

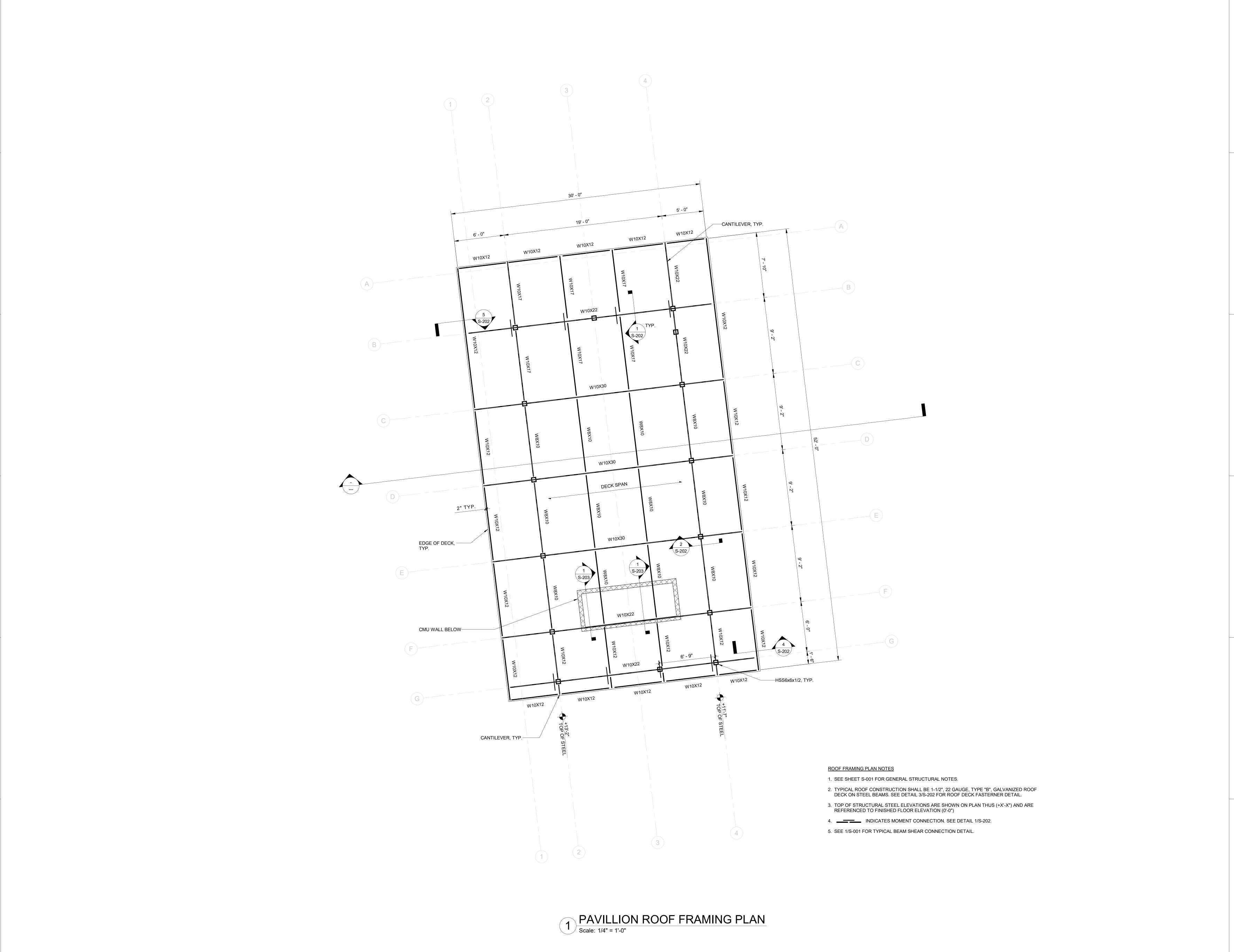
Dewberry Dewberry Engineers Inc. 8401 Arlington Boulevard Fairfax, VA 22031-4619 703.849.0100

C. CHRISTIAN BERG No. 0402056967

DESCRIPTION

APPROVED BY

FOUNDATION PLAN



Dewberry

Dewberry Engineers Inc.

8401 Arlington Boulevard
Fairfax, VA 22031-4619
703.849.0100

NFCU POND PAVILION

C. CHRISTIAN BERG

No. 0402056967
10/28/25

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REVISIONS

NO. DESCRIPTION DATE

DRAWN BY

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CHECKED BY

DATE

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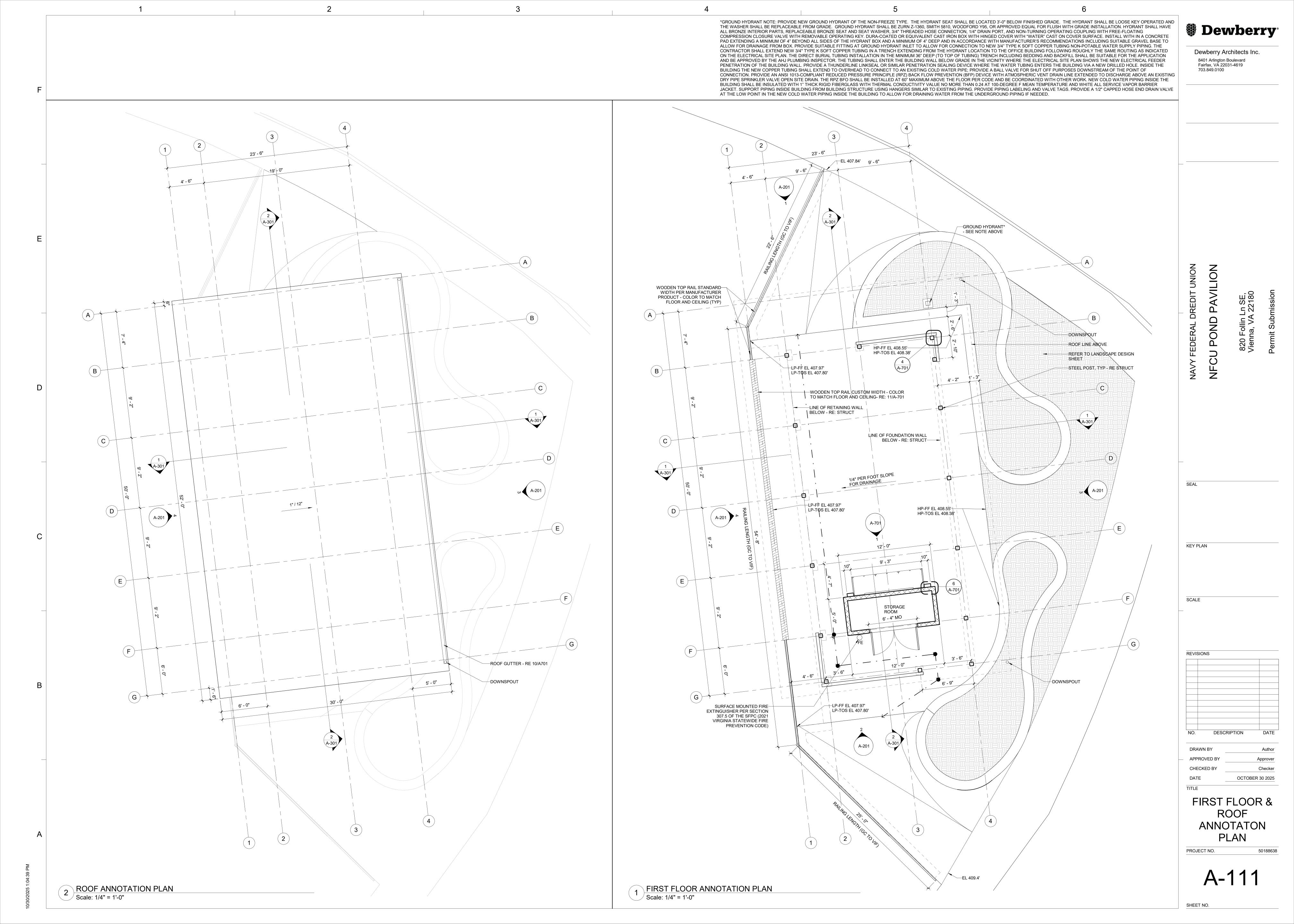
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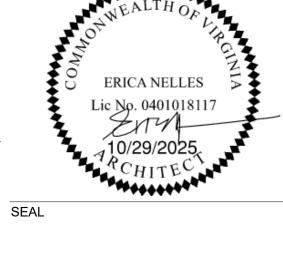
ROOF FRAMING PLAN

PROJECT NO.

S-101



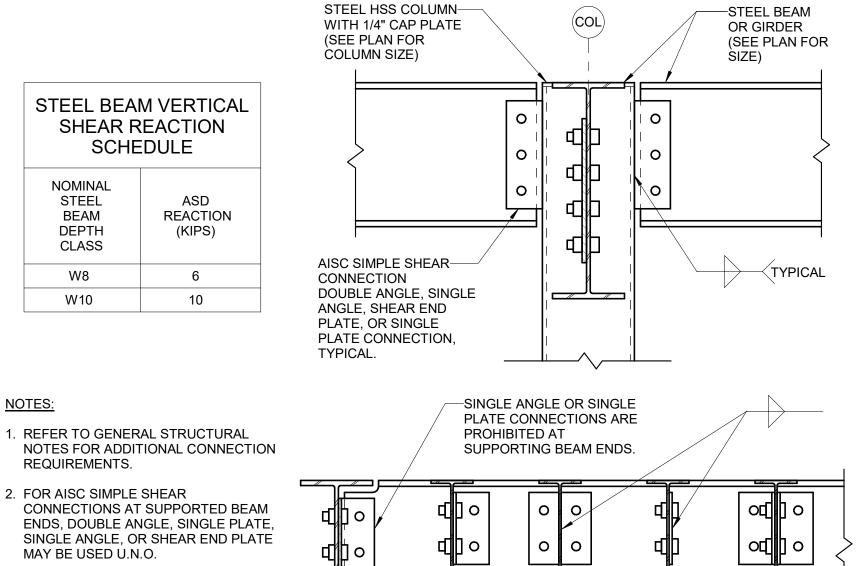




OCTOBER 30 2025

REBAR SPLICE AND HOOK SCHEDULE REBAR SPLICE AND REBAR SPLICE AND HOOK DIMENSIONS IN HOOK DIMENSIONS IN REINF. CONCRETE REINF. CONCRETE F'c=3,000 PSI F'c=4,500 PSI CLASS CLASS | TOP BAR BAR SIZE LAP LAP LAP LDH LD - STANDARD DEVELOPMENT LENGTH OF BAR ~90 DEG. BEND LDH - STANDARD DEVELOPMENT LENGTH OF HOOK F'c - SPECIFIED COMPRESSIVE -CRITICAL STRENGTH OF CONCRETE SECTION db - BAR DIAMETER PER ASTM -180 DEG TOP BAR - DEFINED AS A BAR LOCATED SUCH THAT 12 IN. OR (2-1/2" MIN.) MORE OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE SPLICE. - STANDARD CLASS "B" MINIMUM OUTSIDE RADIUS OF LAP AND BEND, R, SHALL BE 4db. TOP BAR LAP

	STRUCTURAL ABBREVIATION LIST					
A.F.F. ARCH. B.S. BOT. C= CF CLR. CONC. CONT. DET. DIA. DIM. EA. ELEV. EQ. EQUIP. EXIST. EXP. EXT. F.F.E. FIN. FTG. GALV. GA. HSS HORIZ.	ABOVE FINISHED FLOOR ARCHITECTURAL BOTH SIDES BOTTOM CAMBER= CUBIC FOOT CLEAR COLUMN CONCRETE CONTINUOUS DETAIL DIAMETER DIMENSION EACH ELEVATION EQUAL EQUIPMENT EXISTING EXPANSION EXTERIOR FINISHED FLOOR ELEV. FINISH FOOTING GALVANIZED GAUGE HOLLOW STRUCTURAL SECTION	KSI LLH LLV MAX. MECH. MIN. MPH N.T.S. #/NO. O.C. PCF PSI PSF R REINF. REQ'D SIM S.E. S.S. STD. STRU. TS T.O.S. TYP. U.N.O. V.I.F.	KIPS PER SQUARE INCH LONG LEG HORIZONTAL LONG LEG VERTICAL MAXIMUM MECHANICAL MINIMUM MILES PER HOUR NOT TO SCALE NUMBER ON CENTER POUNDS PER CUBIC FOOT POUNDS PER SQUARE INCH POUNDS PER SQUARE FOOT RADIUS REINFORCING REQUIRED SIMILAR SLAB EDGE STAINLESS STEEL STANDARD STRUCTURAL TUBE STEEL TOP OF STEEL TYPICAL UNLESS NOTED OTHERWISE VERIFY IN FIELD VERTICAL			
INT.	HORIZONTAL INTERIOR	VERT. W.W.R. W.P.	WELDED WIRE REINFORCING WORK POINT			



BEAM SHEAR CONNECTION DETAIL

—SUPPORTED BEAM—

-SUPPORTING BEAM OR GIRDER

3. WELDED/BOLTED OR BOLTED/BOLTED

CONNECTIONS PER AISC ARE

PERMITTED.

GENERAL STRUCTURAL NOTES

<u>DESIGN</u>:

- 1. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS EXIST BETWEEN THE DRAWINGS, SPECIFICATIONS, AND GENERAL STRUCTURAL NOTES, THE STRICTEST PROVISION SHALL GOVERN.
- 2. STRUCTURAL DESIGN CONFORMS TO THE REQUIREMENTS OF THE FOLLOWING CODES: 2021 VIRGINIA BUILDING CODE (2021 INTERNATIONAL BUILDING CODE WITH AMENDMENTS) BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-19)
- SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360-16) MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE 7-22)
- 3. DESIGN LOADS AND DESIGN DATA ARE AS FOLLOWS:

A. FLOOR LIVE LOADS:	
SLAB-ON-GRADE / CANTILEVERED SLAB	150 PSF
B. ROOF LIVE LOAD:	20 PSF
C. ROOF SNOW LOAD:	
GROUND SNOW LOAD (Pg) SNOW EXPOSURE FACTOR (Ce) THERMAL FACTOR FLAT ROOF SNOW LOAD (Pf)	68 PSF 0.9 1.1 47.2 PSF
D. WIND LOAD:	
RISK CATEGORY ULTIMATE WIND SPEED (3 SECOND GUST) WIND EXPOSURE CATEGORY INTERNAL PRESSURE COEFFICIENT	II 112 MPH C ±0.0
E. SEISMIC DESIGN DATA:	
RISK CATEGORY SEISMIC IMPORTANCE FACTOR (IE) SPECTRAL RESPONSE ACCELERATION, SS SPECTRAL RESPONSE ACCELERATION, S1 SPECTRAL RESPONSE COEFF. SDS SPECTRAL RESPONSE COEFF. SD1	II 1.0 0.15 0.042 0.13 0.059

F. UNLESS SPECIFICALLY NOTED, THERE ARE NO PROVISIONS MADE FOR FUTURE FLOORS, ROOFS, OR OTHER LOADS.

COORDINATION:

FOUNDATIONS:

SITE CLASS

SEISMIC DESIGN CATEGORY

- 1. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH, AND COORDINATED WITH CIVIL, MECHANICAL, ELECTRICAL. ARCHITECTURAL, AND OTHER CONTRACT DOCUMENTS, INCLUDING SPECIFICATIONS. A CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS OCCUR, THE MORE STRINGENT REQUIREMENT SHALL APPLY.
- 2. 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 SEQUENCE. CONTRACTOR SHALL

D (ASSUMED)

- 3. THE 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.
- 4. DO NOT SCALE DIMENSIONS FROM DRAWINGS. THE CONTRACTOR SHALL REQUEST, FROM THE ARCHITECT, NECESSARY DIMENSIONS NOT SHOWN ON THE DRAWINGS.
- 5. COORDINATE THE EXACT SIZE AND LOCATION OF ALL SLEEVES AND OPENINGS THROUGH CONCRETE SLABS AND CONCRETE WALLS WITH CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS. SLEEVES SHALL BE ASTM A 53 SCHEDULE 40 STEEL WITH A DIAMETER NOT GREATER THAN 12 INCHES AND SHALL BE GALVANIZED AFTER CUTTING.
- 6. ALL PRODUCTS AND MATERIALS REQUIRED FOR THE WORK SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS FOR INSTALLATION IN APPLICATIONS INDICATED, INCLUDING ALL ACCESSORIES, ATTACHMENTS,
- 1. THE STRUCTURAL ENGINEER OF RECORD IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD CONTRARY TO THOSE ASSUMED FOR DESIGN.
- 2. ASSUMED FOUNDATION BEARING PRESSURE USED IN DESIGN (POUNDS PER SQUARE FOOT):

SLAB-ON-GRADE. FOOTINGS 2.000 PSF

- BEARING PRESSURE SHALL BE VERIFIED IN THE FIELD BY GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION. 3. ALL COMPACTED FILL, EXCAVATIONS, AND SUBGRADES SHALL BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER REGISTERED IN THE COMMONWEALTH OF VIRGINIA (OR A QUALIFIED GEOTECHNICAL TECHNICIAN WORKING UNDER THE DIRECT SUPERVISION OF A REGISTERED ENGINEER) TO VERIFY SPECIFIED GEOTECHNICAL CONFORMANCE REQUIREMENTS. CONTRACTOR SHALL COORDINATE TESTING
- 4. AFTER STRIPPING TOPSOIL, AREAS INTENDED TO SUPPORT NEW FILL, FOUNDATIONS, AND FLOOR SLABS SHALL BE EVALUATED BY THE PROJECT GEOTECHNICAL ENGINEER. PROJECT GEOTECHNICAL ENGINEER MAY REQUIRE PROOFROLLING OF THE EXPOSED SUBGRADE WITH AN APPROVED PIECE OF EQUIPMENT, SUCH AS LOADED DUMP TRUCK, HAVING A SINGLE-AXLE WEIGHT OF AT LEAST 10 TONS. PROOFROLLING SHALL BE PERFORMED UNDER THE DIRECT INSPECTION OF THE GEOTECHNICAL ENGINEER DURING A TIME OF GOOD WEATHER AND NOT WHILE THE PROJECT SITE IS WET, FROZEN, OR SEVERELY DESICCATED. SUBGRADES WHICH EXHIBIT EXCESSIVE PUMPING OR RUTTING SHALL BE UNDERCUT AND REPLACED WITH COMPACTED ENGINEERED FILL AS DIRECTED BY THE PROJECT
- GEOTECHNICAL ENGINEER. 5. COMPACTED STRUCTURAL FILL SHALL BE AS FOLLOWS:

WITH OWNER AS DECLARED IN THE CONTRACT DOCUMENTS.

- A. INSPECTED AND APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER. B. NON-ORGANIC ON-SITE OR OFF-SITE SOILS APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER.
- C. PLACED IN LOOSE LIFTS NOT EXCEEDING 8 INCHES IN THICKNESS. D. STANDARD PROCTOR (ASTM D 698) MAXIMUM DRY DENSITY EQUAL TO OR EXCEEDING 105 POUNDS PER CUBIC FOOT. E. COMPACTED TO AT LEAST 95 PERCENT OF STANDARD PROCTOR (ASTM D 698) MAXIMUM DRY DENSITY.
- F. MOISTURE CONTENT WITHIN 3 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT. PLASTICITY INDEX AS RECOMMENDED BY
- 6. FREE OF BOULDERS, ORGANICS, TRASH, PARTICLES OF 3 INCHES OR MORE IN DIAMETER, AND OTHER DELETERIOUS MATERIALS.
- 7. FOR EXTERIOR BUILDING WALL FOOTINGS, PLACE BACKFILL EVENLY ON BOTH SIDES OF WALL SUCH THAT UNBALANCED BACKFILL DOES NOT EXCEED 12 INCHES.
- 8. DURING FILLING AND BACKFILLING, DENSITY TESTING SHALL BE MADE IN ACCORDANCE WITH ASTM D-6938 (OR EQUIVALENT) TO MONITOR COMPACTION LEVELS AND MOISTURE CONTENTS. FREQUENCY OF DENSITY TESTING SHALL BE A MINIMUM OF ONCE PER 2,500 SQUARE FEET OF AREA PER LIFT AND AS DIRECTED BY GEOTECHNICAL ENGINEER TO VERIFY SPECIFIED COMPACTION AND MOISTURE CONTENT REQUIREMENTS.
- 9. CARE SHALL BE EXERCISED DURING EXCAVATION FOR FOUNDATIONS SO THAT AS LITTLE DISTURBANCE AS POSSIBLE OCCURS AT THE FOUNDATION LEVEL. LOOSE OR SOFT SOILS SHALL BE CAREFULLY CLEANED FROM THE BOTTOM OF THE EXCAVATIONS BEFORE PLACING CONCRETE. ACTUAL FOUNDATION SUBGRADES SHALL BE OBSERVED DURING CONSTRUCTION BY THE GEOTECHNICAL ENGINEER TO EVALUATE THE SUITABILITY OF SUBGRADE SOILS.
- 10. FOUNDATION SUBGRADES REQUIRING UNDERCUT SHALL BE FILLED FROM THE ELEVATION OF UNDERCUT TO THE ORIGINAL DESIGN SUBGRADE ELEVATION WITH LEAN CONCRETE, MINIMUM 2,000 PSI FLOWABLE FILL UNLESS BACKFILL MATERIAL IS APPROVED BY THE
- 11. WHENEVER POSSIBLE, FOUNDATION CONCRETE SHALL BE PLACED IMMEDIATELY AFTER EXCAVATION SO THAT ACCUMULATION OF WATER IN THE EXCAVATION OR DRYING OF FOUNDATION SOILS CAN BE AVOIDED.
- 12. CONTRACTOR SHALL CONTROL SITE GROUNDWATER AND/OR SURFACE WATER BY ALL MEANS NECESSARY TO MAINTAIN A WATER LEVEL ONE FOOT BELOW SLAB SUBGRADE SO AS TO NOT DAMAGE FOUNDATION EXCAVATIONS.
- 13. ANY SUBGRADE SOILS WHICH HAVE BEEN WEAKENED DUE TO SATURATION OR DISTURBANCE SHALL BE RECOMPACTED OR REMOVED AND REPLACED WITH STRUCTURAL FILL AS DIRECTED BY THE PROJECT GEOTECHNICAL ENGINEER. CONCRETE STRUCTURES SHALL BE CONSTRUCTED IN AN EXPEDIENT MANNER ONCE EXCAVATIONS ARE MADE TO AVOID WEATHER DAMAGE.
- 14. DO NOT UNDERCUT SOILS BELOW EXISTING FOUNDATIONS.
- 15. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF ALL SUCH CONDITIONS PRIOR TO CONSTRUCTION.

- 1. UNLESS NOTED OTHERWISE, ALL CONCRETE WORK, DETAILING, FABRICATION, AND PLACING OF REINFORCING AND CONCRETE SHALL BE GOVERNED BY THE LATEST REVISIONS OF:
- A. ACI 301, ACI 315, AND ACI 318.
- B. CRSI RECOMMENDED PRACTICE OF PLACING REINFORCING BARS. C. ACI 306 AND ACI 305 FOR COLD AND HOT WEATHER CONCRETING, RESPECTIVELY
- 2. ALL CONCRETE SHALL BE NORMAL WEIGHT WITH A MAXIMUM UNIT WEIGHT OF 150 POUNDS PER CUBIC FOOT AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH, AS SPECIFIED BELOW, FOR THE RESPECTIVE AREAS:

SLAB-ON-GRADE, CANTILEVERED SLAB, WALLS, AND PIER 4.500 PSI FOOTINGS 3,000 PSI

- 3. PLACE 1/2" EXPANSION JOINT MATERIAL BETWEEN EDGES OF SLABS AND VERTICAL SURFACES UNLESS NOTED OTHERWISE
- 4. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, AND SHALL BE GRADE 60 U.N.O.
- 5. WELDED WIRE REINFORCING SHALL BE NEW BILLET STEEL, COLD DRAWN CONFORMING TO ASTM SPECIFICATIONS A 1064 AND SHALL BE PROVIDED IN FLAT SHEETS.
- 6. REINFORCING BAR LAP SPLICES AND HOOK DIMENSIONS SHALL BE AS REQUIRED PER THE SCHEDULE ON SHEET S-001 UNLESS NOTED
- 7. WALL REINFORCING SHALL BE CONTINUOUS THROUGH ADJACENT FOOTINGS.

D. ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

8. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER FAR ENOUGH IN ADVANCE (48 HOURS MIN.) OF EACH CONCRETE POUR TO ALLOW AMPLE TIME TO CHECK THE LAYOUT OF THE STEEL BEFORE THE BEGINNING OF THE ACTUAL POUR, BUT NOT PRIOR TO 90% OF THE STEEL HAVING BEEN PLACED.

STRUCTURAL STEEL:

- 1. UNLESS NOTED OTHERWISE, DESIGN, DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH AISC
- 2. ALL STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A-992 (Fy=50 KSI MIN.). ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO
- 3. TUBE STEEL SHALL CONFORM TO ASTM A500, GRADE C (Fy=50 KSI).
- 4. STEEL PIPE SHALL CONFORM TO ASTM A53, GRADE B.
- 5. ALL WELDING SHALL BE DONE BY WELDERS CURRENTLY CERTIFIED BY THE AMERICAN WELDING SOCIETY (AWS) AS HAVING PASSED AWS QUALIFICATION TESTS FOR THE TYPE OF WELDING THEY ARE TO PERFORM. ALL WELDERS SHALL USE E70XX ELECTRODES AND SHALL CONFORM TO AWS STANDARDS.
- 6. ALL COPES, BLOCKS, CUTS, CUT-OUTS, AND OTHER CUTTING OF STRUCTURAL MEMBERS SHALL HAVE ALL RE-ENTRANT CORNERS SHAPED, NOTCH-FREE, TO A RADIUS OF AT LEAST 1/2" INCH.
- 7. SPLICING OF STRUCTURAL STEEL MEMBERS IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER AS TO LOCATION AND TYPE OF

SPLICE TO BE MADE. ANY MEMBER HAVING A SPLICE NOT SHOWN AND DETAILED ON SHOP DRAWINGS WILL BE REJECTED.

STRUCTURAL STEEL CONNECTIONS:

- 1. STEEL FRAMING CONNECTION DESIGN NOT SPECIFICALLY NOTED ON PLANS IS A DELEGATED DESIGN. ALL CONNECTIONS SHALL BE DESIGNED AND DETAILED BY A PROFESSIONAL ENGINEER HIRED BY THE STEEL FABRICATOR. CONNECTION CALCULATIONS, SIGNED AND SEALED BY THE CONNECTION ENGINEER, SHALL BE SUBMITTED TO THE EOR FOR REVIEW.
- 2. STRUCTURAL STEEL CONNECTIONS SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER IN ACCORDANCE WITH OPTION (3) OF SECTION 3.1.2 OF AISC 303-10, CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES. ALL CONNECTION DESIGN AND DETAILING SHALL CONFORM TO AISC 360-10 LOAD AND RESISTANCE FACTOR DESIGN (LRFD), UNLESS NOTED OTHERWISE.
- 3. ALL STEEL DETAILS AND CONNECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AISC 360-10
- 4. UNLESS NOTED OTHERWISE, ALL STRUCTURAL STEEL CONNECTIONS SHALL BE BEARING TYPE "N" USING 3/4" DIAMETER ASTM A 325 HIGH STRENGTH BOLTS (MINIMUM OF 2 PER CONNECTION).
- 5. UNLESS NOTED OTHERWISE, DETAILS INDICATED ON THE DRAWINGS DEPICT GENERAL CRITERIA FOR CONNECTION DESIGN AND DETAILING. THESE DETAILS ARE NOT INTENDED TO DESCRIBE ANY SPECIFIC ELEMENTS OF THE CONNECTIONS INCLUDING. BUT NOT LIMITED TO CONNECTION GEOMETRY, ELEMENT THICKNESS, WELD SIZE OR LENGTH, AND BOLT QUANTITY. CONNECTION WORK POINT SHALL BE THE INTERSECTION OF MEMBER CENTERLINES UNLESS NOTED OTHERWISE.
- 6. ERECTION AIDS ARE NOT DEPICTED ON THE DRAWINGS. PROVIDE ERECTION AIDS AS REQUIRED AND REMOVE THEM AFTER WORK IS
- 7. ALL SHEAR CONNECTIONS SHALL BE BOLTED FRAMED BEAM CONNECTIONS DESIGNED FOR THE LOADS INDICATED ON THE DRAWINGS OR A MINIMUM 14 KIPS (ULTIMATE LOAD), DEVELOP THE LARGER OF THE BEAM SHEAR REACTIONS SCHEDULED, SHOWN ON THE PLANS, OR SHOWN
- 8. ALL BEAM REACTIONS, AXIAL FORCES, AND MOMENTS ACT CONCURRENTLY UNLESS NOTED OTHERWISE. BEAM REACTIONS ACT IN THE GRAVITY DIRECTION. AXIAL FORCES AND MOMENTS SHALL BE CONSIDERED REVERSIBLE.
- 9. ALL BOLTED MOMENT AND AXIAL CONNECTIONS SHALL EMPLOY PRETENSIONED BOLTS IN STANDARD HOLES.
- 10. THE USE OF OVERSIZED OR SLOTTED HOLES FOR ANY CONNECTIONS IS PROHIBITED UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
- STEEL DECK: 1. TYPICAL ROOF DECK SHALL BE 1-1/2" DEEP, WIDE RIB, GALVANIZED STEEL DECK AND SHALL HAVE THE FOLLOWING MINIMUM SECTION
- A. 22 GAUGE: Sp=0.169 IN³/FT, Sn=0.172 IN³/FT, AND I=0.155 IN⁴/FT.
- 2. CHALKLINES OR OTHER METHODS SHALL BE USED TO ENSURE THAT DECK WELDS ARE ALIGNED WITH AND WILL OCCUR OVER THE TOP OF STEEL JOISTS OR TRUSSES. EXCESSIVE WELD BLOWTHROUGH IN THE DECK DUE TO MISALIGNMENT OF WELDS OR EXCESSIVE WELD HEAT WILL NOT BE PERMITTED. IF, IN THE OPINION OF THE ARCHITECT (OR HIS APPROVED REPRESENTATIVE), EXCESSIVE BLOWTHROUGH HAS OCCURRED, THEN THE CONTRACTOR SHALL REPLACE THE DAMAGED DECK AT HIS OWN EXPENSE.

- 1. ALL MASONRY CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI 530-13/ASCE 5-13/TMS 402-13) AND "SPECIFICATION FOR MASONRY STRUCTURES" (ACI 530.1-13/ASCE 6-13/TMS 602-13).
- 2. CONCRETE MASONRY UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 90.
- 3. MINIMUM REQUIRED COMPRESSIVE STRENGTH OF MASONRY ASSEMBLAGE, F'm, AT 28 DAYS SHALL BE 2000 PSI.
- 4. MORTAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 270 FOR JOB-MIXED MORTAR AND ASTM C 1142 FOR READY MIXED MORTAR AND SHALL BE TYPE S.
- 5. GROUT FOR HOLLOW MASONRY UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 476 AND SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI. JOB SITE MIXING OF GROUT IS NOT ALLOWED.

POST-INSTALLED ANCHORS:

UNLESS OTHERWISE INDICATED ON PLANS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES, OR APPROVED

	ADHESIVE ANCHOR	MECHANICAL ANCHOR
SOLID CONCRETE	HILTI HY 200 SAFE SET SYSTEM	HILTI KWIK HUS EZ

- 1. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE.
- 2. INSTALL ANCHORS PER THE MANUFACTURER INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.
- 3. THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.
- 4. ANCHOR CAPACITY IS DEPENDANT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.
- 5. EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE CONCRETE ANCHORS.
- 6. FOR METAL DECK ATTACHMENT, STEEL ROOF/DECK SHALL BE ATTACHED TO SUPPORTING STEEL MEMBERS USING HILTI MECHANICAL FASTENERS. USE HILTI MECHANICAL DECK FASTENER X-HSN24 WHERE THE STEEL BASE MATERIAL THICKNESS IS 1/8" ≤ tf ≤ 3/8" OR X-ENP-19 L15 WHERE THE STEEL BASE MATERIAL THICKNESS IS tf > 1/4". THE ACTUAL BASE MATERIAL THICKNESS SHOULD BE VERIFIED ON-SITE PRIOR

LION C. CHRISTIAN BERG **KEY PLAN** REVISIONS

Dewberry

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GENERAL **STRUCTURAL** NOTES

PROJECT NO.

S-001

CAST-IN-PLACE CONCRETE SPECIFICATION

<u>3.3</u> <u>JOINTS</u>

CONCRETE.

ONE SIDE OF JOINT.

ACI 301.

OR LOW TEMPERATURES.

3.6 FINISHING SLABS

APPLICATION.

3.7 MISCELLANEOUS CONCRETE ITEMS

3.5 FINISHING FORMED SURFACES

3.4 CONCRETE PLACEMENT

3.2 STEEL REINFORCEMENT

MATERIALS THAT WOULD REDUCE BOND TO CONCRETE.

AT LOCATIONS INDICATED OR AS APPROVED BY ENGINEER.

NOT TACK WELD CROSSING REINFORCING BARS.

TOP OF FOOTINGS OR FLOOR SLABS

WATER-REDUCING ADMIXTURES TO MIXTURE.

CAUSING MIXTURE CONSTITUENTS TO SEGREGATE.

EXCEED SPECIFIED LIMITS ON FORMED SURFACE IRREGULARITIES.

FILLING INDICATED OR REQUIRED TO COMPLETE THE WORK.

E. HOT-WEATHER PLACEMENT: COMPLY WITH ACI 305.

3. SPACE VERTICAL JOINTS IN WALLS AS INDICATED.

B. CLEAN REINFORCEMENT OF LOOSE RUST AND MILL SCALE, EARTH, ICE, AND OTHER FOREIGN

D. SET WIRE TIES WITH ENDS DIRECTED INTO CONCRETE, NOT TOWARD EXPOSED CONCRETE

C. ACCURATELY POSITION, SUPPORT, AND SECURE REINFORCEMENT AGAINST DISPLACEMENT. LOCATE

A. GENERAL: CONSTRUCT JOINTS TRUE TO LINE WITH FACES PERPENDICULAR TO SURFACE PLANE OF

B. CONSTRUCTION JOINTS: INSTALL SO STRENGTH AND APPEARANCE OF CONCRETE ARE NOT IMPAIRED,

1. PLACE JOINTS PERPENDICULAR TO MAIN REINFORCEMENT. CONTINUE REINFORCEMENT

2. LOCATE HORIZONTAL JOINTS IN WALLS AND COLUMNS AT UNDERSIDE OF SLABS AND AT THE

ACROSS CONSTRUCTION JOINTS, UNLESS OTHERWISE INDICATED. DO NOT CONTINUE

4. USE EPOXY-BONDING ADHESIVE AT LOCATIONS WHERE FRESH CONCRETE IS PLACED

C. DOWELED JOINTS: INSTALL DOWEL BARS AND SUPPORT ASSEMBLIES AT JOINTS WHERE INDICATED.

A. BEFORE PLACING CONCRETE, VERIFY THAT INSTALLATION OF FORMWORK, REINFORCEMENT, AND

EMBEDDED ITEMS IS COMPLETE AND THAT REQUIRED INSPECTIONS HAVE BEEN PERFORMED.

B. BEFORE TEST SAMPLING AND PLACING CONCRETE, WATER MAY BE ADDED AT PROJECT SITE,

CONSTRUCTION JOINTS AS INDICATED. DEPOSIT CONCRETE TO AVOID SEGREGATION.

PRESSURES AND IN A MANNER TO AVOID INCLINED CONSTRUCTION JOINTS.

LUBRICATE OR ASPHALT COAT ONE-HALF OF DOWEL LENGTH TO PREVENT CONCRETE BONDING TO

SUBJECT TO LIMITATIONS OF ACI 301. DO NOT ADD WATER TO CONCRETE AFTER ADDING HIGH-RANGE

C. DEPOSIT CONCRETE CONTINUOUSLY IN ONE LAYER OR IN HORIZONTAL LAYERS OF SUCH THICKNESS

SEAMS OR PLANES OF WEAKNESS. IF A SECTION CANNOT BE PLACED CONTINUOUSLY, PROVIDE

THAT NO NEW CONCRETE WILL BE PLACED ON CONCRETE THAT HAS HARDENED ENOUGH TO CAUSE

1. DEPOSIT CONCRETE IN HORIZONTAL LAYERS OF DEPTH TO NOT EXCEED FORMWORK DESIGN

2. CONSOLIDATE PLACED CONCRETE WITH MECHANICAL VIBRATING EQUIPMENT ACCORDING TO

3. DO NOT USE VIBRATORS TO TRANSPORT CONCRETE INSIDE FORMS. INSERT AND WITHDRAW

PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST, FREEZING ACTIONS,

A. ROUGH-FORMED FINISH: AS-CAST CONCRETE TEXTURE IMPARTED BY FORM-FACING MATERIAL WITH TIE HOLES AND DEFECTS REPAIRED AND PATCHED. REMOVE FINS AND OTHER PROJECTIONS THAT

A. GENERAL: COMPLY WITH ACI 302.1R RECOMMENDATIONS FOR SCREEDING, RESTRAIGHTENING, AND

B. FLOAT FINISH: CONSOLIDATE SURFACE WITH POWER-DRIVEN FLOATS OR BY HAND FLOATING IF AREA

IS SMALL OR INACCESSIBLE TO POWER DRIVEN FLOATS. RESTRAIGHTEN, CUT DOWN HIGH SPOTS,

UNIFORM. SMOOTH, GRANULAR TEXTURE. APPLY FLOAT FINISH TO SURFACES TO RECEIVE BROOM

C. BROOM FINISH: APPLY BROOM FINISH TO EXTERIOR SLAB SURFACES. IMMEDIATELY AFTER FLOAT

A. FILLING IN: FILL IN HOLES AND OPENINGS LEFT IN CONCRETE STRUCTURES, UNLESS OTHERWISE

INDICATED, AFTER WORK OF OTHER TRADES IS IN PLACE, MIX, PLACE, AND CURE CONCRETE, AS

SPECIFIED, TO BLEND WITH IN-PLACE CONSTRUCTION. PROVIDE OTHER MISCELLANEOUS CONCRETE

FINISHING. SLIGHTLY ROUGHEN TRAFFICKED SURFACE BY BROOMING WITH FIBER-BRISTLE BROOM

PERPENDICULAR TO MAIN TRAFFIC ROUTE. COORDINATE FINAL FINISH WITH UNIVERSITY PRIOR TO

AND FILL LOW SPOTS. REPEAT FLOAT PASSES AND RESTRAIGHTENING UNTIL SURFACE IS LEFT WITH A

FINISHING OPERATIONS FOR CONCRETE SURFACES. DO NOT WET CONCRETE SURFACES.

LAYER AND AT LEAST 6 INCHES INTO PRECEDING LAYER. DO NOT INSERT VIBRATORS INTO LOWER LAYERS OF CONCRETE THAT HAVE BEGUN TO LOSE PLASTICITY. AT EACH INSERTION,

LIMIT DURATION OF VIBRATION TO TIME NECESSARY TO CONSOLIDATE CONCRETE AND COMPLETE EMBEDMENT OF REINFORCEMENT AND OTHER EMBEDDED ITEMS WITHOUT

D. COLD-WEATHER PLACEMENT: COMPLY WITH ACI 306.1 AND PROTECT CONCRETE WORK FROM

VIBRATORS VERTICALLY AT UNIFORMLY SPACED LOCATIONS TO RAPIDLY PENETRATE PLACED

REINFORCEMENT THROUGH SIDES OF STRIP PLACEMENTS OF FLOORS AND SLABS.

AGAINST HARDENED OR PARTIALLY HARDENED CONCRETE SURFACES.

AND SUPPORT REINFORCEMENT WITH BAR SUPPORTS TO MAINTAIN MINIMUM CONCRETE COVER. DO

CONCRETE

PROJECT NO.

PART 1 - GENERAL

1.1 SUMMARY

A. THIS SECTION SPECIFIES CAST-IN PLACE CONCRETE, INCLUDING FORMWORK, REINFORCEMENT CONCRETE MATERIALS, MIXTURE DESIGN, PLACEMENT PROCEDURES, AND FINISHES, FOR WORK ASSOCIATED WITH THE SCULPTURE FOUNDATION IN GASTON COUNTY, NORTH CAROLINA.

B. ALL WORK SHALL COMPLY WITH ALL APPLICABLE OSHA REGULATIONS.

1.2 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

B. DESIGN MIXTURES: FOR EACH CONCRETE MIXTURE. SUBMIT ALTERNATE DESIGN MIXTURES WHEN CHARACTERISTICS OF MATERIALS, PROJECT CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT ADJUSTMENTS. INDICATE AMOUNTS OF MIXING WATER TO BE WITHHELD FOR LATER ADDITION AT PROJECT SITE.

C. STEEL REINFORCEMENT SHOP DRAWINGS: PLACING DRAWINGS THAT DETAIL FABRICATION, BENDING, A. FLEXIBLE PVC WATERSTOPS: CE CRD-C 572, FOR EMBEDDING IN CONCRETE TO PREVENT PASSAGE AND PLACEMENT. INCLUDE BAR SIZES, LENGTHS, MATERIAL, GRADE, BAR SCHEDULES, STIRRUP SPACING, BENT BAR DIAGRAMS, BAR ARRANGEMENT, SPLICES AND LAPS, MECHANICAL CONNECTIONS, TIE SPACING, HOOP SPACING, AND SUPPORTS FOR CONCRETE REINFORCEMENT

D. FORMWORK SHOP DRAWINGS: PREPARED BY OR UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER DETAILING FABRICATION, ASSEMBLY, AND SUPPORT OF FORMWORK.

E. MATERIAL CERTIFICATES: FOR CEMENTITIOUS MATERIALS, ADMIXTURES, FORM MATERIALS AND FORM-RELEASE AGENTS, STEEL REINFORCEMENT AND ACCESSORIES, WATERSTOPS, CURING COMPOUNDS, A. EVAPORATION RETARDER: WATERBORNE, MONOMOLECULAR FILM FORMING, MANUFACTURED FOR BONDING AGENTS, AND REPAIR MATERIALS SIGNED BY THEIR RESPECTIVE MANUFACTURER.

F. FIELD QUALITY-CONTROL TEST AND INSPECTION REPORTS.

1.3 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS: A FIRM EXPERIENCED IN MANUFACTURING READY-MIXED CONCRETE PRODUCTS AND THAT COMPLIES WITH ASTM C 94 REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT. MANUFACTURER SHALL BE CERTIFIED ACCORDING TO NRMCA'S "CERTIFICATION OF READY MIXED CONCRETE PRODUCTION FACILITIES."

B. TESTING AGENCY QUALIFICATIONS: AN INDEPENDENT AGENCY QUALIFIED ACCORDING TO ASTM C 1077 AND ASTM E 329 FOR TESTING INDICATED, AS DOCUMENTED ACCORDING TO ASTM E 548.

1. PERSONNEL CONDUCTING FIELD TESTS SHALL BE QUALIFIED AS ACI CONCRETE FIELD TESTING TECHNICIAN, GRADE 1, ACCORDING TO ACI CP-01 OR AN EQUIVALENT CERTIFICATION PROGRAM 2. PERSONNEL PERFORMING LABORATORY TESTS SHALL BE ACI-CERTIFIED CONCRETE STRENGTH TESTING TECHNICIAN AND CONCRETE LABORATORY TESTING TECHNICIAN -

CONCRETE LABORATORY TESTING TECHNICIAN - GRADE II. C. ACI PUBLICATIONS: COMPLY WITH THE FOLLOWING UNLESS MODIFIED BY REQUIREMENTS IN THE CONTRACT DOCUMENTS:

GRADE I. TESTING AGENCY LABORATORY SUPERVISOR SHALL BE AN ACI-CERTIFIED

1. ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE," SECTIONS 1 THROUGH 5. 2. ACI 117, "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS.

3. ACI 306 AND ACI 305 FOR COLD AND HOT WEATHER CONCRETING, RESPECTIVELY. D. CONCRETE TESTING SERVICE: ENGAGE A QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM

MATERIAL EVALUATION TESTS AND TO DESIGN CONCRETE MIXTURES. 1.4 DELIVERY, STORAGE, AND HANDLING

A. STEEL REINFORCEMENT: DELIVER, STORE, AND HANDLE STEEL REINFORCEMENT TO PREVENT BENDING AND DAMAGE. AVOID DAMAGING COATINGS ON STEEL REINFORCEMENT.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. ROUGH-FORMED FINISHED CONCRETE: PLYWOOD, LUMBER, METAL, OR ANOTHER APPROVED MATERIAL. PROVIDE LUMBER DRESSED ON AT LEAST TWO EDGES AND ONE SIDE FOR TIGHT FIT.

B. FORM-RELEASE AGENT: COMMERCIALLY FORMULATED FORM-RELEASE AGENT THAT WILL NOT BOND WITH, STAIN, OR ADVERSELY AFFECT CONCRETE SURFACES AND WILL NOT IMPAIR SUBSEQUENT TREATMENTS OF CONCRETE SURFACES. FORMULATE FORM-RELEASE AGENT WITH RUST INHIBITOR FOR STEEL FORM-FACING MATERIALS.

C. FORM TIES: FACTORY-FABRICATED, REMOVABLE OR SNAP-OFF METAL OR GLASS-FIBER-REINFORCED PLASTIC FORM TIES DESIGNED TO RESIST LATERAL PRESSURE OF FRESH CONCRETE ON FORMS AND TO PREVENT SPALLING OF CONCRETE ON REMOVAL.

1. FURNISH UNITS THAT WILL LEAVE NO CORRODIBLE METAL CLOSER THAN 1 INCH TO THE PLANE OF EXPOSED CONCRETE SURFACE. 2. FURNISH TIES WITH INTEGRAL WATER-BARRIER PLATES TO WALLS INDICATED TO RECEIVE WATERPROOFING

2.2 STEEL REINFORCEMENT

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

2.3 REINFORCEMENT ACCESSORIES

A. SMOOTH DOWEL BARS: ASTM A 615, GRADE 60, PLAIN-STEEL BARS, CUT BARS TRUE TO LENGTH WITH ENDS SQUARE AND FREE OF BURRS.

B. BAR SUPPORTS: MANUFACTURE BAR SUPPORTS FROM STEEL WIRE, PLASTIC, OR PRECAST CONCRETE PART 3 - EXECUTION ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE," OF GREATER COMPRESSIVE STRENGTH THAN CONCRETE.

2.4 CONCRETE MATERIALS

A. CEMENTITIOUS MATERIAL: USE THE FOLLOWING CEMENTITIOUS MATERIALS, OF THE SAME TYPE, BRAND, AND SOURCE, THROUGHOUT PROJECT:

1. PORTLAND CEMENT: ASTM C 150, TYPE II OR ASTM C 595, TYLE IL. CEMENT MAY BE SUPPLEMENTED WITH FLY ASH: ASTM C 618, CLASS C OR F.

B. NORMAL-WEIGHT AGGREGATES: ASTM C 33, CLASS 4S COARSE AGGREGATE OR BETTER, GRADED. PROVIDE AGGREGATES FROM A SINGLE SOURCE.

1. MAXIMUM COARSE-AGGREGATE SIZE: 1 INCH NOMINAL 2. FINE AGGREGATE: FREE OF MATERIALS WITH DELETERIOUS REACTIVITY TO ALKALI IN

C. WATER: ASTM C 94 AND POTABLE

2.5 ADMIXTURES

A. AIR-ENTRAINING ADMIXTURE: ASTM C 260.

B. CHEMICAL ADMIXTURES: PROVIDE ADMIXTURES CERTIFIED BY MANUFACTURER TO BE COMPATIBLE WITH OTHER ADMIXTURES AND THAT WILL NOT CONTRIBUTE WATER-SOLUBLE CHLORIDE IONS

EXCEEDING THOSE PERMITTED IN HARDENED CONCRETE. DO NOT USE CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE.

1. WATER-REDUCING ADMIXTURE: ASTM C 494, TYPE A.

2. RETARDING ADMIXTURE: ASTM C 494. TYPE B. 3. WATER-REDUCING AND RETARDING ADMIXTURE: ASTM C 494, TYPE D. 4. HIGH-RANGE, WATER-REDUCING ADMIXTURE: ASTM C 494, TYPE F.

5. HIGH-RANGE, WATER-REDUCING AND RETARDING ADMIXTURE: ASTM C 494, TYPE G. 6. PLASTICIZING AND RETARDING ADMIXTURE: ASTM C 1017, TYPE II.

2.6 WATERSTOPS

OF FLUIDS THROUGH JOINTS. FACTORY FABRICATE CORNERS, INTERSECTIONS, AND DIRECTIONAL CHANGES.

1. PROFILE: FLAT, DUMBBELL WITHOUT CENTER BULB.

2. DIMENSIONS: 4 INCHES BY 3/8 INCH THICK.

2.7 CURING MATERIALS

APPLICATION TO FRESH CONCRETE.

C. CLEAR, WATERBORNE, MEMBRANE-FORMING CURING AND SEALING COMPOUND: ASTM C 1315, TYPE 1,

B. WATER: POTABLE.

2.8 RELATED MATERIALS A. EPOXY BONDING ADHESIVE: ASTM C 881, TWO-COMPONENT EPOXY RESIN, CAPABLE OF HUMID CURING AND BONDING TO DAMP SURFACES, OF CLASS SUITABLE FOR APPLICATION TEMPERATURE AND OF GRADE TO SUIT REQUIREMENTS, AND AS FOLLOWS:

1. TYPES IV AND V, LOAD BEARING, FOR BONDING HARDENED OR FRESHLY MIXED CONCRETE TO HARDENED CONCRETE.

2.9 CONCRETE MIXTURES, GENERAL

A. PREPARE DESIGN MIXTURES FOR EACH TYPE AND STRENGTH OF CONCRETE, PROPORTIONED ON THE BASIS OF LABORATORY TRIAL MIXTURE OR FIELD TEST DATA, OR BOTH, ACCORDING TO ACI 301. USE A QUALIFIED INDEPENDENT TESTING AGENCY FOR PREPARING AND REPORTING PROPOSED MIXTURE DESIGNS BASED ON LABORATORY TRIAL MIXTURES.

B. CEMENTITIOUS MATERIALS: LIMIT PERCENTAGE, BY WEIGHT, OF CEMENTITIOUS MATERIALS OTHER THAN PORTLAND CEMENT IN CONCRETE AS FOLLOWS:

1. FLY ASH: 25 PERCENT.

C. LIMIT WATER-SOLUBLE, CHLORIDE-ION CONTENT IN HARDENED CONCRETE TO 0.15 PERCENT BY WEIGHT OF CEMENT.

D. ADMIXTURES: USE ADMIXTURES ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

1. USE WATER-REDUCING, HIGH-RANGE WATER-REDUCING, OR PLASTICIZING ADMIXTURE IN CONCRETE. AS REQUIRED. FOR PLACEMENT AND WORKABILITY.

2. USE WATER-REDUCING AND RETARDING ADMIXTURE WHEN REQUIRED BY HIGH TEMPERATURES. LOW HUMIDITY. OR OTHER ADVERSE PLACEMENT CONDITIONS. 3. USE WATER-REDUCING ADMIXTURE IN PUMPED CONCRETE AND CONCRETE WITH A WATER-

2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

CEMENTITIOUS MATERIALS RATIO BELOW 0.45.

A. PROPORTION NORMAL-WEIGHT CONCRETE MIXTURE AS FOLLOWS:

1. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:

SLAB-ON-GRADE, WALLS FOOTINGS, PEDESTALS

2. MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO: 0.50 3. SLUMP LIMIT: 5 INCHES. PLUS OR MINUS 1 INCH. 8 INCHES FOR CONCRETE WITH VERIFIED SLUMP OF 2 TO 4 INCHES BEFORE ADDING HIGH-RANGE WATER-REDUCING ADMIXTURE OR

PLASTICIZING ADMIXTURE, PLUS OR MINUS 1 INCH. 4. AIR CONTENT: 6 PERCENT, PLUS OR MINUS 1.5 PERCENT AT POINT OF DELIVERY.

3000 PSI

2.11 FABRICATING REINFORCEMENT

A. FABRICATE STEEL REINFORCEMENT ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE."

2.12 CONCRETE MIXING

A. READY-MIXED CONCRETE: MEASURE, BATCH, MIX, AND DELIVER CONCRETE ACCORDING TO ASTM C 94, AND FURNISH BATCH TICKET INFORMATION.

1. WHEN AIR TEMPERATURE IS BETWEEN 85 AND 90 DEG F, REDUCE MIXING AND DELIVERY TIME FROM 1-1/2 HOURS TO 75 MINUTES; WHEN AIR TEMPERATURE IS ABOVE 90 DEG F, REDUCE MIXING AND DELIVERY TIME TO 60 MINUTES.

B. PROJECT-SITE MIXING: NOT ALLOWED.

3.1 FORMWORK

A. DESIGN, ERECT, SHORE, BRACE, AND MAINTAIN FORMWORK, ACCORDING TO ACI 301, TO SUPPORT VERTICAL, LATERAL, STATIC, AND DYNAMIC LOADS, AND CONSTRUCTION LOADS THAT MIGHT BE APPLIED, UNTIL STRUCTURE CAN SUPPORT SUCH LOADS.

B. CONSTRUCT FORMWORK SO CONCRETE MEMBERS AND STRUCTURES ARE OF SIZE. SHAPE. ALIGNMENT, ELEVATION, AND POSITION INDICATED, WITHIN TOLERANCE LIMITS OF ACI 117.

C. LIMIT CONCRETE SURFACE IRREGULARITIES, DESIGNATED BY ACI 347R AS ABRUPT OR GRADUAL, AS

CLASS B, 1/4 INCH FOR ROUGH-FORMED FINISHED SURFACES.

D. CONSTRUCT FORMS TIGHT ENOUGH TO PREVENT LOSS OF CONCRETE MORTAR.

E. FABRICATE FORMS FOR EASY REMOVAL WITHOUT HAMMERING OR PRYING AGAINST CONCRETE SURFACES. PROVIDE CRUSH OR WRECKING PLATES WHERE STRIPPING MAY DAMAGE CAST CONCRETE SURFACES.

1. INSTALL KEYWAYS, REGLETS, RECESSES, AND THE LIKE, FOR EASY REMOVAL. 2. DO NOT USE RUST-STAINED STEEL FORM-FACING MATERIAL.

F. PROVIDE TEMPORARY OPENINGS FOR CLEANOUTS AND INSPECTION PORTS WHERE INTERIOR AREA OF FORMWORK IS INACCESSIBLE. CLOSE OPENINGS WITH PANELS TIGHTLY FITTED TO FORMS AND SECURELY BRACED TO PREVENT LOSS OF CONCRETE MORTAR. LOCATE TEMPORARY OPENINGS IN FORMS AT INCONSPICUOUS LOCATIONS.

G. CHAMFER EXTERIOR CORNERS AND EDGES OF PERMANENTLY EXPOSED CONCRETE.

H. FORM OPENINGS, CHASES, OFFSETS, SINKAGES, KEYWAYS, REGLETS, BLOCKING, SCREEDS, AND BULKHEADS REQUIRED IN THE WORK. DETERMINE SIZES AND LOCATIONS FROM TRADES PROVIDING

I. CLEAN FORMS AND ADJACENT SURFACES TO RECEIVE CONCRETE. REMOVE CHIPS, WOOD, SAWDUST, DIRT. AND OTHER DEBRIS JUST BEFORE PLACING CONCRETE.

J. RETIGHTEN FORMS AND BRACING BEFORE PLACING CONCRETE, AS REQUIRED, TO PREVENT MORTAR LEAKS AND MAINTAIN PROPER ALIGNMENT.

K. COAT CONTACT SURFACES OF FORMS WITH FORM-RELEASE AGENT, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, BEFORE PLACING REINFORCEMENT.

3.8 CONCRETE PROTECTING AND CURING

A. GENERAL: COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR PLACING REINFORCEMENT. A. GENERAL: PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. COMPLY WITH ACI 306.1 FOR COLD-WEATHER PROTECTION AND ACI 301 FOR HOT-WEATHER PROTECTION DURING CURING.

> B. UNFORMED SURFACES: BEGIN CURING IMMEDIATELY AFTER FINISHING CONCRETE. CURE UNFORMED SURFACES, INCLUDING TOP OF SLABS, AND OTHER SURFACES.

C. FORMED SURFACES: CURE FORMED CONCRETE SURFACES, INCLUDING UNDERSIDE OF SUPPORTED SLABS, AND OTHER SIMILAR SURFACES. IF FORMS REMAIN DURING CURING PERIOD, MOIST CURE AFTER LOOSENING FORMS. IF REMOVING FORMS BEFORE END OF CURING PERIOD, CONTINUE CURING FOR THE REMAINDER OF THE CURING PERIOD.

D. CURE CONCRETE ACCORDING TO ACI 308.1, BY ONE OR A COMBINATION OF THE FOLLOWING

1. MOISTURE-RETAINING-COVER CURING: COVER CONCRETE SURFACES WITH MOISTURE-RETAINING COVER FOR CURING CONCRETE, PLACED IN WIDEST PRACTICABLE WIDTH, WITH SIDES AND ENDS LAPPED AT LEAST 12 INCHES, AND SEALED BY WATERPROOF TAPE OR ADHESIVE. CURE FOR NOT LESS THAN SEVEN DAYS. IMMEDIATELY REPAIR ANY HOLES OR TEARS DURING CURING PERIOD USING COVER MATERIAL AND WATERPROOF TAPE.

2. CURING COMPOUND: APPLY UNIFORMLY IN CONTINUOUS OPERATION BY POWER SPRAY OR ROLLER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. RECOAT AREAS SUBJECTED TO HEAVY RAINFALL WITHIN THREE HOURS AFTER INITIAL APPLICATION. MAINTAIN CONTINUITY OF COATING AND REPAIR DAMAGE DURING CURING PERIOD. AFTER CURING PERIOD HAS ELAPSED, REMOVE CURING COMPOUND WITHOUT DAMAGING CONCRETE SURFACES BY METHOD RECOMMENDED BY CURING COMPOUND MANUFACTURER.

3.9 CONCRETE SURFACE REPAIRS

A. DEFECTIVE CONCRETE: REPAIR AND PATCH DEFECTIVE AREAS WHEN APPROVED BY ENGINEER REMOVE AND REPLACE CONCRETE THAT CANNOT BE REPAIRED AND PATCHED TO ENGINEER'S

B. PATCHING MORTAR: MIX DRY-PACK PATCHING MORTAR, CONSISTING OF ONE PART PORTLAND CEMENT TO TWO AND ONE-HALF PARTS FINE AGGREGATE PASSING A NO. 16 SIEVE, USING ONLY ENOUGH WATER FOR HANDLING AND PLACING.

C. REPAIRING FORMED SURFACES: SURFACE DEFECTS INCLUDE COLOR AND TEXTURE IRREGULARITIES, CRACKS, SPALLS, AIR BUBBLES, HONEYCOMBS, ROCK POCKETS, FINS AND OTHER PROJECTIONS ON THE SURFACE, AND STAINS AND OTHER DISCOLORATIONS THAT CANNOT BE REMOVED BY CLEANING.

1. IMMEDIATELY AFTER FORM REMOVAL, CUT OUT HONEYCOMBS, ROCK POCKETS, AND VOIDS MORE THAN 1/2 INCH IN ANY DIMENSION IN SOLID CONCRETE, BUT NOT LESS THAN 1 INCH IN DEPTH. MAKE EDGES OF CUTS PERPENDICULAR TO CONCRETE SURFACE. CLEAN, DAMPEN WITH WATER, AND BRUSH-COAT HOLES AND VOIDS WITH BONDING AGENT. FILL AND COMPACT WITH PATCHING MORTAR BEFORE BONDING AGENT HAS DRIED. FILL FORM-TIE VOIDS WITH PATCHING MORTAR OR CONE PLUGS SECURED IN PLACE WITH BONDING AGENT.

AND STRUCTURAL PERFORMANCE AS DETERMINED BY ENGINEER. D. PERFORM STRUCTURAL REPAIRS OF CONCRETE, SUBJECT TO ENGINEER'S APPROVAL, USING EPOXY

2. REPAIR DEFECTS ON CONCEALED FORMED SURFACES THAT AFFECT CONCRETE'S DURABILITY

E. REPAIR MATERIALS AND INSTALLATION NOT SPECIFIED ABOVE MAY BE USED, SUBJECT TO ENGINEER'S APPROVAL.

3.10 FIELD QUALITY CONTROL

A. TESTING AND INSPECTING: OWNER WILL ENGAGE A QUALIFIED TESTING AND INSPECTING AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS.

B. INSPECTIONS:

DIRECTED BY ENGINEER.

NOT COMPLY WITH THE CONTRACT DOCUMENTS.

ADHESIVE AND PATCHING MORTAR.

1. STEEL REINFORCEMENT PLACEMENT. 2. VERIFICATION OF USE OF REQUIRED DESIGN MIXTURE.

3. CONCRETE PLACEMENT, INCLUDING CONVEYING AND DEPOSITING. 4. CURING PROCEDURES AND MAINTENANCE OF CURING TEMPERATURE.

C. CONCRETE TESTS: TESTING OF COMPOSITE SAMPLES OF FRESH CONCRETE OBTAINED ACCORDING TO ASTM C 172 SHALL BE PERFORMED ACCORDING TO THE FOLLOWING REQUIREMENTS:

1. TESTING FREQUENCY: OBTAIN ONE COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE EXCEEDING 2 CU. YD., BUT LESS THAN 10 CU. YD., PLUS ONE SET FOR EACH ADDITIONAL 100 CU. YD.OR FRACTION THEREOF. WHEN FREQUENCY OF TESTING WILL PROVIDE FEWER THAN FIVE COMPRESSIVE STRENGTH TESTS FOR EACH CONCRETE MIXTURE, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED.

2. SLUMP: ASTM C 143; ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE 3. AIR CONTENT: ASTM C 231, PRESSURE METHOD, FOR NORMAL-WEIGHT CONCRETE; ONE TEST FOR EACH COMPOSITE SAMPLE. BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH

CONCRETE MIXTURE. 4. CONCRETE TEMPERATURE: ASTM C 1064: ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40

DEG F AND BELOW AND WHEN 80 DEG F AND ABOVE. AND ONE TEST FOR EACH COMPOSITE 5. COMPRESSION TEST SPECIMENS: ASTM C 31, CAST AND LABORATORY CURE ONE SET OF FOUR STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE. 6. COMPRESSIVE-STRENGTH TESTS: ASTM C 39: TEST ONE LABORATORY-CURED SPECIMEN AT 7 DAYS AND TWO SPECIMENS AT 28 DAYS, AND RETAIN ONE SPECIMEN FOR LATER TESTING AT 56 DAYS IF 28 DAY STRENGTH FALLS BELOW THE REQUIRED SPECIFIED STRENGTH. A COMPRESSIVE-STRENGTH TEST SHALL BE THE AVERAGE COMPRESSIVE STRENGTH FROM A SET

OF TWO SPECIMENS OBTAINED FROM SAME COMPOSITE SAMPLE AND TESTED AT AGE 7. STRENGTH OF EACH CONCRETE MIXTURE WILL BE SATISFACTORY IF EVERY AVERAGE OF ANY THREE CONSECUTIVE COMPRESSIVE-STRENGTH TESTS EQUALS OR EXCEEDS SPECIFIED COMPRESSIVE STRENGTH AND NO COMPRESSIVE-STRENGTH TEST VALUE FALLS BELOW

SPECIFIED COMPRESSIVE STRENGTH BY MORE THAN 500 PSI. 8. TEST RESULTS SHALL BE REPORTED IN WRITING TO OWNER, ENGINEER, CONCRETE MANUFACTURER. AND CONTRACTOR WITHIN 48 HOURS OF TESTING. REPORTS OF COMPRESSIVE-STRENGTH TESTS SHALL CONTAIN PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING AND INSPECTING AGENCY, LOCATION OF CONCRETE BATCH IN WORK, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIXTURE PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH, AND

TYPE OF BREAK FOR BOTH 7- AND 28-DAY TESTS. 9. ADDITIONAL TESTS: TESTING AND INSPECTING AGENCY SHALL MAKE ADDITIONAL TESTS OF CONCRETE WHEN TEST RESULTS INDICATE THAT SLUMP, AIR ENTRAINMENT, COMPRESSIVE STRENGTHS. OR OTHER REQUIREMENTS HAVE NOT BEEN MET. AS DIRECTED BY ENGINEER. TESTING AND INSPECTING AGENCY MAY CONDUCT TESTS TO DETERMINE ADEQUACY OF CONCRETE BY CORED CYLINDERS COMPLYING WITH ASTM C 42 OR BY OTHER METHODS AS

10. ADDITIONAL TESTING AND INSPECTING, AT CONTRACTOR'S EXPENSE, WILL BE PERFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.

11. CORRECT DEFICIENCIES IN THE WORK THAT TEST REPORTS AND INSPECTIONS INDICATE DOES

No. 0402056967 10/28/25 **KEY PLAN**

DRAWN BY CCB

CAST-IN-PLACE **SPECIFICATION**

A. STORE MATERIALS TO PERMIT EASY ACCESS FOR INSPECTION AND IDENTIFICATION. KEEP STEEL MEMBERS OFF GROUND AND SPACED BY USING PALLETS, DUNNAGE, OR OTHER SUPPORTS AND SPACERS. PROTECT STEEL MEMBERS AND PACKAGED MATERIALS FROM CORROSION AND DETERIORATION.

1. DO NOT STORE MATERIALS ON STRUCTURE IN A MANNER THAT MIGHT CAUSE DISTORTION, DAMAGE. OR OVERLOAD TO MEMBERS OR SUPPORTING STRUCTURES. REPAIR OR REPLACE DAMAGED MATERIALS OR STRUCTURES AS DIRECTED.

B. STORE FASTENERS IN A PROTECTED PLACE IN SEALED CONTAINERS WITH MANUFACTURER'S LABELS 1. FASTENERS MAY BE REPACKAGED PROVIDED DESIGN-BUILDER'S TESTING AND INSPECTING AGENCY OBSERVES REPACKAGING AND SEALS CONTAINERS.

2. CLEAN AND RELUBRICATE BOLTS AND NUTS THAT BECOME DRY OR RUSTY BEFORE USE. 3. COMPLY WITH MANUFACTURERS' WRITTEN RECOMMENDATIONS FOR CLEANING AND LUBRICATING ASTM F 1852 FASTENERS AND FOR RETESTING FASTENERS AFTER LUBRICATION.

1.9 COORDINATION

A. COORDINATE INSTALLATION OF ANCHORAGE ITEMS TO BE EMBEDDED IN OR ATTACHED TO OTHER CONSTRUCTION WITHOUT DELAYING THE WORK. PROVIDE SETTING DIAGRAMS, SHEET METAL TEMPLATES, INSTRUCTIONS, AND DIRECTIONS FOR INSTALLATION.

PART 2 - PRODUCTS

2.1 STRUCTURAL STEEL MATERIALS

A. W-SHAPES: ASTM A 992, GRADE 50

B. CHANNELS, ANGLES: ASTM A 36.

C. PLATE AND BAR: ASTM A 36.

D. COLD-FORMED HOLLOW STRUCTURAL SECTIONS: ASTM A 500, GRADE C (FY=46 KSI MINIMUM), STRUCTURAL TUBING.

E. STEEL PIPE: ASTM A 53, TYPE E OR S, GRADE B.

F. WELDING ELECTRODES: COMPLY WITH AWS REQUIREMENTS.

<u>2.2</u> <u>BOLTS, CONNECTORS, AND ANCHORS</u>

A. HIGH-STRENGTH BOLTS, NUTS, AND WASHERS: ASTM A 325, TYPE 1, HEAVY-HEX STEEL STRUCTURAL BOLTS; ASTM A 563, GRADE C, HEAVY-HEX CARBON-STEEL NUTS; AND ASTM F 436, TYPE 1, HARDENED CARBON-STEEL WASHERS; ALL WITH PLAIN FINISH.

B. TENSION-CONTROL, HIGH-STRENGTH BOLT-NUT-WASHER ASSEMBLIES: ASTM F 1852, TYPE 1, HEAVY-HEX HEAD ASSEMBLIES CONSISTING OF STEEL STRUCTURAL BOLTS WITH SPLINED ENDS, HEAVY-HEX CARBON-STEEL NUTS, AND HARDENED CARBON-STEEL WASHERS. 1. FINISH: PLAIN

C. SHEAR CONNECTORS: ASTM A 108, GRADES 1015 THROUGH 1020, HEADED-STUD TYPE, COLD-FINISHED CARBON STEEL; AWS D1.1, TYPE B.

D. UNHEADED ANCHOR RODS: ASTM F 1554, GRADE 36. CONFIGURATION: STRAIGHT.

2. NUTS: ASTM A 563 HEAVY-HEX CARBON STEEL 3. PLATE WASHERS: ASTM A 36 CARBON STEEL.

4. WASHERS: ASTM F 436, TYPE 1, HARDENED CARBON STEEL. 5. FINISH: PLAIN.

E. HEADED ANCHOR RODS: ASTM F 1554, GRADE 36, STRAIGHT.

1. NUTS: ASTM A 563 HEAVY-HEX CARBON STEEL. 2. PLATE WASHERS: ASTM A 36 CARBON STEEL 3. WASHERS: ASTM F 436, TYPE 1, HARDENED CARBON STEEL.

4. FINISH: PLAIN.

F. THREADED RODS: ASTM A 36. 1. NUTS: ASTM A 563 HEAVY-HEX CARBON STEEL

2. WASHERS: ASTM F 436, TYPE 1, HARDENED CARBON STEEL 3. FINISH: PLAIN.

STRUCTURAL STEEL FRAMING SPECIFICATION

A. PRIMER: SSPC-PAINT 25 BCS, TYPE, ZINC OXIDE, ALKYD, LINSEED OIL PRIMER. COLOR: GREY.

B. GALVANIZING REPAIR PAINT: ASTM A 780.

A. NONMETALLIC, SHRINKAGE-RESISTANT GROUT: ASTM C 1107, FACTORY-PACKAGED, NONMETALLIC AGGREGATE GROUT, NONCORROSIVE AND NONSTAINING, MIXED WITH WATER TO CONSISTENCY SUITABLE FOR APPLICATION AND A 30-MINUTE WORKING TIME.

A. STRUCTURAL STEEL: FABRICATE AND ASSEMBLE IN SHOP TO GREATEST EXTENT POSSIBLE. FABRICATE ACCORDING TO AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" AND

1. CAMBER STRUCTURAL-STEEL MEMBERS WHERE INDICATED.

2. FABRICATE BEAMS WITH ROLLING CAMBER UP. 3. IDENTIFY HIGH-STRENGTH STRUCTURAL STEEL ACCORDING TO ASTM A 6 AND MAINTAIN MARKINGS UNTIL STRUCTURAL STEEL HAS BEEN ERECTED.

B. THERMAL CUTTING: PERFORM THERMAL CUTTING BY MACHINE TO GREATEST EXTENT POSSIBLE.

1. PLANE THERMALLY CUT EDGES TO BE WELDED TO COMPLY WITH REQUIREMENTS IN AWS D1.1.

D. FINISHING: ACCURATELY FINISH ENDS OF COLUMNS AND OTHER MEMBERS TRANSMITTING BEARING

E. CLEANING: CLEAN AND PREPARE STEEL SURFACES THAT ARE TO REMAIN UNPAINTED ACCORDING TO

SSPC-SP 1, "SOLVENT CLEANING OR SSPC-SP 2, "HAND TOOL CLEANING."

F. SHEAR CONNECTORS: PREPARE STEEL SURFACES AS RECOMMENDED BY MANUFACTURER OF SHEAR CONNECTORS. USE AUTOMATIC END WELDING OF HEADED-STUD SHEAR CONNECTORS ACCORDING TO AWS D1.1 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.

OTHER WORK TO PASS THROUGH STEEL FRAMING MEMBERS. 1. CUT, DRILL, OR PUNCH HOLES PERPENDICULAR TO STEEL SURFACES. DO NOT THERMALLY CUT BOLT HOLES OR ENLARGE HOLES BY BURNING. 2. BASEPLATE HOLES: CUT, DRILL, MECHANICALLY THERMAL CUT, OR PUNCH HOLES PERPENDICULAR 3. WELD THREADED NUTS TO FRAMING AND OTHER SPECIALTY ITEMS INDICATED TO RECEIVE OTHER

A. HIGH-STRENGTH BOLTS: SHOP INSTALL HIGH-STRENGTH BOLTS ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS" FOR TYPE OF BOLT AND TYPE OF JOINT 1. JOINT TYPE: SNUG TIGHTENED UNLESS INDICATED AS PRETENSIONED OR SLIP CRITICAL ON

B. WELD CONNECTIONS: COMPLY WITH AWS D1.1 FOR TOLERANCES, APPEARANCES, WELDING PROCEDURE SPECIFICATIONS, WELD QUALITY, AND METHODS USED IN CORRECTING WELDING WORK. 1. ASSEMBLE AND WELD BUILT-UP SECTIONS BY METHODS THAT WILL MAINTAIN TRUE ALIGNMENT OF AXES WITHOUT EXCEEDING TOLERANCES IN AISC 303 FOR MILL MATERIAL.

A. SHOP PRIME STEEL SURFACES EXCEPT THE FOLLOWING: 1. SURFACES EMBEDDED IN CONCRETE OR MORTAR. EXTEND PRIMING OF PARTIALLY EMBEDDED MEMBERS TO A DEPTH OF 2 INCHES.

2. SURFACES TO BE FIELD WELDED.

3. SURFACES OF HIGH-STRENGTH BOLTED, SLIP-CRITICAL CONNECTIONS. 4. SURFACES TO RECEIVE SPRAYED FIRE-RESISTIVE MATERIALS (APPLIED FIREPROOFING).

SURFACES ENCLOSED IN INTERIOR CONSTRUCTION.

B. SURFACE PREPARATION: CLEAN SURFACES TO BE PAINTED. REMOVE LOOSE RUST AND MILL SCALE AND SPATTER, SLAG, OR FLUX DEPOSITS. PREPARE SURFACES ACCORDING TO THE FOLLOWING SPECIFICATIONS AND STANDARDS: 1. SSPC-SP 3, "POWER TOOL CLEANING."

C. PRIMING: IMMEDIATELY AFTER SURFACE PREPARATION, APPLY PRIMER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND AT RATE RECOMMENDED BY SSPC TO PROVIDE A MINIMUM DRY FILM THICKNESS OF 1.5 MILS. USE PRIMING METHODS THAT RESULT IN FULL COVERAGE OF JOINTS, CORNERS, EDGES, AND EXPOSED SURFACES.

1. STRIPE PAINT CORNERS, CREVICES, BOLTS, WELDS, AND SHARP EDGES. 2. APPLY TWO COATS OF SHOP PAINT TO SURFACES THAT ARE INACCESSIBLE AFTER ASSEMBLY OR ERECTION. CHANGE COLOR OF SECOND COAT TO DISTINGUISH IT FROM FIRST.

2.8 GALVANIZING

A. HOT-DIP GALVANIZED FINISH: APPLY ZINC COATING BY THE HOT-DIP PROCESS TO STRUCTURAL STEEL ACCORDING TO ASTM A 123. 1. FILL VENT AND DRAIN HOLES THAT WILL BE EXPOSED IN THE FINISHED WORK UNLESS THEY WILL FUNCTION AS WEEP HOLES, BY PLUGGING WITH ZINC SOLDER AND FILING OFF SMOOTH. 2. GALVANIZE LINTELS AND SHELF ANGLES IN EXTERIOR WALLS AND OTHER STRUCTURAL STEEL AS INDICATED ON DRAWINGS.

3.1 EXAMINATION

A. VERIFY, WITH STEEL ERECTOR PRESENT, ELEVATIONS OF CONCRETE- AND MASONRY-BEARING SURFACES AND LOCATIONS OF ANCHOR RODS, BEARING PLATES, AND OTHER EMBEDMENTS FOR COMPLIANCE WITH REQUIREMENTS. 1. PREPARE A CERTIFIED SURVEY OF BEARING SURFACES, ANCHOR RODS, BEARING PLATES, AND OTHER EMBEDMENTS SHOWING DIMENSIONS, LOCATIONS, ANGLES, AND ELEVATIONS. B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.2 PREPARATION

A. PROVIDE TEMPORARY SHORES, GUYS, BRACES, AND OTHER SUPPORTS DURING ERECTION TO KEEP STRUCTURAL STEEL SECURE, PLUMB, AND IN ALIGNMENT AGAINST TEMPORARY CONSTRUCTION LOADS AND LOADS EQUAL IN INTENSITY TO DESIGN LOADS. REMOVE TEMPORARY SUPPORTS WHEN PERMANENT STRUCTURAL STEEL, CONNECTIONS, AND BRACING ARE IN PLACE UNLESS OTHERWISE

3.3 ERECTION

A. SET STRUCTURAL STEEL ACCURATELY IN LOCATIONS AND TO ELEVATIONS INDICATED AND ACCORDING TO AISC 303 AND AISC 360. B. BASEPLATES AND BEAM BEARING PLATES: CLEAN CONCRETE- AND MASONRY-BEARING SURFACES OF

BOND-REDUCING MATERIALS, AND ROUGHEN SURFACES PRIOR TO SETTING PLATES. CLEAN BOTTOM SURFACE OF PLATES. 1. SET PLATES FOR STRUCTURAL MEMBERS ON WEDGES, SHIMS, OR SETTING NUTS AS REQUIRED. 2. WELD PLATE WASHERS TO TOP OF BASEPLATE. 3. SNUG-TIGHTEN ANCHOR RODS AFTER SUPPORTED MEMBERS HAVE BEEN POSITIONED AND PLUMBED. DO NOT REMOVE WEDGES OR SHIMS BUT, IF PROTRUDING, CUT OFF FLUSH WITH EDGE OF PLATE BEFORE PACKING WITH GROUT. 4. PROMPTLY PACK GROUT SOLIDLY BETWEEN BEARING SURFACES AND PLATES SO NO VOIDS REMAIN. NEATLY FINISH EXPOSED SURFACES; PROTECT GROUT AND ALLOW TO CURE. COMPLY WITH

C. MAINTAIN ERECTION TOLERANCES OF STRUCTURAL STEEL WITHIN AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS FOR SHRINKAGE-RESISTANT GROUTS.

D. ALIGN AND ADJUST VARIOUS MEMBERS THAT FORM PART OF COMPLETE FRAME OR STRUCTURE BEFORE PERMANENTLY FASTENING. BEFORE ASSEMBLY, CLEAN BEARING SURFACES AND OTHER SURFACES THAT WILL BE IN PERMANENT CONTACT WITH MEMBERS. PERFORM NECESSARY ADJUSTMENTS TO COMPENSATE FOR DISCREPANCIES IN ELEVATIONS AND ALIGNMENT. 1. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF STRUCTURE.

2. MAKE ALLOWANCES FOR DIFFERENCE BETWEEN TEMPERATURE AT TIME OF ERECTION AND MEAN TEMPERATURE WHEN STRUCTURE IS COMPLETED AND IN SERVICE.

E. SPLICE MEMBERS ONLY WHERE INDICATED.

F. DO NOT USE THERMAL CUTTING DURING ERECTION UNLESS APPROVED BY ENGINEER. FINISH THERMALLY CUT SECTIONS WITHIN SMOOTHNESS LIMITS IN AWS D1.1.

G. DO NOT ENLARGE UNFAIR HOLES IN MEMBERS BY BURNING OR USING DRIFT PINS. REAM HOLES THAT

MUST BE ENLARGED TO ADMIT BOLTS.

H. SHEAR CONNECTORS: PREPARE STEEL SURFACES AS RECOMMENDED BY MANUFACTURER OF SHEAR CONNECTORS. USE AUTOMATIC END WELDING OF HEADED-STUD SHEAR CONNECTORS ACCORDING TO AWS D1.1 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.

3.4 FIELD CONNECTIONS

A. HIGH-STRENGTH BOLTS: INSTALL HIGH-STRENGTH BOLTS ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS" FOR TYPE OF BOLT AND TYPE OF JOINT 1. JOINT TYPE: SNUG TIGHTENED UNLESS INDICATED AS PRETENSIONED OR SLIP CRITICAL ON DRAWINGS.

B. WELD CONNECTIONS: COMPLY WITH AWS D1.1 FOR TOLERANCES, APPEARANCES, WELDING PROCEDURE SPECIFICATIONS, WELD QUALITY, AND METHODS USED IN CORRECTING WELDING WORK. 1. COMPLY WITH AISC 303 AND AISC 360 FOR BEARING, ALIGNMENT, ADEQUACY OF TEMPORARY CONNECTIONS, AND REMOVAL OF PAINT ON SURFACES ADJACENT TO FIELD WELDS. 2. REMOVE BACKING BARS OR RUNOFF TABS WHERE INDICATED, BACK GOUGE, AND GRIND STEEL 3. ASSEMBLE AND WELD BUILT-UP SECTIONS BY METHODS THAT WILL MAINTAIN TRUE ALIGNMENT OF AXES WITHOUT EXCEEDING TOLERANCES IN AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" FOR MILL MATERIAL.

3.5 FIELD QUALITY CONTROL

A. TESTING AGENCY: OWNER WILL ENGAGE A SPECIAL INSPECTOR AND QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO INSPECT FIELD WELDS AND HIGH-STRENGTH BOLTED CONNECTIONS AND PREPARE TEST REPORTS.

B. INSPECTIONS: SEE STATEMENT OF SPECIAL INSPECTIONS.

D. RADIOGRAPHIC INSPECTION: ASTM E 94.

C. BOLTED CONNECTIONS: BOLTED CONNECTIONS WILL BE TESTED AND INSPECTED ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS."

D. WELDED CONNECTIONS: FIELD WELDS WILL BE VISUALLY INSPECTED ACCORDING TO AWS D1.1. 1. IN ADDITION TO VISUAL INSPECTION, FIELD WELDS WILL BE TESTED AND INSPECTED ACCORDING TO AWS D1.1 AND THE FOLLOWING INSPECTION PROCEDURES, AT TESTING AGENCY'S OPTION: A. LIQUID PENETRANT INSPECTION: ASTM E 165. B. MAGNETIC PARTICLE INSPECTION: ASTM E 709; PERFORMED ON ROOT PASS AND ON FINISHED WELD. CRACKS OR ZONES OF INCOMPLETE FUSION OR PENETRATION WILL NOT BE ACCEPTED. C. ULTRASONIC INSPECTION: ASTM E 164.

E. IN ADDITION TO VISUAL INSPECTION. TEST AND INSPECT FIELD-WELDED SHEAR CONNECTORS ACCORDING TO REQUIREMENTS IN AWS D1.1 FOR STUD WELDING AND AS FOLLOWS: 1. PERFORM BEND TESTS IF VISUAL INSPECTIONS REVEAL EITHER A LESS-THAN-CONTINUOUS 360-DEGREE FLASH OR WELDING REPAIRS TO ANY SHEAR CONNECTOR. 2. CONDUCT TESTS ACCORDING TO REQUIREMENTS IN AWS D1.1 ON ADDITIONAL SHEAR CONNECTORS IF WELD FRACTURE OCCURS ON SHEAR CONNECTORS ALREADY TESTED.

F. CORRECT DEFICIENCIES IN WORK THAT TEST REPORTS AND INSPECTIONS INDICATE DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS.

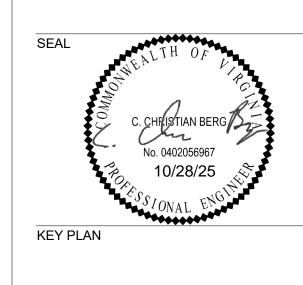
3.6 REPAIRS AND PROTECTION

A. GALVANIZED SURFACES: CLEAN AREAS WHERE GALVANIZING IS DAMAGED OR MISSING AND REPAIR GALVANIZING TO COMPLY WITH ASTM A 780.

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REVISIONS DESCRIPTION

DRAWN BY APPROVED BY CHECKED BY DATE 10/28/2025

STRUCTURAL STEEL FRAMING **SPECIFICATION**

SHEET NO.

PROJECT NO.

STEEL DECKING SPECIFICATION

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

A. PRODUCT DATA: FOR EACH TYPE OF DECK, ACCESSORY, AND PRODUCT INDICATED.

1. INCLUDE LAYOUT AND TYPES OF DECK PANELS, ANCHORAGE DETAILS, REINFORCING CHANNELS, PANS, CUT DECK OPENINGS, SPECIAL JOINTING, ACCESSORIES, AND ATTACHMENTS TO OTHER

- B. PRODUCT CERTIFICATES: FOR EACH TYPE OF STEEL DECK.
- C. PRODUCT TEST REPORTS: BASED ON EVALUATION OF COMPREHENSIVE TESTS PERFORMED BY A QUALIFIED TESTING AGENCY, INDICATING THAT EACH OF THE FOLLOWING COMPLIES WITH
- POWER-ACTUATED MECHANICAL FASTENERS.

A. WELDING QUALIFICATIONS: QUALIFY PROCEDURES AND PERSONNEL ACCORDING TO AWS D1.3,

- A. PROTECT STEEL DECK FROM CORROSION, DEFORMATION, AND OTHER DAMAGE DURING DELIVERY,
- B. STACK STEEL DECK ON PLATFORMS OR PALLETS AND SLOPE TO PROVIDE DRAINAGE. PROTECT WITH A WATERPROOF COVERING AND VENTILATE TO AVOID CONDENSATION.
- A. AISI SPECIFICATIONS: COMPLY WITH CALCULATED STRUCTURAL CHARACTERISTICS OF STEEL DECK ACCORDING TO AISI'S "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL
- B. FIRE-RESISTANCE RATINGS: COMPLY WITH ASTM E 119; TESTING BY A QUALIFIED TESTING AGENCY. IDENTIFY PRODUCTS WITH APPROPRIATE MARKINGS OF APPLICABLE TESTING AGENCY.
- 1. INDICATE DESIGN DESIGNATIONS FROM UL'S "FIRE RESISTANCE DIRECTORY" OR FROM THE LISTINGS OF ANOTHER QUALIFIED TESTING AGENCY.

A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, 3.4 FIELD QUALITY CONTROL

- ASC PROFILES, INC.; A BLUE SCOPE STEEL COMPANY.
 - 2. CANAM UNITED STATES; CANAM GROUP INC.

- 7. NEW MILLENNIUM BUILDING SYSTEMS, LLC.

- 11. WHEELING CORRUGATING COMPANY; DIV. OF WHEELING-PITTSBURGH STEEL CORPORATION.
- B. TYPICAL ROOF DECK: FABRICATE PANELS, WITHOUT TOP-FLANGE STIFFENING GROOVES, TO COMPLY WITH "SDI SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK," IN SDI PUBLICATION NO. 31,
- 1. GALVANIZED-STEEL SHEET: ASTM A 653, STRUCTURAL STEEL (SS), GRADE 33, G60 ZINC COATING. 2. DECK PROFILE: TYPE WR, WIDE RIB.
- 4. DESIGN UNCOATED-STEEL THICKNESS: 0.0295 INCH (22 GAUGE).
- 5. SPAN CONDITION: AS INDICATED. 6. SIDE LAPS: OVERLAPPED OR INTERLOCKING SEAM AT CONTRACTOR'S OPTION.
- A. GENERAL: PROVIDE MANUFACTURER'S STANDARD ACCESSORY MATERIALS FOR DECK THAT COMPLY
- B. MECHANICAL FASTENERS: CORROSION-RESISTANT, LOW-VELOCITY, POWER-ACTUATED OR PNEUMATICALLY DRIVEN CARBON-STEEL FASTENERS; OR SELF-DRILLING, SELF-THREADING SCREWS.
- C. SIDE-LAP FASTENERS: CORROSION-RESISTANT, HEXAGONAL WASHER HEAD; SELF-DRILLING, CARBON-STEEL SCREWS, NO. 10 MINIMUM DIAMETER.
- D. MISCELLANEOUS SHEET METAL DECK ACCESSORIES: STEEL SHEET, MINIMUM YIELD STRENGTH OF 33,000 PSI, NOT LESS THAN 0.0359-INCH DESIGN UNCOATED THICKNESS, OF SAME MATERIAL AND FINISH AS DECK; OF PROFILE INDICATED OR REQUIRED FOR APPLICATION.
- E. GALVANIZING REPAIR PAINT: ASTM A 780.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. EXAMINE SUPPORTING FRAME AND FIELD CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE.
- B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
- 3.2 INSTALLATION, GENERAL
- A. INSTALL DECK PANELS AND ACCESSORIES ACCORDING TO APPLICABLE SPECIFICATIONS AND COMMENTARY IN SDI PUBLICATION NO. 31, MANUFACTURER'S WRITTEN INSTRUCTIONS, AND REQUIREMENTS IN THIS SECTION.
- B. INSTALL TEMPORARY SHORING BEFORE PLACING DECK PANELS IF REQUIRED TO MEET DEFLECTION LIMITATIONS.
- C. LOCATE DECK BUNDLES TO PREVENT OVERLOADING OF SUPPORTING MEMBERS.
- D. PLACE DECK PANELS ON SUPPORTING FRAME AND ADJUST TO FINAL POSITION WITH ENDS ACCURATELY ALIGNED AND BEARING ON SUPPORTING FRAME BEFORE BEING PERMANENTLY FASTENED. DO NOT STRETCH OR CONTRACT SIDE-LAP INTERLOCKS.
- E. PLACE DECK PANELS FLAT AND SQUARE AND FASTEN TO SUPPORTING FRAME WITHOUT WARP OR DEFLECTION.
- F. CUT AND NEATLY FIT DECK PANELS AND ACCESSORIES AROUND OPENINGS AND OTHER WORK PROJECTING THROUGH OR ADJACENT TO DECK.
- G. PROVIDE ADDITIONAL REINFORCEMENT AND CLOSURE PIECES AT OPENINGS AS REQUIRED FOR
- STRENGTH, CONTINUITY OF DECK, AND SUPPORT OF OTHER WORK. H. COMPLY WITH AWS REQUIREMENTS AND PROCEDURES FOR MANUAL SHIELDED METAL ARC WELDING,

APPEARANCE AND QUALITY OF WELDS, AND METHODS USED FOR CORRECTING WELDING WORK.

I. MECHANICAL FASTENERS MAY BE USED IN LIEU OF WELDING TO FASTEN DECK UPON WRITTEN APPROVAL FROM ARCHITECT. SIZE AND SPACE MECHANICAL FASTENERS TO PROVIDE SAME STRENGTH AS INDICATED WELD PATTERN AND INSTALL ACCORDING TO DECK MANUFACTURER'S WRITTEN INSTRUCTIONS.

3.3 ROOF-DECK INSTALLATION

- A. FASTEN ROOF-DECK PANELS TO STEEL SUPPORTING MEMBERS BY ARC SPOT (PUDDLE) WELDS OF THE SURFACE DIAMETER INDICATED OR ARC SEAM WELDS WITH AN EQUAL PERIMETER THAT IS NOT LESS THAN 1-1/2 INCHES LONG, AND AS FOLLOWS: 1. WELD DIAMETER: AS INDICATED ON DRAWINGS.
 - 2. WELD SPACING: WELD EDGE AND INTERIOR RIBS OF DECK UNITS WITH A MINIMUM OF TWO WELDS PER DECK UNIT AT EACH SUPPORT. SPACE WELDS AS INDICATED ON DRAWINGS.
- B. SIDE-LAP AND PERIMETER EDGE FASTENING: FASTEN SIDE LAPS AND PERIMETER EDGES OF PANELS BETWEEN SUPPORTS, AT INTERVALS NOT EXCEEDING THE LESSER OF 1/2 OF THE SPAN OR 36 INCHES, AND AS FOLLOWS: 1. MECHANICALLY FASTEN WITH SELF-DRILLING, NO. 10 DIAMETER OR LARGER, CARBON-STEEL
- C. END BEARING: INSTALL DECK ENDS OVER SUPPORTING FRAME WITH A MINIMUM END BEARING OF 1-1/2 INCHES, WITH END JOINTS AS FOLLOWS: 1. END JOINTS: LAPPED 2 INCHES MINIMUM OR BUTTED AT CONTRACTOR'S OPTION.

AND ARCHITECT.

- A. TESTING AGENCY: OWNER WILL ENGAGE A SPECIAL INSPECTOR AND QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO INSPECT FIELD WELDS AND MECHANICAL FASTENER CONNECTIONS AND PREPARE TEST REPORTS.
- B. INSPECTIONS: SEE STATEMENT OF SPECIAL INSPECTIONS.

C. TESTING AGENCY WILL REPORT INSPECTION RESULTS PROMPTLY AND IN WRITING TO CONTRACTOR

- D. REMOVE AND REPLACE WORK THAT DOES NOT COMPLY WITH SPECIFIED REQUIREMENTS.
- E. ADDITIONAL INSPECTING, AT CONTRACTOR'S EXPENSE, WILL BE PERFORMED TO DETERMINE
- COMPLIANCE OF CORRECTED WORK WITH SPECIFIED REQUIREMENTS.

3.5 PROTECTION

- A. GALVANIZING REPAIRS: PREPARE AND REPAIR DAMAGED GALVANIZED COATINGS ON BOTH SURFACES OF DECK WITH GALVANIZED REPAIR PAINT ACCORDING TO ASTM A 780 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
- B. PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS TO ENSURE THAT STEEL DECK IS WITHOUT DAMAGE OR DETERIORATION AT TIME OF SUBSTANTIAL COMPLETION.



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No. 0402056967 **KEY PLAN**

SCALE

REVISIONS DESCRIPTION DRAWN BY

STEEL DECK

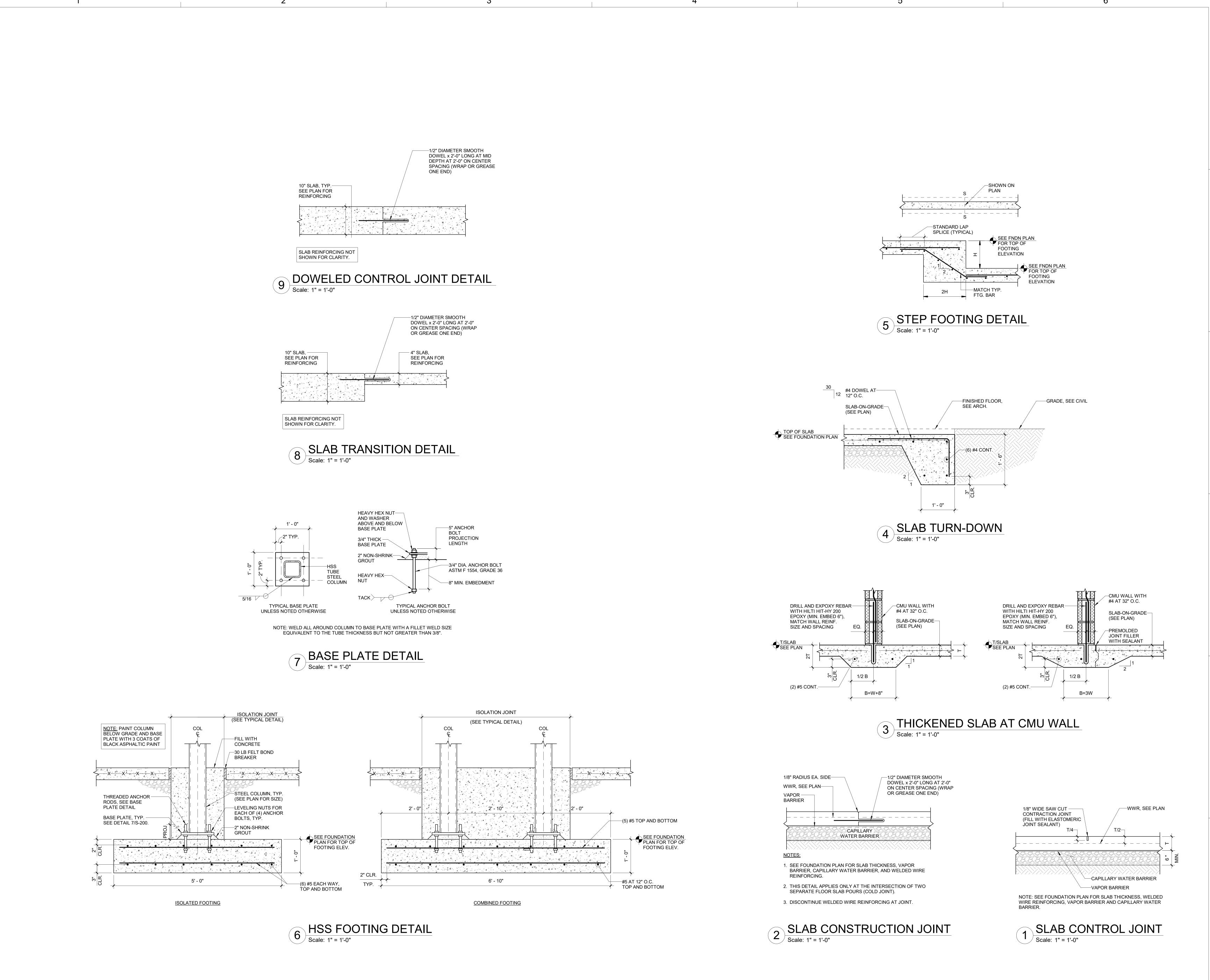
SPECIFICATION

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PROJECT NO.

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SEAL

C. CHRISTIAN BERG

No. 0402056967

10/28/25

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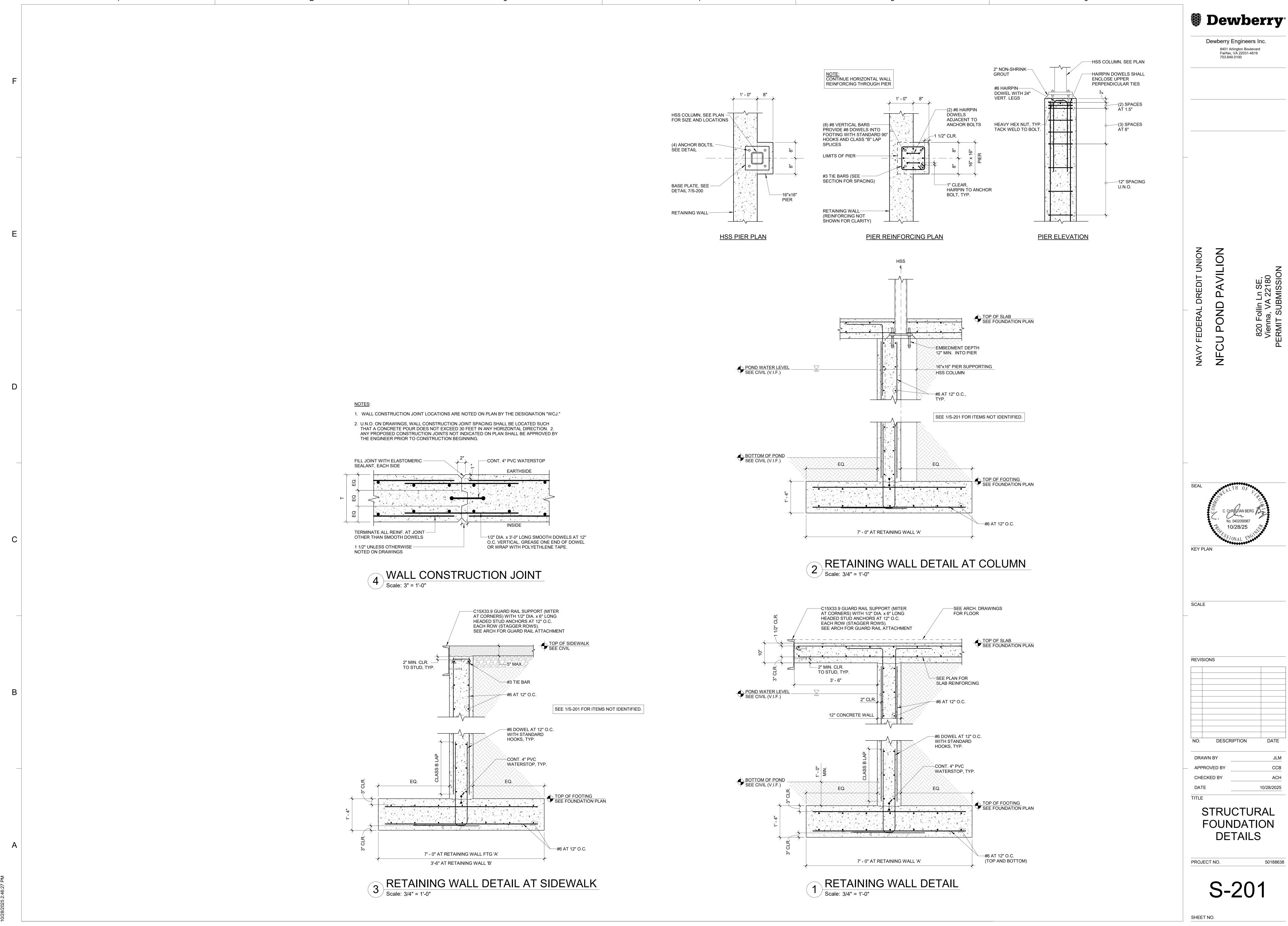
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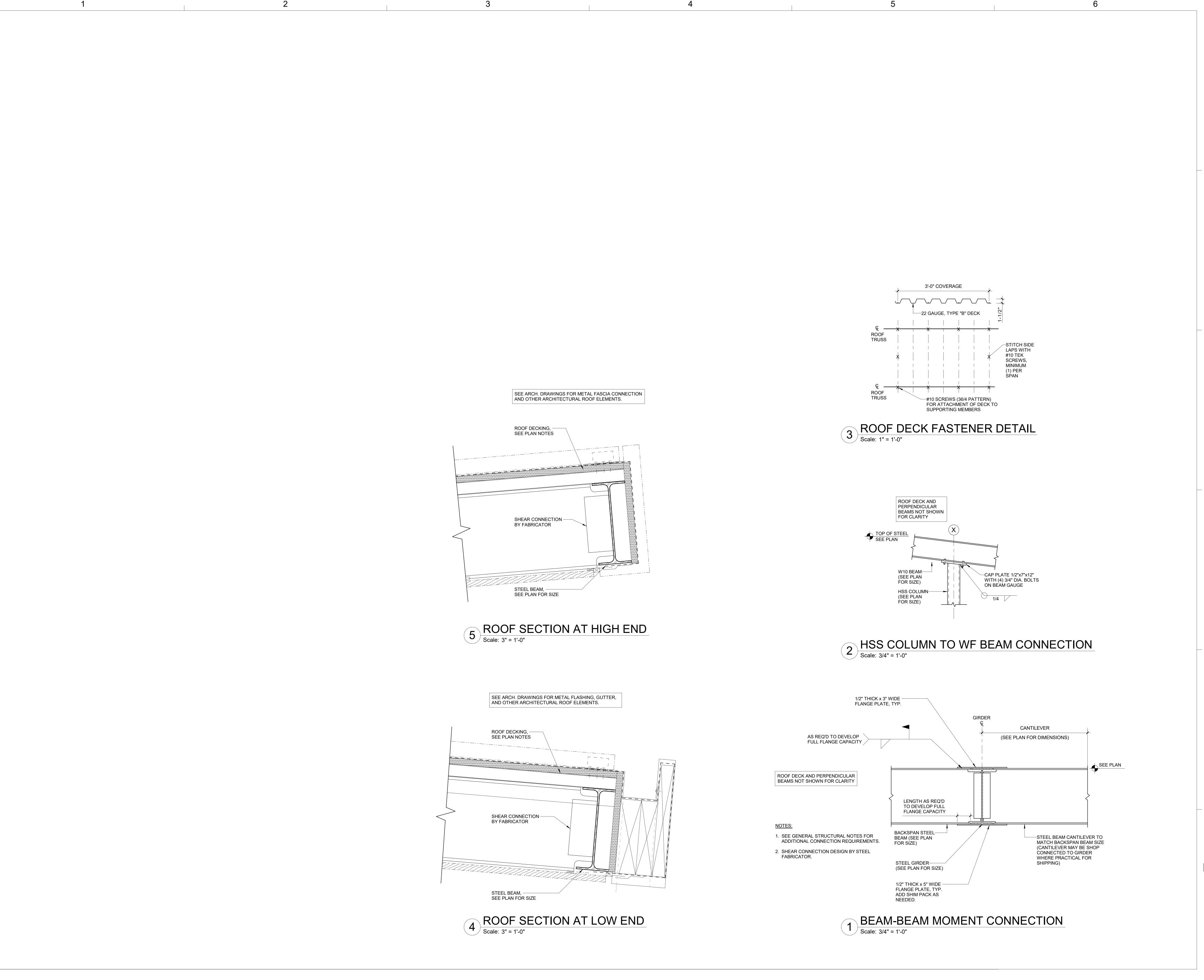
STRUCTURAL FOUNDATION DETAILS

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PROJECT NO.

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SEAL

C. CHRISTIAN BERG

NO. 0402056967

10/28/25

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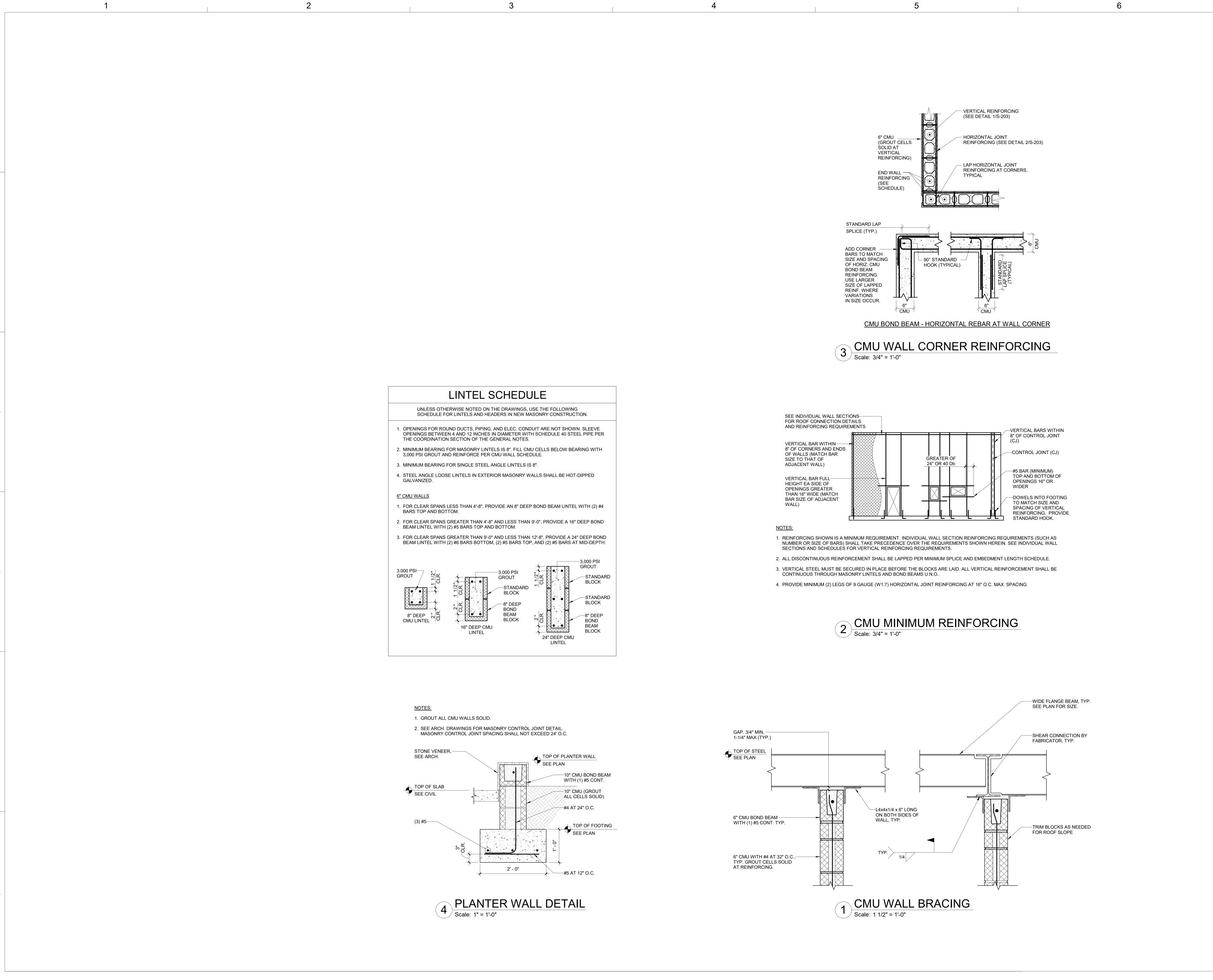
SCALE

STRUCTURAL FRAMING DETAILS

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SEAL

C. CHRISTIAN BERG

No. 0402056967

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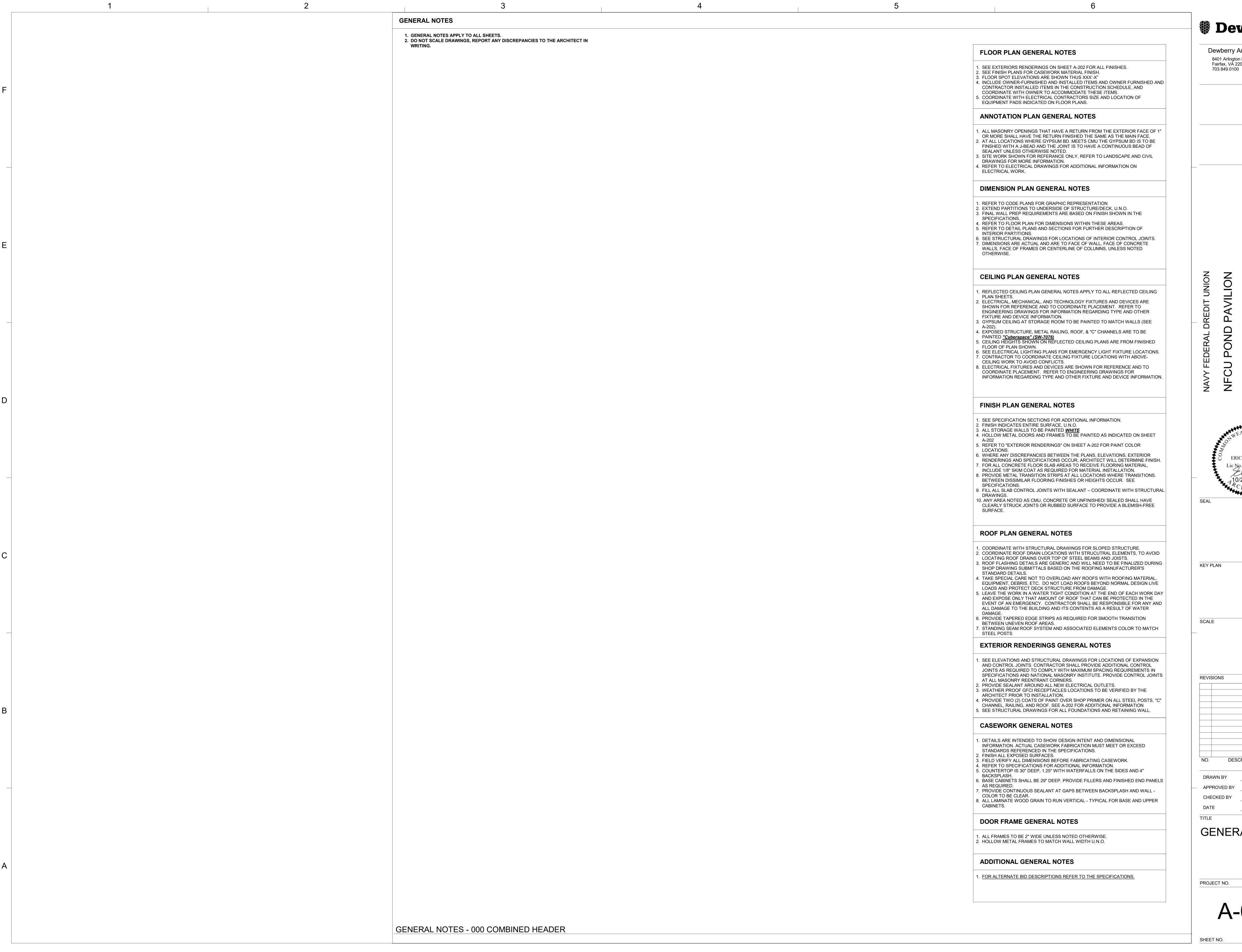
KEY PLAN

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MASONRY DETAILS

PROJECT NO. 50188

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Dewberry

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GENERAL NOTES

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