

**GENERAL**

- THESE NOTES SERVE AS PART OF THE SPECIFICATIONS FOR THE WORK AND SERVE AS THE BASIS OF WORK UNLESS A MORE STRINGENT REQUIREMENT IS SET FORTH IN THE PROJECT SPECIFICATIONS MANUAL OR AS REQUIRED BY APPLICABLE CODE REQUIREMENTS.
- DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE 2018, NEW JERSEY EDITION, AND IN ACCORDANCE WITH LOCAL BUILDING CODE DEPARTMENT REQUIREMENTS. ALL DESIGN AND CONSTRUCTION CODES AND STANDARDS REFER TO THE EDITION REFERENCED BY THE GOVERNING BUILDING CODE.
- DESIGN LOADS:
  - LIVE LOADS**
    - ROOF LIVE LOAD (SLAB-ON-GRADE) 20 PSF
    - FLOOR LIVE LOAD (SLAB-ON-GRADE) 100 PSF, TYPICAL
    - MECHANICAL AND ELECTRICAL SLAB-ON-GRADE 250 PSF
    - BLEACHERS 100 PSF FOR ADDITIONAL LOADING REQUIREMENTS, REFER TO SPECIFICATIONS
    - ELEVATED PRESSBOX FLOORS 100 PSF
  - ROOF SNOW DESIGN DATA**
    - GROUND SNOW LOAD  $s_g = 30$  PSF
    - SNOW EXPOSURE FACTOR  $C_e = 1.0$
    - SNOW LOAD IMPORTANCE FACTOR  $I_s = 1.0$
    - THERMAL FACTOR  $C_t = 1.0$  (TYPICAL)
    - INTERNAL PRESSURE COEFFICIENT  $C_i = 1.2$  (UNHEATED ROOFS)
    - FLAT-ROOF SNOW LOAD  $s = 20$  PSF
  - WIND DESIGN DATA**
    - BASIC WIND SPEED  $V = 112$  MPH
    - WIND IMPORTANCE FACTOR  $I_w = 1.0$
    - OCCUPANCY CATEGORY II
    - WIND EXPOSURE C
    - INTERNAL PRESSURE COEFFICIENT  $C_i = 18$  TYPICAL
    - COMPONENTS AND CLADDING  $C_{pi}$   $\pm 0.55$  AT BASEBALL DUGOUTS BY SUPPLIER AT BLEACHERS VARIES BY SUPPLIER PER IBC BASED ON LOCATION AND AREA WITH DESIGN DATA INDICATED
  - SEISMIC DESIGN DATA**
    - SEISMIC OCCUPANCY CATEGORY II
    - SEISMIC IMPORTANCE FACTOR  $I_e = 1.0$
    - SITE CLASS S
    - SPECTRAL RESPONSE COEFFICIENTS  $S_s = 0.282g$   $S_{0.2} = 0.296g$
    - SEISMIC DESIGN CATEGORY B  $S_1 = 0.073g$   $S_{0.1} = 0.117g$
    - RESPONSE MODIFICATION COEFFICIENTS:
      - DUGOUTS AND PRESSBOX  $R = 3.5$
      - BLEACHERS BY SUPPLIER
      - SEISMIC RESPONSE COEFFICIENTS:
        - DUGOUTS AND PRESSBOX  $C_u = 0.085$
        - BLEACHERS BY SUPPLIER
      - DESIGN BASE SHEARS:
        - DUGOUTS  $V = 4.12$  KIPS
        - PRESSBOX  $V = 19.40$  KIPS EACH
        - BLEACHERS BY SUPPLIER
      - BASIC SEISMIC FORCE RESISTING SYSTEMS:
        - DUGOUT AND PRESSBOX INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
        - BLEACHERS BY SUPPLIER
      - SEISMIC ANALYSIS PROCEDURE:
        - DUGOUT AND PRESSBOX EQUIVALENT LATERAL FORCE PROCEDURE
        - BLEACHERS BY SUPPLIER

- ALL SAFETY REGULATIONS, METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIAL SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- THE STRUCTURE IS STABLE ONLY IN ITS COMPLETED FORM. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION ANALYSIS AND ERECTION PROCEDURES INCLUDING CONSTRUCTION LOADINGS AND DESIGN AND ERECTION OF FALSEWORK, TEMPORARY BRACING, JACKING, AND ALL OTHER ERECTION AIDS. TEMPORARY SUPPORTS REQUIRED FOR STABILITY DURING ALL INTERMEDIATE STAGES OF CONSTRUCTION SHALL BE DESIGNED, FURNISHED, AND INSTALLED BY THE GENERAL CONTRACTOR.
- THE GENERAL CONTRACTOR PRIOR TO CONSTRUCTION SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, THE SIZE AND LOCATION OF ALL SLEEVES, PADS, DEPRESSIONS, OPENINGS, ETC., AS REQUIRED BY THE VARIOUS TRADES. ANY DISCREPANCIES OR VARIATIONS FROM THE CONDITIONS SHOWN ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING. SLEEVES, INSERTS AND OTHER ITEMS TO BE CAST IN THE CONCRETE SHALL BE COORDINATED BY THE GENERAL CONTRACTOR AT LOCATIONS DESIGNED BY AND UNDER THE SUPERVISION OF A REPRESENTATIVE OF EACH TRADE.
- DIMENSIONS ARE NOT TO BE DERIVED BY SCALING THESE DRAWINGS FOR LOCATIONS, QUANTITY TAKEOFFS, MATERIAL SIZES, ETC., IF THERE IS ANY QUESTION ABOUT DETAILS OR DIMENSIONS, CONTACT THE ARCHITECT AND ENGINEER FOR CLARIFICATION.
- IF ANY BIDDER IS IN DOUBT AS TO THE TRUE MEANING OF ANY PART OF THE DOCUMENTS, THEY SHALL REQUEST AN INTERPRETATION FROM THE ARCHITECT IN WRITING.

**DELEGATED DESIGN SUBMITTALS**

- THE CONTRACT DOCUMENTS ARE THE STRUCTURAL ENGINEER'S INSTRUMENTS OF SERVICE TO CONVEY DESIGN INTENT. THEY ARE NOT TO BE CONSIDERED FABRICATION OR LAYOUT DRAWINGS. SUBMITTALS THAT ARE COPIED FROM THE STRUCTURAL DRAWINGS WILL NOT BE REVIEWED OR RETURNED. SUBMITTAL REVIEW BY ENGINEER OF RECORD IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AS PRESENTED BY THE CONTRACT DOCUMENTS. NO DETAILED CHECK OF QUANTITIES OR DIMENSIONS WILL BE MADE.
- THE FOLLOWING ARE REQUIRED SUBMITTALS:
  - CONTRACTOR'S SCHEDULE OF STRUCTURAL SUBMITTALS (SEE NOTE #4 BELOW)
  - CONCRETE MIX DESIGN(S)
  - REINFORCING BAR DRAWINGS
  - MASONRY MATERIAL CERTIFICATES, ACCESSORIES, AND GROUT MIX DESIGN
  - STRUCTURAL STEEL
  - PRE-ENGINEERED WOOD FRAMING (TRUSSES AND JOISTS)
  - OTHER SUBMITTALS AS NOTED ON THE DRAWINGS AND SPECIFICATIONS.
- SHOP DRAWINGS SHALL INCLUDE COMPLETE DETAILS AND SCHEDULES FOR FABRICATION AND ASSEMBLY OF MEMBERS, ACCESSORIES AND PROCEDURES AS REQUIRED TO CONSTRUCT PER THE CONTRACT DOCUMENTS.
- FOR REVIEW OF EACH SUBMITTAL, THE SCHEDULE SHALL ALLOW FOR TEN BUSINESS DAYS FOLLOWING ENGINEER'S RECEIPT.
- THE CONTRACTOR IS RESPONSIBLE FOR ASSURING THAT SUBMITTALS COMPLY WITH THE LATEST PROJECT PLANS SPECIFICATIONS, GOVERNING CODES AND REGULATIONS, AND IS SOLELY RESPONSIBLE FOR CONFIRMING ALL QUANTITIES, DIMENSIONS, FABRICATION TECHNIQUES AND COORDINATING WORK WITH OTHER TRADES. SUBMITTALS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMISSION TO THE ENGINEER AND SHALL BEAR THE CONTRACTOR'S STAMP ATTESTING TO THE SAME. DRAWINGS NOT STAMPED WILL NOT BE REVIEWED. SUBCONTRACTOR'S UNCHECKED SUBMITTAL DRAWINGS WILL NOT BE REVIEWED.
- SUBMITTALS SHALL BE SUPPLIED ELECTRONICALLY (PDF OR TIF/FORMAT) FOR THE STRUCTURAL ENGINEER'S REVIEW. SUBMITTALS WILL BE RETURNED IN ELECTRONIC FORM. PAPER COPIES OR FAX COPIES OF SUBMITTALS WILL NOT BE ACCEPTED WITHOUT THE ENGINEER'S PRIOR APPROVAL. SUBMITTALS ARE TO BE ACCOMPANIED BY A LETTER OF TRANSMITTAL.
- SUBMITTALS NOT TO SCALE MAY BE RETURNED WITHOUT REVIEW, AT THE ENGINEER'S DISCRETION.
- SUBMITTALS MADE AFTER FABRICATION WILL NOT BE REVIEWED.
- ANY DEVIATION IN DESIGN, DETAILS, DIMENSIONS, ETC. FROM THE CONSTRUCTION DOCUMENTS SHALL BE CLOUDED ON THE SUBMITTAL AND VERIFICATION OF THE CHANGE SHALL BE REQUESTED. "VERIFY" MARKS NOT ADDRESSED SHALL NOT BE ASSUMED CORRECT AND REFERENCED TO THE ENGINEER OR TO BE CLARIFIED BY A REQUEST FOR INFORMATION. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY DEVIATIONS UNLESS ENGINEER REVIEWS AND ACKNOWLEDGES THE CHANGES IN WRITING.
- THE ENGINEER WILL NOT REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
- CHANGES AND ADDITIONS MADE ON RE-SUBMITTALS MUST BE CLEARLY FLAGGED AND NOTED. THE PURPOSE OF THE RE-SUBMITTALS MUST BE CLEARLY NOTED ON THE LETTER OF TRANSMITTAL, WITH REVIEW LIMITED TO THOSE ITEMS CAUSING THE RE-SUBMISSION.
- FOR CRITERIA APPLICABLE TO SHOP DRAWINGS REQUIRING ENGINEERING INPUT BY A SPECIALTY ENGINEER, SEE THE FOLLOWING NOTES FOR "DELEGATED DESIGN SUBMITTALS" AND THE NOTES FOR THE INDIVIDUAL COMPONENTS AND SYSTEMS.

**DELEGATED DESIGN SUBMITTALS**

- SHOP DRAWINGS AND CALCULATIONS ARE REQUIRED TO BE PREPARED BY SPECIALTY ENGINEER (NOT THE ARCHITECT/STRUCTURAL ENGINEER OF RECORD) WHO SPECIALIZES IN AND WHO UNDERTAKES THE DESIGN OF STRUCTURAL COMPONENTS OR STRUCTURAL SYSTEMS INCLUDED IN THE SHOP DRAWINGS FOR THIS PROJECT. SPECIALTY ENGINEER SHALL BE:
  - AN EMPLOYEE OR OFFICER OF A FABRICATOR
  - AN EMPLOYEE OR OFFICER OF AN ENTITY SUPPLYING COMPONENTS TO FABRICATOR
  - AN INDEPENDENT CONSULTANT RETAINED BY THE FABRICATOR OR HIS SUPPLIER.
- SHOP DRAWINGS REQUIRING A SPECIALTY ENGINEER ARE FABRICATION AND ERECTION DRAWINGS PREPARED FOR, BUT NOT LIMITED TO THE FOLLOWING ITEMS: CONCRETE AND MASONRY REINFORCEMENT BAR FABRICATION AND LAYOUTS, WOOD JOISTS, OPEN WEB STEEL JOISTS, STRUCTURAL STEEL CONNECTIONS NOT DETAILED OR ONLY SCHEMATICALLY DETAILED ON DRAWINGS, STEEL STAIRS AND RAILINGS, MISCELLANEOUS STRUCTURAL STEEL AND PLATFORMS, AND LIGHT GAUGE STRUCTURAL FRAMING.
- CALCULATIONS AND SHOP DRAWINGS SHALL IDENTIFY SPECIFIC PRODUCTS UTILIZED. GENERIC SUBMITTALS WILL NOT BE ACCEPTED.
- COMPUTER PRINTOUTS ARE AN ACCEPTABLE SUBSTITUTE FOR MANUAL COMPUTATIONS, WHEN REQUIRED. PROVIDED THEY ARE ACCOMPANIED BY SUFFICIENT DESCRIPTIVE INFORMATION TO PERMIT THEIR PROPER EVALUATION. SUCH DESCRIPTIVE INFORMATION SHALL BEAR THE IMPRINTED SEAL AND SIGNATURE OF THE SPECIALTY ENGINEER AS AN INDICATION THAT HE HAS ACCEPTED RESPONSIBILITY FOR THE RESULTS.
- CATALOG INFORMATION ON STANDARD PRODUCTS DOES NOT REQUIRE THE SEAL OF A SPECIALTY ENGINEER. REVIEW BY ARCHITECT/STRUCTURAL ENGINEER OF RECORD OF SUBMITTALS IS LIMITED TO VERIFYING THE FOLLOWING:
  - SPECIFIED STRUCTURAL SUBMITTALS HAVE BEEN FURNISHED.
  - STRUCTURAL SUBMITTALS HAVE BEEN SIGNED AND SEALED BY THE SPECIALTY ENGINEER.
  - SPECIALTY ENGINEER HAS UNDERSTOOD THE DESIGN INTENT AND HAS USED THE SPECIFIED STRUCTURAL CRITERIA. NO DETAILED CHECK OF CALCULATIONS WILL BE MADE.
  - THE CONFIGURATION SET FORTH IN THE STRUCTURAL SUBMITTALS IS CONSISTENT WITH THE CONTRACT DOCUMENTS. NO DETAILED CHECK OF DIMENSIONS OR QUANTITIES WILL BE MADE.

**FOUNDATIONS & EXCAVATIONS**

- THE ALLOWABLE NET SOIL BEARING PRESSURE UTILIZED FOR THE DESIGN OF SPREAD FOOTINGS IS 4000 PSF FOR FOOTINGS BEARING ON THE NATURAL SOILS OR PROPERLY COMPACTED ENGINEERED FILL OVER NATURAL SOILS OR BEDROCK. PER GEOTECHNICAL REPORT BY MILLER ENGINEERING AND TESTING, INC. PROJECT NUMBER 16-088-NH, DATED JUNE 13, 2018. REFER TO GEOTECHNICAL EVALUATION FOR FOUNDATION AND EARTHWORK REQUIREMENTS. RECOMMENDATIONS PROVIDED WITHIN THE GEOTECHNICAL REPORT OR AS MODIFIED BY THE ON-SITE GEOTECHNICAL ENGINEER SHALL BE MET UNLESS DIRECTED OTHERWISE WITHIN THE STRUCTURAL DOCUMENTS OR SPECIFICATIONS.
- EXTERIOR FOOTINGS SHALL BEAR A MINIMUM 4'-0" BELOW FINISH GRADE UNLESS A GREATER DEPTH IS REQUIRED BY THE LOCAL CODE OR OFFICIAL. STEEPED DOWN AS NECESSARY TO AVOID UTILITY INTERFERENCE. DISCREPANCIES BETWEEN BETWEEN ACTUAL GRADES AND FOOTING ELEVATIONS SHOWN ON THE DRAWINGS RESULTING IN LESS THAN THE MINIMUM COVER SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.
- A REGISTERED GEOTECHNICAL ENGINEER REPRESENTING THE OWNER SHALL BE PRESENT TO MONITOR COMPACTION AND SETTLEMENT AND VERIFY THE BEARING CAPACITY. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT AND ON-SITE GEOTECHNICAL ENGINEER.
- STRUCTURAL FILL AND BACKFILL MATERIAL FOR STRUCTURES SHALL BE PER THE GEOTECHNICAL REPORT AND RECOMMENDATIONS OF THE ON-SITE GEOTECHNICAL ENGINEER. MATERIAL SHALL HAVE MAXIMUM PARTICLE SIZE OF 3" REMOVE ALL UNSUITABLE MATERIAL OR LOOSE SOIL WHICH CANNOT BE ADEQUATELY COMPACTED AND REPLACE WITH WASHED #57 STONE OR APPROVED FILL PER GEOTECHNICAL RECOMMENDATIONS.
- WHERE FOOTINGS WILL BE PLACED ON WEATHERED BEDROCK, A 12-INCH LAYER OF CRUSHED STONE SHALL BE PROVIDED BETWEEN BEDROCK AND FOOTING IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
- BACKFILL SHALL BE PERFORMED IN EQUAL LIFTS AROUND THE BUILDING PERIMETER TO BALANCE LATERAL EARTH PRESSURE ON THE BUILDING. WALK BEHIND COMPACTION EQUIPMENT IS REQUIRED WITHIN A DISTANCE OF TWO TIMES THE WALL HEIGHT.
- BACKFILL LIFT HEIGHT SHALL NOT EXCEED 8" LOOSE THICKNESS FOR HEAVY MECHANICAL COMPACTION AND 4" FOR MECHANICAL HAND METHODS. COMPACT TO 95% OF THE MAXIMUM DRY DENSITY ACHIEVED PER ASTM D-1557.
- BACKFILL AGAINST STRUCTURAL WALLS SHALL NOT BE PERMITTED UNTIL WALL AND SLAB ON GRADE HAS OBTAINED SPECIFIED STRENGTH.
- IF REQUIRED BY THE GEOTECHNICAL REPORT OR THE ON-SITE GEOTECHNICAL ENGINEER, THE GROUND WATER TABLE SHALL BE LOWERED DE-WATERING AS REQUIRED FOR INSPECTION, CONSTRUCTION OF FOOTINGS AND PLACEMENT OF BACKFILL IS THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF ALL EXCAVATED SLOPES AND TRENCHES. DIVERT SURFACE RUNOFF AWAY FROM THE EXCAVATION USING CURBING OR BARRIER PLACED ALONG THE TOP OF THE EXCAVATION. EXCAVATION BE PERFORMED IN ACCORDANCE WITH OSHA REGULATIONS.
- UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL IN WRITING. THE CONTRACTOR SHALL LOCATE ANY EXISTING UNDERGROUND UTILITIES PRIOR TO ANY CONSTRUCTION.
- PRIOR TO EXCAVATION OR DEMOLITION, NOTIFY THE LOCAL ONE-CALL SYSTEM TO LOCATE AND IDENTIFY UNDERGROUT UTILITIES AND FACILITIES. NOTIFICATION SHALL OCCUR NO LESS THAN THREE, NOR MORE THAN TEN, WORKING DAYS PRIOR TO EXCAVATION. THE PHONE NUMBER FOR THE NEW HAMPSHIRE ONE-CALL SYSTEM IS 1-888-344-7233.
- INSPECTIONS ARE REQUIRED FOR EXISTING SOILS CONDITIONS, FILL PLACEMENT, AND LOAD BEARING REQUIREMENTS:
  - SITE PREPARATION: PRIOR TO PLACEMENT OF PREPARED FILL, THE INSPECTOR SHALL DETERMINE THAT THE SITE HAS BEEN PREPARED IN ACCORDANCE WITH THE ABOVE-REFERENCED GEOTECHNICAL REPORT.
  - FILL PLACEMENT: DURING PLACEMENT AND COMPACTION OF FILL MATERIAL, THE INSPECTOR SHALL DETERMINE THAT THE PROPER FILL MATERIAL IS BEING USED AND THAT THE MAXIMUM LIFT THICKNESS IS FOLLOWED IN ACCORDANCE WITH THE ABOVE REFERENCED GEOTECHNICAL REPORT.
  - EVALUATION OF IN-PLACE DENSITY: THE INSPECTOR SHALL DETERMINE, AT FREQUENCIES DETERMINED IN THE SOILS REPORT AND PROJECT SPECIFICATIONS, THAT THE IN-PLACE DRY DENSITY OF THE COMPACTED FILL COMPLIES WITH THE ABOVE-REFERENCED GEOTECHNICAL REPORT.

**CONCRETE**

- ALL CONCRETE WORK TO BE DONE IN ACCORDANCE WITH THE CODE REFERENCED EDITION OF ACI-318: "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
- CAST-IN-PLACE CONCRETE MIX DESIGN REQUIREMENTS AND COMPRESSIVE STRENGTH AT 28 DAYS:
 

DESCRIPTION	f <sub>c</sub> - 28 DAY STRENGTH (PSI)	WEIGHT PER CUBIC FOOT (PCF)	SUMP AT POINT OF PLACEMENT	AGGREGATE	% AIR
FOOTINGS / FOUNDATIONS / WALLS	4500	145	4" ± 1"	ASTM C33	6 (±1.5)
INTERIOR SLAB ON GRADE	4000	145	4" ± 1"	ASTM C33	6 (±1.5)
ELEVATED SLABS	3000	145	5" ± 1"	ASTM C33	-

USE NORMAL WEIGHT CONCRETE WITH TYPE 1/2 CEMENT PER ASTM C150. FLY ASH SHALL BE LIMITED TO 20% OF THE TOTAL CEMENTITIOUS MATERIAL WEIGHT. WATER SHALL BE POTABLE TO MEET ASTM C94. WATER REDUCING ADMIXTURES MAY BE USED TO ACHIEVE SLUMP REQUIREMENTS.

- SEE CONSTRUCTION DOCUMENT PACKAGE FOR JOINT SIZES AND FILLER MATERIALS.
- LOCATION OF ALL CONSTRUCTION JOINTS, EXCLUDING SLABS ON GRADE, SHALL BE COORDINATED WITH STRUCTURAL ENGINEER.
- ALL EXPOSED CONCRETE CORNERS SHALL HAVE A 3/4" CHAMFER, UNLESS NOTED OTHERWISE WITHIN THE DRAWING PACKAGE.
- SYNTHETIC MICRO-FIBER REINFORCEMENT SHALL BE ALKALI-RESISTANT FIBRILLATED POLYPROPYLENE MICROFIBERS ENGINEERED AND DESIGNED FOR USE IN CONCRETE, COMPLYING WITH ASTM C1116/C1116M, TYPE II, WITH FIBER LENGTH OF 1/2" TO 1 1/2" NOMINAL. FIBER REINFORCEMENT SHALL BE ADDED AT A MIX RATE AS RECOMMENDED BY MANUFACTURER FOR SPECIFIC PROJECT CONDITIONS.

- SYNTHETIC MACRO-FIBER REINFORCEMENT SHALL BE ALKALI-RESISTANT FIBRILLATED POLYPROPYLENE MACROFIBERS ENGINEERED AND DESIGNED FOR USE IN CONCRETE, COMPLYING WITH ASTM C1116/C1116M, TYPE II, WITH FIBER LENGTH OF 2" LONG NOMINAL. FIBER REINFORCEMENT SHALL BE ADDED AT A MIX RATE AS RECOMMENDED BY MANUFACTURER FOR SPECIFIC PROJECT CONDITIONS.
- COORDINATE EMBEDDED ITEMS WITH OTHER TRADES PRIOR TO CONCRETE POUR. PROVIDE PVC (OR OTHER NON-CORROSIVE MATERIAL) SLEEVES FOR ALL PENETRATIONS.
- SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER SHOWING PROPOSED LOCATIONS OF ANY MATERIAL, SUCH AS BUT NOT LIMITED TO CONDUITS, EMBEDMENTS, OR FIXTURES TO BE PLACED INSIDE ANY STRUCTURAL CONCRETE MEMBER SUCH AS BEAMS, WALLS, SLABS, COLUMNS OR FOOTINGS.
- CONCRETE SLAB FLATNESS AND LEVELNESS TOLERANCES SHALL BE IN CONFORMANCE WITH ACI 117, AND SHALL BE SPECIFIED BY THE OWNER, UNLESS SUPERSEDED BY THE OWNER'S CRITERIA, CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS:
 

	TOTAL AREA	F <sub>1</sub>	F <sub>2</sub>	MINIMUM LOCAL F NUMBER
SLAB ON GRADE	25	20	17	15
ELEVATED SLAB	25	N/A	17	N/A

- SLABS ON GRADE SHALL BE PLACED ON PLASTIC VAPOR RETARDER TO MEET ASTM E1745, CLASS B, FIVE-PLY, NYLON- OR POLYESTER-CORD REINFORCED, HIGH-DENSITY POLYETHYLENE SHEET NOT LESS THAN 10 MILS THICK.
- UNLESS SPECIFIED OTHERWISE, TESTING OF CONCRETE SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF ACI 318 SECTION 5.8 EVALUATION AND ACCEPTANCE OF CONCRETE".
- THE FOLLOWING PROCEDURES SHALL MEET THE REQUIREMENTS OF THE REFERENCED CODE SECTIONS
 

PROCEDURE	REFERENCE SECTION
PREPARATION	ACI 304 - "GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE"
CONVEYING	ACI 318 SECTION 5.9 - "CONVEYING"
DEPOSITING	ACI 318 SECTION 5.10 - "DEPOSITING"
CONSOLIDATION	ACI 309 - "GUIDE FOR CONSOLIDATION OF CONCRETE"
CURING	ACI 308 - "STANDARD PRACTICE FOR CURING CONCRETE"
HOT WEATHER CONCRETING	ACI 305R - "HOT WEATHER CONCRETING"
COLD WEATHER CONCRETING	ACI 306R - "COLD WEATHER CONCRETING"

**CONCRETE MATERIAL TESTING**

- SLUMP TESTING: ASTM C-143; ONE (1) TEST AT POINT OF DISCHARGE FOR EACH DAY'S POUR FOR EACH TYPE OF CONCRETE. ADDITIONAL TESTS IF CONCRETE CONSISTENCY IS DEEMED TO HAVE CHANGED.
- AIR CONTENT TESTING: ASTM C-173, VOLUMETRIC METHOD FOR LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE; ASTM C-231 PRESSURE METHOD FOR NORMAL WEIGHT CONCRETE; ONE (1) FOR EACH DAY'S POUR OF EACH TYPE OF AIR ENTRAINED CONCRETE.
- CONCRETE TEMPERATURE: ASTM C-1064; TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEG. F (4 DEG. C) AND BELOW, AND WHEN 80 DEG. F (27 DEG. C) AND ABOVE; AND EACH TIME A SET OF COMPRESSION TEST SPECIMENS IS MADE. TEST OVERNIGHT WITH A HIGH LOW THERMOMETER.
- COMPRESSION TEST SPECIMEN: ASTM C-31; ONE (1) SET OF FIVE (5) - 6 x 12 INCH CYLINDERS FOR EACH COMPRESSION STRENGTH TEST, UNLESS DIRECTED OTHERWISE.
- COMPRESSIVE STRENGTH TESTS SHALL CONFORM TO ASTM C-39 AND SHALL MEET THE FOLLOWING REQUIREMENTS:
  - SAMPLING FREQUENCY: ONE (1) SET OF CYLINDERS FOR COMPRESSIVE STRENGTH TESTS FOR EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE PER DAY, NOR LESS THAN ONCE FOR EACH 100 CUBIC YARDS OF EACH CONCRETE CLASS PLACED IN ANY ONE DAY, NOR LESS THAN ONCE FOR 5000 SQUARE FEET OF SURFACE AREA FOR SLABS OR WALLS.
  - WHEN FREQUENCY OF TESTING WILL PROVIDE LESS THAN FIVE (5) STRENGTH TESTS FOR A GIVEN CLASS OF CONCRETE, CONDUCT TESTING FROM AT LEAST FIVE (5) RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE (5) ARE USED.
  - TESTING FREQUENCY: TWO (2) SPECIMEN TESTED AT SEVEN (7) DAYS, TWO (2) SPECIMENS TESTED AT 28 DAYS AND ONE (1) SPECIMEN RETAINED IN RESERVE FOR LATER TESTING IF REQUIRED.

**REINFORCING STEEL**

- REINFORCING STEEL SHALL BE NEW BILLET STEEL, DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
- WELDED WIRE FABRIC OR MESH REINFORCING (WWF) SHALL BE FORMED FROM NEW BILLET STEEL, COLD DRAWN, CONFORMING TO ASTM SPECIFICATION A62 WITH A MINIMUM YIELD STRENGTH OF 60 ksi. WWF SHEETS SHALL BE FLAT SHEETS TO MEET THE REQUIREMENTS OF ASTM A1064. SUPPORT WWF IN FLOOR SLABS ON CHAIRS, MINIMUM ONE (1) CHAIR PER EVERY 25 SQUARE FEET OF COVERAGE.
- BAR SUPPORTS, DESIGN, DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI 318 AND "THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES"; ACI 315.
- SPLICES FOR CONTINUOUS BARS SHALL BE CLASS B, UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL BE LAPPED 12" MINIMUM.
- MINIMUM COVER CONCRETE SHALL BE AS FOLLOWS UNLESS A GREATER AMOUNT IS SPECIFIED OTHERWISE. IF STIRRUPS, TIES, OR SPIRALS ARE USED, COVER SHALL BE TO THE OUTERMOST FACE OF THESE ELEMENTS.
  - FOOTINGS, CAISSONS, OTHER MEMBERS WHERE CONCRETE IS DEPOSITED AGAINST SOIL (EXCEPT SLABS ON GRADE) 3"
  - CONCRETE EXPOSED TO WEATHER OR SOIL - #6 BAR AND LARGER 2"
  - CONCRETE EXPOSED TO WEATHER OR SOIL - #5 BAR AND SMALLER 1-1/2"
  - CONCRETE NOT EXPOSED TO WEATHER OR SOIL - SLABS, WALLS, JOISTS - #14 BAR AND LARGER 1-1/2"
  - CONCRETE NOT EXPOSED TO WEATHER OR SOIL - SLABS, WALLS, JOISTS - #11 BAR AND SMALLER 1"
  - CONCRETE NOT EXPOSED TO WEATHER OR SOIL - BEAMS AND COLUMNS 1-1/2"
- PROVIDE BENT HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF ALL WALLS AND FOOTINGS. BENT BARS ARE TO MATCH THE SIZE AND SPACING OF HORIZONTAL BARS IN WALL OR FOOTING. USE CLASS B SPLICE EACH SIDE.
- PROVIDE DIAGONAL BARS AT CORNERS OF OPENINGS IN SLABS AND WALLS. USE (1) #5 x 4'-0" EACH CORNER, EACH FACE UNLESS OTHERWISE NOTED ON THE DRAWINGS. PROVIDE 2" CLEAR COVER BETWEEN THE OPENING AND THE CORNER REINFORCING BARS.
- PROVIDE DOWELS IN WALL FOOTINGS TO MATCH WALL VERTICALS UNLESS NOTED OTHERWISE ON DRAWINGS. PROVIDE CLASS B SPLICE. USE STANDARD ACI 90° HOOK WITH 3" CLEAR TO BOTTOM OF FOOTING UNLESS NOTED OTHERWISE.

**STRUCTURAL STEEL**

- DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE CODE-REFERENCED AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, SPECIFICATION FOR STEEL BUILDINGS, AND CODE OF STANDARD PRACTICE.
- STEEL FABRICATOR AND ERECTOR SHALL FOLLOW THE AISC 360-05, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" REQUIREMENTS FOR FABRICATION, ERECTION, AND QUALITY CONTROL.
- MATERIALS SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
  - WIDE FLANGE SECTIONS (W) \_\_\_\_\_ ASTM A992 (F<sub>y</sub> = 50 ksi)
  - HOLLOW STRUCTURAL SECTIONS (HSS) \_\_\_\_\_ ASTM A500, GRADE C (F<sub>y</sub> = 50 ksi FOR RECTANGULAR) (F<sub>y</sub> = 46 ksi FOR ROUND)
  - JUMBO HOLLOW STRUCTURAL SECTIONS (HSS24x12) \_\_\_\_\_ ASTM A1085 (F<sub>y</sub> = 50 ksi)
  - PLATES, BARS, ANGLES, C-SHAPES, MC-SHAPES \_\_\_\_\_ ASTM A36 (F<sub>y</sub> = 36 ksi)
  - WELDING ELECTRODES \_\_\_\_\_ E70xx
  - HIGH-STRENGTH BOLTS \_\_\_\_\_ ASTM-F3125, GRADE A325-N OR A325-SC WHERE INDICATED AS SLP CRITICAL
- MULTIPLE ANGLE LINTELS SHALL BE WELDED TOGETHER WITH 3/16" FILLET WELDS 3" LONG @ 12" ON CENTER STAGGERED EACH SIDE.
- WELD OR BOLT SHOP CONNECTIONS. FOR FIELD CONNECTIONS USE 3/4" DIAMETER HIGH STRENGTH INSTALLED TO THE "SNUG TIGHT" CONDITION DESCRIBED IN AISC SPECIFICATIONS FOR STRUCTURAL JOINTS, USING ASTM F3125, GRADE A325 OR A490 BOLTS. FIELD WELDING WILL BE PERMITTED WHERE SPECIFICALLY CALLED FOR ON THE DRAWINGS. PROVIDE STIFFENERS, DOUBLER PLATES AND REINFORCING TO ADEQUATELY DESIGN AND FABRICATE ALL CONNECTIONS.
- THE STEEL SHEAR CONNECTIONS AT ENDS OF MEMBERS SHALL BE DESIGNED AND DETAILED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC "MANUAL OF STEEL CONSTRUCTION" FOR THE FACTORED LOAD REACTIONS GIVEN BELOW UNLESS NOTED OTHERWISE. REGARDLESS OF LOADING, THE MEMBERS WILL BE FURNISHED WITH NO FEWER THAN NUMBER OF WEB BOLTS GIVEN BELOW UNLESS SEATED CONNECTIONS ARE UTILIZED.
 

MEMBER DEPTHS	REACTIONS	MINIMUM WEB BOLTS
W4 - W10	24 KIPS	2 BOLTS
W12 - W16	38 KIPS	3 BOLTS
- SLABS SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE (AWS D-1.1) AND SHALL BE MADE ONLY BY OPERATORS CERTIFIED BY THE STANDARD QUALIFICATION PROCEDURE OF THE AWS FOR TYPE OF WELD REQUIRED. WELDER CERTIFICATION SHALL BE SUBMITTED FOR REVIEW.
- WELD LENGTHS NOT NOTED SHALL BE FULL LENGTH. TERMINATE WELDS IN ACCORDANCE WITH AISC MANUAL OF STEEL CONSTRUCTION AND AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE - STEEL (D1.1).
- ELECTRODES SHALL BE SUITED TO GRADE AND METALLURGICAL COMPOSITION OF BASE MATERIAL.
- HSS TO HSS WELDS SHALL BE ACHIEVED BY ALL AROUND FILLET AND FLARE BEVEL WELDS TO PROVIDE 1/4" MINIMUM EFFECTIVE THROAT UNLESS A LARGER AMOUNT IS INDICATED OTHERWISE. PROVIDE ERECTION AIDS FOR FIELD ASSEMBLED HSS TO HSS CONNECTIONS AS REQUIRED. PROVIDE 1/4" WELDED END PLATES WITH 3/16" CONTINUOUS SEAM WELD ON EACH END OF ALL HSS MEMBERS, TYPICAL UNLESS NOTED OTHERWISE.
- FOR CURVED HSS STEEL INDICATED ON PLAN, WALL THICKNESS MAY BE INCREASED TO FACILITATE BENDING PROCEDURES, AS REQUIRED BY STEEL FABRICATOR AND BENDING SUPPLIER, BUT SHALL NOT BE DECREASED FROM THE THICKNESS INDICATED ON PLAN. SUBJECT TO APPROVAL BY ENGINEER AND ARCHITECT, FABRICATOR MAY PROPOSE ALTERNATIVE BUILT UP SECTIONS OF 50 KSI STEEL PLATE OR MULTIPLE HSS SECTIONS SEAM WELDED TOGETHER, TO MATCH BENDING RADIUS AND SECTION PROPERTIES OF CURVED HSS STEEL SECTION INDICATED, IF REQUESTED FOR ALTERNATE FABRICATION.
- ALL CUTTING AND BENDING OF STEEL SHALL BE SHOWN ON SHOP DRAWINGS AND PERFORMED IN SHOP. FIELD BURNING IS NOT ALLOWED.
- HOLES LARGER THAN 1"Ø SHALL BE COORDINATED WITH THE STRUCTURAL ENGINEER. HOLES SHALL BE PUNCHED OR DRILLED, EXCEPT AS OTHERWISE PERMITTED BY THE STRUCTURAL ENGINEER.
- NON-SHRINK GROUT SHALL BE NON-METALLIC, CEMENT-BASED GROUT MEETING THE REQUIREMENTS OF ASTM C821, ASTM C109 AND CRD C-621, WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 psi AT 28 DAYS.
- ALL EXPOSED STRUCTURAL STEEL INCLUDING LINTELS, AND AS NOTED ON DRAWINGS, SHALL BE GALVANIZED IN CONFORMANCE WITH ASTM A153. GALVANIZING SHALL BE IN CONFORMANCE WITH ASTM A153. AREAS OF STEEL NOT COATED DURING THE HOT DIP GALVANIZING PROCESS OR AREAS DAMAGED OR REMOVED TO FACILITATE ERECTION SHALL BE TOUCHED UP IN THE FIELD WITH A ZINC RICH COATING WITH MINIMUM 90% ZINC BY WEIGHT IN A DRY FILM (ZC 4). COLD GALVANIZING (ELECTROLYTIC) APPLY AS MANUFACTURER INSTRUCTIONS. FABRICATOR SHALL COORDINATE THE LOCATION OF HOLES REQUIRED TO FACILITATE GALVANIZING PROCESS. WHERE PROPOSED GALVANIZING HOLES WOULD BE EXPOSED IN FINAL CONSTRUCTION, PROPOSED LOCATIONS SHALL BE COORDINATED WITH ARCHITECT FOR VERIFICATION. ALL EXPOSED HOLES IN FINAL CONSTRUCTION SHALL BE SEALED TO PREVENT PEST OR WATER INFILTRATION.
- THE CONTRACTOR SHALL DETERMINE, FURNISH AND INSTALL ALL TEMPORARY SUPPORTS SUFFICIENT TO SECURE THE STRUCTURAL STEEL FRAMING AGAINST LOADS PRESENT DURING ERECTION. TEMPORARY SUPPORTS SHALL REMAIN IN PLACE UNTIL ALL CONNECTIONS TO THE LATERAL LOAD RESISTING SYSTEM, INCLUDING HORIZONTAL DIAPHRAGMS, ARE COMPLETE.

**STEEL JOISTS**

- ALL STEEL JOIST BRIDGING SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE STEEL JOIST INSTITUTE. CAMBER JOISTS TO ACCOUNT FOR DEAD LOAD DEFLECTION. SHOP PAINT ALL STEEL JOISTS WITH SHOP PRIMER.
- THE MINIMUM BEARING OF K-SERIES JOISTS SHALL BE 2 1/2" OVER SUPPORTING STEEL AND 4" OVER STEEL BEARING PLATES EMBEDDED IN MASONRY.
- EACH K-SERIES JOIST END SHALL BE CONNECTED TO THE SUPPORTING STEEL OR BEARING PLATE WITH TWO 1/8" x 1 1/2" LONG FILLET WELDS MINIMUM.
- PROVIDE THE NUMBER OF ROWS AND TYPE OF (HORIZONTAL OR DIAGONAL) CONTINUOUS BRIDGING AS REQUIRED BY THE STEEL JOIST INSTITUTE. BRIDGING ROWS SHALL BE EQUALLY SPACED UNLESS NOTED OTHERWISE. THE SIZES AND CONNECTIONS OF BRIDGING MEMBERS SHALL MEET THE LATEST REQUIREMENTS OF THE STEEL JOIST INSTITUTE. PROVIDE DIAGONAL BRIDGING BETWEEN ALL JOISTS OF DIFFERENT DEPTHS, BETWEEN JOISTS AND STEEL BEAMS, AND BETWEEN THE FIRST TWO JOISTS ADJACENT AND PARALLEL TO WALLS.
- JOISTS AND BRIDGING SHALL BE DESIGNED TO RESIST A SERVICE LEVEL NET UPLIFT FORCE OF 18 PSF IN ACCORDANCE WITH SJI REQUIREMENTS.
- ALL STEEL JOIST DESIGN, FABRICATION, AND ERECTION SHALL COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) NEW STEEL ERECTION STANDARD.
- IMMEDIATELY AFTER INSTALLATION, CLEAN AND TOUCH-UP BURNED AREAS AND DAMAGED SPOTS WITH PRIME PAINT. USE A TYPE OF PRIMER CONSISTENT WITH THE SHOP COAT.

**STEEL ROOF AND FLOOR DECK**

- STEEL ROOF DECK SHALL BE 1 1/2" (20 GAGE) GALVANIZED (G60) WIDE RIB (TYPE B) STEEL DECK TYPICAL UNO
- PROVIDE STEEL ROOF DECK MEETING THE STRENGTH AND DEFLECTION CRITERIA FOR MATERIAL, DEAD LOADS, CONSTRUCTION LIVE LOADS, AND FOR DESIGN SUPERIMPOSED DEAD AND LIVE LOADS, AS SPECIFIED ON THE STRUCTURAL DRAWINGS IN ACCORDANCE WITH THE STEEL DECK INSTITUTE SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK.
- STEEL FLOOR DECK SHALL BE 3" (20 GAGE) COMPOSITE TYPE GALVANIZED (G60) STEEL DECK TYPICAL UNO
- PROVIDE STEEL ROOF DECK MEETING THE STRENGTH AND DEFLECTION CRITERIA FOR MATERIAL, DEAD LOADS, CONSTRUCTION LIVE LOADS, AND FOR DESIGN SUPERIMPOSED DEAD AND LIVE LOADS, AS SPECIFIED ON THE STRUCTURAL DRAWINGS IN ACCORDANCE WITH THE STEEL DECK INSTITUTE SPECIFICATIONS AND COMMENTARY FOR COMPOSITE STEEL FLOOR DECK.
- ALL DECK SHALL BE CONTINUOUS OVER A MINIMUM OF THREE SPANS UNLESS SHOWN OTHERWISE.
- PROVIDE POUR STOPS, COLUMN CLOSURES, END CLOSURES, COVER PLATES, AND GUTTER FILTERS OF THE TYPE REQUIRED BY THE STEEL DECK INSTITUTE. POUR STOPS SHALL BE OF SUFFICIENT STRENGTH AND STIFFNESS TO REMAIN IN PLACE WITHOUT DISTORTION.
- DESIGN, FABRICATION, AND ERECTION OF STEEL ROOF AND FLOOR DECK, ACCESSORIES, AND WELDED CONNECTIONS SHALL CONFORM TO THE FOLLOWING:
  - AMERICAN IRON AND STEEL INSTITUTE (AISI) SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS, LATEST EDITION.
  - AMERICAN WELDING SOCIETY (AWS) D1.1 STRUCTURAL WELDING CODE.
  - STEEL DECK INSTITUTE (SDI) DESIGN MANUAL, LATEST EDITION.
- SHEET STEEL ROOF AND FLOOR DECK ACCESSORIES SHALL CONFORM TO ASTM A663, STRUCTURAL QUALITY, WITH A 33 KSI MINIMUM YIELD STRENGTH FOR ROOF DECK AND 40 KSI FOR FLOOR DECK.
- ERECT STEEL FLOOR AND ROOF DECKING, AND ACCESSORIES IN ACCORDANCE WITH THE SDI DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS, AND ROOF DECKS, AND IN ACCORDANCE WITH THE SDI MANUAL OF STEEL CONSTRUCTION WITH STEEL DECK. PROVIDE WELDING IN ACCORDANCE WITH AWS D1.1.
- PROVIDE MINIMUM OF 1-1/2" END BEARING AND 3" INTERIOR BEARING ON STEEL SUPPORT MEMBER SURFACES.
- CONDUIT MAY NOT BE RUN THROUGH COMPOSITE TYPE STEEL DECK.
- IMMEDIATELY AFTER INSTALLATION, CLEAN AND TOUCH-UP WELDS, BURNED AREAS AND DAMAGED SPOTS ON GALVANIZED SURFACES WITH ZINC PAINT.
- ALL WELDS SHALL BE PERFORMED BY CERTIFIED WELDERS ONLY, AND SHALL BE IN ACCORDANCE WITH ALL AWS REQUIREMENTS.
- ANCHOR ROOF AND FLOOR DECK UNITS TO STEEL SUPPORTING MEMBERS BY ARC SPOT PUDDLE WELDS OR APPROVED MECHANICAL FASTENERS. ARC SPOT PUDDLE WELDS SHALL BE 3/4 INCH MINIMUM VISIBLE DIAMETER SPACED AT 12-INCHES ON CENTER. SIDELAP CONNECTIONS SHALL UTILIZE #10 TEK SCREWS (MINIMUM) SPACED AT 16-INCHES ON CENTER BETWEEN SUPPORTS. MECHANICAL FASTENERS MAY BE USED IN LIEU OF WELDING, PROVIDED THE PRODUCTS DATA HAS BEEN SUBMITTED TO AND APPROVED BY STRUCTURAL ENGINEER.

**POST INSTALLED ANCHORAGE**

- ALL ANCHORS SHALL BE MANUFACTURED BY HILTI OR ENGINEER APPROVED EQUIVALENT. PROVIDE BACK-UP DATA SHOWING ANY PROPOSED SUBSTITUTION MEETS OR EXCEED SPECIFIED HILTI ANCHORS FOR REVIEW.
- ALL ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH HILTI'S INSTALLATION INSTRUCTIONS, INCLUDING BUT NOT LIMITED TO CLEANING OF THE HOLE PRIOR TO ANCHOR INSTALLATION.
- EPOXY AND ANCHORS FOR MASONRY CONSTRUCTION SHALL BE HIT-HY 70 ADHESIVE MORTAR WITH HAS-E THREADED RODS EMBEDDED INTO GROUTED SOLID CMU UNLESS NOTED OTHERWISE ON THE DRAWINGS. ANCHORS SHALL BE SPACED AS SPECIFIED ON THE DRAWINGS.
- EPOXY AND ANCHORS FOR CONCRETE CONSTRUCTION (AND STEEL REINFORCING) SHALL BE HIT-HY 200 ADHESIVE MORTAR UTILIZING SAFE SET TECHNOLOGY WITH HIT-Z OR HAS-E THREADED RODS (OR STEEL REINFORCING) UNLESS NOTED OTHERWISE ON THE DRAWINGS. ANCHORS SHALL BE SPACED AS SPECIFIED ON THE STRUCTURAL DRAWINGS.

**STRUCTURAL MASONRY**

- ALL MASONRY WORK TO BE DONE IN ACCORDANCE WITH THE CODE-REFERENCED EDITION OF ACI-530 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", AND ACI-530.1 "SPECIFICATION FOR MASONRY STRUCTURES."
- THE CONCRETE MASONRY DESIGN IS BASED ON A COMPRESSIVE STRENGTH OF MASONRY (F<sub>m</sub>) OF 2000 psi USING THE UNIT STRENGTH METHOD FOR COMPLIANCE (REFERENCE ACI 530.1 SECTION 1.4B). THIS METHOD REQUIRES THE FOLLOWING:
  - MASONRY UNITS SHALL COMPLY WITH ASTM C90 WITH MINIMUM NET AREA COMPRESSIVE STRENGTH OF 2800 psi.
  - MORTAR BED JOINTS MUST NOT EXCEED 5/8" THICKNESS.
  - MORTAR MUST MEET THE PROPORTION SPECIFICATION OF ASTM C476. IF THE MORTAR IS PROPORTIONED IN ACCORDANCE WITH TABLE 1 OF C476, NO COMPRESSION TESTS NEED TO BE PERFORMED.
  - MORTAR MUST MEET THE PROPORTION REQUIREMENTS OF ASTM C270. IF THE MORTAR IS PROPORTIONED IN ACCORDANCE WITH TABLE 1 OF C270, NO COMPRESSION TESTS NEED TO BE PERFORMED.
- CLAY MASONRY UNITS SHALL HAVE A MINIMUM UNIT COMPRESSIVE STRENGTH OF 8000 psi. REFER TO ARCHITECTURAL DOCUMENTS FOR ASTM DESIGNATIONS.
- MORTAR SHALL BE PORTLAND CEMENT-LIME AND CONFORM TO ASTM C270, TYPE S. WHEN CMU IS IN CONTACT WITH SOIL USE TYPE M MORTAR. DO NOT USE ADMIXTURES IN GROUT OR MORTAR WHICH CONTAIN CHLORIDES.
- GROUT SLUMP SHALL BE TO 11 INCHES. GENERAL CONTRACTORS OPTION TO USE LOW LIFT OR HIGH LIFT GROUTING PROCEDURES - SEE "MASONRY GROUT REQUIREMENTS" DETAIL. DO NOT SUBSTITUTE MORTAR FOR GROUT.
- REINFORCING: ASTM A615 - GRADE 60. SEE "MASONRY GROUT REQUIREMENTS" DETAIL AND "MINIMUM CMU WALL REINFORCING REQUIREMENTS" DETAIL. SEE CHART BELOW FOR MINIMUM LAP SPLICE LENGTH AND EMBEDMENT OF REINFORCING BARS, UNLESS NOTED OTHERWISE. REINFORCING SHALL BE CENTERED IN WALLS.
 

MASONRY REINFORCING LAP SPLICES AND EMBEDMENT LENGTH						
BAR SIZE	#4	#5	#6	#7	#8	#9
LAP SPLICE LENGTH (in)	24	30	36	42	48	54
EMBEDMENT (in)	18					