REINFORCED MASONRY

- 1. COMPRESSIVE STRENGTH OF CONCRETE MASONRY SHALL BE $F'_M = 2000 \text{ PSI}$.
- 2. GROUT FOR BOND BEAMS AND GROUTED CELLS IN CONCRETE MASONRY UNITS SHALL BE PEA GRAVEL CONCRETE WITH A 28 DAY COMPRESSIVE STRENGTH OF 2500
- 3. MORTAR FOR CONCRETE MASONRY SHALL BE TYPE S.
- 4. PROVIDE CONTINUOUS HORIZONTAL JOINT REINFORCING IN ALL REINFORCED MASONRY WALLS AT 16 INCHES ON CENTER UNLESS NOTED OTHERWISE.
- 5. SPLICES IN VERTICAL REINFORCEMENT SHALL BE LAPPED IN ACCORDANCE WITH THE LAP SPLICE TABLE.
- 6. ALL MASONRY WALLS SHALL BE LATERALLY BRACED BY THE CONTRACTOR UNTIL ALL STRUCTURAL FRAMING AND DECKING HAVE BEEN INSTALLED IN UNITS OF CONSTRUCTION ADJACENT TO THE WALLS.
- 7. A BOND BEAM WITH (2) #5 BARS SHALL BE PROVIDED AT THE TOP OF ALL WALLS, AND AT THE BEARING ELEVATION OF STEEL STRUCTURE, UNLESS NOTED
- 8. ALL CMU UNITS LOCATED BELOW GRADE SHALL BE GROUTED SOLID.
- 9. AT BEAMS, COLUMNS AND LINTELS BEARING ON MASONRY WALLS, UNLESS DETAILED OR NOTED OTHERWISE, FILL TWO BLOCK CORES SOLID WITH GROUT AND REINFORCE EACH CORE WITH ONE #5 VERTICAL REBAR FULL HEIGHT OF WALL.
- 10. UNLESS OTHERWISE SHOWN OR NOTED, PROVIDE A 7-1/2 INCH x 12 INCH x 1/2" INCH BEARING PLATE WITH (2) 1/2 INCH DIAMETER X 4 INCH LONG HEADED STUDS EMBEDDED INTO GROUTED CORES AT ALL BEAMS BEARING ON MASONRY WALLS.
- 11. UNLESS OTHERWISE SHOWN OR NOTED, PROVIDE A 7-1/2 INCH X 7-1/2 INCH X 3/8 INCH BEARING PLATE WITH (2) 1/2 INCH DIAMETER X 4 INCH LONG HEADED STUDS EMBEDDED INTO GROUTED BOND BEAM AT ALL JOISTS BEARING ON MASONRY WALLS.
- 12. UNLESS OTHERWISE SHOWN OR NOTED, PLACE (1) #5 FULL-HEIGHT VERTICAL REINFORCING BAR AT ALL WALL CORNERS, ENDS OF WALLS, EACH SIDE OF CONTROL JOINTS, SIDES OF OPENINGS, AND WALL INTERSECTIONS. (PLACE (2) #5 BARS AT SIDES OF OPENINGS 10 FEET WIDE AND GREATER)
- 13. LOCATE VERTICAL CONTROL JOINTS IN ALL REINFORCED MASONRY WALLS AT A MAXIMUM SPACING OF 20'-0" O.C. LOCATIONS OF JOINTS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO INSTALLATION. BOND BEAM AND REINFORCING SHALL BE CONTINUOUS THROUGH THE CONTROL JOINT.
- 14. SECURE ALL VERTICAL REINFORCING STEEL IN CMU WALLS WITH DUR-O-WALL REBAR POSITIONERS OR APPROVED EQUAL
- 15. GROUT FILL BEAM AND JOIST POCKETS IN CMU WALLS AFTER WELDS ARE INSPECTED.
- 16. CONTRACTOR SHALL SUBMIT DRAWINGS COORDINATED WITH THE MASONRY AND MEP CONTRACTORS, SHOWING THE MEP PENETRATIONS THROUGH LOAD BEARING WALLS. THESE DRAWINGS SHALL SHOW THE SIZE AND LOCATION OF ALL PENETRATIONS AND SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

STRUCTURAL STEEL

- 1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED BY AN APPROVED AND LICENSED FABRICATOR IN ACCORDANCE WITH AISC 360-10 AND **IBC CHAPTER 22**
- 2. COMPLY WITH THE PROVISIONS OF THE LATEST EDITIONS OF THE FOLLOWING CODES, SPECIFICATIONS AND STANDARDS, EXCEPT AS OTHERWISE SHOWN OR

C. A.I.S.C. RCSC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH

- A. A.I.S.C. "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES." B. A.I.S.C. "SPECIFICATIONS FOR THE DESIGN OF STRUCTURAL STEEL BUILDINGS."
- STRENGTH BOLTS." D. AWS "STRUCTURAL WELDING CODE".
- 1. AWS D1.1 TYPICAL

K. PLAIN WASHER

- 2. AWS D1.3 STEEL DECK AND COLD-FORMED METAL FRAMING 3. AWS D1.8 - SEISMIC SUPPLEMENTAL
- 3. STRUCTURAL STEEL SHALL CONFORM TO THE ASTM DESIGNATION AS INDICATED BELOW (UNO):

A. W SHAPES A992 B. ANGLES, CHANNNELS A36 C. PLATES, U.N.O. A36

D. CONNECTION PLATES AND MISC., U.N.O. A36 A500 GR. C (Fy = 50 KSI) E. SQUARE AND RECTANGULAR HSS F. HIGH STRENGTH CONVENTIONAL BOLTS F3125: GR. A325, GR. A490

F844

G. THREADED ROD A36 A563 H. HEAVY HEX NUTS F436 I. HARDENED STEEL WASHER F1554: GR36 J. ANCHOR RODS

L. HEADED STUDS ANCHORS AND SHEAR STUDS A108 (Fu = 65 KSI)

4. CONNECTIONS NOT INDICATED ON THE CONTRACT DRAWINGS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE WHERE STRUCTURAL STEEL IS TO BE ERECTED, RETAINED BY THE STEEL FABRICATOR. ALL CALCULATIONS AND SHOP DRAWINGS SHALL BE DULY STAMPED AND SIGNED BY THE REGISTERED STRUCTURAL ENGINEER AND SUBMITTED FOR REVIEW BY THE ARCHITECT. STAMPING AND SIGNING OF SHOP DRAWINGS SHALL BE FOR THE EXCLUSIVE PURPOSE OF CERTIFYING THAT THE CONNECTIONS ARE DETAILED AS PER THE DESIGN PERFORMED BY THE REGISTERED STRUCTURAL ENGINEER. FAILURE TO SUBMIT STAMPED AND SIGNED CALCULATIONS AND STAMPED AND SIGNED SHOP DRAWINGS SHALL BE SUFFICIENT CAUSE FOR REJECTION OF SHOP DRAWINGS. THE CONTRACTOR SHALL BE LIABLE FOR THE DIMENSION, FIT,

5. CONNECTION TO HAVE DOUBLE ANGLES EXCEPT AT HSS COLUMNS.

TOLERANCES, FABRICATION AND ERECTION.

- 6. BEAM CONNECTIONS SHALL BE DESIGNED FOR THE REACTIONS INDICATED ON THE FRAMING PLANS. WHERE REACTIONS ARE NOT SHOWN ON THE FRAMING PLANS, CONNECTIONS FOR SIMPLE SPAN BEAMS(NON-COMPOSITE) SHALL BE DESIGNED FOR 50% OF THE BEAM LOAD CAPACITY AS GIVEN IN AISC TABLE 3-6 "MAXIMUM TOTAL UNIFORM LOAD" (AISC MANUAL-14TH EDITION. CONNECTIONS FOR SIMPLE SPAN BEAMS(COMPOSITE) SHALL BE DESIGNED FOR 75% OF THE BEAM LOAD CAPACITY AS GIVEN IN AISC TABLE 3-6 "MAXIMUM TOTAL UNIFORM LOAD" (AISC MANUAL-14TH EDITION
- 7. LENGTH OF CONNECTION ANGLES FOR BEAM-TO-COLUMN OR BEAM-TO-BEAM CONNECTIONS SHALL BE THE LARGEST STANDARD LENGTH LESS THAN OR EQUAL TO THE "T" DIMENSION OF THE BEAM. STANDARD LENGTHS AND AVAILABLE STRENGTH OF CONNECTION ANGLES ARE FOUND IN "A.I.S.C. MANUAL OF STEEL CONSTRUCTION" (14TH EDITION), TABLES 10-1 THRU 10-3.
- 8. BOLTS SHALL BE 3/4" DIAMETER ASTM A325-N (UNO), TIGHTENED BY AN APPROVED AISC METHOD. BOLT HOLES IN STEEL FOR HIGH STRENGTH BOLTED CONNECTIONS SHALL BE 1/16" LARGER IN DIAMETER THAN BOLT DIAMETER.
- 9. REENTRANT CORNERS SHALL HAVE 3/4" MINIMUM RADIUS.

CONCRETE CONTINUED

- 5. REINFORCING BAR MAY BE BENT ONCE, AND THE BEND SHALL BE MADE COLD.
- 6. BAR SPLICES SHALL BE CLASS B AS INDICATED ON THE SCHEDULE IN THE TYPICAL
- 7. WWR SPLICES SHALL BE LAPPED FOR A MINIMUM OF ONE WIRE SPACING PLUS 2" OR 8", WHICH EVER IS LARGER
- 8. SPREAD BARS AROUND SMALL OPENINGS AND SLEEVES IN SLABS AND WALLS WHERE POSSIBLE AND WHERE BAR SPACING WILL NOT EXCEED 1.5 TIMES THE NORMAL SPACING. DISCONTINUE BARS AT LARGE OPENINGS WHERE NECESSARY AND PROVIDE AN AREA OF REINFORCEMENT EQUAL TO THE INTERRUPTED REINFORCEMENT EACH SIDE OF THE OPENING (CLASS B LAP SPLICED). HOLES LARGER THAN 12 INCHES IN ANY DIRECTION SHALL HAVE (1) #5x5'-0" DIAGONAL BAR IN BOTH FACES AT EACH CORNER.
- 9. PIER REINFORCEMENT SHALL BE DOWELED TO THE FOOTING OR DRILLED PIER. PROVIDE DOWELS EQUAL IN SIZE, NUMBER AND GRADE TO THE PIER REINFORCEMENT UNLESS OTHERWISE NOTED. DOWELS SHALL BE HOOKED 90 DEGREES AT THE BOTTOM LEVEL OF FOOTING REINFORCEMENT. DOWELS SHALL BE LAPPED WITH THE PIER REINFORCEMENT.
- 10. PIER REINFORCEMENT SHALL BE THE SAME SIZE, NUMBER AND GRADE AS THE
- 11. REINFORCING BARS SHALL BE IN PLACE AND SECURED PRIOR TO POURING CONCRETE. STICKING OF REINFORCING BARS IS NOT PERMITTED.

COLUMN/PILASTER REINFORCING, UNLESS OTHERWISE NOTED.

- 12. REINFORCING BAR SHOP DRAWINGS SHALL SHOW NUMBER, SIZE AND LOCATION OF BARS, AS WELL AS LAP LENGTH AND CLEAR COVER. DETAILING SHALL BE IN ACCORDANCE WITH ACI SP-66 (04)
- 13. ALL WELDED WIRE REINFORCEMENT IN SLABS ON GRADE AND ELEVATED SLABS SHALL BE SUPPORTED BY CHAIRS, BOLSTERS, OR OTHER APPROVED SUPPORTING DEVICES. "PULLING-UP" OF MESH AFTER CONCRETE HAS BEEN PLACED IS NOT ACCEPTABLE.

FOUNDATIONS

- 1. FOUNDATION DESIGN BASED ON IBC CODE MINIMUM VALUES.
- 2. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE FINDINGS AND RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER AND SHALL PERFORM ALL EARTHWORK OPERATIONS AND FOUNDATION INSTALLATION OPERATIONS IN ACCORDANCE WITH THESE RECOMMENDATIONS.
- 3. FOUNDATIONS ARE DESIGNED BASED ON THE FOLLOWING INFORMATION:
- A. SPREAD FOOTING AND RETAINING WALLS: ALLOWABLE BEARING PRESSURE 1500 PSF COEFFICIENT OF FRICTION - CONCRETE IN CONTACT WITH SOIL 0.3
- B. LATERAL EARTH PRESSURE BASED ON EQUIVALENT FLUID PRESSURE: ACTIVE PRESSURE: 30 PSF/FOOT OF DEPTH AT REST PRESSURE: 60 PSF/FOOT OF DEPTH PASSIVE PRESSURE: 100 PSF/FOOT OF DEPTH
- 4. THE OWNER WILL RETAIN A QUALIFIED GEOTECHNICAL ENGINEER TO INSPECT ALL BEARING SURFACES AND EARTHWORK OPERATIONS.
- 5. SITE PREPARATION ACTIVITIES WITHIN THE BUILDING LIMITS AND EXTENDING 10 FEET BEYOND SHALL BE MONITORED AND VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER LICENSED IN THE PROJECT STATE. THE GEOTECHNICAL ENGINEER SHALL VERIFY THAT ACTUAL SITE CONDITIONS ARE CONSISTENT WITH THE GEOTECHNICAL REPORT, THAT FILL PLACEMENT AND COMPACTION UNDERCUTTING, PROOFROLLING, SCARIFICATION, ETC., IS IN GENERAL CONFORMANCE WITH THE GEOTECHNICAL REPORT AND THAT THE DESIGN
- 6. PRIOR TO CONSTRUCTION OF ANY PERMANENT STRUCTURE, EXISTING SURFACE FILL, TOPSOIL AND ORGANIC MATERIAL, WET, SOFT, LOOSE, OR UNDESIRABLE SOIL, AND OLD ABANDONED CONCRETE AND UTILITIES SHALL BE REMOVED TO THE EXTENT RECOMMENDED BY THE GEOTECHNICAL REPORT.
- 7. CONCRETE FOR FOOTINGS SHALL BE PLACED THE SAME DAY EXCAVATIONS ARE OPENED. IF THIS IS IMPOSSIBLE, STEPS SHALL BE TAKEN TO ADEQUATELY PROTECT THE OPEN EXCAVATION FROM WEATHER.
- 8. FOOTINGS SHALL BE SUPPORTED ON SOIL PREPARED PER THE GEOTECHNICAL ENGINEER. EXCAVATE AND REPLACE EXISTING LOOSE OR WEATHERED SOILS OR UNCERTIFIED FILL IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEERS RECOMMENDATIONS. GEOTECHNICAL ENGINEER TO VERIFY ACTUAL DEPTH AND EXTENT OF REMOVED SOIL IN THE FIELD DURING GRADING / EXCAVATION.
- 9. ENGINEERED FILL & BACKFILL SHALL BE PLACED AND COMPACTED ACCORDING TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
- 10. ALL FOOTING EXCAVATIONS SHALL BE INSPECTED BY A GEOTECHNICAL ENGINEER BEFORE CONCRETE IS PLACED. THE ADEQUACY OF THE BEARING SURFACE SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER. ALL GEOTECHNICAL FIELD REPORTS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER.
- 11. SLAB ON GRADE SUPPORT SHALL BEAR ON PROPERLY COMPACTED ENGINEERED FILL BE PER THE GEOTECHNICAL INVESTIGATION REPORT AND TYPICAL DETAILS IN THE CONSTRUCTION DOCUMENTS.
- 12. THE DESIGN ADEQUACY AND SAFETY OF TEMPORARY RETAINING STRUCTURES, SHORING OF TRENCHES, ETC., REQUIRED TO CONSTRUCT THE FOUNDATION SYSTEM IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 13. CONTRACTOR TO PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING AND SHORING REQUIRED AND SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL SAFETY ORDINANCES.
- 14. CONTRACTOR TO PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM SURFACE WATER, GROUND WATER AND/OR SEEPAGE.
- 15. EXCAVATIONS SHALL BE PROPERLY BACKFILLED. DO NOT PLACE BACKFILL BEHIND RETAINING WALLS BEFORE CONCRETE OR GROUT HAS ATTAINED FULL DESIGN STRENGTH. CONTRACTOR SHALL BRACE OR PROTECT ALL BUILDING AND PIT WALLS BELOW GRADE FROM LATERAL LOADS UNTIL ATTACHING FLOORS ARE COMPLETELY IN PLACE AND HAVE ATTAINED FULL DESIGN STRENGTH. CONTRACTOR SHALL PROVIDE FOR DESIGN, PERMITS AND INSTALLATION OF SUCH BRACING.
- 16. FOOTING BACKFILL AND UTILITY TRENCH BACKFILL WITHIN BUILDING AREA SHALL BE MECHANICALLY COMPACTED IN LAYERS APPROVED BY THE GEOTECHNICAL ENGINEER. FLOODING WILL NOT BE PERMITTED AS A MEANS OF COMPACTION. ENGINEERED FILLS SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER REPRESENTATIVE.
- 17. BASEMENT WALLS SHALL NOT BE BACKFILLED UNTIL GROUND FLOOR SLAB AND FIRST FLOOR SLAB ARE IN PLACE, UNLESS CONTRACTOR PROVIDES OTHER METHODS OF SUPPORTING THE WALLS FOR THE LATERAL SOIL PRESSURE.
- 18. ALL RETAINING WALLS SHALL BE BACKFILLED WITH SELECT, GRANULAR BACKFILL IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER.
- 19. DO NOT LOCATED UTILITIES BENEATH FOOTINGS. STEP FOOTINGS ACCORDING TO THE TYPICAL DETAILS AND PROVIDE SLEEVES IN FOUNDATION WALL FOR UTILITIES.

CONCRETE

1. CONCRETE COMPRESSIVE STRENGTH: PROVIDE CONCRETE WITH THE FOLLOWING STRENGTHS AT THE LOCATIONS NOTED. MIX DESIGN, SLUMP, AIR ENTRAINMENT, AGGREGATE SIZE, ETC. SHALL BE IN CONFORMANCE WITH THE ACI 301-10.

CONCRETE COMPRESSIVE STRENGTH									
USE/LOCATION	WEIGHT	28-DAY STRENGTH	CEMENT TYPE	AGGREGATE SIZE	AIR CONTENT				
SLAB-ON-GRADE	140-150 PSI (NWC)	4,000 PSI	TYPE I/II	1" MAX.	3% MAX.				
FOUNDATIONS & GRADE BEAMS	140-150 PSI (NWC)	4,500 PSI	TYPE I/II	1" MAX.	4% - 7%				

- 2. MAXIMUM CONCRETE SLUMP SHALL BE 4 INCHES WITHOUT A HIGH-RANGE WATER-REDUCING ADMIXTURE (HRWR) OR 8 INCHES WITH HRWR AT POINT OF DEPOSIT. SIZE OF AGGREGATE AND GRADATION SHALL CONFORM TO ASTM C33 FOR NORMAL WEIGHT CONCRETE. THE COMBINED TOTAL MASS PERCENT OF DELETERIOUS SUBSTANCES, INCLUDING, BUT NOT LIMITED TO, COAL AND LIGNITE, FOR BOTH COARSE AND FINE AGGREGATES SHALL BE LIMITED TO 0.5% AS DETERMINED BY
- 3. PORTLAND CEMENT SHALL CONFORM TO ASTM C150, TYPE I / II FOR ALL
- 4. AGGREGATE FOR LIGHT WEIGHT (115 PCF) CONCRETE SHALL BE EXPANDED SHALE CONFORMING TO ASTM A330 AND PROJECT SPECIFICATIONS.
- 5. WATER-REDUCING ADMIXTURES MAY BE INCORPORATED IN CONCRETE MIX DESIGNS, BUT SHALL CONFORM TO ASTM C 494, AND BE USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CaCl2 OR OTHER WATER-SOLUBLE CHLORIDE ADMIXTURES SHALL NOT BE USED. AIR-ENTRAINING ADMIXTURES TO CONFORM TO ASTM C260.
- 6. WATER/CEMENTITIOUS MATERIALS RATIO SHALL BE MEASURED BY WEIGHT AND SHALL BE BASED ON THE TOTAL CEMENTITIOUS MATERIAL. WATER/CEMENTITIOUS MATERIALS RATIO AND WATER CONTENT SHALL BE DETERMINED BY THE SUPPLIER BASED ON STRENGTH REQUIREMENTS AND SHALL NOT EXCEED THE MAXIMUM WATER/CEMENTITIOUS MATERIAL RATIO AND/OR WATER CONTENT AS SHOWN ABOVE.
- 7. FIELD-MEASURED SLUMP SHALL CONFORM TO THE SUBMITTED CONCRETE MIX DESIGN. TOLERANCE OF SLUMP SHALL CONFORM TO ASTM C 94.
- 8. MEASURING, MIXING, TRANSPORTING AND PLACING OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 304R-00. CONCRETE SHALL BE MECHANICALLY VIBRATED.
- 9. MATERIALS SHALL COMPLY WITH REQUIREMENTS OF DESIGNATED SPECIFICATIONS OF AMERICAN SOCIETY FOR TESTING AND MATERIALS, 1916 RACE STREET, PHILADELPHIA, PENNSYLVANIA.
- 10. CONSTRUCTION PROCEDURES SHALL COMPLY WITH RECOMMENDATIONS SET FORTH IN DESIGNATED STANDARDS OF AMERICAN CONCRETE INSTITUTE, P.O. BOX 9094, FARMINGTON HILLS, MICHIGAN 48333.
- 11. THE CONTRACTOR SHALL SUBMIT CONCRETE MIX FOR APPROVAL 2 WEEKS PRIOR TO PLACING ANY CONCRETE. THE MIX DESIGN SHALL BE IN CONFORMANCE WITH ACI 318, CHAPTER 19. THE SUBMITTAL SHALL INDICATE WHERE EACH CONCRETE MIX IS TO BE USED ON THE PROJECT, AS WELL AS THE MAXIMUM AGGREGATE SIZE OF EACH MIX. MAXIMUM AGGREGATE SIZE SHALL CONFORM TO THE PROJECT SPECIFICATIONS.
- 12. SURFACES OF CONCRETE SLABS ON GRADE SHALL BE KEPT CONTINUOUSLY MOIST FOR NOT LESS THAN SEVEN DAYS WITH WATER, CONTINUOUS WATER-FOG SPRAY, OR WATER SATURATED ABSORPTIVE COVER. KEEP CONTINUOUSLY WET.
- 13. CURING COMPOUND SHALL CONFORM TO FEDERAL SPECIFICATION TT-C800A, AND A.S.T.M. C309. THE MATERIAL SHALL BE EQUAL TO SONNEBORN KUR-N-SEAL, MASTERSEAL, BY BASF, OR CLEAR SEAL, BY W.R. GRACE.
- 14. ALL VERTICAL CONCRETE SURFACES SHALL BE FORMED. HOWEVER, VERTICAL SURFACES OF FOOTINGS/GRADE BEAMS MAY BE EARTH-FORMED IF THE SOIL IS SUFFICIENTLY STIFF TO PREVENT CAVE-INS.
- 15. SLABS, GRADE BEAMS AND FOOTINGS SHALL HAVE NO HORIZONTAL JOINTS. ANY STOP IN CONCRETE WORK MUST BE MADE WITH VERTICAL KEYED BULKHEADS. REINFORCEMENT SHALL CONTINUE THROUGH JOINTS.
- 16. BEFORE PLACING CONCRETE, THE CONTRACTOR SHALL NOTIFY ALL SUBCONTRACTORS TO BE SURE ALL SLEEVES, CONDUIT, CHASES, ETC. ARE PROPERLY INSTALLED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/EOR/SPECIAL INSPECTOR AS SOON AS PRACTICAL, BUT AT LEAST 24 HOURS PRIOR TO PLACING CONCRETE TO ALLOW FOR INSPECTION OF REINFORCING AND EMBEDDED ITEMS.
- 17. PROVIDE SLEEVES FOR MECHANICAL, PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. DO NOT CUT ANY REINFORCING WHICH MAY CONFLICT. CORING IN CONCRETE IS PERMITTED WITH APPROVAL OF EOR. NOTIFY THE EOR IN ADVANCE OF CONDITIONS NOT SHOWN ON THE DRAWINGS. SEE THESE DRAWINGS FOR ADDITIONAL RESTRICTIONS ON THE PLACEMENT OF OPENINGS IN SLABS AND WALLS.
- 18. CONCRETE SLABS ON GRADE SHALL RECEIVE CONTROL JOINTS PLACED AT A MAXIMUM SPACING OF 10'-0" OC. THE JOINTS SHALL BE IN A PATTERN THAT IS NEARLY AS SQUARE AS POSSIBLE WITH A MAXIMUM LENGTH TO WIDTH RATIO OF 1.25:1. JOINTS RUNNING PARALLEL TO LOAD BEARING WALLS MUST MAINTAIN 2'-0" MINIMUM CLEARANCE FROM THE WALL. SAW-CUT JOINTS SHALL BE INSTALLED AS SOON AS THE CONCRETE IS HARD ENOUGH TO WITHSTAND SAWING WITHOUT RAVELING JOINT EDGES OR DISLODGING COARSE AGGREGATE PARTICLES. LIGHTWEIGHT EARLY-CUT SAWS SHALL BE USED. CONTRACTOR SHALL SUBMIT A SLAB JOINT PLAN FOR APPROVAL PRIOR TO PLACING CONCRETE FOR FLOOR SLAB.
- 19. CONCRETE FILL OVER METAL DECK SHALL BE SCREED TO A CONSTANT THICKNESS AS SPECIFIED IN THE DECKING SCHEDULE.
- 20. FINISH INTERIOR SLABS SHALL RECEIVE A HARD-TROWELED FINISH. EXTERIOR SLABS SHALL RECEIVE A LIGHT BROOM FINISH.
- 21. EDGE CHAMFER EXPOSED EDGES AND CORNERS OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER AT 45° UNLESS NOTED OTHERWISE.
- 22. REMOVE ANY LAITANCE, ROUGHEN TO 1/4" AMPLITUDE AND CLEAN ALL CONCRETE SURFACES AGAINST WHICH NEW CONCRETE IS TO BE PLACED.

REINFORCING STEEL

- 1. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 UNLESS WELDED REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706 GRADE 60 WELDED WIRE REINFORCEMENT (WWR) SHALL CONFORM TO ASTM A1064
- 2. PROVIDE BAR SUPPORTS AND SPACERS IN ACCORDANCE WITH ACI DETAILING MANUAL. ALL BAR SUPPORTS IN AREAS WHERE CONCRETE WILL BE EXPOSED SHALL HAVE PLASTIC FEET. PRECAST CONCRETE (fc'=3000psi) BLOCKS 3"x3"x3" SHALL BE USED TO SUPPORT REINFORCING OFF OF THE GROUND. AT ALL OTHER LOCATIONS, CHAIRS OR STANDEES SHALL BE USED. LIFTING OR HOOK IS NOT PERMITTED
- 3. DETAILING, FABRICATION AND PLACING OF REINFORCING SHALL CONFORM TO APPLICABLE PROVISIONS OF ACI 315 AND ACI 318.

THAT MAY IMPAIR BOND.

4. ALL REINFORCING SHALL BE CLEAN OF RUST, GREASE, SOIL OR OTHER MATERIALS

SCOPE OF WORK

- 1. NEW OPENINGS IN EXISTING CMU WALLS
- 2. NEW INTERIOR MEZZANINE FRAMING
- 3. NEW OUTDOOR ACCESS STAIR
- 4. MISCELLANEOUS REPAIR DETAILS

STRUCTURAL DESIGN CRITERIA

- 1. APPLICABLE DESIGN CODE:
 - A. 2018 KENTUCKY BUILDING CODE B. 2015 INTERNATIONAL BUILDING CODE
 - C. ASCE STANDARD: ASCE 7-10
- STRUCTURE HAS NOT BEEN DESIGNED FOR ANY FUTURE ADDITIONS.
- PROJECT LOCATION: LOUISVILLE, KY (JEFFERSON COUNTY)
- 4. BUILDING RISK CATEGORY II
- DEAD LOADS

ROOF	15 PSF
FLOORS - RESIDENTIAL	30 PSF
FLOORS - INTERMEDIATE LEVEL	18 PSF
FLOORS - CORRIDOR	30 PSF

6. LIVE LOADS (WITH LIVE LOAD REDUCTION WHERE APPLICABLE)

ROOF	20 PS
FLOORS	
PRIVATE ROOMS	40 PS
PUBLIC ROOMS AND CORRIDORS	100 P
STAIRS AND LANDINGS	100 P
STORAGE	125 P

7. SNOW LOADS:

GROUND SNOW LOAD(Pg):	15 PSF
MINIMUM FLAT ROOF SNOW LOAD(Pf):	15 PSF
BALANCED SLOPED ROOF SNOW LOAD:	10.5 PSF
SNOW IMPORTANCE FACTOR (Is)	1.0
SNOW EXPOSURE FACTOR (Ce)	1.0
SNOW THERMAL FACTOR (Ct)	1.0

8. WIND LOADS

BASIC WIND SPEED, V	115 MPH
EXPOSURE CATEGORY	C
WIND IMPORTANCE FACTOR	1.0
INTERNAL PRESSURE COEFF. (GCpi) TOPOGRAPHIC FACTOR(Kzt) DIRECTIONAL FACTOR (Kd)	+/- 0.18 1.0 0.85

DESIGN PRESSURE (ULTIMATE) FOR MAIN WIND-FORCE 26.7 PSF RESISTING SYSTEM (MWFRS)

DESIGN PRESSURE (ULTIMATE) FOR COMPONENTS AND CLADDING (C&C) SEE S0.2 WIND PRESSURE ZONES COMPONENTS AND CLADDING

9. SEISMIC LOADS

SEISMIC IMPORTANCE FACTOR (Ie) SITE CLASS D (ASSUMED) MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER (Ss) 0.205 MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER (S1) 0.106 DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER (Sds) 0.220 DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER (Sd1) 0.168 SEISMIC DESIGN CATEGORY C SEISMIC FORCE-RESISTING SYSTEM:

LIGHT-FRAME CFS WALLS SHEATHED WITH GYP PANELS AND

RESPONSE MODIFICATION COEFFICENT (R) INTERMEDIATE LEVEL FRAMING 2.0 DEFLECTION AMPLIFICATION FACTOR (Cd) 2.0 INTERMEDIATE LEVEL FRAMING ANALYSIS PROCEDURE: EQUIV. LATERAL FORCE SEISMIC RESPONSE COEFFICIENT (Cs) INTERMEDIATE LEVEL FRAMING 0.110SEISMIC BASE SHEAR (ELEVATOR TOWER):

INTERMEDIATE LEVEL FRAMING

F.R.T. FIRE RETARDENT TREATED

STRUCTURAL ABBREVIATIONS

3 KIPS

EMBED INTE.W. E.O.D. E.O.S. (E) EXP F.S. F.F.E.	COLD-TORMED STELL CONCRETE MASONRY UNIT CONCRETE CONTINUOUS DEEP DEMOLITION DETAIL DESNE GRADED AGGREGATE DRAWINGS EACH FACE ELEVATION MINIMUM EMBEDMENT DEPTH TO SUBSTRATE EACH WAY EDGE OF DECK EDGE OF SLAB EXISTING EXPANSION FAR SIDE FINISHED FLOOR ELEVATION	GA GALV HORIZ HSS LLH LLV LFH LFV MAX MIN N.D. N.I.C. N.S. N.T.S. O.C. OPH P.A.F. P.T. PL R SEL SIM S.O.G. TYP VERT W W.W.F.	GUAGE GALVANIZED HORIZONTAL HOLLOW STRUCTURAL SECTION LONG LEG HORIZONTAL LONG LEG VERTICAL LONG FACE HORIZONTAL LONG FACE VERTICAL MAXIMUM MINIMUM NOMINAL DIAMETER NOT IN CONTRACT NEAR SIDE NOT TO SCALE ON CENTER OPPOSITE HAND POWDER ACTUATED FASTENER POST-TENSIONED PLATE RADIUS SELECTIVE SIMILAR SLAB ON GRADE TYPICAL VERTICAL WIDE WELDED WIRE FABRIC
F.F.E. F.R.C.	FINISHED FLOOR ELEVATION FIBER REINFORCED CONCRETE		
F.R.P.	FIBER REINFORCED POLYMER		

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NOTES ERSON GENERAL

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DATE: 01/19/23 DRAWN BY: Author CHECKED BY Check **REVISIONS:**

2022-46

MISCELLANEOUS CONTINUED

- 6. OPENINGS, POCKETS, ECT., LARGER THAN 6" SHALL NOT BE PLACED IN CONCRETE SLABS, DECKS, WALLS, UNLESS SPECIALLY DETAILED ON THE STRUCTURAL DRAWINGS. NOTIFY THE STRUCTURAL ENGINEER WHEN DRAWINGS BY OTHERS SHOW OPENINGS, POCKETS, ETC., LARGER THAN 6" NOT SHOWN ON THE STRUCTURAL DRAWINGS, BUT WHICH ARE LOCATED IN STRUCTURAL MEMBERS. FOR ANY FURTHER RESTRICTIONS ON OPENINGS IN STRUCTURAL ELEMENTS, SEE APPLICABLE SECTIONS BELOW.
- 7. PIPES LARGER THAN 1-1/2" DIAMETER SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE EXCEPT WHERE SPECIFICALLY APPROVED. NO CONDUIT/PIPING SHALL BE PLACED IN CONCRETE FILL OVER METAL DECKING.
- 8. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED ROOF OR FLOOR. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.
- 9. SPECIAL STRUCTURAL TESTS AND SPECIAL INSPECTIONS ARE REQUIRED ON THIS PROJECT IN ACCORDANCE WITH THE KENTUCKY BUILDING CODE. THE OWNER WILL BEAR THE COSTS OF THE SPECIAL STRUCTURAL TESTS AND SPECIAL INSPECTIONS. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE THE INSPECTIONS AND TESTING ALONG WITH THE CONSTRUCTION AND COOPERATE FULLY WITH THE AGENCIES PERFORMING THE SPECIAL STRUCTURAL TESTS AND SPECIAL INSPECTIONS

CONTRACTOR RESPONSIBILITIES

- 1. MATERIAL, WORKMANSHIP, AND DESIGN SHALL CONFORM TO THE REFERENCED BUILDING CODE.
- 2. CONTRACTOR SHALL INVESTIGATE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILLED EXCAVATIONS OR BURIED STRUCTURES, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC. IF ANY SUCH STRUCTURES ARE FOUND, STRUCTURAL ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
- 3. CONTRACT DRAWINGS ARE CONSIDERED TO BE PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL THE DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.
- 4. VERIFY THE DIMENSIONS, ELEVATIONS AND SITE CONDITIONS BEFORE STARTING WORK. ANY DISCREPANCY BETWEEN SUCH DETAILS AND DIMENSIONS AS MAY OCCUR SHALL BE REPORTED TO THE ARCHITECT/EOR FOR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
- 5. DUE TO THE NATURE OF THE WORK, ALL DIMENSIONS AND/OR EXISTING DETAILS SHOWN ON THE DRAWINGS THAT WILL IN ANY WAY AFFECT THE WORK SHALL BE FIELD CHECKED PRIOR TO FABRICATION OF ANY MATERIALS. FIELD CHECKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. IF THERE IS ANY QUESTION TO THE INTENT OF THE WORK INDICATED, THE CONTRACTOR SHALL CLEAR THE QUESTION WITH THE ARCHITECT/EOR. VERIFY IN FIELD TOP OF EXISTING CONCRETE AND TOP OF EXISTING STEEL AT LOCATIONS WHERE NEW STRUCTURE CONNECTS TO EXISTING STRUCTURE.
- 6. NOTIFY, IN WRITING, THE EOR OF CONDITIONS ENCOUNTERED IN THE FIELD DIFFERENT FROM THOSE SHOWN IN THE STRUCTURAL DOCUMENTS.
- 7. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE EOR SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- 8. HEAVY EQUIPMENT, CRANES AND MATERIAL STOCKPILES SHALL NOT BE LOCATED ON OR ADJACENT TO SHORING OR RETAINING WALLS UNLESS ACCEPTED BY THE EOR. ACCEPTANCE SHALL BE BASED ON ANALYSIS AND EVALUATION PERFORMED BY THE CONTRACTOR AND REVIEWED BY THE EOR.
- 9. AN UNDERGROUND SERVICE ALERT INQUIRY IDENTIFICATION NUMBER MUST BE OBTAINED AT LEAST TWO WORKING DAYS BEFORE STARTING EXCAVATION WORK.
- 10. CONTRACTOR HAS SOLE RESPONSIBILITY FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION.
- 11. CONTRACTOR HAS SOLE RESPONSIBILITY FOR THE DESIGN, ADEQUACY, AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC.
- 12. CONTRACTOR HAS SOLE RESPONSIBILITY TO COMPLY WITH ALL OSHA SAFETY REGULATIONS.

CONTRACTOR SUBMITTALS/SHOP DRAWINGS

- 1. SUBMITTALS FOR REINFORCING STEEL AND STRUCTURAL STEEL SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.
- 2. DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD (EOR), THEREFORE THEY SHALL BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP THE DRAWINGS PRIOR TO REVIEW BY THE EOR. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO.
- 3. SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWINGS SUBMITTALS IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED, AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHOD. IF ANY DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWINGS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE EOR, THE CONTRACT DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.
- 4. SHOP DRAWINGS OF DESIGN BUILD COMPONENTS INCLUDING STAIRS BY OTHERS SHALL INCLUDE THE DESIGNING PROFESSIONAL ENGINEER'S STAMP, FROM THE PROJECT STATE AND SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO CURSORY REVIEW BY THE EOR FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON THE BASIC STRUCTURE. DESIGN CALCULATIONS SHALL BE INCLUDED IN THE SUBMITTAL.
- 5. REVIEW OF SUBMITTALS OR SHOP DRAWINGS BY THE EOR DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW AND CHECK ALL SUBMITTALS AND SHOP DRAWINGS BEFORE SUBMITTING TO THE STRUCTURAL ENGINEER. CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENT.

STRUCTURAL STEEL CONTINUED

HEADED STUDS

- 1. HEADED STUDS WELDED TO BEAMS OR FOR CONCRETE CONNECTIONS SHALL BE "TRU-WELD STUD", TRU-WELD DIVISION OF TFP CORPORATION, MEDINA, OHIO OR "NELSON STUD", NELSON STUD WELDING, INC, ELYRIA, OHIO, OR APPROVED EQUAL.
- HEADED STUDS TO BE USED AS CONCRETE ANCHORS OR SHEAR STUDS SHALL BE AUTOMATICALLY END WELDED IN SHOP OR FIELD WITH EQUIPMENT RECOMMENDED BY MANUFACTURER OF STUDS. THE SPECIFIED LENGTH IS THE AFTER-WELD LENGTH (AWL).
- 3. HEADED STUDS MATERIAL, WELDING AND INSPECTION, SHALL BE IN ACCORDANCE WITH AWS "STRUCTURAL WELDING CODE", AWS D1.1, LATEST REVISION.

STAIRS

- 1. UNLESS SHOWN AND DETAILED IN THE STRUCTURAL DRAWINGS, ALL STAIRS ARE TO CONSIST OF A PREFABRICATED AND PRE-ENGINEERED STAIR AND LANDING SYSTEM THAT IS TO BE DESIGNED BY THE STAIR SUPPLIER. ALL STAIRS AND THEIR CONNECTIONS TO THE PRIMARY STRUCTURE SHALL BE DESIGNED TO MEET THE REQUIRMENTS OF THE SPECIFED BUILDING CODE FOR BOTH LATERAL AND VERTICAL LOADS.
- 2. SEE ARCHITECT FOR STAIR LAYOUT, DIMENSIONS, AND CONFIGURATIONS OF RISE AND RUN. THE STAIR MANUFACTURER SHALL DESIGN AND PROVIDE ALL COMPONENTS NECESSARY FOR BOTH GRAVITY AND LATERAL SUPPORT OF THE STAIRS AND LANDINGS, INCLUDING, BUT NOT LIMITED TO POSTS, HANGERS, BRACES, CONNECTIONS TO PRIMARY STRUCTURE, AND MISCELLANEOUS STEEL REQUIRED FOR PROPER INSTALLATION OF THE STAIRS. THE STAIR SUPPLIER SHALL SUBMIT CALCULATIONS AND DRAWINGS THAT INDICATE THE MAXIMUM AND MINIMUM IMPOSED LOADS APPLIED TO THE PRIMARY STRUCTURE. SHOP DRAWING AND CALCULATIONS SHALL BE STAMPED & SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF KENTUCKY WHERE THE STAIRS ARE TO BE ERECTED AND SUBMITTED FOR REVIEW.

MISCELLANEOUS

NON-SHRINK GROUT

1. NON-SHRINKAGE GROUT FOR USE BENEATH COLUMN BASEPLATES AND BEAM BEARINGS SHALL BE PRE-MIXED, FACTORY PACKAGED, NON-STAINING, NON-METALLIC, NON-GASING MORTAR GROUTING COMPOUND, COMPLYING WITH THE REQUIREMENTS OF A.S.T.M. C1107. GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 6,000 PSI.

VAPOR RETARDER

1. MATERIAL FOR USE AS VAPOR RETARDER BENEATH CONCRETE SLABS ON GRADE SHALL BE 15 MIL POLYETHYLENE SHEETS, BLACK IN COLOR, COMPLYING WITH ASTM D-2103. PER ASTM E1643: LAP SHEETS MINIMUM OF 6" AT ALL EDGES AND SEAL WITH MANUFACTURES PRESSURE-SENSITIVE TAPE, SEAL AROUND PERMANENT PENETRATION, SEAL AT TERMINATING EDGES TO THE FOUNDATION WALL, SLAB OR GRADE BEAM AND REPAIR ALL DAMAGED AREAS. SPECIAL CARE SHALL BE TAKEN TO PREVENT PUNCTURING SHEETS PRIOR TO PLACEMENT OF CONCRETE SLABS.

COMPONENTS DESIGNED BY OTHERS

- 1. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING LIST OF BUILDING COMPONENTS AND/OR EQUIPMENT TO BE DESIGNED AND DETAILED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT STATE AND COMPLY WITH THE 2015 INTERNATIONAL BUILDING CODE. STAMPED AND SIGNED SHOP DRAWINGS, ANCHORAGE DETAILS TO THE SUPPORT STRUCTURE, CALCULATIONS, PROPRIETARY HARDWARE INFORMATION, ETC. SHALL BE SUBMITTED FOR REVIEW BY THE ARCHITECT/EOR, AS PER THE PROJECT SPECIFICATIONS. PROJECT AND SITE-SPECIFIC DESIGN PARAMETERS PROVIDED IN THE CONTRACT DOCUMENTS ARE TO BE UTILIZED IN THE PREPARATION OF THE SUBMITTAL DOCUMENT(S):
 - A. COLD-FORMED STEEL FRAMING
 - B. CURTAIN WALL/STOREFRONT
 - C. STAIRS D. SHORING

MISCELLANEOUS

- 1. NO CHANGE IN SIZE OF STRUCTURAL ELEMENTS OR MODIFICATION THEREOF SHALL BE MADE, NOR ARE ANY OPENINGS OR SLEEVES THROUGH ANY STRUCTURAL ELEMENTS PERMITTED, UNLESS DETAILED ON THE STRUCTURAL DRAWINGS.
- 2. CONSULT ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION, SIZES AND EXTENT OF CHASES
- 3. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
- 4. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
- A. SIZE AND LOCATION OF DOOR AND WINDOW OPENINGS IN WALLS, EXCEPT AS
- B. SIZE AND LOCATION OF NON-LOAD-BEARING PARTITIONS, UNLESS NOTED ON
- STRUCTURAL DRAWINGS.
 C. FLOOR AND ROOF FINISHES.
- D. DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
- E. INSERTS, RECESSES, REGLETS, FINISHES, DEPRESSIONS, ETC. NOT SHOWN ON
- THE STRUCTURAL DRAWINGS.
 F. DRAINAGE AND WATERPROOFING
- 4. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
- A. SIZE AND LOCATION OF DOOR AND WINDOW OPENINGS IN WALLS, EXCEPT AS
- B. SIZE AND LOCATION OF NON-LOAD-BEARING PARTITIONS, UNLESS NOTED ON STRUCTURAL DRAWINGS.
- C. FLOOR AND ROOF FINISHES.D. DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
- E. INSERTS, RECESSES, REGLETS, FINISHES, DEPRESSIONS, ETC. NOT SHOWN ON
- THE STRUCTURAL DRAWINGS.

 F. DRAINAGE AND WATERPROOFING
- 5. SEE CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE FOLLOWING:
- A. PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC.,
- EXCEPT AS SHOWN OR NOTED.
- B. ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS.C. CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES.
- D. SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES, ANCHOR BOLTS FOR MOTOR MOUNTS, EQUIPMENT PADS AND UNDERGROUND UTILITIES.
- MOTOR MOUNTS, EQUIPMENT PADS AND UNDERGRE. FINISHED GRADE, SITE PAVING AND ELEVATIONS

STRUCTURAL STEEL CONTINUED

- 11. WELDING IS TO BE DONE BY AWS CERTIFIED WELDERS USING E70XX ELECTRODES (UNO). WELDS SHALL BE PREQUALIFIED BY AWS. WELDING SHALL BE IN STRICT ADHERENCE TO A WRITTEN WELDING PROCEDURE SPECIFICATION (WPS) PER AWS D1.1. WELDING PARAMETERS SHALL BE WITHIN THE ELECTRODE MANUFACTURER'S RECOMMENDATIONS. WELDING PROCEDURES SHALL BE SUBMITTED TO THE OWNER'S TESTING AGENCY FOR REVIEW BEFORE STARTING FABRICATION OR ERECTION. FIELD WELDING SYMBOLS HAVE NOT NECESSARILY BEEN INDICATED ON THE DRAWINGS. WHERE SHOWN, PROPER FIELD WELDING PER AWS D1.1 SHALL BE USED. WHERE NO FIELD WELDING SYMBOLS ARE SHOWN, IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE THE USE OF SHOP AND FIELD WELDS TO FACILITATE THE STRUCTURAL STEEL ERECTION.
- 12. PARTIAL PENETRATION GROOVE WELD SIZES SHOWN ON THE DRAWINGS REFER TO EFFECTIVE THROAT THICKNESS, SHOWN AS (E). SHOP WELDS SHALL BE MADE USING GMAW, FCAW, OR SAW WELDING PROCESSES. FIELD WELDS SHALL BE MADE USING EITHER FCAW OR THE SMAW WELDING PROCESSES. FILLER METALS SHALL COMPLY WITH THE AWS D1.1, TABLE 3.1, "PRE-QUALIFIED BASE METAL-FILLER METAL COMBINATIONS FOR MATCHING STRENGTH".
- 13. SHOP DRAWINGS SHALL SHOW ALL WELDING WITH AWS A2.4 SYMBOLS. WELDS SHOWN ON THE CONTRACT DRAWINGS ARE MINIMUM SIZES FOR STRENGTH. INCREASE WELD SIZE TO AWS MINIMUM SIZE BASED ON THICKNESS OF THE MATERIAL BEING WELDED. MINIMUM WELD SIZE SHALL BE 3/16-INCH FOR MATERIAL THICKNESS 3/16-INCH AND GREATER.
- 14. STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE REQUIREMENTS OF IBC CHAPTER 22. MEMBERS ARE TO BE ERECTED WITH NATURAL MILL CAMBER OR INDUCED CAMBER UP, UNLESS OTHERWISE NOTED ON THE PLANS. SUBSTITUTION OF MEMBER SIZES OR STEEL GRADE IS NOT ALLOWED WITHOUT PRIOR APPROVAL BY THE ENGINEER OF RECORD. A MINIMUM OF TWO BOLTS IS REQUIRED FOR ALL BEAM CONNECTIONS. ALTERNATIVE CONNECTIONS TO THOSE SHOWN ON THESE DRAWINGS REQUIRE PRIOR APPROVAL BY THE ENGINEER OF RECORD.
- 18. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE FILLET WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE, USE MINIMUM SIZE WELDS AS SPECIFIED IN AISC 360-10 TABLE J2.4.
- 15. THE USE OF E70-T4 WELDING WIRE IS NOT ALLOWED FOR ANY APPLICATION.
- 16. STEEL FRAMEWORK SHALL NOT BE ASSUMED STRUCTURALLY STABLE UNTIL ALL MEMBERS ARE IN PLACE AND CONNECTIONS ARE INSTALLED. ANY USE OF THE PARTIALLY ERECTED FRAMEWORK FOR TEMPORARY SUPPORT OF ANY KIND SHALL BE DONE ONLY AT THE CONTRACTOR'S RISK.
- 17. BURNING OF HOLES IN STRUCTURAL STEEL IS NOT PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER OF RECORD.
- 18. MAINTAIN WORK IN A SAFE AND STABLE CONDITION DURING ERECTION. PROVIDE TEMPORARY SHORING AND BRACING MEMBERS AS REQUIRED, WITH CONNECTIONS OF SUFFICIENT STRENGTH TO BEAR IMPOSED LOADS. REMOVE TEMPORARY MEMBERS AND CONNECTIONS WHEN PERMANENT MEMBERS ARE IN PLACE AND FINAL CONNECTIONS ARE MADE. PROVIDE TEMPORARY GUY LINES TO ACHIEVE PROPER ALIGNMENT AND STABILITY OF THE STRUCTURE AS ERECTION PROCEEDS.
- 19. HIGH STRENGTH BOLTED CONNECTIONS AND WELDED CONNECTIONS SHALL BE INSPECTED BY THE SPECIAL STRUCTURAL INSPECTOR. ALL COMPLETE-PENETRATION WELDS SHALL BE ULTRASONICALLY TESTED BY A QUALIFIED INSPECTOR. INSPECTION AND TESTING WILL BE PAID FOR BY THE OWNER.
- 20. ALL EXTERIOR EXPOSED STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED PER ASTM A123, U.N.O. BY ARCHITECT. FIELD WELDS AND DAMAGED GALVANIZING SHALL BE COATED WITH A ZINC-RICH PAINT, MINIMUM 2 MIL.THICK, APPLIED TO A CLEAN, DRY STEEL SURFACE BY EITHER A BRUSH OR SPRAY. ZINC-RICH PAINTS MUST CONTAIN EITHER BETWEEN 65% TO 69% METALLIC ZINC BY WEIGHT OR GREATER THAN 92% METALLIC ZINC BY WEIGHT IN THE DRY FILM.
- 21. MOMENT CONNECTIONS DESIGNATED BY ≺ SHALL BE DESIGNED BY THE STEEL SUPPLIER IN ACCORDANCE WITH AISC "MANUAL FOR STEEL CONSTRUCTION". THE CONNECTION SHALL BE DESIGNED FOR THE MOMENT CAPACITY AND VERTICAL LOAD CAPACITY OF THE BEAM.

POSTED INSTALLED ANCHORS

- 1. PROVIDE POST-INSTALLED ANCHORS PER THE FOLLOWING (UNO)
- 2. CONCRETE
 - A. EXPANSION ANCHOR: HILTI CARBON STEEL KWIK BOLT TZ ANCHOR MANUFACTURED BY HILTI FASTENING SYSTEMS. INSTALL IN ACCORDANCE WITH THE SUPPLIER'S RECOMMENDATIONS.
- B. ADHESIVE ANCHOR: HILTI HAS-Z ROD WITH THE HIT HY200 ADHESIVE SUPPLIED BY HILTI FASTENING SYSTEMS. INSTALL IN ACCORDANCE WITH THE SUPPLIER'S RECOMMENDATIONS.
- 3. GROUT FILLED CMU
- A. EXPANSION ANCHOR: HILTI CARBON STEEL KWIK BOLT 3 ANCHOR MANUFACTURED
- RECOMMENDATIONS.

 B. ADHESIVE ANCHOR: HILTI HAS ROD WITH THE HIT HY 270 ADHESIVE SUPPLIED BY HILTI FASTENING SYSTEMS. INSTALL IN ACCORDANCE WITH THE

BY HILTI FASTENING SYSTEMS. INSTALL IN ACCORDANCE WITH THE SUPPLIER'S

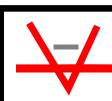
4. HOLLOW CMU

SUPPLIER'S RECOMMENDATIONS.

- A. ADHESIVE ANCHOR: HILTI HAS ROD WITH THE HIT HY 270 ADHESIVE SUPPLIED BY HILTI FASTENING SYSTEMS. INSTALL IN ACCORDANCE WITH THE SUPPLIER'S
- 5. ADHESIVE ANCHORS SHALL NOT BE INSTALLED PRIOR TO THE CONCRETE REACHING AN AGE OF 21 DAYS. EXPANSION ANCHORS SHALL NOT BE INSTALLED PRIOR TO THE CONCRETE REACHING AN AGE OF 28 DAYS.
- 6. USE OF ALTERNATE PRODUCTS, OR OF POST-INSTALLED ANCHORS AT LOCATIONS NOT SHOWN IN THESE DRAWINGS, IS SUBJECT TO THE APPROVAL OF THE ENGINEER OF RECORD. SUBMIT PROPOSED ANCHORS TO THE ARCHITECT WITH AN ICC-E REPORT VALID FOR THE BUILDING CODE REFERENCED IN THE DESIGN CRITERIA. THE SUBMITTED ICC-E REPORT SHALL DEMONSTRATE THAT THE ANCHORS ARE SUITABLE FOR USE IN CRACKED CONCRETE OR UNCRACKED, FULLY GROUTED REINFORCED CONCRETE MASONRY UNITS. WHERE ANCHORS RESIST SEISMIC LOADS, SUBMITTED ICC-E REPORT SHALL DEMONSTRATE THAT THE ANCHORS ARE SUITABLE FOR THE RESISTANCE OF SEISMIC LOADS.

ANCHOR RODS

1. ANCHOR RODS SHALL CONFORM TO F1554, GR36, U.N.O. WITH HEAVY HEX NUTS AND PLAIN WASHERS. PROVIDE DOUBLE HEAVY HEX NUTS, JAMMED, AT ENDS EMBEDDED IN CONCRETE OR TACK WELD SINGLE NUT TO END OF ROD. ANCHOR RODS SHALL HAVE SUFFICIENT LENGTH TO PROVIDE THE MINIMUM EMBEDMENT SHOWN ON THE CONTRACT DRAWINGS. ANCHOR RODS SHALL BE INSTALLED TO A SNUG-TIGHT CONDITION. NO HEATING OR BENDING OF ANCHOR RODS IS PERMITTED. NO ENLARGEMENT OF ANCHOR ROD HOLES, BEYOND THE AISC SPECIFIED HOLE DIAMETER, IS PERMITTED.



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GENERAL NOTES
THE PATTERSON
NDERHILL ASSOCIATES

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DRAWN BY: Author
CHECKED BY Check

REVISIONS :

2022-46

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STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS AND TESTING

		•	SIAIE		I OF STRUCTURAL S
VERIFY WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.	TB 1705.3 (2.a)		-	Х	CERTIFIED MILL TEST REPORTS
INSPECT SINGLE PASS FILLET WELDS, MAXIMUM 5/16"	TB 1705.3 (2.b)	AWS D1.4 ACI 318: 26.6.4	-	Х	-
INSPECT ALL OTHER WELDS	TB 1705.3 (2.c)		Х	-	ALL WELDS VISUALLY INSPECTED PER AWS D1.4: 7.5
INSPECT ANCHORS CAST IN CONCRETE	WAC 51-50-1705	ACI 318 17.8.2	-	Х	ALL ANCHORS SHALL BE VISUALLY INSPECTED
INSPECT ANCHORS POST-INSTALLED IN HARDEN ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	WAC 51-50-1705	ACI 355.4 ICC/IAPMO	Х	-	REFER TO ANCHOR CALLOUTS FOR SUSTAINED TENSION (ST) DESIGNATION
MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE.	WAC 51-50-1705	ACI 355.4 ICC/IAPMO EVALUATION REPORT	-		ALL ANCHORS SHALL BE VISUALLY INSPECTED
VERIFY USE OF REQUIRED DESIGN MIX.	TB 1705.3(5) 1705.3 1904 1908.2 1908.3	ACI 318: 19, 26.4.3-26.4.4, 26.13.3	-	х	-
PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	TB 1705.3(6) 1908.10	ASTM C 172 ASTM C 31 ACI 318: 26.4, 26.12	Х	-	-
INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	TB 1705.3(7) 1705.3 1908.6-8	ACI 318: 26.5, 26.13.3	Х	-	-
VERIFY CURING METHOD AND DURATION OF CURING FOR EACH MEMBER.	-	ACI 318: 26.13.3.3(b)	-	Х	-
VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	TB 1705.3(8) 1705.3 1908.9	ACI 318: 26.5.3-26.5.5, 26.13.3	-	Х	-
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	TB 1705.3(12) 1705.3	ACI 318: 26.11.1.2(b)	-	Х	-
INSPECT REINFORCING STEEL MECHANICAL COUPLERS, TERMINATORS AND FORM SAVERS	-	ICC/IAPMO EVALUATION REPORTS	-	х	VISUALLY INSPECT FOR CORRECT ASSEMBLY AND LOCATION
		MASONRY - LE	VEL B	•	
VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE FOR SELF-CONSOLIDATING GROUT.		TMS 602: TB 4 TMS 602: 1.5 B.1.b.3	Х	-	-
VERIFICATION OF fm PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFICALLY EXEMPTED BY THE CODE.	1705.4	TMS 602: TB 4 TMS 602: 1.4 B	-	Х	-
VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS		TMS 602: TB 4(1) TMS 602: 1.5	-	Х	-
AS MASONRY CONSTRUCTION BEGINS, VERIFY T PROPORTIONS OF SITE-PREPARED	HAT THE FOLLON	TMS 602: TB 4(2.a)	NCE:	X	_
MORTAR CONSTRUCTION OF MORTAR JOINTS	1705.4	TMS 602: 2.1, 2.6 Å TMS 602: TB 4(2.b)	_	X	
LOCATION OF REINFORCEMENT	1700.4	TMS 602: 3.3 B TMS 602:TB 4(2.d)	_	X	
AND CONNECTORS PRIOR TO GROUTING, VERIFY THAT THE FOLLOW	/ING ARE IN COM	i e e e e e e e e e e e e e e e e e e e			
GROUT SPACE		TMS 602: TB 4(3.a) TMS 602: 3.2 D, 3.2 F	-	Х	-
GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS		TMS 602: TB 4(3.b) TMS 602: 2.4, 3.4 TMS 402: 6.1	-	Х	-
PLACEMENT OF REINFORCEMENT AND CONNECTORS	1705.4	TMS 602: TB 4(3.c) TMS 602: 3.2 E, 3.4 TMS 402: 6.1-6.2	-	Х	-
PROPORTIONS OF SITE-PREPARED GROUT		TMS 602: TB 4(3.d) TMS 602: 2.6 B	-	Х	-
CONSTRUCTION OF MORTAR JOINTS VERIFY DURING CONSTRUCTION:		TMS 602: TB 4(3.e) TMS 602: 3.3 B	-	Х	-
SIZE AND LOCATION OF STRUCTURAL ELEMENTS		TMS 602: TB 4(4.a) TMS 602: 3.3 F	-	Х	-
TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	1705.4	TMS 602: 3.3 F TMS 602: TB 4(4.b) TMS 402: 1.2.1(e), 6.1.4.3, 6.2.1	-	X	-
WELDING OF REINFORCEMENT		TMS 602: TB 4(4.c) TMS 402: 8.1.6.7.2, 9.3.3.4(c)	х	-	ALL WELDS VISUALLY INSPECTED PER AWS D1.4: 7.5 REFER TO CONCRETE FOR WELDING REQUIREMENTS
PREPARATION, CONSTRUCTION, AND PROTECTION DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (ABOVE 90°F)	1705.4	TMS 602: TB 4(4.d) TMS 602: 1.8 C, 1.8 D	-	X	-
PLACEMENT OF GROUT IS IN COMPLIANCE	1705.4	TMS 602: TB 4(4.f) TMS 602: 3.5	Х	-	-
OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR	1705.4	TMS 602: TB 4(5) TMS 602: 1.4 B	-	Х	-

TABLE 1 - REQUIRED GEOTECHNICAL SPECIAL INSPECTIONS							
		INSPECTION	N				
SYSTEM OR MATERIAL	IBC CODE REFERENCE	CODE OR STANDARD	FREQUENCY CONTINUOUS		REMARKS		
		SOILS					
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.			-	Х			
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.			-	Х			
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	TB 1705.6 1705.6	GEOTECHNICAL REPORT	-	Х	BY THE GEOTECHNICAL ENGINEER		
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.			Х	-			
PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.			-	Х			

	INSPECTION						
SYSTEM OR MATERIAL	IBC CODE REFERENCE	CODE OR STANDARD	FREQUENCY CONTINUOUS		REMARKS		
	KLI LKLIGE	FABRICATION		PERIODIC			
INSPECTION IN FABRICATION SHOP	1704.2.5	-	-	1	WHERE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING PERFORMED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTION OF THE FABRICATED ITEMS SHALL BE AS REQUIRED BY TABLE 2 AND AS REQUIRED ELSEWHERE IN THE STATEMENT OF SPECIAL INSPECTIONS. REFERENCE SECTION 1704.2.5.1 FOR APPROVED FABRICATOR		
		CONCRET	Έ				
INSPECT REINFORCEMENT, INCLUDING EMBEDMENTS AND PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	TB 1705.3(1) 1705.3 1908.4	ACI 318: 20, 25.2-25.3, 26.6.1-26.6.3, 26.8, 26.13.3	-	Х	TOLERANCE AND REINFORCING PLACEMENT PER ACI 318: 26.6		
INSPECTION OF REINFORCING STEEL WELDING	TB 1705.3(2) 1705.3.1		-	-	EXCEPT AS NOTED OTHERWISE		
MATERIAL VERIFICATION OF WELD FILLER METALS		ACI 318: 26.6.4 AWS D1.4: 7	-	Х	MANUFACTURER'S CERTIFIED TEST REPORT		
VERIFYING USE OF PROPER WELDING PROCEDURE SPECIFICATIONS	1705.3.1		-	Х	COPY OF WELDING PROCEDURE SPECIFICATIONS		
VERIFYING WELDER QUALIFICATIONS			-	Х	COPY OF QUALIFICATION CARDS		

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STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS AND TESTING - CONTINUED

		SIAIE	WENI	JF 5	TRUCTURAL SPECIA
		STEEL DEC	CK		
INSPECTION OR EXECUTION TASKS PRIOR TO DEC	CK PLACEMENT	:		ı	
VERIFY COMPLIANCE OF MATERIALS (DECK AND ALL DECK ACCESSORIES) WITH CONSTRUCTION DOCUMENTS, INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE METAL THICKNESS	1705.2.2	SDI QA/QC: APP. 1	-	х	-
VERIFY COMPLIANCE OF MATERIALS (DECK AND ALL DECK ACCESSORIES) WITH CONSTRUCTION DOCUMENTS, INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE METAL THICKNESS	1703.2.2	JODI QAIQO. AFF. I	-	х	-
INSPECTION OR EXECUTION TASKS AFTER DECK	PLACEMENT:	1			
VERIFY COMPLIANCE OF DECK AND ALL DECK ACCESSORIES INSTALLATION WITH CONSTRUCTION DOCUMENTS VERIFY DECK MATERIALS ARE			-	Х	-
REPRESENTED BY THE MILL CERTIFICATIONS THAT COMPLY WITH THE CONSTRUCTION DOCUMENTS	1705.2.2	SDI QA/QC: APP. 1	-	Х	-
DOCUMENT ACCEPTANCE OR REJECTION OF INSTALLATION OF DECK AND DECK ACCESSORIES			-	Х	-
INSPECTION OR EXECUTION TASKS PRIOR TO WE	LDING:	T	Γ	Γ	T
WELDING PROCEDURE SPECIFICATIONS]		Х	-	-
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	1705.2.2	SDI QA/QC: APP. 1	Х	-	-
MATERIAL IDENTIFICATION (TYPE/GRADE)			X	-	-
CHECK WELDING EQUIPMENT INSPECTION OR EXECUTION TASKS DURING WELL	l DING:		Х	-	-
USE OF QUALIFIED WELDERS			X	-	-
CONTROL AND HANDLING OF WELDING CONSUMABLES	1705.0.0		Х	-	-
ENVIRONMENTAL CONDITIONS (WIND SPEED, MOISTURE, TEMPERATURE)	1705.2.2	SDI QA/QC: APP. 1	Х	-	-
WPS FOLLOWED	_		X	-	-
INSPECTION OR EXECUTION TASKS AFTER WELDI	NG:	1			
VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP, AND PERIMETER WELDS			-	Х	-
VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP, AND	1705.2.2	SDI QA/QC: APP. 1	-	X	-
VERIFY REPAIR ACTIVITIES DOCUMENT ACCEPTANCE OR REJECTION			-	X	-
OF WELDS			-	Х	-
INSPECTION OR EXECUTION TASKS PRIOR TO ME MANUFACTURER INSTALLATION INSTRUCTIONS AVAILABLE FOR MECHANICAL FASTENERS	CHANICAL FAST	ENING:	Х	-	-
PROPER TOOLS AVAILABLE FOR FASTENER INSTALLATION	1705.2.2	SDI QA/QC: APP. 1	Х	-	-
PROPER STORAGE FOR MECHANICAL FASTENERS			Х	-	-
INSPECTION OR EXECUTION TASKS DURING MECH	ANICAL FASTE	NING:			
FASTENERS ARE POSITIONED AS REQUIRED			Х	-	-
FASTENERS ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS	1705.2.2	SDI QA/QC: APP. 1	Х	-	-
INSPECTION OR EXECUTION TASKS AFTER MECHA		ING:		-	
CHECK SPACING, TYPE, AND INSTALLATION OF SUPPORT FASTENERS, SIDELAP FASTENERS, AND PERIMETER FASTENERS		SDI QA/QC: APP. 1	-	X	-
VERIFY REPAIR ACTIVITIES DOCUMENT ACCEPTANCE OR REJECTION	1705.2.2	ODI QAVQU. AFF. I	-	Х	-
OF MECHANICAL FASTENERS			-	Х	-
SYSTEM OR MATERIAL	IBC CODE	INSPECTIO CODE OR	N FREQUENCY	(NOTE 6)	REMARKS
	REFERENCE	STANDARDFORMED STEE	CONTINUOUS		
MATERIAL VERIFICATION OF WELDING	COLD	-FURIVIED STEE	LFKAMIN		
CONSUMABLES	_	AISI S100:	-	Х	MANUFACTURER'S CERTIFIED TEST REPORTS COPY OF WELDING PROCEDURE
VERIFYING USE OF PROPER WPS VERIFYING WELDER QUALIFICATIONS		APP. A E2a	-	X	SPECIFICATIONS COPY OF QUALIFICATION CARDS
WELDED FRAMING CONNECTIONS	_	AWS D1.3: 6	_	X	ALL WELDS VISUALLY INSPECTED PER AWS
		WOOD		<u> </u>	D1.3: 6.1
FABRICATION OF HIGH-LOAD DIAPHRAGMS	AWC SDPWS TB 4.2 1705.5.1 2306.2	-	-	X	VERIFY STRUCTURAL PANEL GRADE AND THICKNESS. VERIFY NOMINAL SIZE OF FRAMING MEMBERS AT ADJOINING PANEL EDGES. VERIFY NAIL OR STAPLE DIAMETER AND LENGTH, NUMBER OF FASTENER LINES AND SPACING BETWEEN FASTENERS IN EACHLINE AND AT EDGE MARGINS
PREFABRICATED WOOD SHEAR PANELS	1703.4 1705.1.1(3)	ICC/IAPMO EVALUATION REPORT	-	Х	SPECIAL INSPECTIONS APPLY TO HOLD-DOWI ANCHOR SIZE AND PLACEMENT, INCLUDING EMBEDMENT LENGTH, SPACING, AND EDGE DISTANCE

SYSTEM OR MATERIAL	IBC CODE	INSPECTION CODE OR	FREQUENCY (NOTE 8)		REMARKS	
	REFERENCE	STANDARD STEEL		PERFORM		
SPECTION TASKS PRIOR TO WELDING:		SIEEL				
WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE			-	×	-	
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE			-	Х	-	
MATERIAL IDENTIFICATION (TYPE/GRADE)			X	-	-	
WELDER IDENTIFICATION SYSTEM FIT-UP OF GROOVE WELDS (INCLUDING			Х	-	-	
JOINT GEOMETRY): JOINT PREPARATION, DIMENSIONS (ALIGNMENT, ROOT						
OPENING, ROOT FACE, BEVEL), CLEANLINESS (CONDITION OF STEEL			Х	-	-	
SURFACES), TÀCKING (TACK WELD	1705.2	AISC 360: TB N5.4-1				
AND FIT (IF APPLICABLE)	1703.2	AISC 360: N5.4				
CONFIGURATION AND FINISH OF ACCESS HOLES			Х	-	-	
FIT-UP OF FILLET WELDS: DIMENSIONS						
(ALIGNMENT, GAPS AT ROOT), CLEANLINESS (CONDITION OF STEEL			X	_	_	
SURFACES), TACKING (TACK WELD QUALITY AND LOCATION), BACKING TYPE			Α	_		
AND FIT (IF APPLICABLE)						
CHECK WELDING EQUIPMENT			-	-	FABRICATOR OR ERECTOR SHALL OBSERVE	
SPECTION TASKS DURING WELDING: USE OF QUALIFIED WELDERS			X	-	-	
CONTROL AND HANDLING OF WELDING CONSUMABLES: PACKAGING, EXPOSURE			Х	-	-	
NO WELDING OVER CRACKED TACK						
WELDS ENVIRONMENTAL CONDITIONS: WIND	-		Х	-	<u>-</u>	
SPEED WITHIN LIMITS, PRECIPITATION AND TEMPERATURE			Х	-	-	
	1705.2	AISC 360: TB N5.4-2				
EQUIPMENT, TRAVEL SPEED, SELECTED WELDING MATERIALS, SHIELDING GAS	1705.2	AISC 360: N5.4				
TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED			Х	-	-	
(MIN./MAX.), PROPER POSITION (F, V, H, OH)						
WELDING TECHNIQUES: INTERPASS AND	-					
FINAL CLEANING, EACH PASS WITHIN PROFILE LIMITATIONS, EACH PASS MEETS			Х	-	-	
QUALITY REQUIREMENTS SPECTION TASKS AFTER WELDING:						
WELDS CLEANED SIZE, LENGTH AND LOCATION OF WELDS			X	- X	-	
WELDS MEET VISUAL ACCEPTANCE			-	^	-	
CRITERIA: CRACK PROHIBITION, WELD/BASE-METAL FUSION, CRATER			-	×	_	
CROSS SECTION, WELD PROFILES, WELD SIZE, UNDERCUT, POROSITY		AISC 360: TB N5.4-3				
ARC STRIKES K-AREA	1705.2	AISC 360: N5.4	-	X	-	
BACKING REMOVED AND WELD TABS			-	X	-	
REMOVED (IF REQUIRED) REPAIR ACTIVITIES			-	X	-	
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER			-	Х	-	
SPECTION TASKS PRIOR TO BOLTING: MANUFACTURER'S CERTIFICATIONS						
AVAILABLE FOR FASTENER MATERIALS			-	Х	-	
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS			Х	-	-	
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT			V			
LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)			Х	-	-	
PROPER BOLTING PROCEDURE FOR			X	_	-	
JOINT DETAIL CONNECTING ELEMENTS, INCLUDING THE		AISC 360: TB N5.6-1				
APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF	1705.2	AISC 360: 1B N5.6-1 AISC 360: N5.6	X	_	_	
SPECIFIED, MEET APPLICABLE REQUIREMENTS						
PRE-INSTALLATION VERIFICATION						
TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR			X	_	-	
FASTENER ASSEMBLIES AND METHODS USED						
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER			X	_	_	
FASTENER COMPONENTS			^		•	
SPECTION TASKS DURING BOLTING: FASTENER ASSEMBLIES, OF SUITABLE						
CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE			X	-	-	
POSITIONED AS REQUIRÉD						
JOINT BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION			X	-	-	
FASTENER COMPONENT NOT TURNED BY	1705.2	AISC 360: TB N5.6-2 AISC 360: N5.6				
THE WRENCH PREVENTED FROM ROTATING			Х	-	-	
FASTENERS ARE PRETENSIONED IN						
ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID			Х	_	-	
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STATEMENT OF SPECIAL INSPECTION AND TESTING NOTES:

- 1. SPECIAL INSPECTIONS SHALL CONFORM TO CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE (IBC) AND THE REFERENCE CODES AND STANDARDS LISTED IN NOTE 2. REFER TO TABLES 1 AND 2 FOR SPECIAL INSPECTION AND TABLES 3 AND 4 FOR TESTING REQUIREMENTS.
- REFERENCE CODES AND STANDARDS ARE AS FOLLOWS:

IBC 2015 ACI 318-14 AWC SDPWS 2015 AWS CURRENT EDITION ASTM CURRENT EDITION

AISC 360-10 341-10 RCSC 2009

TMS 402-13, 602-13 SDI QA/QC-2011

- SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED QUALIFIED TESTING AND INSPECTING AGENCY MEETING THE REQUIREMENTS OF ASTM E 329 (MATERIALS), ASTM D 3740 (SOILS), ASTM C 1077 (CONCRETE), ASTM A 880 (STEEL), AND ASTM E 543 (NON-DESTRUCTIVE). THE TESTING AND INSPECTING AGENCY SHALL FURNISH TO THE STRUCTURAL ENGINEER, ARCHITECT A COPY OF THEIR SCOPE OF ACCREDITATION. SPECIAL INSPECTORS SHALL BE CERTIFIED BY THE BUILDING OFFICIAL. WELDING INSPECTORS SHALL BE QUALIFIED PER SECTION...
- 4. THE SPECIAL INSPECTOR SHALL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION AND NOTED IN THE INSPECTION REPORTS. ISSUES REQUIRING IMMEDIATE CORRECTIVE ACTIONS OR ENGINEERING INPUT ARE TO BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY UPON...
- THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE BUILDING OFFICIAL, STRUCTURAL ENGINEER, ARCHITECT, CONTRACTOR, AND OWNER. THE TESTING AND INSPECTING AGENCY SHALL SUBMIT A FINAL REPORT STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED AND IS IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THAT ALL DISCREPANCIES NOTED IN THE INSPECTION REPORTS HAVE BEEN CORRECTED.
- CONTINUOUS SPECIAL INSPECTION: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED. PERIODIC SPECIAL INSPECTION: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.
- 7. WHERE PERIODIC INSPECTION IS ALLOWED IN ACCORDANCE WITH THE ANCHOR ICC/IAPMO EVALUATION REPORT, INSPECTIONS SHALL BE AS FOLLOWS: - FOR ALL ANCHORS, PRIOR TO CONCEALMENT, VERIFY: ANCHOR TYPE, ANCHOR DIMENSIONS, ANCHOR SPACING AND EDGE DISTANCE. - FOR EACH ANCHOR TYPE AND SIZE, INSPECTOR SHALL BE ONSITE TO CONTINUOUSLY INSPECT A MINIMUM OF THE FIRST 10 ANCHORS INSTALLED BY EACH INSTALLER FOR CONFORMANCE WITH ICC/IAPMO EVALUATION REPORT. PROVIDED ALL ANCHORS ARE INSTALLED CORRECTLY PER MANUFACTURER'S INSTRUCTIONS, PROVIDE PERIODIC INSPECTION ON A MINIMUM OF 10% OF THE NEXT 1000 ANCHORS BY EACH INSTALLER AND A MINIMUM OF 5% OF THE REMAINING ANCHORS BY EACH INSTALLER. INSPECTIONS SHALL OCCUR A MINIMUM OF ONCE PER WEEK AT A RANDOM TIME WHILE ANCHOR INSTALLATION IS ONGOING. ANY NON-COMPLIANCE ISSUES SHALL RESET THE INSPECTION REQUIREMENTS TO TEN (10) CONTINUOUS INSPECTIONS. NON-COMPLIANT ANCHORS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD FOR REVIEW AN...

- INSPECTION REPORTS SHALL IDENTIFY NAMES OF INSTALLERS.

- SPECIAL INSPECTOR SHALL PROVIDE DOCUMENTATION AT THE END OF ANCHOR INSTALLATIONS STATING THAT THE MINIMUM NUMBER OF ANCHORS WERE INSPECTED.
- 8. OBSERVE: OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS. PERFORM: PERFORM THESE TASKS FOR EACH ELEMENT.
- INDICATED CONCRETE TESTING MEETS MINIMUM REQUIREMENTS FOR STRUCTURAL TESTING TO BE PROVIDED BY THE APPROVED QUALIFIED TESTING AND INSPECTING AGENCY. ADDITIONAL TESTING FOR CONSTRUCTION CONSIDERATIONS ARE NOT INDICATED AND SHALL BE DETERMINED BY THE CONTRACTOR AND PROVIDED AT CONTRACTOR'S EXPENSE.

CONTRACTOR RESPONSIBILITY:

THE CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION OF THE MAIN WIND OR SEISMIC FORCE-RESISTING SYSTEM, OR A WIND OR SEISMIC FORCE-RESISTING COMPONENT LISTED IN TABLES 2C, 3 AND 4. THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF...

- 1. ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.
- 2. ACKNOWLEDGEMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE...
- PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND DISTRIBUTION OF THE REPORTS.
- 4. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.

TABLE 2B - REQUIRED STRUCTURAL SPECIAL INSPECTIONS FOR WIND RESISTANCE

	INSPECTION						
SYSTEM OR MATERIAL	IBC CODE	CODE OR			REMARKS		
	REFERENCE	STANDARD	CONTINUOUS	PERIODIC			
		GENERAL	_				
INSPECT FASTENING OF ROOF DECK, ROOF FRAMING CONNECTIONS, WALL CONNECTIONS TO ROOF AND FLOOR DIAPHRAGMS AND FRAMING.	1705.11.3	-	-	X	-		
	COLD-	FORMED STEE	L FRAMIN	G			
WELDED CONNECTIONS FOR DIAPHRAGM ELEMENTS, DRAG STRUTS, SHEAR WALL ELEMENTS AND BRACING.		AWS D1.3: 6	-	X	ALL WELDS VISUALLY INSPECTED PER AWS D1.3: 6.1		
CONNECTIONS FOR DIAPHRAGM ATTACHMENT, DIAPHRAGM CHORDS, DRAG STRUTS, SHEAR WALL ELEMENTS, BRACING AND HOLD-DOWNS.	1705.11.2	-	-	х	ALL CONNECTIONS VISUALLY INSPECTED. NOT REQUIRED IF SHEATHING IS GYPSUM BOARD, FIBERBOARD, OR IF SHEATHING IS WOOD STRUCTURAL PANEL OR STEEL SHEET ON ONLY ONE SIDE AND FASTENER SPACING IS MORE THAN 4 INCHES ON CENTER		

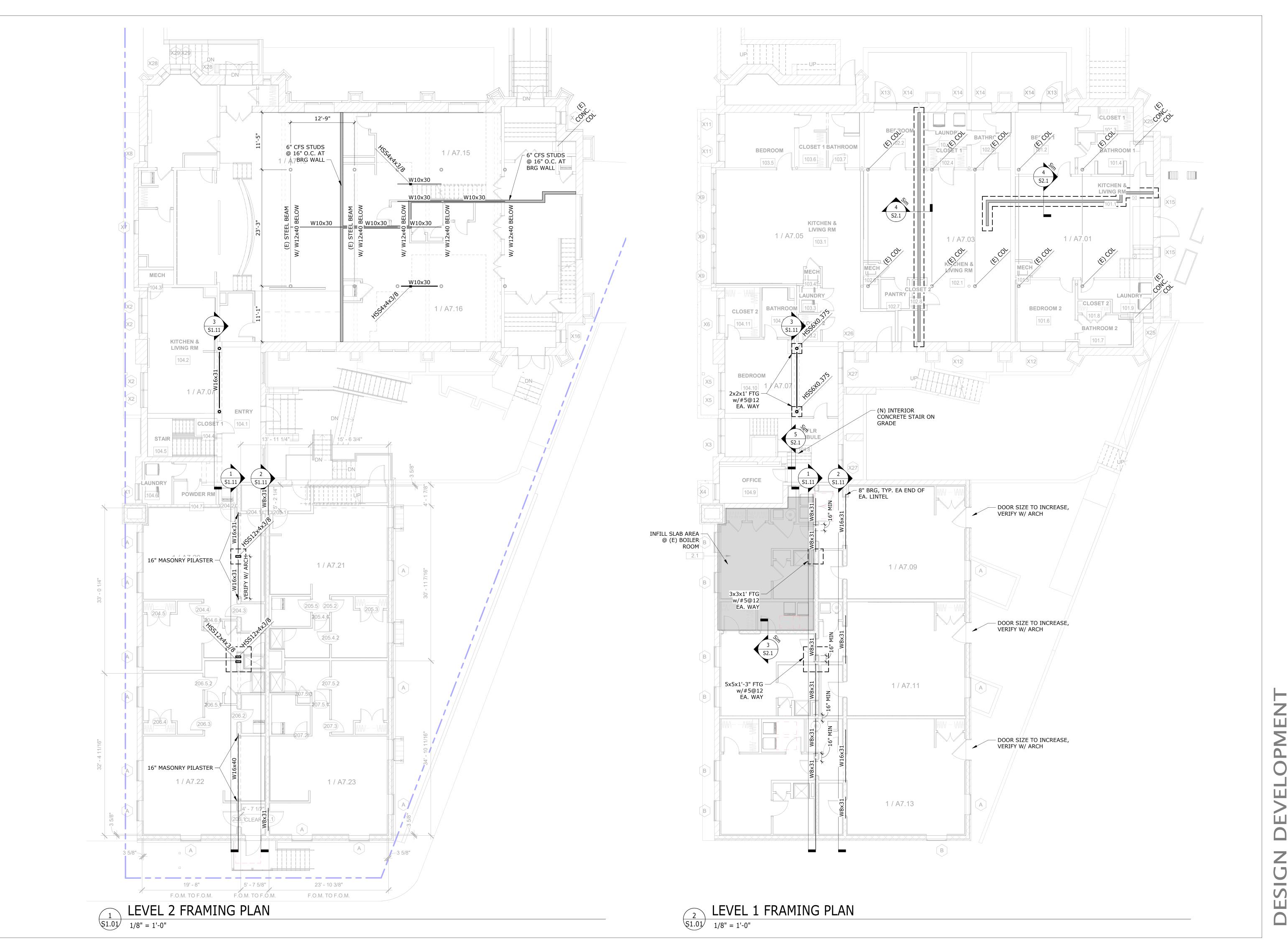
TABLE 3 - REQUIRED STRUCTURAL TESTING					
SYSTEM OR MATERIAL	IBC CODE REFERENCE	TESTING CODE OR STANDARD	FREQUE CONTINUOUS		REMARKS
GEOTECHNICAL					
FILL IN-PLACE DENSITY OR PREPARED SUBGRADE DENSITY	1705.6	VARIES; MINIMUM PER IBC APPENDIX J107.5	-	Х	BY THE GEOTECHNICAL ENGINEER
MATERIAL VERIFICATION		VARIES; CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS	-	X	BY THE GEOTECHNICAL ENGINEER
TEST PILES	-	-	-	-	BY THE GEOTECHNICAL ENGINEER
CONCRETE					
COMPOSITE SAMPLES		ASTM C 172 ACI 318: 26.12			OBTAIN WHEN FRESH CONCRETE IS PLACED FOR EACH MIX DESIGN USED
CONCRETE STRENGTH, UNO	1903 1705.3	ASTM C 39 ACI 318: 26.12	1 CYL - 7 DAYS 3 CYL - TEST AGE		(NOTE 9) REFER TO GENERAL NOTES FOR TEST AGE. FOR 6 BY 12-INCH CYLINDERS, 2 CYLINDERS AT TEST AGE IS PERMITTED. CYL = CYLINDER
CONCRETE SLUMP		ASTM C 143	ONE TEST PER COMPOSITE SAMPLE		AT POINT OF PLACEMENT
CONCRETE AIR CONTENT		ASTM C 231	ONE TEST PER COMPOSITE SAMPLE		MIN ONE PER DAY
CONCRETE TEMPERATURE					ONE TEST PER HOUR WHEN AIR TEMP IS BELOW 40 DEG F OR ABOVE 80 DEG F
MASONRY					
UNIT STRENGTH METHOD	2105 1705.4	ASTM C 62 ASTM C 216 ASTM C 652 ASTM C 476 ASTM C 55 ASTM C 90 TMS 602: 1.4 B.2	-		-
STEEL					
RADIOGRAPHIC (RT) MAGNETIC PARTICLE (MT) AND ULTRASONIC (UT) TESTING OF WELDS	AISC 360 N5.5	RT- AWS D1.1: 6.16 MT- AWS D1.1: 6.14.4 UT- AWS D1.1: 6.13 & 6.14.3	PER DRAWINGS		ALL CJP WELDS IN MATERIALS 5/16" OR GREATER REQUIRE UT TESTING
PRE-CONSTRUCTION TESTING OF WELDED STUDS	1705.2.2		EACH SIZE AND TYPE OF STUD EACH SHIFT		-



ATTERSON L ASSOCIATES SPECIAL INSPETIONS

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1231 S Shelby St, Louisville, KY or Tel. 502.499,1100 FAX 502.49

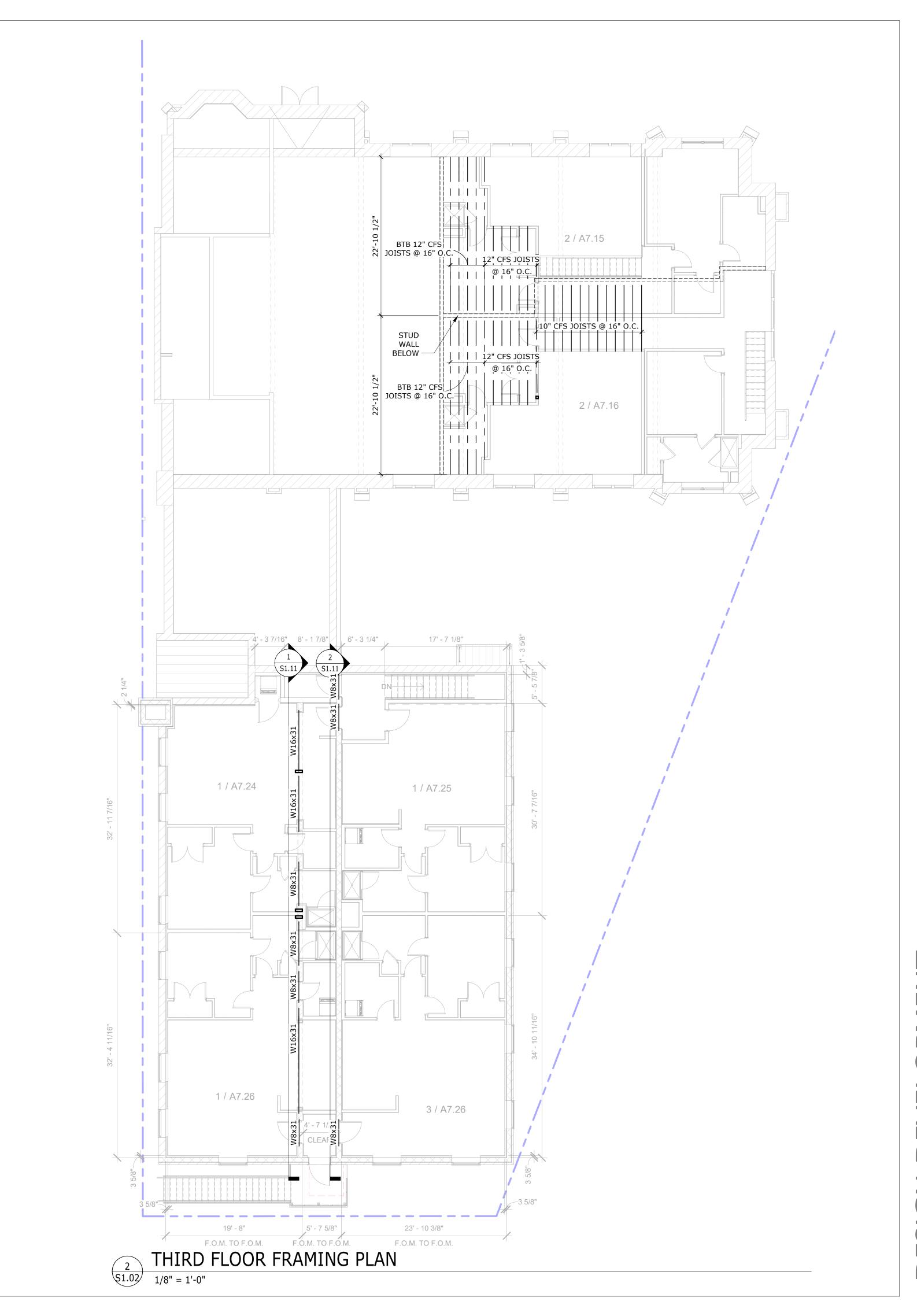
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LEVEL 1 & 2 STRUCTURAL PLANS
THE PATTERSON
UNDERHILL ASSOCIATES

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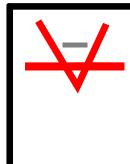


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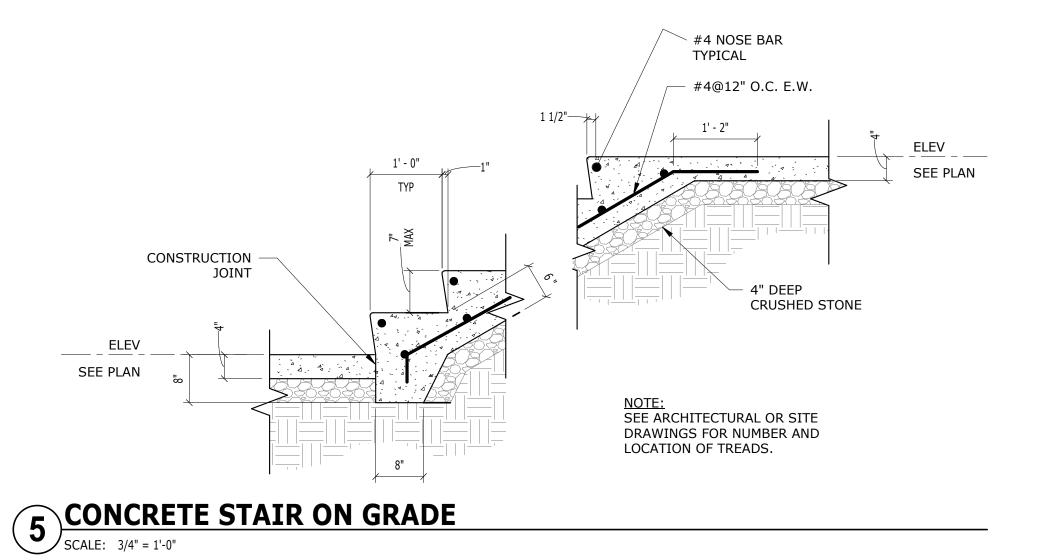
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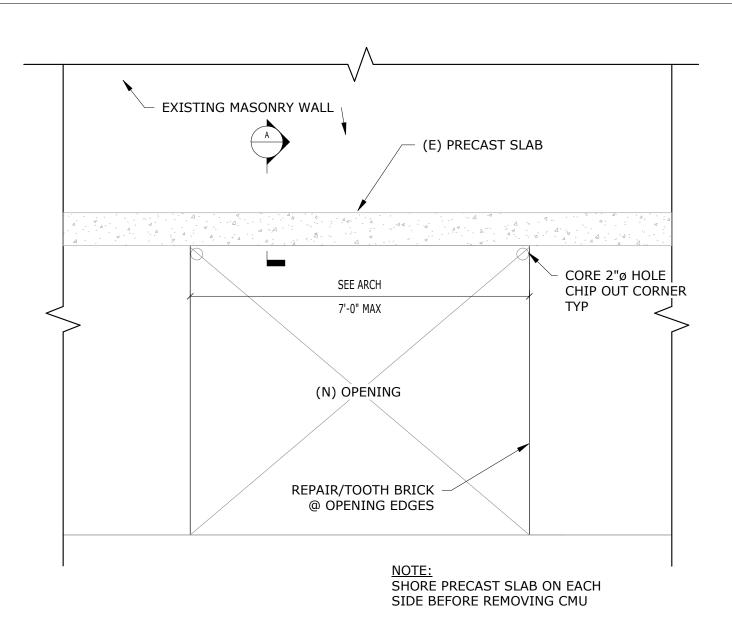
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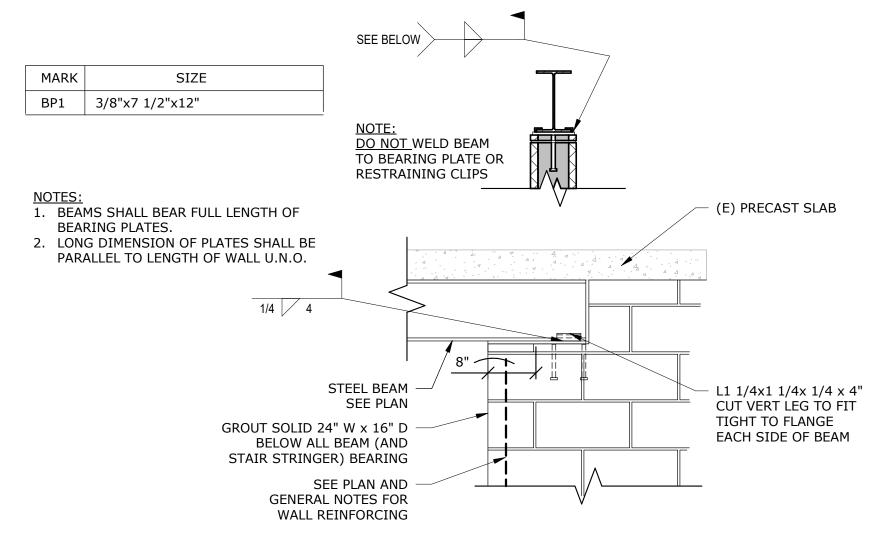
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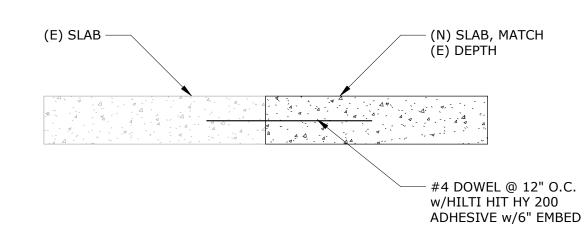


MASONRY OPENING DETAIL SCALE: 3/4" = 1'-0"

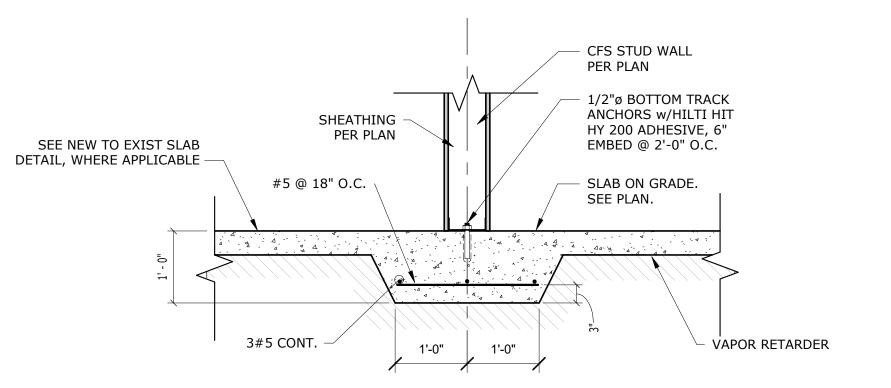


DETAIL AT BEAM PARALLEL TO WALL

BEAM BEARING ON MASONRY DETAIL SCALE: 3/4" = 1'-0"



NEW TO EXISTING SLAB SCALE: 1 1/2" = 1'-0"



THICKENED SLAB BELOW WALL SCALE: 3/4" = 1'-0"

DETAILS PMENT DATE: 10/27/22 DRAWN BY : Author CHECKED BY Checke **REVISIONS**: ESIG

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