

STRUCTURAL NOTES

GENERAL REQUIREMENTS

- WHERE A SECTION OR DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY TO ALL SIMILAR CONDITIONS.
- COORDINATE ALL LIMITS AND DEPTHS OF DEPRESSIONS FOR FLOOR FINISHES WITH ARCHITECTURAL DRAWINGS AND SCHEDULES. LIMITS SHOWN ON STRUCTURAL DRAWINGS ARE SCHEMATIC.
- THE DESIGN ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- DO NOT SCALE DRAWINGS. FOLLOW DIMENSIONS SHOWN ON PLANS.
- CONTRACTOR SHALL COORDINATE AND VERIFY ALL DIMENSIONS AND ELEVATIONS SHOWN HEREIN WITH ARCHITECTURAL PLANS, SECTIONS, AND DETAILS PRIOR TO CONSTRUCTION OR MATERIAL PURCHASE AND SHALL NOTIFY ARCHITECT OR ENGINEER IN WRITING OF DISCREPANCIES. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND ELEVATIONS NOT SHOWN HEREIN.
- DIMENSIONS INDICATED RELATIVE TO EXISTING STRUCTURE ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION OR MATERIALS PURCHASE. CONTRACTOR SHALL NOTIFY ARCHITECT OR ENGINEER IN WRITING OF DISCREPANCIES.
- SPECIFIED ANCHOR SYSTEMS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. SPECIAL ATTENTION SHALL BE GIVEN TO THE DRILLING, CLEANING, AND PREPARATION OF HOLES. WHERE ADHESIVE ANCHORS ARE SHOWN, SPECIAL ATTENTION SHALL BE GIVEN TO THE REQUIRED MIXING, APPLICATION, AND CURING TIME OF ADHESIVE TYPE SPECIFIED.

SUBGRADE PREPARATION

- CONTRACTOR SHALL STRIP AND REMOVE ALL VEGETATION, TOPSOIL, ROOTS, AND ORGANIC SOILS FROM THE CONSTRUCTION AREA FOR A DISTANCE OF AT LEAST 10' BEYOND THE EXTENT OF BUILDING FOUNDATION LIMITS. THE DEPTH OF STRIPPING SHALL BE THAT REQUIRED TO REMOVE SIGNIFICANT ROOT ZONES, SMALL TREE STUMPS, AND OTHER UNACCEPTABLE MATERIALS, BUT IN NO CASE SHALL IT BE LESS THAN 12".
- CONTRACTOR SHALL REMOVE UNSUITABLE TOPSOIL RANGING IN DEPTH OF 0'-4" TO 2'-6" IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS STATED IN GEOTECHNICAL REPORT #B-013-18 PREPARED BY CSRA TESTING AND DATED MARCH 6, 2018.
- AFTER TOPSOILS, ETC. WITHIN AND TO A POINT 10' OUTSIDE THE BUILDING CONSTRUCTION AREA HAVE BEEN REMOVED FROM THE SITE, THE UPPER 24" OF EXPOSED SOILS SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698) BY PROOFROLLING WITH A FULLY LOADED PNEUMATIC TIRED TANDEM AXLE DUMP TRUCK CAPABLE OF TRANSFERRING A LOAD OF 10 TO 20 TONS BY OVERLAPPING PASSES. A MINIMUM OF 8 COMPLETE PASSES SHALL BE MADE WITHIN THE BUILDING AREA. PROOFROLLING SHALL BE UNDER THE OBSERVATION OF AN APPROVED TESTING LABORATORY SUPERVISED BY A GEOTECHNICAL ENGINEER. UNDERCUT, BACKFILL, AND COMPACT AREAS WHICH PUMP, DEFLECT, OR RUT EXCESSIVELY OR WHICH DO NOT STABILIZE AFTER SUCCESSIVE PASSES OF PROOFROLLING EQUIPMENT.
- AFTER COMPLETION OF DENSIFICATION OF EXISTING SOILS, PLACE STRUCTURAL FILL FOR BUILDING AREA IN 12" (8" TO 10" LIFTS) COMPACTED TO A MINIMUM DENSITY AS SPECIFIED FOR FOUNDATION FILL. STRUCTURAL FILL SHALL BE NON-PLASTIC GRANULAR MATERIAL CONTAINING LESS THAN 15% FINES PASSING THROUGH THE NO. 200 SIEVE AND FREE OF ORGANICS, BOULDERS, OR OTHER DELETERIOUS MATERIALS.

FOUNDATIONS

- FOUNDATION DESIGNED FOR 2000 PSF MAXIMUM ALLOWABLE SOIL BEARING PRESSURE BASED ON GEOTECHNICAL REPORT #B-013-18 PREPARED BY CSRA TESTING AND DATED MARCH 6, 2018.
- ALL FOUNDATION FILL SUBGRADE SOILS SHALL BE COMPACTED AS FOLLOWS. (REF. ASTM D-698)
 - 85% STANDARD PROCTOR FOR GREATER THAN 18" BELOW FINAL FILL.
 - 88% STANDARD PROCTOR FOR THE UPPER 18" BENEATH FOUNDATIONS AND PAVEMENTS.
- SOILS TESTING LABORATORY SHALL CONDUCT COMPACTION TESTS IN ACCORDANCE WITH ASTM D-698. RATE OF COMPACTION SHALL BE AS FOLLOWS:
 - ONE TEST FOR EACH SPREAD FOOTING.
 - ONE TEST FOR EACH 50 LINEAR FEET OF CONTINUOUS FOOTING.
 - ONE TEST FOR EACH 1000 SF OF SLAB.
- REMOVE ALL WATER SOFTENED SOILS FROM FOOTING EXCAVATIONS PRIOR TO PLACING CONCRETE. FILL REMAINING VOIDS WITH ADDITIONAL CONCRETE.
- SUPPORT ALL BOTTOM REINFORCEMENT IN FOUNDATION WITH WHOLE CONCRETE BRICKS AT 48" O.C. MAX.
- ALL FOOTING, PIER, AND OTHER FOUNDATION REINFORCING SHALL BE TIED IN PLACE PRIOR TO POURING CONCRETE.
- WHERE FINISHED GRADES DIFFER ON OPPOSITE SIDES OF FOUNDATION WALLS, PROVIDE TEMPORARY BRACING. PREVENT LATERAL MOVEMENT UNTIL ALL ADJACENT FILLING, COMPACTION, FLOOR SLABS, AND FRAMING AT NEXT LEVEL OVER HAS BEEN COMPLETED.
- UNLESS INDICATED ON FOUNDATION PLAN, VERTICAL STEPS IN FOOTINGS TO BE MAXIMUM 2'-0" VERTICAL SPACED NO LESS THAN 4'-0" O.C. HORIZONTALLY TO MAINTAIN MINIMUM 12" COVER BELOW FINISHED EARTH GRADE.
- WHERE GRAVITY PLUMBING LINES OCCUR BELOW TOP OF WALL FOOTING, STEP FOOTING DOWN TO PROVIDE CLEARANCES INDICATED ON DETAIL "WALL FOOTING DETAILS". INTERFERENCE OFFSET AT GRAVITY SEWER" UNLESS OTHERWISE SPECIFIED. COORDINATE WITH PLUMBING WORK FOR LOCATIONS, SIZES, AND HEIGHTS.
- CONSTRUCTION JOINTS IN CONTINUOUS FOOTINGS TO BE FORMED VERTICALLY WITH MIN. 1'-6" LAPS IN HORIZONTAL REINFORCING.
- PROVIDE 1/2" P.E.J. FILLER AROUND PERIMETER OF SLABS WHERE THEY ABUT VERTICAL SURFACES AND AT COLUMN ISOLATION JOINTS AS DETAILLED.
- CONSTRUCTION JOINTS IN CONTINUOUS FOOTINGS TO BE FORMED VERTICALLY IN ACCORDANCE WITH FOUNDATION DETAILS IN PLANS.
- PROVIDE 1/2" EXPANSION JOINT FILLER AROUND PERIMETER OF SLABS WHERE THEY ABUT VERTICAL SURFACES AND AT COLUMN ISOLATION JOINTS AS DETAILLED.

SLAB ON GRADE

- APPLY AN APPROVED CURING COMPOUND CONFORMING TO ASTM C 309 AFTER FINISHING THE SLAB.
- ALL WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A1064. LAP ADJOINING PIECES AT LEAST ONE FULL MESH OR 8" MINIMUM, UNLESS OTHERWISE APPROVED. ALL WELDED WIRE FABRIC SHALL BE BLOCKED INTO POSITION INDICATED WITH PRECAST CONCRETE BLOCKS HAVING A COMPRESSIVE STRENGTH EQUAL TO THAT OF THE SLAB.
- THE USE OF POLYPROPYLENE FIBERS (IN LIEU OF WELDED WIRE FABRIC) IS PROHIBITED WITHOUT THE WRITTEN AUTHORIZATION OF THE ENGINEER.
- THE MAXIMUM SPACING OF JOINTS SHALL BE AS SHOWN ON PLANS.
- ALL POROUS FILL MATERIAL SHALL BE A CLEAN GRANULAR MATERIAL WITH 100% PASSING 1-1/2" SIEVE AND NO MORE THAN 5% PASSING A NO. 4 SIEVE. POROUS FILL SHALL BE COMPACTED TO 95% MAX. DRY DENSITY PER ASTM D-698.
- SLAB JOINTS SHALL BE FILLED WITH APPROVED MATERIAL. THIS SHALL TAKE PLACE AS LATE AS POSSIBLE, PREFERABLY 4 TO 6 WEEKS AFTER THE SLAB HAS BEEN CAST. PRIOR TO FILLING, REMOVE ALL DEBRIS FROM THE SLAB JOINTS, THEN FILL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- SEE THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF DEPRESSIONS AREAS AND DRAINS. SLOPE SLAB TO DRAINS WHERE SHOWN.
- THE FINISH TO SURFACE OF ALL SLABS SHALL BE IN ACCORDANCE WITH ACI 301. PROVIDE A WALKWAYS AND OTHER EXTERIOR SLABS ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS. SEE THE SITE PLAN AND ARCHITECTURAL DRAWINGS FOR LOCATIONS, DIMENSIONS, ELEVATIONS, JOINTING DETAILS AND JOINT DETAILS.
- CONTROL JOINT SEALANT SHALL BE SIKADUR 11 NS/SEALANT APPROVED EQUAL. EXPANSION AND ISOLATION JOINT SEALANT SHALL BE SIKADUR 16 OR APPROVED EQUAL.

CAST-IN-PLACE REINFORCED CONCRETE

- THE FOLLOWING ACI AND OTHER (LATEST EDITION) APPLY:
 - ACI 318 - CODE
 - ACI 315 - DETAILING
 - ACI 308 - SPECIFICATIONS
 - ACI 309 - PRACTICE
 - ACI 307 - FORMWORK
 - ACI 306 - MIX PROPORTIONING
 - ACI 305 - HOT WEATHER CONCRETING
 - ACI 306 - COLD WEATHER CONCRETING
- CONCRETE SHALL BE NORMAL WEIGHT CONCRETE (145 PCF) WITH MIXES DESIGN THE FOLLOWING CRITERIA:

STRUCTURAL ELEMENT	28 DAY COMPRESSIVE STRENGTH
FOOTINGS & FOUNDATION WALLS	3,000 PSI
SLAB ON GRADE	4,000 PSI

REINFORCING STEEL

- ALL REINFORCING STEEL SHALL BE ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
- ALL WELDED WIRE FABRIC SHALL BE ASTM A1064, 70 KSI MINIMUM YIELD STRENGTH.
- ADDITIONAL REINFORCING AND THAT QUANTITY OF REINFORCING OCCURRING AT OPENINGS SHALL BE PLACED EQUALLY EACH SIDE OF OPENINGS AS DETAILLED.
- HOOKS IN REINFORCING ARE IN ADDITION TO LENGTH SHOWN.
- REINFORCING IS TO BE SUPPORTED IN FORMS AND SPACED WITH WIRE BAR SUPPORTS ACCORDING TO CRSI "PLACING REINFORCING BARS" UNLESS NOTED OTHERWISE.
- WHERE REINFORCING BARS ARE NOTED AS CONTINUOUS, THE FOLLOWING REQUIREMENTS APPLY:
 - THE TERMINATION OF ALL CONTINUOUS REINFORCING BAR RUNS SHALL BE A STANDARD HOOK UNLESS NOTED OTHERWISE.
 - SPLICES IN CONTINUOUS TOP BARS SHALL OCCUR OVER PARALLEL CMU WALLS OR AT THE CENTER OF THE CLEAR SPAN.
 - SPLICES IN CONTINUOUS BOTTOM BARS SHALL OCCUR OVER PERPENDICULAR CMU WALLS OR CENTERED OVER COLUMNS.
- MINIMUM REINFORCING STEEL CLEAR COVERS ARE AS FOLLOWS:

A. CONCRETE CAST DIRECTLY AGAINST EARTH	3"
B. INTERIOR SLABS	1"
C. INTERIOR BEAMS AND COLUMNS	1 1/2"
D. EXTERIOR BEAMS AND COLUMNS	2"
E. EXTERIOR SLABS	1 1/2"
- ALL REINFORCING LAP SPLICES SHALL FOLLOW THE TABLES PROVIDED BELOW:

BAR SIZE	8" CMU	12" CMU
#4	24"	18"
#5	30"	20"
#6	36"	30"

BAR SIZE	LAP LENGTH
#4	30"
#5	36"
#6	44"

CONCRETE MASONRY

- APPLICABLE MASONRY CODES:
 - ACI 530-11/ASCE 5-11/TMS 402-11 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES
 - ACI 530-1-11/ASCE 6-11/TMS 602-11 SPECIFICATIONS FOR MASONRY STRUCTURES
- CONCRETE MASONRY UNITS SHALL BE LOAD BEARING TYPE CONFORMING TO ASTM C-90 HAVING A MINIMUM STRENGTH OF 3500 PSI.
- ALL CELLS BELOW GRADE SHALL BE FILLED SOLID WITH GROUT OR CONCRETE.
- MORTAR SHALL CONFORM TO ASTM C-270 TYPE S.
- REINFORCED WALLS, STIFFENERS, PIERS, ETC. SHALL BE FILLED IN MAXIMUM OF 4'-0" LIFTS. FILL SHALL BE MECHANICALLY MIXED (ASTM C476 COURSE) GROUT OR REGULAR WEIGHT CONCRETE (ASTM C84) WITH MAX 1/2" COARSE AGGREGATE HAVING NOT LESS THAN 3,000 PSI (MIN.) 28 DAY STRENGTH. SEE SPECIFICATIONS FOR GROUT.
- PLAIN END TWO CELL UNITS SHALL BE USED FOR BLOCKS THAT ARE TO HAVE CELLS REINFORCED OR FILLED. WALL SHELLS ADJACENT TO CELLS THAT ARE TO BE FILLED ARE TO BE BEDDED IN MORTAR.
- FILL CELLS AS NOTED ON DRAWINGS WITH 3000 PSI GROUT CONFORMING TO ASTM C-476 SPECIFICALLY DESIGNED FOR FILLING CELLS.
- VERTICAL REINFORCING TO BE LAPPED AS NOTED IN SCHEDULE AT DOWELS AND SPLICES (N.O.).
- HORIZONTAL JOINT REINFORCING TO BE CONTINUOUS THROUGH REINFORCED CELLS.
- PROVIDE 9 GA. GALVANIZED WIRE TRUSS OR LADDER TYPE HORIZONTAL JOINT REINFORCING CONFORMING TO ASTM A82 AT 16" O.C. OR AS INDICATED ON DRAWINGS.
- SEE ARCHITECTURAL DRAWINGS FOR THE EXTENT AND EXACT LOCATION OF MASONRY WALLS.
- WALL CONTROL JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING:
 - WALL CONTROL JOINTS SHALL BE PROVIDED IN ALL CONCRETE MASONRY WALLS AT LOCATIONS INDICATED ON THE STRUCTURAL DRAWINGS BUT AT A SPACING NOT GREATER THAN 24'-0" O.C.
 - HORIZONTAL JOINT REINFORCING SHALL BE INTERRUPTED AT EACH SIDE OF WALL CONTROL JOINTS.
 - WALL CONTROL JOINTS SHALL NOT BE PLACED OVER OPENINGS OR WITHIN JAMB WIDTH.
- BLOCK LINTELS SHALL BE SPECIALLY FORMED U-BLOCK LINTEL OR LOW WEB LINTEL UNITS WITH REINFORCEMENT AS SHOWN OR PRECAST UNITS DESIGNED FOR THE WEIGHT OF MASONRY ABOVE AND ALL OTHER APPLIED LOADS.
- UNLESS NOTED OTHERWISE, PROVIDE CONTINUOUS 8" DEEP INTERMEDIATE BOND BEAMS AT MAXIMUM 8'-0" O.C. VERTICALLY. REINFORCE WITH (2) #5 CONTINUOUS BARS OR AS NOTED ON THE PLANS. INTERRUPT AT VERTICAL CONTROL JOINTS. PROVIDE BOND BEAM AT TOP OF ALL CMU WALLS.
- PROVIDE (2) #5x24"x24" HORIZONTAL CORNER BARS AT CHANGES IN SECTION OF BOND BEAM WHERE BOND BEAMS INTERRUPTED BY OPENINGS, HOOKS, ETC. INTO REINFORCED JAMB.
- UNLESS NOTED OTHERWISE, REINFORCED PIERS AT JAMBS OF OPENINGS SHALL BE DISCONTINUOUS ABOVE LINTEL BEARING EXCEPT AS FOLLOWS:
 - OPENING 4'-0" TO 8'-0": CONTINUE JAMB REINFORCING 2' ABOVE OPENING.
 - OPENING OVER 8'-0": CONTINUE JAMB REINFORCING TO TOP OF WALL.
- ALL MASONRY WALLS SHOWN ON THESE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED TO RESIST THE REQUIRED VERTICAL AND LATERAL FORCES. THE FINAL CONFIGURATION ONLY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ADEQUATELY BRACE THE WALLS FOR VERTICAL AND LATERAL LOADS THAT COULD POSSIBLY BE APPLIED PRIOR TO COMPLETION OF LATERAL SUPPORT BY CONNECTIONS AT FLOOR OR ROOF FRAMING LOCATIONS.
- UNLESS SHOWN OTHERWISE IN WALL DETAILS, PLACE ONE VERTICAL #5 BAR IN FULLY GROUTED CELL @ 48" (O.C.) MINIMUM ALONG THE LENGTH OF WALLS. VERTICAL BARS TO EXTEND FROM FOOTING DOWEL BOLT SPLICE TO TOP OF WALL AND SHALL BE REINTEGRATE INTO THE BOTTOM OF BOND BEAMS AT PARAPET 4" MINIMUM.
- UNLESS SHOWN OTHERWISE, ONE VERTICAL #5 BAR IN A FULLY GROUTED CELL SHALL BE PLACED AT WINDOW PERS. THE ENDS OF WALLS ON EACH SIDE OF DOORS AND WINDOW JAMBS, AND ON EACH SIDE OF MASONRY CONTROL JOINTS. VERTICAL BARS TO EXTEND FROM FOOTING DOWEL BOLT SPLICE TO TOP OF WALL AND SHALL PENETRATE INTO THE BOTTOM OF BOND BEAMS AT TOP OF WALL OR PARAPET 4" MINIMUM.

STEEL JOISTS

- STEEL JOISTS SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH STEEL JOIST BRIDGING (SJI) STANDARD SPECIFICATIONS, LATEST EDITION.
- JOIST BRIDGING SHALL CONFORM TO SJI SPECIFICATIONS. PROVIDE DIAGONAL BRIDGING AT ALL JOIST MID END BAYS. FIELD WELD BRIDGING AT ENDS AND INTERSECTIONS. ALL JOIST BRIDGING (40) FEET AND LONGER REQUIRE A ROW OF BOLTED CROSS BRIDGING TO BE IN PLACE BEFORE SLACKING OF HOISTING LINES.
- JOISTS SHALL BE PROPERLY ANCHORED AT BEARING. SEE TYPICAL DETAILS. JOIST BRIDGING AND CONNECTIONS SHALL BE COMPLETELY INSTALLED PRIOR TO PLACING ANY CONSTRUCTION LOADS ON THE JOISTS. CONSTRUCTION LOADS SHALL NOT EXCEED THE JOIST DESIGN LOAD.
- ALL ROOF JOISTS SHALL BE DESIGNED FOR A NET WIND UPLIFT AS SCHEDULED. PROVIDE AN ADDITIONAL ROW OF CONTINUOUS HORIZONTAL BOTTOM CHORD BRIDGING AT THE FIRST PANEL. POINT LOCATION AT EACH END OF ALL ROOF JOISTS TO RESIST WIND UPLIFT. UPLIFT BRIDGING SHALL TERMINATE WITH DIAGONAL BRIDGING AT ALL END BAYS.
- ALL JOISTS SHALL BE SHOP PAINTED IN ACCORDANCE WITH SJI REQUIREMENTS.
- THE JOIST MANUFACTURER SHALL SUBMIT CALCULATIONS FOR ALL SPECIAL JOISTS TO THE ENGINEER FOR RECORD. PRIOR TO FABRICATION THESE CALCULATIONS SHALL BEAR THE SIGNED AND DATED SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE MANUFACTURED.
- THE JOIST MANUFACTURER SHALL BE A SJI CERTIFIED SHOP & MAINTAIN APPROVED FABRICATION PROCEDURES AS REQUIRED TO SATISFY THE SPECIAL INSPECTION REQUIREMENTS OF THE IBC.
- AT STANDING BEAM ROOFS THE JOIST MANUFACTURER SHALL PROVIDE ADDITIONAL BRIDGING TO ADEQUATELY BRACE THE TOP CHORDS AGAINST LATERAL MOVEMENT UNDER A FULL LOADING CONDITION.
- JOISTS ON COLUMN CENTERLINES SHALL HAVE EXTENDED BOTTOM CHORD CONNECTIONS PER TYPICAL DETAILS. DO NOT CONNECT BOTTOM CHORD EXTENSIONS UNTIL ALL GRAVITY DEAD LOADS ARE IN PLACE. THESE JOISTS ARE INDICATED AS "SP" ON PLAN AND SHALL BE DESIGNED BY THE JOIST MANUFACTURER FOR LIVE LOAD END MOMENTS BASED ON THE INDICATED LIVE LOADS.

STRUCTURAL STEEL

- APPLICABLE STRUCTURAL STEEL CODES:
 - AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 14TH EDITION
 - AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES
- MATERIALS:

A. STEEL SHAPES	ASTM A992, GRADE 50
B. STEEL TUBING	ASTM A500, GRADE B, F _y = 46 KSI
C. STEEL PIPE	ASTM A500, GRADE B, F _y = 42 KSI
D. ALL OTHER	ASTM A36
E. ANCHOR BOLTS	ASTM A307
F. HIGH STRENGTH BOLTS	ASTM A325
G. ANCHOR RODS	ASTM F1554, GRADE 36 E70 SERIES
- STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED ACCORDING TO THE LATEST EDITION OF AISC "SPECIFICATION, DESIGN, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" AND RELATED PUBLICATIONS SPECIFIED THEREIN.
- ALL SHEAR AND TENSION TYPE BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER ASTM A325N HIGH STRENGTH BOLTS. DESIGN TORQUE TO BE DEVELOPED USING LOAD INDICATOR WASHERS AS MANUFACTURED BY BETHLEHEM STEEL CORPORATION OR APPROVED EQUIVALENT. INSTALL AS PER MANUFACTURER'S PUBLISHED INSTRUCTIONS. ALL OTHER BOLTED CONNECTIONS MAY BE MADE WITH ASTM A307 BOLTS AND WASHERS.
- STEEL FRAMING ERECTION INCLUDING ALL BOLTED AND WELDED CONNECTIONS, BRACING, AND ANCHORAGES SHALL BE COMPLETED AND PLUMB PRIOR TO PLACEMENT OF DECK.
- NON-SHRINK, NON-METALLIC GROUT WITH A 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI SHALL BE USED UNDER BASE PLATES.
- ENGINEER SHALL BE CONTACTED FOR APPROVAL OF ANY FIELD MODIFICATIONS OF ANCHOR BOLTS OR RODS AND COLUMN BASE PLATES.
- TEMPORARY BRACING OF STEEL STRUCTURAL ELEMENTS IS THE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURAL STABILITY SHALL BE MAINTAINED AT ALL TIMES DURING THE ERECTION PROCESS.
- FRAMING CONNECTIONS NOT DETAILED, OR CONNECTIONS THAT ARE MODIFIED FROM THOSE DETAILED SHALL BE DESIGNED BY SUPPLIER FOR THE END REACTION SHOWN ON THE PLAN. IF NO REACTION IS PROVIDED, CONNECTIONS SHALL BE DESIGNED FOR 1/2 THE BEAM MAXIMUM UNIFORM LOAD PER AISC MANUAL FOR STEEL CONSTRUCTION.
- SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED. USE 3/16" FILLET WELD MINIMUM.
- FIELD CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED AS DETAILLED. NO FIELD WELDING OF HOT-DIPPED GALVANIZED MEMBERS IS ALLOWED. USE 3/16" FILLET WELD MINIMUM.
- SUBMIT FOR REVIEW SHOP DRAWINGS OF STEEL DETAILS PRIOR TO FABRICATING STRUCTURAL STEEL.
- ALL BRICK SHELF ANGLES SHALL BE HOT-DIPPED GALVANIZED.
- ALL EXTERIOR ELEMENTS AND THOSE ELEMENTS NOTED TO BE GALVANIZED SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123 AFTER "SANDBLAST" CLEANING PER AISC SPECIFICATION. USE ASTM A325 BOLTS HOT DIPPED GALVANIZED WITH GALVANIZED HARDENED WASHERS AND GALVANIZED HEAVY HEX NUTS FOR BOLTING OF GALVANIZED ITEMS.
- STEEL COLUMNS, BASE PLATES, AND ALL STEEL BELOW GRADE SHALL HAVE A MINIMUM 4" CONCRETE COVER PROTECTION.
- ALL SHOP AND FIELD WELDS SHALL BE PERFORMED BY A CERTIFIED WELDER IN ACCORDANCE WITH AWS D1.1.
- A GAS CUTTING TORCH SHALL NOT BE USED FOR CUTTING HOLES OR CORRECTING MANUFACTURING ERRORS IN THE FIELD WITHOUT THE WRITTEN CONSENT OF THE ENGINEER OF RECORD FOR EACH OCCURRENCE.
- STANDARD BRICK LINTELS:

SPANS < 2'-0"	1-BAR 2 1/2 x 3/8 FOR EACH 4" WYTHE
2'-0" - 4'-0"	1-3/4 x 1/2 x 3/16 FOR EACH 4" WYTHE
4'-0" - 8'-0"	1-1/4 x 3/16 FOR EACH 4" WYTHE (LLV)
8'-0" - 10'-0"	1-1/2 x 3/16 FOR EACH 4" WYTHE (LLV)
10'-0" - 10'-0"	1-1/2 x 3/16 FOR EACH 4" WYTHE (LLV)
- MINIMUM 6" BEARING EACH END. INCREASE EACH BEARING LENGTH BY ONE FOOT FOR SPAN OVER 6'-0".
- INCREASE WIDTH OF HORIZONTAL WALLS WHERE REQUIRED TO COVER WALL HEIGHT ABOVE. SEE ARCHITECTURAL DETAILS.

STEEL ROOF DECK AND NON-CONCRETE FLOOR DECK

- STEEL DECK DESIGN, DETAILING, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE DESIGN MANUAL FOR CORRUGATED DECKS, FORM DECKS AND ROOF DECKS BY THE STEEL DECK INSTITUTE (SDI).
- STEEL DECK SHALL CONFORM TO ASTM A653 OR G33 GRADE 33 (F_y = 33 KSI).
- STEEL DECK SHALL BE GALVANIZED WITH A PROTECTIVE ZINC COATING CONFORMING TO ASTM A792 WITH A MINIMUM ZINC COATING DESIGNATION G90.
- PROVIDE A MINIMUM 2" BEARING OF 2" OVER SUPPORTS. END LAPS OF SHEETS SHALL BE MINIMUM OF 24" AND SHALL OCCUR OVER SUPPORTS.
- OPENINGS LARGER THAN 12", AND AS DETAILLED, SHALL HAVE STEEL FRAMING SURROUNDING ALL EDGES - SEE DETAILS.
- DECKING SHALL BE FABRICATED SO THAT DECK RUNS CONTINUOUSLY OVER OPENINGS. THE OPENINGS SHALL NOT BE CUT UNTIL NEEDED.
- ALL METAL DECK WELDING SHALL BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY SPECIFICATIONS D1.3. PROVIDE WELDING WASHERS FOR ALL FLOOR DECK WELDS.
- SUSPENDED CEILING, LIGHT FIXTURES, DUCTS AND OTHER PERMANENT SUSPENDED LOADS SHALL NOT BE SUPPORTED BY THE METAL DECKING.
- ALL MASONRY WALLS SHOWN ON THESE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED TO RESIST THE REQUIRED VERTICAL AND LATERAL FORCES. THE FINAL CONFIGURATION ONLY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ADEQUATELY BRACE THE WALLS FOR VERTICAL AND LATERAL LOADS THAT COULD POSSIBLY BE APPLIED PRIOR TO COMPLETION OF LATERAL SUPPORT BY CONNECTIONS AT FLOOR OR ROOF FRAMING LOCATIONS.
- UNLESS SHOWN OTHERWISE IN WALL DETAILS, PLACE ONE VERTICAL #5 BAR IN FULLY GROUTED CELL @ 48" (O.C.) MINIMUM ALONG THE LENGTH OF WALLS. VERTICAL BARS TO EXTEND FROM FOOTING DOWEL BOLT SPLICE TO TOP OF WALL AND SHALL BE REINTEGRATE INTO THE BOTTOM OF BOND BEAMS AT PARAPET 4" MINIMUM.
- UNLESS SHOWN OTHERWISE, ONE VERTICAL #5 BAR IN A FULLY GROUTED CELL SHALL BE PLACED AT WINDOW PERS. THE ENDS OF WALLS ON EACH SIDE OF DOORS AND WINDOW JAMBS, AND ON EACH SIDE OF MASONRY CONTROL JOINTS. VERTICAL BARS TO EXTEND FROM FOOTING DOWEL BOLT SPLICE TO TOP OF WALL AND SHALL PENETRATE INTO THE BOTTOM OF BOND BEAMS AT TOP OF WALL OR PARAPET 4" MINIMUM.

SUBMITTAL AND NOTIFICATION REQUIREMENTS

- SUBMITTALS:
 - SUBMITTALS REQUIRED FOR BORROW MATERIALS, CONCRETE MIX DESIGNS, SHOP DRAWINGS FOR CONCRETE REINFORCING, EMBEDDED ITEMS, ACCESSORIES, AND PRODUCT DATA, ETC. AS OUTLINED IN THE SPECIFICATIONS.
 - SHOP DRAWINGS FOR STRUCTURAL STEEL, BAR JOISTS, COMPOSITE FLOOR DECK, AND ROOF DECK.
 - ALL DATA AND DRAWINGS SHALL BE SUBMITTED "CONTRACTOR APPROVED".
- NOTIFICATIONS:
 - CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER.
 - WHEN EXCAVATION TO REQUIRED SUBGRADE ELEVATIONS HAVE BEEN REACHED;
 - 24 HOURS PRIOR TO SCHEDULED FILL OR BACKFILL OPERATION;
 - 24 HOURS PRIOR TO ANY SCHEDULED CONCRETE PLACEMENT FOR INSPECTION OF FORMWORK, REINFORCING, AND EMBEDDED ITEMS.
 - 24 HOURS PRIOR TO SCHEDULED STEEL AND FLOOR OR ROOF DECK ERECTION.

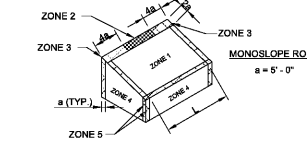
VERIFICATION AND INSPECTION	FREQUENCY OF INSPECTION	
	CONTINUOUS	PERIODIC
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION		
1. Inspection of reinforcing steel, including prestressing tendons and placement		X
2. Inspection of reinforcing steel and welding	X	
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased.	X	
4. Verifying use of required concrete mix.		X
5. At the time of fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and to determine the temperature and unit weight of the concrete.	X	
6. Inspection of concrete and shotcrete placement for proper application techniques.	X	
7. Inspection for maintenance of specified curing temperature and techniques.		X
8. Verification of in-situ concrete strength prior to the stressing of tendons in post-tensioned concrete and prior to the removal of shores and forms from beams or elevated slabs.		X
9. Inspect formwork for shape, location and dimensions of the concrete member being formed.		X
REFERENCE SPECIFICATION DIVISION 03 CONCRETE FOR DETAILED REQUIREMENTS		
REQUIRED VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION		
1. As masonry construction begins, the following shall be verified to assure compliance.		X
1a. Proportions if site-prepared mortar.		X
1b. Construction of Mortar Joints		X
1c. Locations of reinforcement & embeds		X
2. Inspection program to verify:		X
2a. Size and location of masonry elements		X
2b. Type, size and location of anchors		X
2c. Size and grade of reinforcement		X
2d. Welding of reinforcement bars	X	
2e. Hot and cold weather protection measures		X
3. Prior to grouting, the following shall be verified to assure compliance:		X
3a. Grout is clean		X
3b. Location of reinforcement & embeds		X
3c. Consistency of mortar joints		X
4. Grout placement shall be verified to ensure compliance with code and construction documents.	X	
5. Preparation of any required grout or mortar specimens and/or prisms shall be observed.		X
6. Compliance with the required inspection provisions of the construction documents and the approved submittals.		X
REFERENCE SPECIFICATION DIVISION 04 MASONRY FOR DETAILED REQUIREMENTS		

VERIFICATION AND INSPECTION	FREQUENCY OF INSPECTION	
	CONTINUOUS	PERIODIC
REQUIRED VERIFICATION AND INSPECTION OF SOILS		
1. Verify materials are adequate to achieve the design bearing strength.		X
2. Verify excavations are extended to proper depth and have reached proper material.		X
3. Perform classification and testing of controlled fill materials.		X
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fill.	X	
5. Prior to placement of controlled fill, observe subgrade and verify that site has been properly prepared.		X
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION		
1. Material verification of high-strength bolts, nuts and washers:		X
1a. Identification markings to conform to AWS standards specified in the approved construction documents		X
1b. Manufacturer's certificate of compliance required.		X
2. Inspection of high-strength bolting:		X
2a. Bolting type connections.		X
2b. Shear type connections.		X
3. Material verification of structural steel:		X
3a. Identification markings to conform to ASTM standards specified in the approved construction documents		X
3b. Manufacturer's certified mill test reports		X
4. Material verification of weld firm materials:		X
4a. Identification markings to conform to AWS standards specified in the approved construction documents		X
4b. Manufacturer's certificate of compliance required.		X
5. Inspection of Structural Steel welding:		X
5a. Complete and partial penetration groove welds.	X	
5b. Multipass fillet welds.	X	
5c. Single pass fillet welds > 5/16"	X	
5d. Single pass fillet welds up to 5/16"		X
5e. Floor and roof deck welds.		X
6. Inspection of Reinforcing Steel welding:		X
6a. Verification of weldability (other than A706)		X
6b. Re-steel resisting flexural and axial forces in intermediate and special moment frames, boundary elements of special reinforced concrete shear walls, and shear reinforcement.	X	
6c. Other reinforcing steel.		X
7. Inspection of steel frame joint details for compliance with approved construction documents. A. Details such as bracing and stiffening. B. Member locations. C. Application of joint details at each location.		X
REFERENCE SPECIFICATION DIVISION 05 METALS FOR DETAILED REQUIREMENTS		

STRUCTURAL DESIGN CRITERIA

- BUILDING CODE: 2012 INTERNATIONAL BUILDING CODE
- GRAVITY LOADS (ASCE 7-10):

ROOF	CONCENTRATED	DISTRIBUTED
	LL = N/A	DL = 20 PSF
	DL = N/A	DL = 20 PSF
		GROSS UPLIFT = 19.3 PSF
COLLATERAL LOAD		CL = 5 PSF
- WIND LOADS (ASCE 7-10): BASIC WIND SPEED = 120 MPH RISK CATEGORY = III EXPOSURE CATEGORY = B G₀ = ± 0.18
- SEISMIC CRITERIA (IBC 2012/ASCE 7-10): RISK CATEGORY = III IMPORTANCE FACTOR = 1.25 DESIGN CATEGORY = C SITE CLASS = D S_s = 0.293 g S₁ = 0.113 g S_{0.5} = 0.306 g S_{0.1} = 0.177 g SEISMIC FORCE RESISTING SYSTEM = INTERMEDIATE REINFORCED MASONRY SHEAR WALLS SEISMIC RESPONSE COEFFICIENT, C_s = 0.109 RESPONSE MODIFICATION FACTOR, R = 3.5 ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE SEISMIC BASE SHEAR = C_w W WHERE W=WEIGHT OF STRUCTURE



COMPONENTS AND CLADDING WIND PRESSURES (PSF)

ZONE	AREA (SF)	+P		-P	
		10	15.5	25.9	25.9
ROOF	1	10			