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Permit - Seal :

NOT FOR CONSTRUCTION

PRICING SET	11-2-20
Issued / Revisions :	Appd. Date



Project :
Storage Facility
Country Club Rd.
Winston-Salem, NC

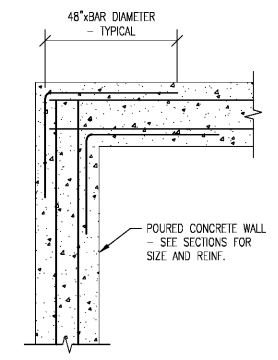
Title :

DETAILS AND SPECIFICATIONS

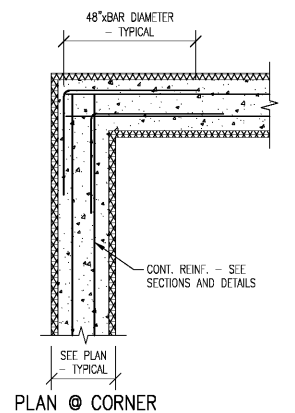
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Project No. : 720-016 Drawn by : MRM

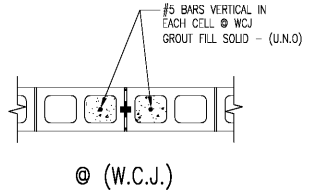
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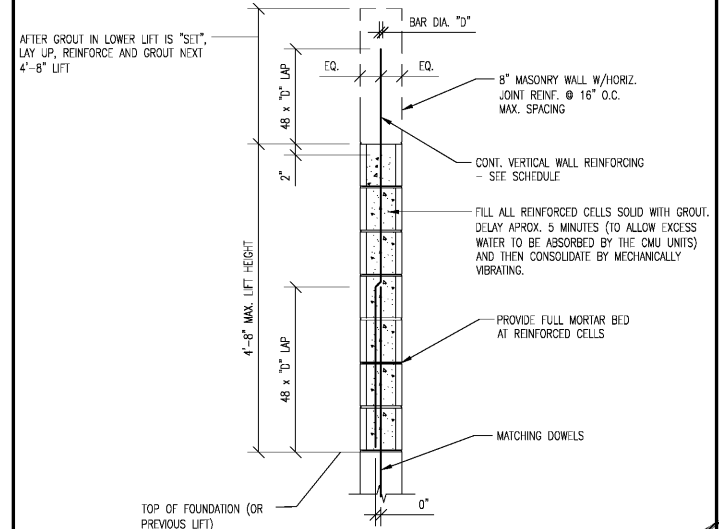
PLAN @ CORNER



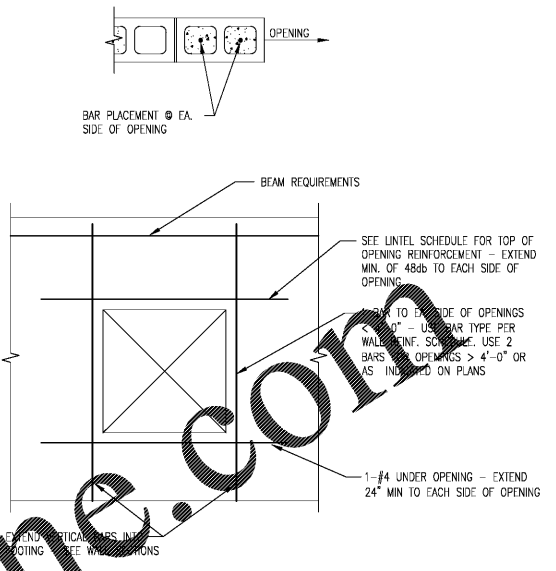
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@ (W.C.J.)

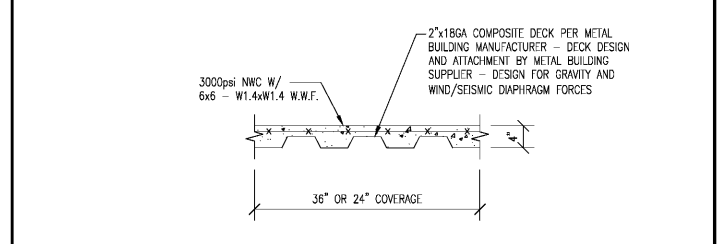


TYPICAL LOW-LIFT WALL CONSTRUCTION DETAIL



WALL OPENING REINFORCEMENT DETAIL

SECTION NO.	SCALE
TYPICAL	NO SCALE



TYPICAL CONCRETE WALL REINF. DETAIL

SECTION NO.	SCALE
TYPICAL	NO SCALE

STRUCTURAL ABBREVIATIONS

@ = AT
 A.B. = ANCHOR BOLTS
 ABC = AGGREGATE BASE COARSE
 A.E.F.F.E. = ABOVE EXISTING FINISHED FLOOR ELEVATION
 A.F.F.E. = ABOVE FINISHED FLOOR ELEVATION
 A.R.F.F.E. = ABOVE REFERENCE FINISHED FLOOR ELEVATION
 ALI. = ALTERNATE
 ARCH. = ARCHITECTURAL
 B.F.F.E. = BELOW FINISHED FLOOR ELEVATION
 B.M.B.M. = BY METAL BUILDING MANUFACTURE
 B.R.F.F.E. = BELOW REFERENCE FINISHED FLOOR ELEVATION
 BLDG. = BUILDING
 BOT. = BOTTOM
 B.O.W. = BOTTOM OF WALL
 BRG. = BEARING
 C.J. = CONSTRUCTION/CONTROL JOINT
 CL. = CENTER LINE
 CLR. = CLEAR
 CMU = CONCRETE MASONRY UNIT
 COL. = COLUMN
 CONC. = CONCRETE
 CONN. = CONNECTION
 CONST. = CONSTRUCTION
 CONT. = CONTINUOUS
 COOR. = COORDINATE
 DET. = DETAIL
 DIA. = DIAMETER
 DIM. = DIMENSION
 DWGS. = DRAWINGS
 DWL. = DOWEL
 E.A. = EACH
 E.F.F.E. = EXISTING FINISHED FLOOR ELEVATION
 E.J. = EXPANSION JOINT
 ELEV. = ELEVATION
 E.W. = EACH WAY
 EXP. = EXPANSION
 EXIST. = EXISTING
 EXT. = EXTENSION

FLR. = FLOOR
 FD = FLOOR DRAIN
 FND. = FOUNDATION
 FP = FULL PENETRATION
 FIG. = FOOTING
 HK = HOOK
 HORIZ. = HORIZONTAL
 HSS = HOLLOW STRUCTURAL SECTION (TUBE OR PIPE)
 INT. = INTERIOR
 JT. = JOINT
 K = KIP (1000 lbs)
 LH = LONG LEG HORIZONTAL
 LV = LONG LEG VERTICAL
 MANUF. = MANUFACTURER
 MAS. = MASONRY
 MAX. = MAXIMUM
 MECH. = MECHANICAL
 MIN. = MINIMUM
 NOM. = NOMINAL
 O.C. = ON CENTER SPACING
 OPNG. = OPENING
 PC. = PRECAST
 PL. = PLATE
 REINF. = REINFORCEMENT
 REQD. = REQUIRED
 SC. = SLIP CRITICAL
 SCHED. = SCHEDULE
 SECT. = SECTION
 T&B = TOP AND BOTTOM
 T.O.F. = TOP OF FOOTING
 T.O.P. = TOP OF PIER
 T.O.S. = TOP OF STEEL
 T.O.W. = TOP OF WALL
 TYP. = TYPICAL
 U.N.O. = UNLESS NOTED OTHERWISE
 VERT. = VERTICAL
 W = WIDE FLANGE MEMBER
 W/ = WITH
 WWF = WELDED WIRE FABRIC
 * = COORD. WITH SITE PLAN

DESIGN LOADS (ASCE 2018):

A. FLOOR LIVE LOAD: SECTION 1607.10

- SLAB ON GRADE = 125 PSF
- ELEVATED SLAB = 125 PSF
- ROOF LIVE LOAD: SECTION 1607.12
- ROOF = 20 PSF
- ROOF SNOW LOAD DATA: SECTION 1609
- FLAT ROOF SNOW LOAD, $P_f = 20$ PSF
- SNOW EXPOSURE FACTOR, $C_e = 1.0$
- SNOW IMPORTANCE FACTOR, $I_s = 1.0$
- ROOF THERMAL FACTOR, $R = 1.0$
- WIND DESIGN DATA: SECTION 1609
- ULTIMATE DESIGN WIND SPEED, $V_u = 145$ MPH
- RISK CATEGORY: SECTION 1609
- WIND EXPOSURE CATEGORY = II
- COMPOUNDING & CLADDING DESIGN PRESSURES (PSF):
 - ROOF INTERIOR ZONE = 30 PSF
 - ROOF EDGES = 41 PSF
 - ROOF CORNERS = 41 PSF
 - WALL INTERIOR ZONE = 29 PSF
 - WALL EDGE ZONE = 34 PSF
- EARTHQUAKE DESIGN DATA: SECTION 1613
- RISK CATEGORY = II
- SEISMIC IMPORTANCE FACTOR, $I_e = 1.0$
- MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS:
 - SHORT PERIOD, $S_s = 0.234$
 - 1 SECOND PERIOD, $S_1 = 0.086$
- SITE CLASS = C
- DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS:
 - SHORT PERIOD, $S_{ps} = 0.187$
 - 1 SECOND PERIOD, $S_{p1} = 0.098$
- SEISMIC DESIGN CATEGORY = B
- BASIC SEISMIC FORCE-RESISTING SYSTEM: ORDINARY REINFORCED MASONRY SHEAR WALLS.
- DESIGN BASE SHEAR:
 - $V_u = 312^k$
 - $V_e = 312^k$
- SEISMIC RESPONSE COEFFICIENT, $C_s = 0.0938$
- RESPONSE MODIFICATION COEFFICIENT, $R = 2$
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE (1613)

SUBMITTALS

A. SHOP DRAWINGS AND SUBMITTALS SHALL BE SUBMITTED TO THE ENGINEER BEFORE BEGINNING CONSTRUCTION.

B. CLEARLY SPECIFY AND DEVIATIONS FROM THE CONTRACT DOCUMENTS ON ALL SUBMITTALS.

C. THE CONTRACTOR SHALL REVIEW EACH SUBMITTAL BEFORE SUBMITTING TO THE ENGINEER.

D. THE FOLLOWING SUBMITTALS ARE RECOMMENDED FOR THIS PROJECT:

- CAST-IN-PLACE CONCRETE
 - COMPLY WITH SUBMITTAL REQUIREMENTS IN ACI 301/318
 - PRODUCT DATA
 - DESIGN MIXTURES (HISTORICAL DATA OR TRIAL BATCH)
 - REBAR SHOP DRAWING
- STRUCTURAL STEEL
 - PRODUCT DATA
 - SHOP DRAWING

NOTE: SPECIFICATIONS STATED ABOVE ARE FOR ITEMS OUTLINED IN THE MOOREFIELD ENGINEERING P.C. PLANS. BUILDING COMPONENT/DESIGNER SHALL PROVIDE SEPARATE SPECIFICATIONS FOR THE PRE-ENGINEERED BUILDING COMPONENTS AS REQUIRED.

DIVISION 1
GENERAL

A. THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCES.

B. THE STRUCTURE HAS BEEN DESIGNED TO RESIST DESIGN LOADS ONLY AS A COMPLETED STRUCTURE. APPLICATIONS OF CONSTRUCTION LOADS TO THE PARTIALLY COMPLETED STRUCTURE SHALL BE CONSIDERED BY THE CONTRACTOR AND SO INCLUDED IN THE DESIGN OF SHORING, BRACING, FORMWORK, AND ANY OTHER SUPPORTING ELEMENTS PROVIDED FOR CONSTRUCTION OF THE STRUCTURE. DURING ERECTION AND UNTIL ALL PERMANENT ARE MADE, THE CONTRACTOR MUST PROVIDE TEMPORARY BRACING FOR THE STRUCTURE IN ALL DIRECTIONS.

C. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND GRADE CONDITIONS (BOTH NEW AND EXISTING), REPORTING ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH ANY PHASE OF THE WORK.

D. THE CONTRACTOR SHALL COMPARE STRUCTURAL SECTIONS WITH ARCHITECTURAL SECTIONS AND REPORT ANY DISCREPANCY TO THE ARCHITECT PRIOR TO FABRICATION OR INSTALLATION OF STRUCTURAL MEMBERS.

E. DO NOT SCALE DIMENSIONS FROM DRAWINGS. THE CONTRACTOR SHALL REQUEST, FROM THE ARCHITECT, NECESSARY DIMENSIONS SHOWN ON THE DRAWINGS.

F. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, STRUCTURAL GENERAL NOTES, AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.

CODES, SPECIFICATIONS AND STANDARDS

A. APPLICABLE BUILDING CODE: THE CONTRACT DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE:

- INTERNATIONAL BUILDING CODE (IBC 2015) WITH 2018 NORTH CAROLINA AMENDMENTS
- BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-14)
- 2010 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (ANSI/AISC 360-10)

3. CONCRETE MASONRY UNIT ASSEMBLIES
a. PRODUCT DATA

DIVISION 2
GEOTECHNICAL REPORT

FOUNDATION DESIGN BASED ON A SOIL BEARING PRESSURE OF 2500 PSF. SEE E.C.S. (THE FASH, LLP PROJECT 09-29076, DATED APRIL 13, 2020 FOR RECOMMENDATIONS (TO BE VERIFIED BY THE GENERAL CONTRACTOR AT THE TIME OF CONSTRUCTION).

SOIL EXCAVATION AND REPLACEMENT

A. REMOVE ALL LOOSE FILL MATERIAL WITH DEBRIS EXTENDING 4 FEET BEYOND BUILDING FOOTING TO THE MORE CONSOLIDATED MATERIAL AS APPROVED BY THE GEOLOGICAL ENGINEER. REPLACE WITH SELECTED MATERIAL IN 8" TO 10" LOOSE LIFTS AS DIRECTED BY GEOTECHNICAL ENGINEER. COMPACT SELECT FILL MATERIAL TO 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY ACCORDING TO ASTM D698.

B. REVIEW SOIL REPORT BORING HOLES FOR INITIAL DEPTHS OF EXCAVATION DEPTHS. THE GEOLOGICAL ENGINEER SHALL APPROVE FINAL EXCAVATIONS OF FOOTING AND OTHER BEARING STRATA.

SLAB-ON-GRADE CONSTRUCTION

A. SUBGRADE PREPARATION
1. IMMEDIATELY AFTER PLACING AND FINISHING STONE BELOW SLAB, THE LAST ONE FOOT OF SUBGRADE SHOULD BE COMPACTED TO 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698 TO DENSITY ANY SOILS REMAIND BY CONSTRUCTION OPERATIONS.

B. PROVIDE 4" MINIMUM LAYER OF CLEAN 3/4" CRUSHED STONE OR WASHED GRAVEL BELOW THE SLAB ON GRADE OR AS SPECIFICALLY INDICATED IN THE PROJECT PLANS.

3. PROVIDE CURB BARRIER - SEE ARCHITECTURAL PLANS.

CONSTRUCTION CRANE LOADS - THE CONTRACTOR IS CAUTIONED AGAINST LOADING THE SLAB ON GRADE WITH CRANE LOADS. THE SLAB HAS NOT BEEN DESIGNED FOR CRANE LOADS AND MAY REQUIRE AN INCREASE IN SLAB THICKNESS AND/OR REINFORCEMENT. THE CONTRACTOR IS REQUIRED TO SUBMIT A PROPOSED PLAN IF CRANE SUPPORT IS REQUIRED ON SLABS-ON-GRADE TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCING WORK.

SPREAD FOOTINGS

A. FOOTING EXCAVATION - FOOTINGS SHALL BE NEAT EXCAVATED WHERE POSSIBLE WITH SIDES AND TOP EDGES FREE OF LOOSE OR WET MATERIALS. WHERE NEAT EXCAVATION IS NOT POSSIBLE, FOOTINGS EXCAVATION SHALL BE OPEN CUT WITH EDGES FORMED AND BRACED. ALL FOOTINGS WITH FORMED EDGES SHALL BE BACKFILLED WITH LEAN CONCRETE, CEMENT STABILIZED SAND OR SELECT FILL MATERIAL PLACED IN 8" LIFTS AND COMPACTED TO 95% OF MODIFIED STANDARD PROCTOR MAXIMUM DENSITY OF EACH LIFT. THE BOTTOM EXCAVATION SHALL BE CLEAN AND DRY WITH ALL LOOSE MATERIAL REMOVED FOR AN ESSENTIALLY FLAT BEARING SURFACE. EXCAVATIONS SHALL NOT BE LEFT OVERNIGHT UNLESS A 2" UNREINFORCED SEAL (MUJ) SLAB IS PLACED AT THE BOTTOM OF THE FOOTING EXCAVATION.

DIVISION 3
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMIT CONCRETE MIX DESIGNS.

B. COMPLY WITH ASTM C 94; ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"; ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"; AND CRSI'S "MANUAL OF STANDARD PRACTICE."

PART 2 - PRODUCTS

2.1 MATERIALS

A. DEFORMED REINFORCING BARS: ASTM A 615, GRADE 60.

B. WELDED STEEL WIRE FABRIC: ASTM A 185, FLAT SHEETS, NOT ROLLS.

C. PORTLAND CEMENT: ASTM C 150, TYPE 1.

D. FLY ASH: ASTM C 618, TYPE F.

E. AGGREGATES: ASTM C 33, CLASS 4S.

F. FIBER REINFORCEMENT: NOT ALLOWED

G. AIR-ENTRAINING ADMIXTURE: ASTM C 260.

H. CHEMICAL ADMIXTURES: ASTM C 494, WATER REDUCING.

I. WATER STOPS: FLAT DUMSBELL OR CENTER-BULB TYPE, OF EITHER RUBBER (CRD C 513) OR PVC (CRD C 572).

J. VAPOR RETARDER: SEE ARCH.

K. LIQUID MEMBRANE-FORMING CURING COMPOUND: ASTM C 309, CLEAR.

2.2 MIXES

A. PROPORTION NORMAL-WEIGHT CONCRETE MIXES TO PROVIDE THE FOLLOWING PROPERTIES:

- COMPRESSIVE STRENGTH: POURED CONCRETE WALL - 4000 PSI (24.13 MPA) AT 28 DAYS. FOOTINGS & SLAB-ON-GRADE - 3500 PSI (21.4 MPA) AT 28 DAYS. ELEVATED SLAB - 3000 PSD (20.7 MPA) AT 28 DAYS.
- SLUMP LIMIT: 4 INCHES (100 MM) AT POINT OF PLACEMENT.
- WATER-CEMENT RATIO: 0.50 MAXIMUM AT POINT OF PLACEMENT.
- AIR CONTENT: 5.5 TO 7.0 PERCENT FOR CONCRETE EXPOSED TO FREEZING AND THAWING, 2 TO 4 PERCENT ELSEWHERE.

SECTION NO.	SCALE
TYPICAL	NO SCALE

PART 1 - EXECUTION

1. CONSTRUCTION

CONSTRUCT FORMWORK AND MAINTAIN TOLERANCES AND SURFACE IRREGULARITIES WITHIN ACI 117 LIMITS OF CLASS A FOR CONCRETE EXPOSED TO VIEW AND CLASS C FOR OTHER CONCRETE SURFACES.

B. SET WATER STOPS WHERE INDICATED TO ENSURE JOINT WATER TIGHTNESS.

C. PLACE VAPOR RETARDER ON PREPARED SUBGRADE, WITH JOINTS LAPPED 6 INCHES (150 MM) AND SEALED.

D. ACCURATELY POSITION, SUPPORT, AND SECURE REINFORCEMENT.

E. INSTALL CONSTRUCTION, ISOLATION, AND CONTROL JOINTS.

F. PLACE CONCRETE IN A CONTINUOUS OPERATION AND CONSOLIDATE USING MECHANICAL VIBRATING EQUIPMENT.

G. PROTECT CONCRETE FROM PHYSICAL DAMAGE OR REDUCED STRENGTH DUE TO WEATHER EXTREMES DURING MIXING, PLACING, AND CURING.

H. FORMED SURFACE FINISH: SMOOTH-FORMED FINISH FOR CONCRETE EXPOSED TO VIEW, COATED, OR COVERED BY WATERPROOFING OR OTHER DIRECT-APPLIED MATERIAL; ROUGH-FORMED FINISH ELSEWHERE.

I. UNFORMED SLAB FINISHES: SCRATCH FINISH FOR SURFACES TO RECEIVE MORTAR SETTING BEDS; FLOAT FINISH SURFACES FOR INTERIOR STEPS AND RAMPS AND SURFACES TO RECEIVE WATERPROOFING, ROOFING, OR OTHER DIRECT-APPLIED MATERIAL; TROWELED FINISH FOR FLOOR SURFACES AND FLOORS TO RECEIVE FLOOR COVERINGS, PAINT, OR OTHER THIN FILM-FINISH COATINGS; TROWEL AND FINE BROOM FINISH FOR SURFACES TO RECEIVE THIN-SET TILE; NONSLIP BROOM FINISH TO EXTERIOR CONCRETE PLATFORMS, STEPS, AND RAMPS.

J. CURE FORMED SURFACES BY MOIST CURING UNTIL FORMS ARE REMOVED.

K. BEGIN CURING UNFORMED CONCRETE AFTER FINISHING. APPLY MEMBRANE-FORMING CURING COMPOUND TO CONCRETE.

L. PROTECT CONCRETE FROM DAMAGE. REPAIR SURFACE DEFECTS IN CONCRETE.

STEEL DECK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. COMPLY WITH SDI PUBLICATION NO. 28, "SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK AND NON-COMPOSITE STEEL FORM DECK".

PART 2 - PRODUCTS

2.1 MATERIALS

A. GALVANIZED STEEL SHEET: ASTM A 653 (ASTM A 653M), STRUCTURAL QUALITY, AND AS FOLLOWS:

- ZINC-COATING WEIGHT: MANUFACTURER STANDARD
- GRADE: MANUFACTURER STANDARD

2.2 DECKING

A. FLOOR DECK: FABRICATE PANELS FROM PRIME PAINTED STEEL WITHOUT TOP-FLANGE STIFFENING GROOVES AND AS FOLLOWS:

- PRIME-PAINTED STEEL SHEET: ASTM A611, GRADE C MINIMUM, SHOP PRIMED WITH GRAY OR WHITE BAKED-ON, LEAD- AND CHROMATE-FREE RUST-INHIBITIVE PRIMER.
- DECK PROFILE: VULCORAFIT TYPE C OR EQUAL.
- PROFILE DEPTH: TYPE C, 0.6 INCHES (38 MM).

DESIGN UNCOATED STEEL THICKNESS: 0.0239 INCH.

2.3 MISCELLANEOUS

A. ACCESSORIES: MANUFACTURER'S RECOMMENDED ROOF DECK ACCESSORY MATERIALS.

B. SHEAR CONNECTORS: AWS D1.1, TYPE B, HEADED-STUD TYPE, COLD-FINISHED CARBON STEEL.

C. GALVANIZING REPAIR PAINT: SSSP-PAINT 20 OR DOD-P-21035.

PART 3 - EXECUTION

3.1 DECK INSTALLATION

A. INSTALL DECK PANELS AND ACCESSORIES ACCORDING TO SDI PUBLICATION NO. 28.

B. PLACE, ADJUST, ALIGN, AND BEAR DECK PANELS ON STRUCTURE. DO NOT STRETCH OR CONTRACT SIDE LAP INTERLOCKS.

C. PLACE DECK PANELS FLAT AND SQUARE AND ATTACH PER MANUFACTURERS INSTRUCTIONS.

D. CUT, REINFORCE, AND FIT DECK PANELS AND ACCESSORIES AROUND OPENINGS AND PROJECTIONS.

E. FLOOR POUR STOPS AND GROUT FILLERS: ATTACH PER MANUFACTURERS INSTRUCTIONS.

F. FLOOR DECK CLOSURES: ATTACH PER MANUFACTURERS INSTRUCTIONS.

G. PREPARE AND REPAIR DAMAGED GALVANIZED COATINGS ON BOTH SURFACES WITH GALVANIZED REPAIR PAINT ACCORDING TO ASTM A 780.

H. WIRE BRUSH, CLEAN, AND PAINT SCARRED AREAS, WELDS, AND RUST SPOTS ON BOTH SURFACES OF PAINTED DECK PANELS.