT BE LARGER IN OUTSIDE DIAMETER THAN ONE-THIRD THE THICKNESS OF SLAB.
    D. DO NOT PLACE CONDUIT IN ELEVATED SLABS ON.
23. THE PLACEMENT OF ALL REINFORCING STEEL MUST BE REVIEWED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS TO BE CONSTRUCTED OR BY A REPRESENTATIVE RESPONSIBLE TO HIM (REF: ACI 318, 26.13.1.2).

STRUCTURAL MASONRY:

1. PROVIDE STRUCTURAL MASONRY CONFORMING TO THE FOLLOWING STANDARDS:
   A. ACI 530-13 / ASCE 5-13 / TMS 402-13, BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY STRUCTURES.
   B. ACI 530.1-13 / ASCE 6-13 / TMS 602-13, SPECIFICATIONS FOR CONCRETE MASONRY STRUCTURES.
2. LOAD BEARING MASONRY WALLS ARE DESIGNED IN ACCORDANCE WITH CHAPTERS 1 AND 2 OF ACI 530.
3. PROVIDE HOLLOW, LOAD BEARING CONCRETE MASONRY UNITS (CMU) CONFORMING TO ASTM C 90 WITH A MINIMUM COMPRESSIVE STRENGTH OF MASONRY (F'_M) OF 1500 PSI AND A NET STRENGTH OF 2000 PSI ON THE NET CROSS-SECTIONAL AREA OF CMU DETERMINED IN ACCORDANCE WITH ASTM C 140.
4. PROVIDE BRICK MASONRY UNITS CONSTRUCTED OF CLAY OR SHALE CONFORMING TO ASTM C 652.
5. PROVIDE MORTAR CONFORMING TO ASTM C 270, TYPE S. STANDARD MORTAR BED JOINT THICKNESS IS 3/8” AND MUST NOT VARY OUTSIDE OF THE RANGE BETWEEN ONE QUARTER INCH AND ONE HALF INCH. DO NOT USE AIR ENTRAINED MORTAR.
6. PROVIDE GROUT FOR REINFORCED MASONRY CONFORMING TO ASTM C 476 WITH MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AND A MINIMUM SLUMP OF 10”.
7. PROVIDE STEEL REINFORCEMENT IN MASONRY WALLS CONFORMING TO ASTM A615, GRADE 60.
8. PROVIDE MASONRY TIES AND ANCHORS OF THE TYPE AND SPACING AS DETAILED ON THE STRUCTURAL DRAWINGS AND IN CONFORMANCE WITH ASTM A82.
9. PROVIDE LADDER TYPE HORIZONTAL JOINT REINFORCING CONFORMING TO ASTM A951 IN ALL MASONRY WALLS. UNLESS NOTED OTHERWISE, PLACE 9 GAGE ZINC COATED LADDER TYPE HORIZONTAL JOINT REINFORCING AT 16” ON CENTER. LAP HORIZONTAL JOINT REINFORCING MINIMUM 12”. USE PREFABRICATED 'L'S AND 'T'S AT CORNERS AND INTERSECTIONS.
10. LAY ALL MASONRY UNITS IN RUNNING BOND.
11. FOR GROUTED WALLS:
    A. THE MAXIMUM HEIGHT OF GROUT LIFTS MUST NOT EXCEED 5'-4”.
    B. CONSOLIDATE AND RECONSOLIDATE GROUT IN ACCORDANCE WITH PARAGRAPH 3.5.E OF ACI 530.1.
12. REINFORCEMENT:
    A. DETAIL REINFORCEMENT IN LOAD BEARING CMU WALLS IN ELEVATION ON SHOP DRAWINGS.
    B. LAP VERTICAL MASONRY WALL REINFORCING AS SHOWN IN THE MASONRY LAP LENGTH SCHEDULE AND PROVIDE MINIMUM BAR SPLICE LENGTH.
13. PROVIDE VERTICAL CONTROL JOINTS IN ALL MASONRY WALLS NOT RETAINING EARTH. UNLESS NOTED OTHERWISE ON THE ARCHITECTURAL DRAWINGS, PLACE VERTICAL CONTROL JOINTS AT THREE TIMES THE WALL STORY HEIGHT, BUT NOT CLOSER THAN 25'-0” ON CENTER OR FARTHER THAN 40'-0” ON CENTER.
14. UNLESS NOTED OTHERWISE, PROVIDE MINIMUM (1) #5 VERTICAL BAR, GROUTED FULL STORY HEIGHT, AT EACH SIDE OF OPENINGS AND AT ALL CORNERS AND ENDS OF WALLS, INCLUDING BOTH SIDES AT ENDS OF WALL PANELS AT VERTICAL CONTROL JOINTS.
15. UNLESS NOTED OTHERWISE, ANCHOR SIDES AND TOPS OF MASONRY WALL PANELS TO THE STRUCTURE BY DOVETAIL ANCHORS, METAL STRAPS, OR EQUIVALENT.
16. PLACE CONNECTORS FOR MASONRY VENEERS AT NOT MORE THAN 16” ON CENTER VERTICALLY OR 24” ON CENTER HORIZONTALLY.
17. PROVIDE A CONTINUOUS BOND BEAM AT THE TOP OF ALL MASONRY WALLS. UNLESS NOTED OTHERWISE REINFORCE BOND BEAMS WITH (2) #4 CONTINUOUS REINFORCING BARS.
18. PROVIDE LEVEL B QUALITY ASSURANCE AS DESCRIBED IN TABLE 4 OF ACI 530.1-13 / ASCE 6-13 / TMS 602-13.
19. SAMPLE AND TEST GROUT IN ACCORDANCE WITH ASTM C1019.

STRUCTURAL STEEL:

1. PROVIDE STRUCTURAL STEEL CONFORMING TO THE FOLLOWING STANDARDS:
   a. AISC MANUAL OF STEEL CONSTRUCTION, 14TH EDITION
   b. AISC 360-10, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
   c. AISC 303-10, CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL BUILDINGS AND BRIDGES
   d. AISC 326-09, DETAILING FOR STEEL CONSTRUCTION, 3rd EDITION
2. SHOP DRAWINGS:
   a. SUBMIT SHOP DRAWINGS PREPARED IN ACCORDANCE WITH AISC 326-09.
   b. PROVIDE COMPLETE WELDING INFORMATION USING AWS SYMBOLS.
   c. USE PREQUALIFIED WELDED JOINTS PER AISC AND AWS D1.1 “STRUCTURAL WELDING CODE.”
   d. DO NOT BEGIN FABRICATION UNTIL SHOP DRAWINGS ARE COMPLETED AND REVIEWED BY THE STRUCTURAL ENGINEER OF RECORD.
3. UNLESS NOTED OTHERWISE PROVIDE STRUCTURAL STEEL CONFORMING TO:

a.	WIDE FLANGE SHAPES:	ASTM A992
b.	CHANNELS, ANGLES AND PLATES:	ASTM A36
c.	HOLLOW STEEL SECTIONS (HSS):	ASTM A500, GRADE B
d.	HEADED STUDS:	ASTM A 29 / A108
e.	DEFORMED BAR ANCHORS (DBA):	ASTM A 1064
f.	ANCHOR RODS:	ASTM F 1554, GRADE 36.

4. BOLTED CONNECTIONS:
   a. UNLESS NOTED OTHERWISE, MAKE ALL CONNECTIONS WITH 3/4” DIAMETER ASTM A 325 BOLTS.
   b. ASSEMBLE AND INSPECT BOLTED CONNECTIONS IN ACCORDANCE WITH RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC) “SPECIFICATION FOR JOINTS USING HIGH STRENGTH BOLTS”, 2014.
   c. PROVIDE SNUG TIGHT JOINTS.
5. WELDED CONNECTIONS:
   a. MAKE ALL WELDED CONNECTIONS IN ACCORDANCE WITH AWS D1.1 “STRUCTURAL WELDING CODE”, USING TYPE E70XX ELECTRODES.
   b. EMPLOY ONLY CERTIFIED WELDERS.
   c. MAINTAIN PROOF OF CERTIFICATION AT THE JOB SITE.
6. PROVIDE CONNECTIONS FOR BEAMS WHICH CANNOT CONFORM TO THE TYPICAL CONNECTION DETAILS IN ACCORDANCE WITH THE FOLLOWING:
   a. WHERE MEMBER REACTIONS ARE NOT SHOWN ON THE DRAWINGS, DETAIL CONNECTIONS FOR THE MAXIMUM UNIFORM LOAD SHOWN IN THE MAXIMUM TOTAL UNIFORM LOAD TABLES, IN TABLE 3-6 OF THE AISC STEEL CONSTRUCTION MANUAL FOR THE SPAN SHOWN ON THE DRAWING.
   b. WHERE MEMBER REACTIONS ARE SHOWN, PROVIDE CONNECTIONS TO DEVELOP THE REACTIONS SHOWN.
   c. WHERE CONNECTIONS ARE SUBJECT TO ECCENTRICITY, DETAIL CONNECTIONS THAT ACCOUNT FOR THE ECCENTRICITY.
7. PROVIDE SPECIAL CONNECTIONS BETWEEN STEEL FRAMING COMPONENTS NOT DETAILED BY THE STRUCTURAL ENGINEER OF RECORD DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS TO BE CONSTRUCTED INCLUDING BUT NOT LIMITED TO BRACE END CONNECTIONS, MOMENT RESISTING CONNECTIONS, MODIFIED BEAM SEAT CONNECTIONS, AND MEMBER SPLICE CONNECTIONS.
8. DO NOT USE GAS CUTTING TORCHES TO CORRECT FABRICATION ERRORS IN STRUCTURAL STEEL FRAMING.
9. PROVIDE TEMPORARY BRACING FOR STRUCTURAL STEEL FRAMING UNTIL ALL PERMANENT BRACING, MOMENT CONNECTIONS, AND FLOOR/ROOF DECKS (DIAPHRAGMS) ARE COMPLETELY INSTALLED.
10. PAINT STRUCTURAL STEEL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. DO NOT PAINT STEEL SURFACES TO BE ENCASED IN CONCRETE, SURFACES TO RECEIVE FIREPROOFING, CONNECTIONS DESIGNATED AS FRICTION TYPE, SURFACES TO BE WELDED, OR SURFACES RECEIVING WELDED STUDS OR DEFORMED BAR ANCHORS ("DBA'S") IN THE FIELD.
11. LATERAL BRACING IS CONSIDERED PART OF THE PRIMARY STRUCTURAL FRAME FOR FIRE PROOFING REQUIREMENTS. SEE ARCHITECTURAL DRAWINGS FOR FIRE PROOFING REQUIREMENTS.

COLD FORMED METAL FRAMING:

1. PROVIDE COLD-FORMED METAL FRAMING CONFORMING WITH THE FOLLOWING STANDARDS:
   AISI S100-12 NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS
2. PROVIDE CURTAIN WALL FRAMING INSTALLATION TO ACCOMMODATE VERTICAL DISPLACEMENT OF THE PRIMARY STRUCTURE.
3. DESIGN SLIP TRACK USING THE GUIDELINES ESTABLISHED IN STEEL STUD MANUFACTURER'S ASSOCIATION (SSMA) TECHNICAL NOTE NUMBER 3, PUBLISHED APRIL 2000.
4. PROVIDE STUDS, RUNNER TRACK, AND ASSOCIATED ACCESSORIES OF THE TYPE AND THICKNESS INDICATED ON THE DRAWINGS.
5. PROVIDE STUDS, JOISTS, RUNNER TRACK, AND ACCESSORIES MANUFACTURED OF HOT DIP GALVANIZED ASTM A 1003 STEEL WITH THE FOLLOWING YIELD STRENGTH:
   33,000 PSI 43-MIL (18 GAGE) MEMBERS
   50,000 PSI 54-MIL (16 GAGE), 68-MIL (14 GAGE), AND 97-MIL (12 GAGE) MEMBERS
6. SUBMIT SHOP DRAWINGS SHOWING THE SIZE OF ALL MEMBERS AND ALL CONNECTIONS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS TO BE CONSTRUCTED.
   A. REVIEW OF SHOP DRAWINGS BY THE STRUCTURAL ENGINEER OF RECORD IS FOR:
      1. GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS REGARDING ARRANGEMENT AND SIZES OF MEMBERS.
      2. THE DESIGNER'S INTERPRETATION OF THE DESIGN LOADS AND CONTRACT DOCUMENT DETAILS.
7. MINIMUM CONNECTIONS (UNLESS NOTED OTHERWISE ON THE DRAWINGS):
   A. STUD TO STUD CONNECTIONS: A MINIMUM OF TWO 10 - 16 SELF TAPPING SCREWS.
   B. STUD TO TRACK CONNECTIONS: TWO 10 - 16 SELF TAPPING SCREWS.
   C. TRACK ON CONCRETE SLAB: 0.157" Ø X 1¼"POWER ACTUATED FASTENERS AT 1'-6” ON CENTER MAXIMUM.
   D. MULTIPLE STUD JAMBS: #10 SCREWS AT 12” ON CENTER PENETRATING EACH MEMBER.
   E. STUD TO WALL SHEATHING: ½" X 1⅝" BUGLE HEAD #6 SELF DRILLING SCREWS AT 8” ON CENTER AT EACH FRAMING MEMBER, EXCEPT AT 4" ON CENTER WITHIN 8' OF BUILDING CORNERS (ZONE 5).
      1. SEE ARCHITECTURAL DRAWINGS FOR EXACT SHEATHING TYPE.
   F. STUD TO STRUCTURAL STEEL: AS SHOWN ON SECTIONS.
8. PROVIDE BRIDGING AND BRACING PER STUD MANUFACTURERS RECOMMENDATIONS.
9. REINFORCE EXTERIOR STUDS THAT ARE CUT TO INSTALL MECHANICAL OR ELECTRICAL MATERIAL. SUBMIT REINFORCEMENT DETAIL FOR APPROVAL BEFORE PROCEEDING WITH CONSTRUCTION.
10. ANY EXTERIOR BUILDING SIGNAGE PROVIDED BY THE OWNER IS TO HAVE THE SIGN FRAME ATTACHED PER THE MANUFACTURER'S RECOMMENDATION TO EVERY COLD FORMED STEEL WALL STUD THAT THE SIGN FRAME CROSSES, BOTH TOP AND BOTTOM OF THE SIGN FRAME.

POST-INSTALLED ANCHORS:

1. GENERAL
   A. PRE-CONSTRUCTION DUTIES OF THE CONTRACTOR:
   1. ARRANGE FOR AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED.
   2. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.
   B. INSTALL POST-INSTALLED ANCHORS ONLY WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS.
   C. OBTAIN APPROVAL FROM THE ENGINEER-OF-RECORD PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.
   D. ANCHOR CAPACITY IS DEPENDANT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.
   E. EXISTING REINFORCING BARS AND OTHER EMBEDDED MATERIAL CONTAINED IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS.
      1. CONTRACTOR REVIEW THE EXISTING STRUCTURAL DRAWINGS AND UNDERTAKE TO LOCATE THE POSITION OF MATERIAL EMBEDDED IN THE CONCRETE AT THE LOCATIONS OF THE DETAILED ANCHORS, BY HILTI FERROSCAN, GPR, X-RAY, CHIPPING OR OTHER MEANS UNLESS IT IS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT.
   F. DRILL AND CLEAN HOLES IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
   G. SUBMIT SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW TO THE ENGINEER-OF-RECORD PRIOR TO USE ALONG WITH:
      1. PROVIDE CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
      2. PROVIDE CALCULATIONS THAT DEMONSTRATE THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE.
      3. INCLUDE CONSIDERATION OF CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE IN SUBSTITUTION REQUEST.
      4. EVALUATION OF SUBSTITUTIONS WILL BE BASED ON THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS.
1. CONCRETE ANCHORS
   A. MEDIUM DUTY MECHANICAL ANCHORS FOR USE IN CRACKED AND UN-CRACKED CONCRETE THAT HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193. PRE-APPROVED MECHANICAL ANCHORS INCLUDE:
      1. HILTI KWIK BOLT-TZ EXPANSION ANCHORS (ICC ESR-1917)
      2. HILTI KWIK HUS-EZ AND KWIK HUS EZ-I SCREW ANCHORS (ICC ESR-3027)
      3. SIMPSON STRONG-TIE “TITEN-HD” (ICC-ES ESR-2713)
      4. SIMPSON STRONG-TIE “STRONG-BOLT 2” (ICC-ES ESR-3037)
      5. DEWALT "POWER-STUD + SD2" (ICC-ES-ESR 2502.
      6. DEWALT "SCREW-BOLT +" (ICC-ES-ESR 3889)
   B. HEAVY DUTY MECHANICAL ANCHORS FOR CRACKED AND UN-CRACKED CONCRETE USE:
      1. HILTI "HDA" (ICC-ES ESR 1546)
      2. HILTI "HSL-3" (ICC-ES ESR 1545)
      3. SIMPSON STRONG-TIE "TORQ-CUT" (ICC-ES ESR-2705)
      4. DEWALT "ATOMIC +" (ICC-ES-ESR 3067)
   C. ADHESIVE ANCHORS FOR USE IN CRACKED AND UN-CRACKED CONCRETE THAT HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC308. THE DESIGNED BOND STRENGTH ASSUMES: 2500 PSI DRY, CRACKED NORMAL WEIGHT CONCRETE; ACI 355.4 TEMPERATURE CATEGORY B; HOLES DRILLED USING CARBIDE DRILL BITAND CLEANED FOLLOWING MPII. PRE-APPROVED ADHESIVE ANCHORS INCLUDE:
      1. HILTI "HIT-HY 200" SAFE SET SYSTEM WITH HILTI HIT-Z ROD (ICC-ES ESR-3187)
      2. HILTI "HIT-RE 500-V3" EPOXY ADHESIVE ANCHORING SYSTEM WITH HAS-E THREADED ROD (ICC-ES ESR-3814) FOR SLOW CURE APPLICATIONS.
      3. SIMPSON STRONG-TIE SET 3G (ICC-ES-ESR 4057)
      4. DEWALT "PURE 110 +" STANDARD CURE EPOXY (ICC-ES-ESR 3298)
      5. DEWALT "AC200 + " FAST CURE / COLD WEATHER (ICC-ES-ESR 4027)
      6. PROVIDE STEEL ANCHOR ELEMENT CONSISTING OF CONTINUOUSLY THREADED CONFORMING TO ASTM, A36 OR ASTM F 1554, GRADE 36.
1. MASONRY ANCHORS
   A. ANCHORAGE TO SOLID-GROUTED CONCRETE MASONRY
      1. MECHANICAL AND CONCRETE SCREW ANCHORS FOR USE IN SOLID-GROUTED CONCRETE MASONRY SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC01 OR AC106, RESPECTIVELY. PRE-APPROVED MECHANICAL AND CONCRETE SCREW ANCHORS INCLUDE:
      a. SIMPSON STRONG-TIE “STRONG BOLT2” (IAMPO UES ER-265)
      b. SIMPSON STRONG-TIE “TITEN-HD” (ICC-ES ESR-1056)
      c. HILTI "KWIK HUS-EZ" SCREW ANCHOR (ICC-ES ESR-3056)
      d. HILTI "KWIK BOLT-3" EXPANSION ANCHORS (ICC-ES ESR-1385)
      e. DEWALT "SCREW-BOLT +" (ICC-ES-ESR 4042)
      f. DEWALT "POWER-STUD + SD1" (ICC-ES-ESR 2966)
   B. ADHESIVE ANCHORS FOR USE IN SOLID-GROUTED CONCRETE MASONRY SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC58. PRE-APPROVED ADHESIVE ANCHORS INCLUDE:
      a. SIMPSON STRONG-TIE “SET-XP” (ICC-ES ESR-1772)
      b. SIMPSON STRONG-TIE “AT-XP” (IAMPO UES ER-281)
      c. HILTI "HIT-HY 70" MASONRY ADHESIVE ANCHORING SYSTEM (ICC-ES ESR PENDING).
      d. DEWALT "AC100 + GOLD" (ICC-ES-ESR 3200)
      e. PROVIDE STEEL ANCHOR ELEMENT CONSISTING OF CONTINUOUSLY THREADED ROD CONFORMING TO ASTM, A36 OR ASTM F 1554, GRADE 36.
   C. ANCHORAGE TO HOLLOW CONCRETE MASONRY/UNREINFORCED CLAY BRICK MASONRY:
      1. SCREW ANCHORS FOR USE IN HOLLOW CONCRETE MASONRY SHALL HAVE BEEN TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC106. PRE-APPROVED SCREW ANCHORS INCLUDE:
      a. SIMPSON STRONG-TIE “TITEN-HD” (ICC-ES ESR-1056)
      b. HILTI KWIK "HUS-EZ" SCREW ANCHOR (ICC-ES ESR-3056)
      c. DEWALT "AC100 + GOLD" (ICC-ES ESR-4105)
      1. ADHESIVE ANCHORS WITH SCREEN TUBES THAT ARE TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC58 OR AC60, AS APPROPRIATE. USE THE APPROPRIATE SCREEN TUBE AS RECOMMENDED BY THE ADHESIVE MANUFACTURER. PRE-APPROVED ADHESIVE ANCHORS WITH SCREEN TUBES INCLUDE:
      a. SIMPSON STONG-TIE “SET-XP” (IAMPO UES ER-265)
      b. SIMPSON STRONG-TIE “ACRYLIC-TIE” (ICC-ES ER-5791)
      c. SIMPSON STRONG-TIE “ET” (ICC-ES ER-4945)
      d. HILTI "HIT-HY 70" MASONRY ADHESIVE ANCHORING SYSTEM (ICC-ES ESR-3342.)
      e. DEWALT "AC100 + GOLD" (ICC-ES ESR-3200)
      f. PROVIDE STEEL ANCHOR ELEMENT CONSISTING OF CONTINUOUSL Y THREADED ROD.

DESIGN LOADS:

			UNIFORM	CONCENTRATED
1.	LIVE LOADS:			
	STAIR	=	100 PSF ON STAIR TREADS	300 LB. ON AREA OF 4 SQUARE INCHES.
	ROOF	=	20 PSF	
	STORAGE	=	125 PSF	
	FUTURE SOLAR PANELS	=	5 PSF	
2.	WIND DESIGN DATA:			
	ULTIMATE WIND SPEED, V_{ULT}	=	115 MPH	
	NOMINAL DESIGN WIND SPEED, V_{ASD}	=	89 MPH	
	RISK CATEGORY	=	II	
	WIND EXPOSURE	=	C	
	INTERNAL PRESSURE COEFFICIENT	=	±0.18	
	COMPONENTS AND CLADDING PRESSURES	=	1 & 2 / S0.2	
3.	ROOF SNOW LOADING:			
	GROUND SNOW LOAD (P_G)	=	30 PSF	
	FLAT-ROOF SNOW LOAD (P_F)	=	21 PSF	
	SNOW EXPOSURE FACTOR (C_E)	=	1.0	
	SNOW LOAD IMPORTANCE FACTOR (I_S)	=	1.0	
	THERMAL FACTOR (C_T)	=	1.0	
	SNOW DRIFT AT ELEVATOR OVERRIDE	=	SEE 3 / S0.2	
4.	SEISMIC DESIGN DATA:			
	RISK CATEGORY	=	II	
	SEISMIC IMPORTANCE FACTOR (I_E)	=	1.0	
	MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS (S_S)	=	0.219	
	(S_1)	=	0.067	
	SITE CLASS	=	D	
	DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS (S_{DS})	=	0.234	
	(S_{D1})	=	0.108	
	SEISMIC DESIGN CATEGORY	=	B	
	BASIC SEISMIC FORCE RESISTING SYSTEM	=	STRUCTURAL STEEL SYSTEMS NOT SPECIFICALLY DESIGNED FOR SEISMIC RESISTANCE	
	DESIGN BASE SHEAR	=	107.8 KIPS	
	SEISMIC RESPONSE COEFFICIENT (C_S)	=	0.078	
	RESPONSE MODIFICATION COEFFICIENT (R)	=	3	
	PROCEDURE USED	=	EQUIVALENT LATERAL FORCE PROCEDURE	
5.	FLOOD DESIGN DATA:			
	FLOOD HAZARD ZONE DESIGNATION	=	X (UNSHADED)	

JAMEY BROWN
101116
6-5-20

Life Storage #230
Self Storage Phase II

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