

- 11. TERMINATE CONTINUOUS BARS IN WALL FOOTINGS, WALLS, AND TURNED DOWN SLABS, WITH A STANDARD 90-DEGREE HOOK AT DISCONTINUOUS ENDS, CORNERS, AND INTERSECTIONS.
- 12. AT LOCATIONS REQUIRING VERTICAL DOWELS INTO FOOTINGS, THE PLACEMENT OF THE DOWELS SHALL MATCH THE SIZE AND CLOSELY MATCH THE LOCATION OF THE VERTICAL WALL REBARS REQUIRING THE DOWELS.
- 13. ALL DOWELS SHALL TERMINATE IN THE FOOTING WITH A STANDARD ACI 90-DEGREE HOOK UNLESS SPECIFICALLY SHOWN OTHERWISE. DOWELS SHALL LAP THEIR MATCHING VERTICAL REBAR 40 BAR DIAMETERS OR A MINIMUM OF 24".
- 14. UNLESS OTHERWISE NOTED ON THE DRAWINGS REBARS SHALL HAVE THE FOLLOWING MINIMUM CLEARANCES FROM THE FACE OF CONCRETE.
 - A) FOOTINGS – 3" WITH EXTERIOR FORMS; 2" WITH REMOVABLE FORMS.
 - B) PEDESTALS – 2" TO TIES
 - C) WALLS – 2"
 - D) COLUMNS – 2"
- 15. SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION.

BRICK MASONRY

- 1. CLAY MASONRY UNITS SHALL BE ASTM C62 SOLID CLAY UNITS GRADE SW WITH A COMPRESSIVE STRENGTH OF 8,000 PSI. FACING BRICK (SOLID MASONRY UNITS) SHALL BE ASTM C216, GRADE SW, TYPE FBS. USED BRICK SHALL NOT BE PERMITTED. WHERE MATING WITH EXISTING BRICK, MATCH EXISTING BRICK AS CLOSE AS POSSIBLE.
- 2. MORTAR FOR NON-REINFORCED BRICK MASONRY SHALL BE ASTM C270, TYPES M OR S THROUGHOUT. MORTAR FOR REINFORCED BRICK MASONRY AND GROUT SHALL BE ASTM C476. AIR ENTRAINING ADMIXTURES SHALL NOT BE USED IN MORTAR.

MORTAR JOINTS ARE TO BE 3/8-INCH THICKNESS FOR BOTH HORIZONTAL AND VERTICAL HEAD JOINTS. MORTAR JOINTS SHOULD BE COMPLETELY FILLED AND SHOVED INTO CONTACT WITH THE PREVIOUSLY LAID UNITS.

PROVIDE FULL BEDMENT OF MORTAR FOR ALL BRICK. MORTAR SHOULD NOT BE LAID FAR IN ADVANCE OF THE UNIT BEDMENT. UNITS ONCE BEDDED SHOULD NOT BE MOVED. IF NECESSARY THE UNIT AND MORTAR SURROUNDING THE UNIT SHOULD BE REMOVED, THE MORTAR THEN REMOVED FROM THE UNIT AND WALL AND THE UNIT THEN RELAID USING FRESH MORTAR.

- 3. PROVIDE SCHEDULE 40 PVC OR STEEL SLEEVES AT PIPE PENETRATIONS. STEEL TO BE GALVANIZED AT EXTERIOR WALLS AND ALL BELOW GRADE WALLS.
- 4. SOLIDLY FILL COLLAR JOINTS WITH MORTAR AS WORK PROGRESSES.
- 5. WALLS SHALL BE ACCURATELY LAID OUT AND CONSTRUCTED SO THAT NO WALL VARIES MORE THAN 1/4" FROM ITS DESIGNATED LOCATION. THIS VARIATION LIMIT SHALL APPLY TO WALL PLUMBNESS AND WALL STRAIGHTNESS.
- 6. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PROVIDE THROUGH-WALL FLASHING AND WEEP HOLES AT 16" O/C ABOVE ALL DOORS AND WINDOWS AND BELOW ALL BRICK ROWLOCKS. WHEN FLASHING BRICK WINDOW SILLS/ROWLOCK, INSTALL FLASHING BEFORE INSTALLING WINDOWS. PROVIDE END DAMS IN ALL FLASHING. FLASHING LOCATED AT THE BASE OF WALLS, SHALL BE LAPPED A MINIMUM OF 6 INCHES. SEAL ALL OVERLAPS IN FLASHING AND WHERE FLASHING TUCKS UNDER HOUSE WRAP WITH 2 BEADS OF MOISTOP (OR APPROVED EQUAL) SEALANT. PAY SPECIAL ATTENTION TO FLASHING AT INTERIOR AND EXTERIOR CORNERS.
- 7. BRICK ROWLOCKS TO BE SLOPED DOWN TO DRAIN AT A MINIMUM OF 15°. ROWLOCKS OVERHANG RECOMMENDED TO BE A MINIMUM OF 1 1/2"; HOWEVER, MATCH EXISTING ROWLOCK OVERHANG.
- 8. VERTICAL EXPANSION JOINTS: WHEN CALLED FOR ON THE PLANS, VERTICAL EXPANSION JOINTS ARE TO CONFORM TO THE DETAIL SHOWN ON THE PLANS. CAULK JOINTS. CAULK COLOR TO MATCH MORTAR AS CLOSE AS POSSIBLE. WHEN VERTICAL EXPANSION JOINTS ARE LOCATED ON ONE OR BOTH SIDES OF WINDOWS OR DOORS, JOINT IS TO BE LOCATED AT THE END OF THE STEEL LINTELS.
- 9. DO NOT LOCATED DOWNSPOUTS OVER VERTICAL EXPANSION JOINTS!

STRUCTURAL CONCRETE MASONRY

- 1. LOAD-BEARING MASONRY PIERS, OR WALLS, MASONRY RETAINING WALLS, FOUNDATION WALLS. WALLS DESIGNATED ON DRAWINGS AS SHEAR WALLS AND OTHER MASONRY SO DESIGNATED ON DRAWINGS ARE CONSIDERED HERE TO BE STRUCTURAL MASONRY.
- 2. ALL CONCRETE MASONRY UNITS (CMU) SHALL BE IN ACCORDANCE WITH ASTM C-90 "SPECIFICATIONS FOR HOLLOW LOAD-BEARING UNITS" AND SHALL HAVE A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF $f_m=1500$ PSI. PROVIDE INTEGRAL WATER REPELLANT IN CMU WHEN DIRECTED BY ENGINEER.
- 3. EXISTING MASONRY WALLS: PROVIDE WEEP HOLES AT BASE OF EXISTING WALLS TO DRAIN CELLS OF WATER AS SHOWN ON DETAILS. IF MASONRY BLOCK CELLS ARE LEFT SEALED AND UNFILLED, THE OPEN CELLS CREATE A RESERVOIR WITHIN THE WALL CAVITY THAT CAN HOLD

WATER AND MAKE THE MASONRY DIFFICULT TO CLEAN OR DRAIN FOLLOWING A FLOOD EVENT.

- 4. MORTAR FOR NON-REINFORCED MASONRY SHALL BE ASTM C270, TYPES M OR S THROUGHOUT. MORTAR FOR REINFORCED BRICK MASONRY AND GROUT SHALL BE ASTM C476 TYPE PM OR PL. AIR ENTRAINING ADMIXTURES SHALL NOT BE USED IN MORTAR.

MORTAR JOINTS ARE TO BE 3/8-INCH THICKNESS FOR BOTH HORIZONTAL AND VERTICAL HEAD JOINTS. THE SURFACE OF THE MORTAR JOINTS OF ALL EXTERIOR MASONRY SHOULD BE FORMED TO MATCH THAT ON THE EXISTING BUILDING. MORTAR JOINTS SHOULD BE COMPLETELY FILLED AND SHOVED INTO CONTACT WITH THE PREVIOUSLY LAID UNITS.

PROVIDE FULL BEDMENT OF MORTAR FOR ALL BLOCK. FULL BEDMENT REQUIRES MORTAR TO BE IN CONTACT WITH ALL FACE SHELLS AND WEBS. SOLID END UNITS SHOULD HAVE HEAD JOINTS FILLED A DISTANCE EQUAL TO THE THICKNESS OF THE FACE SHELL. MORTAR SHOULD NOT BE LAID FAR IN ADVANCE OF THE UNIT BEDMENT. UNITS ONCE BEDDED SHOULD NOT BE MOVED. IF NECESSARY THE UNIT AND MORTAR SURROUNDING THE UNIT SHOULD BE REMOVED, THE MORTAR THEN REMOVED FROM THE UNIT AND WALL AND THE UNIT THEN RELAID USING FRESH MORTAR.

- 5. WALLS SHALL BE ACCURATELY LAID OUT AND CONSTRUCTED SO THAT NO WALL VARIES MORE THAN 1/4" FROM ITS DESIGNATED LOCATION. THIS VARIATION LIMIT SHALL APPLY TO WALL PLUMBNESS AND WALL STRAIGHTNESS.

- 6. ALL BED AND HEAD JOINTS SHALL BE FULLY MORTARED.

- 7. REINFORCEMENT FOR ALL MASONRY WALLS SHALL BE 9 GAGE GALVANIZED LADUR TYPE HORIZONTAL JOINT REINFORCEMENT WITH PREFABRICATED TEES AND CORNER PIECES. SPACE AT 8" OC VERTICALLY FOR BELOW GRADE MASONRY AND 16" OC VERTICALLY FOR ABOVE GRADE MASONRY. PLACE HORIZONTAL JOINT REINFORCEMENT IN THE TWO JOINTS IMMEDIATELY ABOVE AND BELOW ALL OPENINGS, EXTENDING A MINIMUM OF 2 FEET BEYOND THE JAMB ON EACH SIDE OF THE OPENING, EXCEPT AT CONTROL JOINTS.

LAP ALL REINFORCEMENT JOINTS A MINIMUM OF 12".

- 8. ALL MASONRY WALLS SHALL BE ANCHORED TO ALL CONTIGUOUS STEEL BEAMS AND COLUMNS WITH SUITABLE ADJUSTABLE TRIANGULAR WIRE TIES 3/16" DIAMETER. PROVIDE ADJUSTABLE FORMED STEEL PLATE TYPE ANCHOR TO RESTRICT HORIZONTAL MOVEMENT OF THE WIRE TIE TO 1/16". WIRE TYPE, BENT STRAP, OR CORRUGATED METAL TYPE ANCHORS SHALL NOT BE USED. ANCHORS WELDED TO BEAMS AND COLUMNS AT 32" O.C.

- 9. GROUT FOR REINFORCED MASONRY:

- A. 9" TO 11" SLUMP, 3/8" MAXIMUM SIZE (PEA GRAVEL), CONCRETE FOR GROUT SPACE 3" X 4" AND GREATER. PLACE PER ACI 530 AND CONSOLIDATE BY VIBRATION.
- B. 5" SLUMP, FINE GROUT ASTM C476 FOR GROUT SPACE 2" X 4" TO 3" X 4". PLACE PER ACI 530 AND CONSOLIDATE BY VIBRATION.
- C. COMPRESSIVE STRENGTH TO BE 3000 PSI MINIMUM.
- D. RECONSOLIDATE BY VIBRATION AFTER INITIAL WATER LOSS AND SETTLEMENT.

- 10. MAXIMUM HEIGHT TO WHICH MASONRY SHALL BE LAID BEFORE FILLING IS 8 FEET FOR PEA GRAVEL CONCRETE AND 2 FEET FOR FINE GROUT.

- 11. PROVIDE CLEANOUT OPENINGS AT THE BOTTOM OF EACH GROUT LIFT. CLEANOUT OPENINGS SHALL BE PROVIDED AT EACH CELL TO BE FILLED WITH GROUT.

- 12. ALL BLOCK CONTAINING VERTICAL REINFORCING SHALL HAVE TWO CELLS PER 16" BLOCK. CELLS SHALL ALIGN VERTICALLY. TIE IN POSITION AND PLACE CONCRETE AROUND REINFORCING DURING CONSTRUCTION OF MASONRY. BARS SHALL BE HELD IN PLACE BY REBAR POSITIONERS OR OTHER SUITABLE DEVICES. DO NOT PUSH REINFORCING DOWN INTO PREVIOUSLY PLACED GROUT FILL. SET BOLTS SIMILARLY.

- 13. REINFORCING GRADE AND DETAILS SAME AS FOR CONCRETE.

- 14. TIE WYTHES WITH HORIZONTAL REINFORCING AS SPECIFIED.

- 15. ALL CONCRETE MASONRY UNITS BELOW FINISH MAIN FLOOR AND/OR BELOW FINISH GRADE SHALL BE FILLED WITH 3000 PSI PEA GRAVEL CONCRETE.

- 16. SINGLE-WYTHE CMU WALLS: THROUGH WALL FLASHING (WITH WEEP HOLES) SHALL BE INSTALLED ABOVE ALL OPENINGS. AT ALL BOND BEAMS AND LINTELS AND AT ALL FLOOR CONNECTION LINES. FLASHING SHOULD TURN UP ON THE INSIDE AND EXTEND OUTSIDE THE FACE OF THE WALL TO ENSURE WATER IS DIRECTED OUTWARD. END DAMS ON THE FLASHING, EXTENDING UP AT LEAST 1-INCH INTO THE WALL. SHALL ALSO BE PROVIDED ON EITHER SIDE OF ALL CMU WINDOW AND DOOR LINTELS AND BELOW WINDOW SILLS. LAP FLASHING AND SEAL LAP JOINTS WITH ADHESIVE. IN LIEU OF FLASHING, BLOK-FLASH (AS MANUFACTURED BY MORTARNET®) MAY BE SUBSTITUTED AS AN ALTERNATIVE TO TRADITIONAL FLASHING. BLOK-FLASH SHALL BE INSTALLED AS RECOMMENDED BY MANUFACTURER. PROVIDE DRIP NOTCHES IN LINTELS OVER DOORS AND WINDOWS.

SILL FLASHING IS TO BE PLACED UNDER AND BEHIND ALL SILLS. SILLS SHOULD SLOPE AND PROJECT AWAY FROM THE WALL IN ORDER TO DRAIN WATER AWAY FROM THE BUILDING WALL. IF THE UNDERSIDE OF THE SILL IS NOT SLOPED, IT SHOULD HAVE A DRIP NOTCH OR THE FLASHING EXTENDED AND BENT DOWN TO FORM A DRIP.

WINDOW AND DOOR JAMS MUST BE SEALED TO PREVENT WATER PASSAGE BETWEEN THE WINDOW/DOOR AND THE MASONRY. A BACKER-ROD AND SEALANT SHOULD BE PROVIDED AT THE EXTERIOR JUNCTURE. THE CRITICAL DIMENSIONS SHOULD BE KNOWN SO SEALANT SELECTION IS PROPER FOR THE CONFIGURATION OF THE JOINT.

- 17. SINGLE WYTHE CMU WALL INSULATION: N/A.

- 18. DO NOT LOCATE CONTROL JOINTS WITHIN 2 FEET OF BEAM BEARING LOCATIONS.

- 19. ALL NON-LOAD-BEARING MASONRY WALLS SHALL BE REINFORCED WITH #4 BARS AT 48 INCHES O/C VERTICALLY, TYPICAL UNLESS OTHERWISE NOTED. ALL NON-BEARING MASONRY WALLS SHALL BE BRACED PER TYPICAL NON-BEARING MASONRY PARTITION DETAILS.

- 20. LAP ALL REINFORCING AS FOLLOWS UNLESS OTHERWISE NOTED:

REINF SIZE	CONCRETE MASONRY BAR LAP LENGTH ¹			
	CENTERED ON CMU WALL			EDGE OF CMU (2" CLR)
#3	8"	10"	12"	15"
#4	16"	16"	16"	15"
#5	24"	24"	24"	26"
#6	26"	26"	26"	40"
#7	43"	40"	40"	54" or MSR
#8	60" or MSR	46" or MSR	46" or MSR	63" or MSR
#8	72" or MSR	71" or MSR	61" or MSR	72" or MSR

¹ AT THE CONTRACTOR'S OPTION, MECHANICAL CONNECTIONS MAY BE USED IN LIEU OF LAP SPLICES.

^{MS} = MECHANICAL SPLICES REQUIRED
^{SOURCE}: TEK 12-6A (2013), TABLE 3 BASED ON $f_y=60$ KSI, $f_m = 1,500$ PSI.

- 21. PROVIDE STEEL SLEEVES AT PIPE PENETRATIONS; GALVANIZED AT EXTERIOR WALLS AND ALL BELOW GRADE WALLS.
- 22. GROUT ALL CELLS OF FOUNDATION WALLS SOLID UP TO FINISH GROUND FLOOR.
- 23. SOLIDLY FILL COLLAR JOINTS WITH MORTAR AS WORK PROGRESSES.

STRUCTURAL STEEL

- 1. STEEL SHAPES SHALL CONFORM TO "STRUCTURAL STEEL" – DUAL CERTIFIED TO ASTM A36 AND ASTM A572.
 - STEEL PLATES, BARS, AND RODS – ASTM A36.
 - PIPE COLUMNS – ASTM A53.
 - BOLTS – ASTM A325.
 - WELDS – AWS CLASS E 70 LOW HYDROGEN ELECTRODES.
 - TUBE COLUMNS – ASTM A500, GRADE B.
 - ANCHOR BOLTS – ASTM A307.

- 2. ALL STEEL WORK SHALL CONFORM TO "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS – ALLOWABLE STRESS DESIGN" AND THE AISC CODE OF STANDARD PRACTICE.

- 3. BOLTED CONNECTIONS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION UNLESS NOTED OTHERWISE ON PLANS. REFER TO DRAWINGS FOR CONNECTIONS. IF CONNECTIONS ARE NOT SHOWN, FABRICATOR SHALL DESIGN CONNECTIONS FOR BEAM UNIFORMLY LOADED TO CAPACITY.

- 4. FIELD CONNECTION BOLTS SHALL BE 3/4" DIAMETER ASTM A325 BOLTS U.O.N. WITH PROPER HARDENED WASHERS AND HEX NUTS. ALL BOLTS SHALL BE TIGHTENED WITH A PRE-TENSION LOAD OF 28,000 POUNDS MINIMUM TENSION. INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING A325 AND A490 BOLTS". INSTALL A SUITABLE HARDENED WASHER UNDER THE HEAD OR NUT. WHICHEVER IS USED AS THE TURNED ELEMENT FOR TIGHTENING AND OVER ALL EXPOSED SLOTTED OR OVERSIZED HOLES. CONNECTIONS ARE BEARING TYPE WITH TRENDS IN THE SHEAR PLANE.

- 5. TYPICAL FIELD WELD REQUIREMENTS ERECTOR NOTE (UNLESS NOTED OTHERWISE ON DRAWINGS):

- A. ALL FIELD WELDING MUST BE PERFORMED BY AWS/CWB CERTIFIED WELDERS WHO ARE QUALIFIED FOR THE WELDING PROCESSES AND POSITIONS INDICATED.

- B. ALL WORK MUST BE COMPLETED AND INSPECTED IN ACCORDANCE WITH THE APPLICABLE AWS/CWB SPECIFICATIONS.

- C. WELD ELECTRODES USED FOR THE SMAW (OR STICK) WELD PROCESS MUST BE 70 KSI/483 MPa MATERIAL AND LOW HYDROGEN CONTENT.

- 6. RETURN ALL WELDS AT CORNERS A MINIMUM OF TWICE THE NORMAL SIZE OF THE WELD.

- 7. BEAMS AND LINTELS SHALL BEAR A MINIMUM OF 8" ON SOLID MASONRY SUPPORTS.

- 8. ALL COPES, GUTS, BLOCKS, NOTCHES SHALL HAVE SMOOTH RE-ENTRANT CORNERS OF 1/2" MINIMUM RADIUS.

- 9. PROVIDE HOLES FOR BLOCKING AND NAILER BOLTS AS REQUIRED BY ARCHITECTURAL DRAWINGS.

- 10. STRUCTURAL STEEL SHALL RECEIVE ONE COAT OF RED OXIDE PAINT OF 2 MIL DFT. SURFACE PREPARATION SHALL BE POWER TOOL CLEANING CONFORMING TO SSPC-SP3.

- 11. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY BRACING AND GUYING OF STEEL FRAMING AND LOAD BEARING WALLS TO PROVIDE FOR SAFETY OF THE STRUCTURE AND WORKMEN. BRACING TO REMAIN UNTIL NO LONGER REQUIRED FOR SAFE SUPPORT OF FRAME.

- 12. ALL COLUMN ANCHOR BOLTS SHALL HAVE A NET CONCRETE EMBEDMENT OF 36 DIAMETERS AND TERMINATE IN THE CONCRETE WITH A MINIMUM 6" – 90 DEGREE BEND. THE 6" BEND MAY BE CONSIDERED PART OF THE EMBEDMENT REQUIREMENT.

- 13. PROVIDE AMPLE GROUT THICKNESS UNDER COLUMN BASE PLATES TO ALLOW FOR A HEAVY HEX LEVELING NUT AND STANDARD FLAT WASHER TO BE PLACED ONE EACH ANCHOR BOLT ON THE UNDERSIDE OF THE COLUMN BASE PLATE. FOR PRECISION LEVELING AND PLUMBING THE COLUMN, PROVIDE A STANDARD FLAT WASHER UNDER A HEAVY HEX CLAMPING NUT ON TOP OF THE BASE PLATE FOR EACH ANCHOR BOLT.

- 14. PROVIDE A MINIMUM OF 3" CONCRETE ENCASUREMENT PROTECTION FOR ALL STEEL PARTS BELOW GRADE.

- 15. GALVANIZED STEEL FIELD WELDING RECOMMENDATIONS (INFORMATION COURTESY OF AMERICAN GALVANIZERS ASSOCIATION):

A. PREPARATION OF WELD AREA: AWS D-19.0, WELDING ZINC COATED STEEL, CALLS FOR WELDS TO BE MADE ON STEEL THAT IS FREE OF ZINC IN THE AREA TO BE WELDED. FOR GALVANIZED STRUCTURAL COMPONENTS, THE ZINC COATING SHOULD BE REMOVED AT LEAST ONE TO FOUR INCHES (2.5-10 CM) FROM EITHER SIDE OF THE INTENDED WELD ZONE AND ON BOTH SIDES OF THE WORKPIECE. GRINDING BACK THE ZINC COATING IS THE PREFERRED AND MOST COMMON METHOD; BURNING THE ZINC AWAY OR PUSHING BACK THE MOLTEN ZINC FROM THE WELD AREA IS ALSO EFFECTIVE.

B. TOUCH-UP WELD AREA: WELDING ON GALVANIZED SURFACES DESTROYS THE ZINC COATING ON AND AROUND THE WELD AREA. RESTORATION OF THE AREA WILL BE PERFORMED IN ACCORDANCE WITH ASTM A780 STANDARD PRACTICE FOR REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS WHICH SPECIFIES THE USE OF PAINTS CONTAINING ZINC DUST, ZINC-BASED SOLDERS OR SPRAYED ZINC. ALL TOUCHUP AND REPAIR METHODS ARE CAPABLE OF BUILDING A PROTECTIVE LAYER TO THE THICKNESS REQUIRED BY ASTM A780.

C. SAFETY & HEALTH: WHEN WELDING DIRECTLY ON GALVANIZED STEEL IS UNAVOIDABLE, OSHA PERMISSIBLE EXPOSURE LIMITS (PELS) MAY BE EXCEEDED AND EVERY PRECAUTION, INCLUDING HIGH-VELOCITY CIRCULATING FANS WITH FILTERS, AIR RESPIRATORS, AND FUME-EXTRACTION SYSTEMS SUGGESTED BY AWS, SHOULD BE EMPLOYED. FUMES FROM WELDING GALVANIZED STEEL CAN CONTAIN ZINC, IRON AND LEAD. FUME COMPOSITION TYPICALLY DEPENDS ON THE COMPOSITION OF MATERIALS USED, AS WELL AS THE HEAT APPLIED BY THE PARTICULAR WELDING PROCESS. IN ANY EVENT, GOOD VENTILATION MINIMIZES THE AMOUNT OF EXPOSURE TO FUMES.

PRIOR TO WELDING ON ANY METAL, CONSULT ANSI/ASC Z-49.1, SAFETY IN WELDING, CUTTING AND ALLIED PROCESSES, WHICH CONTAINS INFORMATION ON THE PROTECTION OF PERSONNEL AND THE GENERAL AREA, VENTILATION AND FIRE PREVENTION.

- 16. DETAILING AND ERECTION OF STRUCTURAL STEEL SHALL COMPLY WITH THE CURRENT OSHA STANDARDS FOR THE CONSTRUCTION INDUSTRY SUB-PART R, STEEL ERECTION.

- 17. THREADED ROD ANCHORS USED SHALL BE STANDARD STRENGTH STEEL ROD (ASTM A36) UNLESS OTHERWISE NOTED.

HEATING AND BENDING OF REBAR IN THE FIELD

- 1. FIELD BENDING AND STRAIGHTENING OF REINFORCEMENT SHALL BE DONE AS OUTLINED BELOW. NO BENDING OF REINFORCEMENT IN THE FIELD SHALL BE MADE UNLESS APPROVAL OF ENGINEER IS OBTAINED.

- 2. MINIMUM BEND DIAMETER FOR REINFORCING BAR IS DEFINED AS THE DIAMETER ON THE INSIDE OF THE BAR BEND. MINIMUM BEND DIAMETER FOR BAR SIZES #3 UP TO AND INCLUDING #8 SHALL BE 6 BAR DIAMETERS. MINIMUM BEND DIAMETER FOR #9 AND #10 BARS SHALL BE 8 BAR DIAMETERS. MINIMUM BEND DIAMETERS FOR #14 AND #18 BARS SHALL BE 10 BAR DIAMETERS.

- 3. ALL REINFORCEMENT SHALL BE BENT COLD UNLESS OTHERWISE DIRECTED OR PERMITTED BY THE ENGINEER.

- 4. FIELD BENDING/STRAIGHTENING SHOULD BE LIMITED TO BAR SIZES #11 AND SMALLER. HEAT SHALL BE APPLIED FOR BENDING/STRAIGHTENING BARS SIZES #6 THROUGH #11 OR FOR BENDING/STRAIGHTENING BAR SIZES #5 AND SMALLER WHEN THOSE BARS HAVE BEEN PREVIOUSLY BENT. PREVIOUSLY UNBENT BARS OF SIZE #5 AND SMALLER MAY BE BENT/STRAIGHTENED WITHOUT HEATING.

- 5. A BENDING TOOL WITH THE APPROPRIATE BAR DIAMETER SHALL BE USED. ALL FIELD BENDS SHALL BE LIMITED TO 90 DEGREES.

DATE	NO.	REVISIONS
NOVEMBER, 2022		

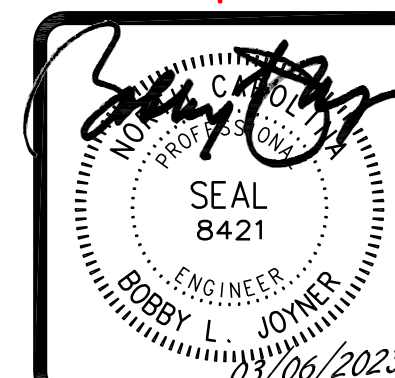


CONSULTING ENGINEERS, P.A.
CIVIL, MUNICIPAL &
STRUCTURAL SERVICES
COMPREHENSIVE
ENVIRONMENTAL SERVICES
BLN = C0562

154 Roundabout Ct.
Rocky Mount, N.C. 27804
Phone: (252) 972-7703
Fax: (252) 972-7638

www.appianengineers.com
admin@appianengineers.com

Final Drawings
Review Purposes ONLY



GENERAL SPECIFICATIONS For
Hyde County N.C. Flood
Mitigation Assistance Grant
5161-004