SCOTT Co. NEW STEEL BEAM BRIDGE AND LETDOWN STRUCTURE

IM-074-1(255)5--13-82

LETTING DATE 09/17/2019

IOWA DOT
Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM
SCOTT COUNTY

NEW STEEL BEAM BRIDGE AND ELEVATOR STRUCTURE

PEDESTRIAN BRIDGE
TO CONNECT THE ELEVATED 1-74 BIKE
TRAIL TO A LETDOWN STRUCTURE

SCALES: As Noted

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

REVISIONS

	TOTAL
	114
PROJECT IDENTIFICATION NUMBER	
03-82-074-010-03	
PROJECT NUMBER	
IM-074-1(255)5--13-82	
R.O.W. PROJECT NUMBER	

INDEX OF SHEETS

105-3
10-18-05

No.	Description
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2	Project Location Map
C Sheets	**Quantities and General Information**
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C.2 - C.3	Roadway Sheets
G Sheets	**Survey Sheets**
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G.21 - G.24	Horizontal Control Tabulations
J Sheets	**Traffic Control and Staging Sheets**
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C-S-A-M-P-E Sheets	**Letdown Structure**
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V Sheets	**Pedestrian Bridge**
*V.1	Estimate Sheet - Design 120
*V.2-V.15	Design 120 - Pedestrian Bridge

* Color Plans

For Project Location Map
Refer to Sheet No. A.2

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

DESIGN DATA URBAN

04-30-02 101-5

2015 AADT	TBD	V.P.D.
2035 AADT	99,800	V.P.D.
2035 DHV	9850	V.P.H.
TRUCKS	5	%
Total Design ESALs	--	

ARCHITECT

REGISTERED PROFESSIONAL ARCHITECT
J. CAMERON MCCORMICK
06983
IOWA

I HEREBY CERTIFY THAT THE PORTION OF THIS TECHNICAL SUBMISSION DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND RESPONSIBLE CHARGE. I AM A DULY REGISTERED ARCHITECT UNDER THE LAWS OF THE STATE OF IOWA.

Signature: Date

Printed or typed name: J. CAMERON MCCORMICK

License Number: 06983

My License Renewal Date is: JUNE 30, 2017

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
A.1-A.2, A0.01-A0.18, A1.01-A1.03, A1.11, A2.01, A3.01, A5.01

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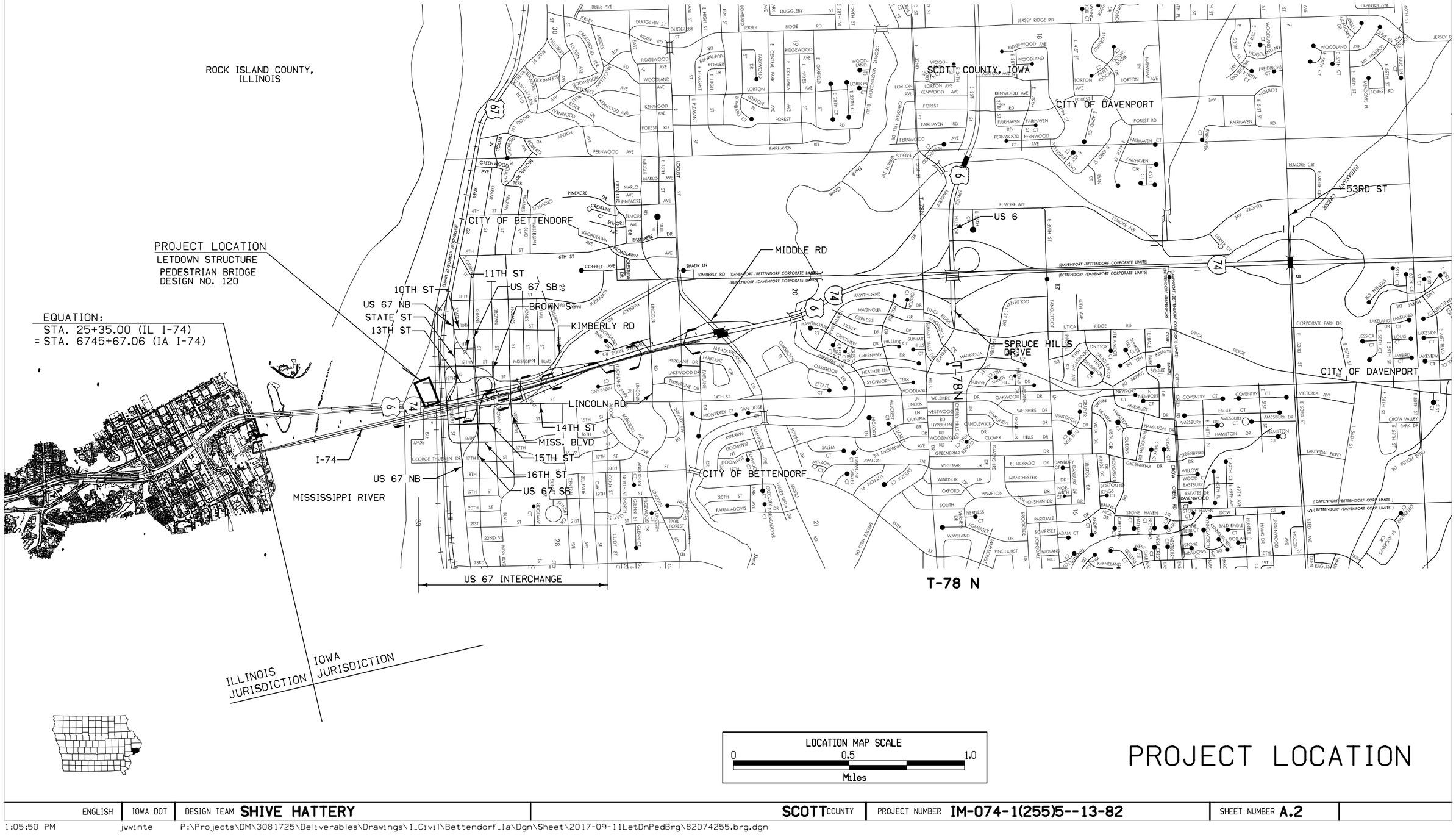
SHEET NO.	NAME	TYPE
A.1	J. Cameron Mccormick	Design No. 120
C.1	Jeffrey J. Tardy	Roadway Design
G.1	Coventine Fedis	Survey
G.2	Steven S. Sweet	Survey Information
C1.01	Gary D. Gross	Site Plan
E0.01	David M. Tepen	Lighting Design
M1.01	Dean L. Hiebert	Plumbing Design
S0.01	Joseph D. Appel	Structural Design
V.1	Joseph D. Appel	Structural



PROJECT LOCATION

ENGLISH	IOWA DOT	DESIGN TEAM **SHIVE HATTERY**	**SCOTT** COUNTY	PROJECT NUMBER **IM-074-1(255)5--13-82**	SHEET NUMBER **A.2**

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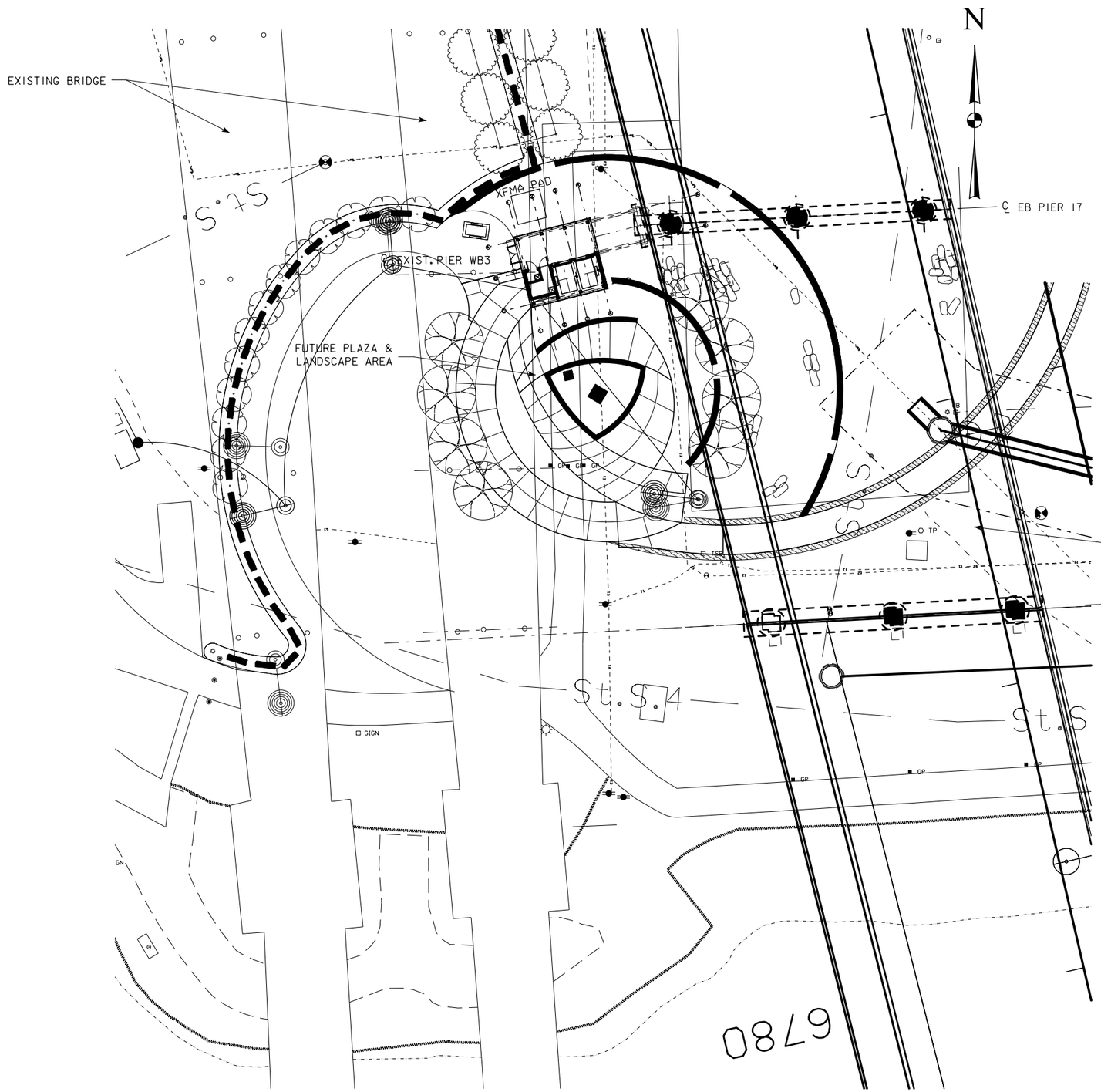
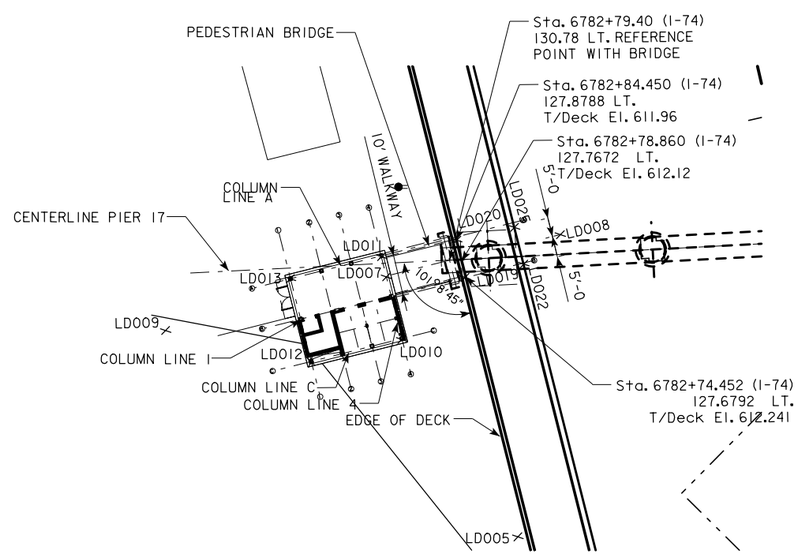


SITE PLAN

SCALE: 1′ = 20′

NOTE: THIS WORK IS FOR LETDOWN STRUCTURE AND PEDESTRIAN BRIDGE ONLY. ALL OTHER SITE WORK IS BY OTHERS.



LAYOUT A

SCALE: 1′ = 20′

POINT	STATION (I-74)	OFFSET	NORTHING	EASTING
LD007	6782+79.05	148.03	568847.868	2458193.586
LD008	6782+80.04	98.79	568859.905	2458241.343
LD009	6782+77.96	202.68	568834.508	2458140.577
LD010	6782+62.06	147.69	568831.384	2458197.741
LD011	6782+84.55	148.14	568853.202	2458192.242
LD012	6782+61.56	172.35	568825.356	2458173.822
LD013	6782+84.06	172.80	568847.173	2458168.323
LD019			568847.964	2458214.448
LD020			568857.661	2458212.004
LD022	6782+74.77	112.00	568851.797	2458229.657
LD025	6782+84.76	112.20	568861.494	2458227.213

LAND SURVEYOR

LICENSED LAND SURVEYOR
GARY D. GROSS
16850
IOWA

I HEREBY CERTIFY THAT THIS LAND SURVEYING DOCUMENT WAS PREPARED AND THE RELATED SURVEY WORK WAS PERFORMED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF IOWA.

Signature: Date

Printed or typed name: GARY D. GROSS

License Number: 16850

My License Renewal Date is: DECEMBER 31, 2016

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:

C1.01

FUTURE PLAZA

NEW RIVER FRONT TRAIL CONNECTION

EXISTING RIVER FRONT TRAIL TO BE REMOVED DURING BRIDGE DEMOLITION

EXISTING RIVER FRONT TRAIL TO REMAIN AFTER CONSTRUCTION

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

SITE PLAN

STA. 6782+79.40 - 130.78′ LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
Iowa | Illinois | Indiana | Missouri
http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

DESIGN TEAM DMT/MAR/DMT | SCOTT COUNTY | PROJECT NUMBER IM-074-1(255)5--13-82 | SHEET NUMBER C1.01

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MODEL: $MODEL

GENERAL STRUCTURAL NOTES

G1. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS EXIST BETWEEN THE DRAWINGS AND SPECIFICATIONS AND THE GENERAL STRUCTURAL NOTES, THE SPECIFICATIONS SHALL GOVERN. NOTIFY THE ENGINEER OF ANY SUCH CONFLICTS.

G2. GOVERNING CODE: 2009 INTERNATIONAL BUILDING CODE (IBC)

G3. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL SOIL BORINGS FOR THE I-74 BRIDGE, BETTENDORF, IOWA, BY IOWA DEPARTMENT OF TRANSPORTATION OFFICE OF DESIGN, SOILS DESIGN SECTION, DATED AUGUST 17, 2010. A NET ALLOWABLE SOIL BEARING CAPACITY OF 20,000 PSF ON LIMESTONE ROCK WAS USED FOR DESIGN PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATION FOR THE BRIDGE. THIS BEARING VALUE RESULTS FROM USING A NOMINAL BEARING STRENGTH OF 30 TSF AND DIVIDING BY A FACTOR OF SAFETY OF 3 FOR ALLOWABLE DESIGN. THE APPLIED BEARING PRESSURE IS 1,300 PSF. THE CONTRACTOR SHALL REVIEW THE EXISTING SOIL CONDITIONS BEFORE COMMENCING WORK.

G4. FLOOR LIVE LOAD = 100psf

ROOF LIVE LOAD = 30psf

ROOF SNOW LOAD: 20psf
GROUND SNOW LOAD (Pg) - 25 psf
IMPORTANCE FACTOR (I) - 1.1
EXPOSURE FACTOR (Ce) - 1.0
THERMAL FACTOR (Ct) - 1.0

G.5 WIND LOAD
DESIGN WIND SPEED - 90 MPH
IMPORTANCE FACTOR (Iw) - 1.15
EXPOSURE CLASSIFICATION - EXPOSURE C
INTERNAL PRESSURE COEFFICIENT = .18

G6. EARTHQUAKE DESIGN DATA:
SITE CLASS: D
SS: 0.132 SDS:0.141
S1: 0.060 SD1: 0.096
OCCUPANCY CATEGORY: III
SEISMIC DESIGN CATEGORY: B
BASIC SEISMIC FORCE RESISTING SYSTEM: ORDINARY STEEL CONCENTRICALLY BRACED FRAMES, ORDINARY MOMENT FRAME ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE

G7. MECHANICAL FRAMING LOADS, OPENINGS, AND STRUCTURE IN ANY WAY RELATED TO MECHANICAL REQUIREMENTS ARE SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL OBTAIN APPROVAL OF MECHANICAL AND OTHER TRADES BEFORE PROCEEDING WITH SUCH PORTION OF THE WORK. EXCESS COST RELATED TO VARIATION IN MECHANICAL REQUIREMENTS TO BE BORNE BY MECHANICAL CONTRACTOR.

G8. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE STRUCTURE IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS, OR TIE-DOWNS WHICH MIGHT BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE PROJECT.

G9. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.

G10. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND CONDITIONS RELATING TO EXISTING CONSTRUCTION AND EXISTING SERVICE ON THE SITE.

G11. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND LOCATIONS OF COLUMNS, WALLS, OPENINGS ETC. WITH THE ARCHITECTURAL DRAWINGS PRIOR TO PROCEEDING WITH THE WORK.

G12. THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF OPENINGS, HOLES AND SLEEVES THROUGH ALL STRUCTURAL ELEMENTS WITH MECHANICAL, ELECTRICAL AND PLUMBING CONTRACTORS. NO OPENINGS SHALL PASS THRU STRUCTURAL MEMBERS UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

G13. EXISTING CONDITIONS:

DURING CONSTRUCTION, THE CONTRACTOR MAY ENCOUNTER EXISTING CONDITIONS WHICH ARE NOT KNOWN OR ARE AT VARIANCE WITH PROJECT DOCUMENTATION (DISCOVERY). SUCH CONDITIONS MAY INTERFERE WITH NEW CONSTRUCTION OR REQUIRE PROTECTION AND/OR SUPPORT OF EXISTING WORK DURING CONSTRUCTION, OR MAY CONSIST OF DAMAGE OR DETERIORATION TO STRUCTURAL MATERIALS OR COMPONENTS WHICH COULD JEPORDIZE THE STRUCTURAL INTEGRITY OF THE BUILDING(S)

THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL DISCOVERIES WHICH MAY INTERFERE WITH PROPER EXECUTION OF THE WORK OR JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE BUILDING(S) PRIOR TO PROCEEDING WITH WORK RELATED TO SUCH DISCOVERIES.

G14. THE CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.

G15. DETAILS LABELED AS "TYPICAL DETAILS" ON THE DRAWINGS APPLY TO SITUATIONS THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY DETAILED AND/OR REFERENCED. SUCH DETAILS APPLY WHETHER OR NOT DETAILS ARE REFERENCED AT EACH LOCATION. NOTIFY ARCHITECT OR ENGINEER OF ANY CONFLICT REGARDING THE APPLICABILITY OF "TYPICAL DETAILS".

REINFORCED CONCRETE

CONCRETE AND ACCESSORIES:

1. ALL CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND ACI 301. SEE IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION SECTION 2405 FOUNDATIONS AND SUBSTRUCTURES AND SPECIFICATIONS ON PLANS FOR CAST-IN-PLACE CONCRETE FOR FOUNDATIONS AND SUBSTRUCTURES FOR THE LETDOWN BUILDING STRUCTURE.

2. ALL CONCRETE SHALL BE STONE AGGREGATE UNLESS NOTED. SUBMIT DESIGN MIX AND DOCUMENTATION FOR APPROVAL PER ACI 318. MINIMUM CONCRETE 28 DAY COMPRESSIVE STRENGTH SHALL BE AS FOLLOWS:

A. 28-DAY SPECIFIED CONCRETE COMPRESSIVE STRENGTH (f'c) = 4000 PSI SUBMIT DESIGN MIX AND DOCUMENTATION FOR APPROVAL PER ACI 318.

3. REINFORCING STEEL: ASTM A615 - GRADE 60.

4. CAST-IN-PLACE ANCHOR RODS: ASTM F1554 GRADE 36 OR A36 ANCHOR RODS. EMBED ANCHOR RODS 9" MINIMUM UNLESS NOTED OTHERWISE ON DRAWINGS.

5. REINFORCEMENT PROTECTION:

A. CONCRETE PLACED AGAINST EARTH..... 3"

B. CONCRETE PLACED IN FORMS BUT EXPOSED TO WEATHER OR EARTH
BARS #5 AND SMALLER..... 1-1/2"
BARS LARGER THAN #5 ..... 2"
STRUCTURAL SLABS (TOP AND BOTTOM)..... 1"

6. ALL SPLICES, STANDARD HOOKS, AND DEVELOPMENT LENGTHS TO BE PER THE LATEST EDITION OF ACI 318 BUT IN NO CASE LESS THAN 36 BAR DIAMETERS UNLESS NOTED OTHERWISE. MAKE BARS CONTINUOUS AROUND CORNERS. WHERE PERMITTED, PROVIDE SPLICES BY CONTACT LAP. WHERE CLASSES ARE NOT CALLED OUT ON DRAWINGS, PROVIDE A CLASS "B" SPLICE.

7. WHERE REQUIRED, DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE.

8. SUBMIT CONCRETE REINFORCEMENT SHOP DRAWINGS IN ACCORDANCE WITH ACI 315 FOR APPROVAL.

9. DETAIL BARS IN ACCORDANCE WITH "ACI DETAILING MANUAL", PUBLICATION SP-66 AND THE LATEST EDITION OF ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".

10. WHERE NOT NOTED ON DRAWINGS, REINFORCE CONCRETE WALLS WITH #5 AT 12" ON CENTER EACH FACE, EACH WAY.

11. PLACE 2-#5 (1 EACH FACE) WITH 2'-0" PROJECTION AROUND OPENINGS IN CONCRETE: PLACE 1-#4 (IN TOPPING) WITH 2'-0" PROJECTION AROUND OPENINGS THROUGH FLOOR TOPPING SLABS, UNLESS OTHERWISE NOTED.

12. WALLS AND GRADE BEAMS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE. ANY STOP IN CONCRETE WORK MUST BE MADE AT CENTER OF SPAN OR AT CENTER OF SUPPORT WITH VERTICAL BULKHEADS AND HORIZONTAL KEYS, UNLESS OTHERWISE SHOWN.

13. ROUGHEN ALL CONSTRUCTION JOINTS TO AN AMPLITUDE OF AT LEAST 1/4".

14. CONSTRUCTION:
A. CEMENT SHALL CONFORM TO ASTM C150 TYPE I.
B. AGGREGATES SHALL BE FINE AND COARSE PER ASTM C33 (REGULAR WEIGHT).
C. ALL EXTERIOR CONCRETE SHALL HAVE 6% AIR ENTRAINMENT. SEE ADDITIONAL STRUCTURAL SPECIFICATION NOTES. D. ADDMIXTURES SHALL BE USED ONLY PER THE APPROVED MIX DESIGN.

E. ALLOWABLE SLUMP SHALL BE PER THE APPROVED MIX DESIGN.

F. HOT WEATHER PLACEMENT SHALL CONFORM TO THE REQUIREMENTS WITH ACI 305 AND COLD WEATHER PLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF ACI 306.

G. FORMWORK SHALL BE IN ACCORDANCE WITH ACI 347.

FOUNDATIONS

1. SEE IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION SECTION 2402 EXCAVATION FOR STRUCTURES, SECTION 4133 GRANULAR BACKFILL MATERIAL AND SPECIFICATIONS ON PLANS FOR EXCAVATION FOR STRUCTURES AND FOR FOUNDATIONS AND SUBSTRUCTURES FOR THE LETDOWN BUILDING STRUCTURE. THE SOIL SUBGRADE FOR ALL SLABS SHALL BE PREPARED AS PER THE STANDARD SPECIFICATIONS, AND INSPECTED AND APPROVED BY THE SPECIAL INSPECTOR IMMEDIATELY PRIOR TO PLACING CONCRETE. FOOTINGS TO EXTEND AT LEAST 6" INTO LIMESTONE WITH THE FINAL 6" OF EXCAVATION TO BE TO NEAT LINES OF THE FOOTING.

2. PROPOSED ENGINEERED FILL MATERIALS PER IOWA DOT STANDARD SPECIFICATIONS SECTION 4133 ARE TO BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES IN LOOSE MEASURED THICKNESS. EACH LIFT SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY.

3. SUBGRADE WHICH WILL REMAIN AND THOSE WHICH ARE TO SUPPORT FILL STRUCTURES ARE TO BE PROOF ROLLED. AREAS EXHIBITING INSTABILITY ARE TO BE UNDERCUT AND BACKFILLED ON A LIFT-BY-LIFT BASIS WITH EACH LIFT CAREFULLY COMPACTED.

4. IF UNSTABLE SUBGRADE CANNOT BE STABILIZED BY EXCAVATION AND RECOMPACTION, ROLL CRUSHED STONE OR SIMILAR COARSE AGGREGATE MATERIALS INTO THE SUBGRADE UNTIL A FIRM SUBGRADE REACTION IS ACHIEVED.

5. ALL ORGANIC AND/OR OTHER UNSUITABLE MATERIALS SHALL BE REMOVED FROM SUBGRADE AND BACKFILL AREAS AND BACKFILLED WITH ACCEPTABLE GRANULAR FILL (REFER TO SPECIFICATIONS), COMPACTED TO 95% OF MAXIMUM DRY DENSITY. GRANULAR FILL SHALL BE PLACED IN LIFTS NOT TO EXCEED EIGHT (8) INCHES IN LOOSE THICKNESS.

6. NO MUD SLABS, FOOTINGS OR SLABS SHALL BE PLACED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST, OR ICE.

7. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND AFTER PLACING OF CONCRETE AND UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.

8. THE CONCRETE FOR EACH ISOLATED FOOTING SHALL BE PLACED IN ONE (1) CONTINUOUS PLACEMENT.

9. CONTRACTOR SHALL VERIFY OPENINGS THROUGH WALLS WITH ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL REQUIREMENTS. CHANGES IN SIZE, LOCATION OR NUMBER OF OPENINGS SHALL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL BY THE ENGINEER.

10. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY UNUSUAL SOIL CONDITIONS.

11. BUILDING AND EXCAVATION BACKFILL:

A. REMOVE ALL TOPSOIL, ORGANIC OR UNSUITABLE MATERIAL PRIOR TO PLACING FILL REQUIRED TO BRING THE BUILDING UP TO PROPOSED ELEVATIONS.

B. SOILS USED FOR BACKFILL SHALL BE APPROVED BY THE SPECIAL INSPECTOR AND SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

C. BEFORE STARTING BACKFILL WORK, REMOVE FORMING DEBRIS, WOOD, WATER, ICE, SNOW AND FROZEN SOIL.

12. CONTRACTOR TO NOTIFY ENGINEER IMMEDIATELY IF ADJACENT BRIDGE FOUNDATIONS VARY FROM THAT SHOWN ON PLANS.

13. THE BUILDING SLAB ON GRADE SHALL REST ON COMPACTED ENGINEERED BACKFILL AFTER EXCAVATING FOR THE FOUNDATIONS.

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
Iowa | Illinois | Indiana | Missouri http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

LICENSED PROFESSIONAL ENGINEER
JOSEPH D. APPEL
19355
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Signature: Date

Printed or typed name: JOSEPH D. APPEL
License Number: 19355
My License Renewal Date is: DECEMBER 31, 2018
PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
S0.01-S0.10, S1.01, S1.11-S1.15, S5.01-S5.11

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL NOTES

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF xx FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER S0.01

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MODEL: $MODEL

LIGHT GAUGE METAL FRAMING:

1."SEE SPECIFICATIONS ON PLANS FOR COLD-FORMED METAL FRAMING FOR THE LETDOWN BUILDING STRUCTURE".

2. SPECIFICATIONS AND STANDARDS:
A. ALL STRUCTURAL PROPERTIES OF LIGHT GAUGE METAL FRAMING SHALL BE COMPUTED IN ACCORDANCE WITH AISI "SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS" AND SHALL BE PUBLISHED IN THE MANUFACTURERS CATALOG.
B. WELDING SHALL BE PERFORMED ONLY BY QUALIFIED OPERATORS USINGPROPER EQUIPMENT FOR THE PARTICULAR TYPE OF WORK REQUIRED.
C. AWS D1.3 SPECIFICATION FOR WELDING SHEET STEEL IN STRUCTURES.

3. MATERIALS
A. STRUCTURAL FRAMING MEMBERS 16 GAGE AND HEAVIER: GALVANIZED, ASTM A446, GRADE D, Fy = 50,000 PSI.
B. STRUCTURAL FRAMING MEMBERS 18 GAGE AND LIGHTER: GALVANIZED, ASTM A446, GRADE A, Fy = 33,000 PSI.
C. ALL FRAMING MEMBERS TO BE "C" SHAPED WITH A MINIMUM FLANGE WIDTH OF 2" UNLESS OTHERWISE NOTED.
D. ALL TRACK AND BRIDGING MATERIALS, Fy = 33,000 PSI MIN.
E. ALL FRAMING MEMBERS SHALL BE GALVANIZED.
F. WELDING ELECTRODES: AWS A5.1, A5.5 OR A5.18 SERIES E60.

4. CONNECTIONS:
A. CUT ALL FRAMING COMPONENTS TO FIT SQUARELY AGAINST ABUTTING MEMBERS AND HOLD FIRMLY IN POSITION UNTIL PROPERLY FASTENED.
B. ALL PANELS SHALL BE SQUARE AND BRACED AGAINST RACKING.
C. WIRE TYING OF STRUCTURAL FRAMING COMPONENTS IS NOT PERMITTED.
D. LIGHTGAGE METAL FRAMING CONNECTIONS TO BE FASTENED TOGETHER WITH A MINIMUM OF 2-#12 SCREWS OR AS SHOWN ON THE PLANS.

5. ERECTION:
A. ATTACH TRACK SECURELY TO THE FLOOR AND OVERHEAD STRUCTURE.
B. SEAT STUDS SQUARELY TO THE FLOOR AND OVERHEAD TRACK AND ATTACH SECURELY.
C. SPLICES IN STRUCTURAL FRAMING MEMBERS ARE NOT PERMITTED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
D. DO NOT ALLOW AXIAL LOADS TO STUDS UNTIL ALL BRIDGING, CONNECTIONS, AND ATTACHMENT OF COLLATERAL MATERIALS ARE COMPLETE.

6. DEPTH OF METAL STUD WALL MEMBERS SHALL BE AS SHOWN ON ARCHITECTURAL DRAWINGS.

STRUCTURAL STEEL:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL BUILDINGS". SEE SPECIFICATIONS ON PLANS FOR STRUCTURAL STEEL FRAMING FOR THE LETDOWN BUILDING STRUCTURE.

2. WELDING SHALL BE IN ACCORDANCE WITH STRUCTURAL WELDING CODE, AWS D1.1, LATEST EDITION, AND SHALL BE PERFORMED BY CERTIFIED WELDERS ONLY USING E70XX ELECTRODES. PROVIDE WELD SIZE IN ACCORDANCE WITH AISC SPECIFICATIONS, BUT NOT LESS THAN 3/16" FILLET, CONTINUOUS UNLESS OTHERWISE NOTED.

3. STRUCTURAL STEEL SHOP DRAWINGS SHOWING COMPLETE DIMENSIONS, DETAILS, SIZES, AND GRADES OF STEEL MEMBERS AND CONNECTIONS, SIZE, TYPE, AND NUMBER OF WELDS SHALL BE PREPARED AND SUBMITTED FOR APPROVAL PRIOR TO FABRICATION OF THE STEEL COMPONENTS.

4. STEEL W SHAPES: ASTM A992 (MINIMUM YIELD STRENGTH = 50 KSI).

5. CHANNELS, ANGLES, AND PLATES: ASTM A36 (MINIMUM YIELD STRENGTH = 36 KSI).

6. TUBES: ASTM A500, GR. B (MINIMUM YIELD STRENGTH = 46 KSI).

7. PIPES: ASTM A53 (MINIMUM YIELD STRENGTH = 35 KSI).

8. STEEL BOLTING: ASTM A325-X, 3/4" DIA., SNUG TIGHT U.N.O.

9. ITEMS INDICATED TO BE GALVANIZED SHALL BE HOT-DIP GALVANIZED IN COMPLIANCE WTIH ASTM A123.

10. IF CONNECTIONS ARE NOT DETAILED ON DRAWINGS, SIZE STANDARD BEAM CONNECTIONS BASED ON 3/4 THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM. USE DOUBLE CLIP ANGLES AND 13th EDITION AISC TABLE 10-1 UNLESS INDICATED OTHERWISE. MINIMUM OF TWO ROWS OF BOLTS PER CONNECTION. FOR BEAMS CONNECTING TO TUBE COLUMNS, USE SINGE SHEAR TABS OR THROUGH PLATES IN THE 9th EDITION AISC TABLE X-A OR HSS CONNECTION MANUAL. FOR BEAMS WITH REACTION SHOWN, DESIGN CONNECTIONS FOR THE REACTION SHOWN.

11. ONE-SIDED CONNECTIONS FOR BEAMS SHALL NOT BE USED UNLESS CALLED FOR ON THE DESIGN DRAWINGS OR AS APPROVED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF IOWA.

12. POST INSTALLED WEDGE TYPE EXPANSION BOLTS SHALL BE 3/4"• KWIKBOLT TZ EXPANSION ANCHORS BY HILTI WITH 4 3/4" MINIMUM EMBEDMENT UNLESS NOTED OTHERWISE ON DRAWINGS OR 3/4"• TRUBOLT WEDGE ANCHOR BY ITW/RAMSET/REDHEAD WITH 6 5/8" MINIMUM EMBEDMENT UNLESS NOTED OTHERWISE ON DRAWINGS.

13. POST INSTALLED ADHESIVE TYPE ANCHOR BOLTS SHALL BE HVA ADHESIVE SYSTEM WITH 3/4"• HAS ROD BY HILTI. EMBED ANCHORS 6 5/8" MINIMUM UNLESS NOTED OTHERWISE ON DRAWINGS.

14. HEADED STUD CONNECTOR SHALL CONFORM TO A.W.S. D1.1, STUCTURAL WELDING CODE.

15. GUSSET PLATES SHALL BE 3/8" THICK MINIMUM UNLESS OTHERWISE NOTED. OVERHANGING CORNERS SHOULD BE NEATLY CLIPPED.

16. ALL VERTICAL BRACING AND KNEE BRACES SHALL BE ON COLUMN CENTER LINES, UNLESS OTHERWISE NOTED.

17. SEE SPECIFICATIONS ON PLANS FOR PAINTING OF LETDOWN BUILDING STRUCTURE.

18. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR APPROVAL OF THE ENGINEER.

19. CONTRACTOR SHALL PROVIDE THE DESIGN AND SEAL BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF IOWA FOR VERTICAL BRACE CONNECTIONS FOR THE LOADS GIVEN IN THE PLANS.

20. BEAMS SHALL BE ORIENTED WITH DEEP AXIS VERTICAL U.N.O.

STEEL DECK

1. ALL METAL DECK AND METAL FORM DECK SHALL BE DESIGNED, MANUFACTURED, AND INSTALLED IN ACCORDANCE WITH THE LATEST PROVISIONS OF THE STEEL DECK INSTITUTE - "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS, ROOF DECKS AND CELLULAR METAL FLOOR DECK WITH ELECTRICAL DISTRIBUTION." AND UNDERWRITER REQUIREMENTS (I.E. FACTORY MUTUAL). "SEE SPECIFICATIONS ON PLANS FOR STEEL DECKING FOR THE LETDOWN BUILDING STRUCTURE".

2. PROVIDE METAL DECK MANUFACTURED BY A MEMBER OF THE STEEL DECK INSTITUTE OF THE TYPE AND GAGE INDICATED ON THE DRAWINGS. FINISH ON STEEL DECK SHALL BE COMPATIBLE WITH SPRAY-APPLIED FIRE PROOFING.

3. THE METAL DECK SHALL BE DESIGNED TO BE CONTINUOUS OVER THREE (3) SPANS IN THE DIRECTION INDICATED. SINGLE AND DOUBLE SPANS, IF REQUIRED, SHALL SATISFY LOAD AND DEFLECTION REQUIREMENTS.

4. SUBMIT SHOP DRAWINGS INDICATING DECK LAYOUT PLAN, SUPPORT LOCATIONS, OPENINGS AND REINFORCEMENT, PERTINENT DETAILS AND ACCESSORIES.

5. DECK AND ACCESSORIES SHALL BE CLEANED AND GIVEN A PHOSPHATE TREATMENT AND A SHOP PRIME COAT OF RUST INHIBITIVE PAINT UNLESS OTHERWISE NOTED.

6. CONNECTIONS TO STEEL SUPPORTS SHALL BE FUSION TYPE WELDS PERFORMED BY COMPETENT WELDERS WHO HAVE QUALIFIED BY TESTS AS PRESCRIBED BY THE AWS TO PERFORM THE TYPE OF WORK REQUIRED.

7. SEE PLAN NOTES FOR DECK TYPE AND FASTENING.

8. VERIFY ALL OPENING SIZES AND LOCATIONS WITH THE APPROPRIATE TRADES. PROVIDE SUPPLEMENTAL STEEL FRAMING (4) L4x4x3/8 AT ALL UNSCHEDULED FLOOR OR ROOF OPENINGS OVER 12 INCHES IN WIDTH.

9. NO LIGHT GAGE FRAMING, MECHANICAL, ELECTRICAL OR OTHER EQUIPMENT SHALL BE SUSPENDED FROM OR ATTACHED TO ANY METAL ROOF DECK.

STATEMENT OF SPECIAL INSPECTIONS:

1. GENERAL:
THE OWNER SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PROVIDE INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED BELOW IN ACCORDANCE WITH THE 2009 INTERNATIONAL BUILDING CODE (IBC 2009) CHAPTER 17 "STRUCTURAL TESTS AND SPECIAL INSPECTIONS". THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THESE INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS SPECIFIED IN THE INDIVIDUAL STANDARD SPECIFICATIONS AND SPECIFICATIONS ON PLANS.

2. APPROVED AGENCY:
AN APPROVED AGENCY SHALL PROVIDE ALL INFORMATION AS NECESSARY FOR THE BUILDING OFFICIAL TO DETERMINE THAT THE AGENCY MEETS THE APPLICABLE REQUIREMENTS.

3. LABELING:
WHERE MATERIALS OR ASSEMBLIES ARE REQUIRED TO BE LABELED, SUCH MATERIALS AND ASSEMBLIES SHALL BE LABELED BY AN APPROVED AGENCY IN ACCORDANCE WITH IBC 2009 SECTION 1703.

4. REPORT REQUIREMENT:
SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT OF INSPECTIONS DOCUMENTING REQUIRED SPECIAL INSPECTION AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED PERIODICALLY AT A FREQUENCY AGREED UPON BY THE PERMIT APPLICANT AND THE BUILDING OFFICIAL PRIOR TO THE START OF WORK.

5. INSPECTION OF FABRICATORS:
WHERE FABRICATION OF STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES IS BEING PERFORMED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTION IN THE SHOP OF THE FABRICATED ITEMS SHALL BE REQUIRED.

A. FABRICATOR APPROVAL:
SHOP SPECIAL INSPECTIONS REQUIRED ABOVE ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR PREVIOUSLY REGISTERED AND APPROVED BY THE BUILDING OFFICIAL TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION IN ACCORDANCE WITH IBC SECTION 1704.2.2. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

6. SOILS:
THE SPECIAL INSPECTIONS FOR EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT AND LOAD-BEARING REQUIREMENTS SHALL BE AS INDICATED BELOW. THE PLAN NOTES AND THE STANDARD SPECIFICATIONS AND SPECIFICATIONS ON PLANS SHALL BE USED TO DETERMINE COMPLIANCE.

A. SITE PREPARATION:
PRIOR TO PLACEMENT OF THE PREPARED FILL, THE SPECIAL INSPECTOR SHALL DETERMINE THAT THE SITE HAS BEEN PREPARED IN ACCORDANCE WITH THE SPECIFICATIONS.

B. DURING FILL PLACEMENT. DURING PLACEMENT AND COMPACTION OF THE FILL MATERIAL, THE SPECIAL INSPECTOR SHALL DETERMINE THAT THE MATERIAL BEING USED AND THE MAXIMUM LIFT THICKNESS COMPLY WITH THE SPECIFICATIONS.

C. EVALUATION OF IN-PLACE DENSITY. THE SPECIAL INSPECTOR SHALL DETERMINE AT THE APPROVED FREQUENCY, THAT THE IN PLACE DRY DENSITY OF THE COMPACTED FILL COMPLIES WITH THE SPECIFICATIONS.

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL NOTES

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
MATERIAL VERIFICATION OF HIGH STRENGTH BOLTS, NUTS AND WASHERS: IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.		X	APPLICABLE ASTM MATERIAL SPECIFICATIONS AISC, ASD SECTION A3.4	
INSPECTION OF HIGH STRENGTH BOLTING: BEARING-TYPE CONNECTIONS SLIP-CRITICAL CONNECTIONS	 X	 X X	AISC LRFD SECTION M2.5	1074.3.3
MATERIAL VERIFICATION OF STRUCTURAL STEEL: IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS. MANUFACTURERS' CERTIFIED MILL TEEST REPORTS REQUIRED.			ASTM A 6 OR ASTM 568 ASTM A 6 OR ASTM 568	1708.4
MATERIAL VERIFICATION OF WELD FILTER: IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.			AISC, ASD SECTION A3.4	
INSPECTION OF WELDING: STRUCTURAL STEEL COMPLETE AND PARTIAL PENETRATION GROOVE WELDS MULTI-PASS FILET WELDS SINGLE-PASS FILET WELDS> 5/16"(7.9 MM.) SINGLE-PASS FILET WELDS<5/16"(7.9 MM.) FLOOR AND DECK WELDS.	 X X X	 X X	 AWS D1.1 AWS D1.3	1704.3.1
INSPECTION OF STEEL FRAMING FOR COMPLIANCE WITH THE SIZES INDICATED AND DETAILS SHOWN ON THE APPROVED CONSTRUCTION DOCUMENTS:		X		1704.3.2

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
INSPECTION OF REINFORCING STEEL AND PLACEMENT		X	ACI 318: 3.5, 7.1-7.7	1903.5, 1907.1, 1907.7, 1914.4
INSPECTION OF WELDING OF A706 REINFORCING STEEL			AWS D1.4 ACI 318: 3.5.2	1903.5.2
INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE	X			1912.5
VERIFYING USE OF REQUIRED DESIGN MIX		X	ACI 318: CH. 4, 5.2-5.4	1904, 1905.2-1905.4, 1914.2, 1914.3
SAMPLING FRESH CONCRETE AND PERFORMING SLUMP AIR CONTENT AND DETERMINING THE TEMPERATURE OF FRESH CONCRETE AT THE TIME OF MAKING SPECIMENS FOR STRENGTH TESTS.	X		ASTM C 172 ASTM C 31 ASTM C 318: 5.6, 5.8	1905.6, 1914.10
INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X		ACI 318: 5.9, 5.10	1905.9, 1905.10, 1914.6, 1914.7, 1914.8
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X	ACI 318: 5.11-5.13	1905.11, 1905.13, 1914.9

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CAST-IN-PLACE CONCRETE

DESCRIPTION

THESE SPECIFICATIONS DESCRIBE CAST-IN-PLACE CONCRETE REQUIREMENTS FOR THE LETDOWN BUILDING STRUCTURE ADJACENT TO THE BIKE PATH OF THE I-74 MISSISSIPPI RIVER CROSSING MAIN BRIDGE. THESE SPECIFICATIONS EXCLUDE THE PEDESTRIAN BRIDGE CONCRETE.

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 THE FOLLOWING:
   1. FOOTINGS.
   2. FOUNDATION WALLS.
   3. SLABS-ON-GRADE
   4. CONCRETE TOPPING ON METAL DECK.

1.2 DEFINITIONS

A. CEMENTITIOUS MATERIALS: PORTLAND CEMENT ALONE OR IN COMBINATION WITH ONE OR MORE OF THE FOLLOWING: BLENDED HYDRAULIC CEMENT, FLY ASH AND OTHER POZZOLANS, GROUND GRANULATED BLAST-FURNACE SLAG, AND SILICA FUME; SUBJECT TO COMPLIANCE WITH REQUIREMENTS.

1.3 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.
C. STEEL REINFORCEMENT SHOP DRAWINGS: PLACING DRAWINGS THAT DETAIL FABRICATION, BENDING, 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. MATERIAL TEST REPORTS: FOR THE FOLLOWING, FROM A QUALIFIED TESTING AGENCY, INDICATING COMPLIANCE WITH REQUIREMENTS:
   1. AGGREGATES.
E. MATERIAL CERTIFICATES: FOR EACH OF THE FOLLOWING, SIGNED BY MANUFACTURERS:
   1. CEMENTITIOUS MATERIALS.
   2. ADMIXTURES.
   3. STEEL REINFORCEMENT AND ACCESSORIES.
   4. WATERSTOPS.
   5. VAPOR RETARDERS.

1.4 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS: A FIRM EXPERIENCED IN MANUFACTURING READY-MIXED CONCRETE PRODUCTS AND THAT COMPLIES WITH ASTM C 94/C 94M REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT.
B. SOURCE LIMITATIONS: OBTAIN EACH TYPE OR CLASS OF CEMENTITIOUS MATERIAL OF THE SAME BRAND FROM THE SAME MANUFACTURER'S PLANT, OBTAIN AGGREGATE FROM ONE SOURCE, AND OBTAIN ADMIXTURES THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER.
C. ACI PUBLICATIONS: COMPLY WITH THE FOLLOWING UNLESS MODIFIED BY REQUIREMENTS IN THE CONTRACT DOCUMENTS:
   1. ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE," SECTIONS 1 THROUGH 5.
   2. ACI 117, "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS."
D. CONCRETE TESTING SERVICE: ENGAGE A QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM MATERIAL EVALUATION TESTS AND TO DESIGN CONCRETE MIXTURES.

1.5 DELIVERY, STORAGE, AND HANDLING

A. STEEL REINFORCEMENT: DELIVER, STORE, AND HANDLE STEEL REINFORCEMENT TO PREVENT BENDING AND DAMAGE.
B. WATERSTOPS: STORE WATERSTOPS UNDER COVER TO PROTECT FROM MOISTURE, SUNLIGHT, DIRT, OIL, AND OTHER CONTAMINANTS.

PART 2 PRODUCTS

2.1 FORM-FACING MATERIALS

A. SMOOTH-FORMED FINISHED CONCRETE: FORM-FACING PANELS THAT WILL PROVIDE CONTINUOUS, TRUE, AND SMOOTH CONCRETE SURFACES. FURNISH IN LARGEST PRACTICABLE SIZES TO MINIMIZE NUMBER OF JOINTS.
   1. PLYWOOD, METAL, OR OTHER APPROVED PANEL MATERIALS.
B. 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.
C. CHAMFER STRIPS: WOOD, METAL, PVC, OR RUBBER STRIPS, 3/4 BY 3/4 INCH (19 BY 19 MM), MINIMUM.
D. 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.
   1. FORMULATE FORM-RELEASE AGENT WITH RUST INHIBITOR FOR STEEL FORM-FACING MATERIALS.
E. 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 (25 MM) TO THE PLANE OF EXPOSED CONCRETE SURFACE.
   2. FURNISH TIES THAT, WHEN REMOVED, WILL LEAVE HOLES NO LARGER THAN 1 INCH (25 MM) IN DIAMETER IN CONCRETE SURFACE.
   3. FURNISH TIES WITH INTEGRAL WATER-BARRIER PLATES TO WALLS INDICATED TO RECEIVE DAMPPROOFING OR WATERPROOFING.

2.2 STEEL REINFORCEMENT

A. REINFORCING BARS: ASTM A 615/A 615M, GRADE 60 (GRADE 420), DEFORMED. WHERE WELDING IS INDICATED ON REINFORCING BARS, PROVIDE ASTM A 706, GRADE 60, DEFORMED.
B. PLAIN-STEEL WIRE: ASTM A 82, AS DRAWN.
C. PLAIN-STEEL WELDED WIRE REINFORCEMENT: ASTM A 185, PLAIN, FABRICATED FROM AS-DRAWN STEEL WIRE INTO FLAT SHEETS.

2.3 REINFORCEMENT ACCESSORIES

A. BAR SUPPORTS: BOLSTERS, CHAIRS, SPACERS, AND OTHER DEVICES FOR SPACING, SUPPORTING, AND FASTENING REINFORCING BARS AND WELDED WIRE REINFORCEMENT IN PLACE. MANUFACTURE BAR SUPPORTS FROM STEEL WIRE, PLASTIC, OR PRECAST CONCRETE ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE," OF GREATER COMPRESSIVE STRENGTH THAN CONCRETE AND AS FOLLOWS:
   1. FOR CONCRETE SURFACES EXPOSED TO VIEW WHERE LEGS OF WIRE BAR SUPPORTS CONTACT FORMS, USE CRSI CLASS 1 PLASTIC-PROTECTED STEEL WIRE OR CRSI CLASS 2 STAINLESS-STEEL BAR SUPPORTS.

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 I, GRAY. SUPPLEMENT WITH THE FOLLOWING:
      a. FLY ASH: ASTM C 618, CLASS C. FOR FLOOR SLABS, CONTRACTOR SHALL CONFIRM WITH FLOORING MANUFACTURER THAT ADHESIVES, STAINS, ETC., ARE COMPATIBLE WITH CONCRETE CONTAINING FLY ASH. PROVIDE STATEMENT WITH PRODUCT DATA SUBMITTAL.
B. NORMAL-WEIGHT AGGREGATES: ASTM C 33, CLASS 3S COARSE AGGREGATE OR BETTER, GRADED. PROVIDE AGGREGATES FROM A SINGLE SOURCE.
   1. MAXIMUM COARSE-AGGREGATE SIZE: 1 INCH (25 MM) NOMINAL.
   2. FINE AGGREGATE: FREE OF MATERIALS WITH DELETERIOUS REACTIVITY TO ALKALI IN CEMENT.
C. WATER: ASTM C 94/C 94M AND POTABLE.
D. SEE COLORED CONCRETE INFORMATION NEAR END OF THIS SPECIFICATION.

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. HIGH-RANGE, WATER-REDUCING ADMIXTURE: ASTM C 494/C 494M, TYPE F.

2.6 WATERSTOPS

A. PVC DUMBBELL WITH CENTERBULB TYPE WATERSTOP WITH MINIMUM 150' HEAD PRESSURE REQUIREMENT. GREENSTREAK OR OTHER APPROVED MANUFACTURER.
B. SELF-EXPANDING BUTYL STRIP WATERSTOPS: MANUFACTURED RECTANGULAR OR TRAPEZOIDAL STRIP, BUTYL RUBBER WITH SODIUM BENTONITE OR OTHER HYDROPHILIC POLYMERS, FOR ADHESIVE BONDING TO CONCRETE, 3/4 BY 1 INCH (19 BY 25 MM).

2.7 VAPOR RETARDERS

A. PLASTIC VAPOR RETARDER: ASTM E 1745, CLASS A. INCLUDE MANUFACTURER'S RECOMMENDED ADHESIVE OR PRESSURE-SENSITIVE TAPE.
   1. MINIMUM THICKNESS 15 MIL
   2. WATER VAPOR PERMEANCE, ASTM E 96 0.025 PERMS OR BETTER
   3. TENSILE STRENGTH, ASTM D882 70 LB/IN MINIMUM
   4. PUNCTURE RESISTANCE, ASTM D1709 2400 GRAMS MINIMUM

2.8 CURING MATERIALS

A. ABSORPTIVE COVER: AASHTO M 182, CLASS 2, BURLAP CLOTH MADE FROM JUTE OR KENAF, WEIGHING APPROXIMATELY 9 OZ./SQ. YD. (305 G/SQ. M) WHEN DRY.
B. WATER: POTABLE.

2.9 RELATED MATERIALS

A. EXPANSION- AND ISOLATION-JOINT-FILLER STRIPS: ASTM D 1751, ASPHALT-SATURATED CELLULOSIC FIBER.
B. BONDING AGENT: ASTM C 1059, TYPE II, NON-REDISPERSIBLE, ACRYLIC EMULSION OR STYRENE BUTADIENE.

2.10 REPAIR MATERIALS

A. REPAIR UNDERLAYMENT: CEMENT-BASED, POLYMER-MODIFIED, SELF-LEVELING PRODUCT THAT CAN BE APPLIED IN THICKNESSES FROM 1/8 INCH (3.2 MM) AND THAT CAN BE FEATHERED AT EDGES TO MATCH ADJACENT FLOOR ELEVATIONS.
   1. CEMENT BINDER: ASTM C 150, PORTLAND CEMENT OR HYDRAULIC OR BLENDED HYDRAULIC CEMENT AS DEFINED IN ASTM C 219.
   2. PRIMER: PRODUCT OF UNDERLAYMENT MANUFACTURER RECOMMENDED FOR SUBSTRATE, CONDITIONS, AND APPLICATION.
   3. AGGREGATE: WELL-GRADED, WASHED GRAVEL, 1/8 TO 1/4 INCH (3.2 TO 6 MM) OR COARSE SAND AS RECOMMENDED BY UNDERLAYMENT MANUFACTURER.
   4. COMPRESSIVE STRENGTH: NOT LESS THAN 4100 PSI (29 MPA) AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C 109/C 109M.

2.11 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.
   1. 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. FLY ASH SHALL NOT BE USED IN SLAB ON GRADE OR UPPER FLOOR CONCRETE TOPPING ON DECK.
C. LIMIT WATER-SOLUBLE, CHLORIDE-ION CONTENT IN HARDENED CONCRETE TO 0.30 PERCENT BY WEIGHT OF CEMENT.
D. ADMIXTURES: USE ADMIXTURES ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
   1. USE HIGH-RANGE WATER-REDUCING ADMIXTURE IN CONCRETE, AS REQUIRED, FOR PLACEMENT AND WORKABILITY.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. FOOTINGS: PROPORTION NORMAL-WEIGHT CONCRETE MIXTURE AS FOLLOWS:
   1. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI (27.6 MPA) AT 28 DAYS.
   2. MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO: 0.45.
   3. SLUMP LIMIT: 8 INCHES (200 MM) FOR CONCRETE WITH VERIFIED SLUMP OF 2 TO 4 INCHES (50 TO 100 MM) BEFORE ADDING HIGH-RANGE WATER-REDUCING ADMIXTURE OR PLASTICIZING ADMIXTURE, PLUS OR MINUS 1 INCH (25 MM).
   4. AIR CONTENT: 6 PERCENT, PLUS OR MINUS 1.5 PERCENT AT POINT OF DELIVERY FOR 1-INCH (25-MM) NOMINAL MAXIMUM AGGREGATE SIZE.
B. FOUNDATION WALLS: PROPORTION NORMAL-WEIGHT CONCRETE MIXTURE AS FOLLOWS:
   1. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI (27.6 MPA) AT 28 DAYS.
   2. MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO: 0.45.
   3. SLUMP LIMIT: 8 INCHES (200 MM) FOR CONCRETE WITH VERIFIED SLUMP OF 2 TO 4 INCHES (50 TO 100 MM) BEFORE ADDING HIGH-RANGE WATER-REDUCING ADMIXTURE OR PLASTICIZING ADMIXTURE, PLUS OR MINUS 1 INCH (25 MM).
   4. AIR CONTENT: 6 PERCENT, PLUS OR MINUS 1.5 PERCENT AT POINT OF DELIVERY FOR 1-INCH (25-MM) NOMINAL MAXIMUM AGGREGATE SIZE.
C. SLABS-ON-GRADE: PROPORTION NORMAL-WEIGHT CONCRETE MIXTURE AS FOLLOWS:
   1. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI (27.6 MPA) AT 28 DAYS.
   2. MINIMUM CEMENTITIOUS MATERIALS CONTENT: 520 LB/CU. YD.
   3. SLUMP LIMIT: 4 INCHES (100 MM), PLUS OR MINUS 1 INCH (25 MM).
   4. AIR CONTENT: DO NOT ALLOW AIR CONTENT OF TROWELED FINISHED FLOORS TO EXCEED 3 PERCENT.
D. CONCRETE TOPPING ON METAL DECK: PROPORTION NORMAL-WEIGHT CONCRETE MIXTURES AS FOLLOWS:
   1. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI (27.6 MPA) AT 28 DAYS.
   2. MINIMUM CEMENTITIOUS MATERIALS CONTENT: 520 LB/CU. YD.
   3. SLUMP LIMIT: 4 INCHES (100 MM), PLUS OR MINUS 1 INCH (25 MM).
   4. AIR CONTENT: DO NOT ALLOW AIR CONTENT OF TROWELED FINISHED FLOORS TO EXCEED 3 PERCENT.

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ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL SPECIFICATIONS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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CAST-IN-PLACE CONCRETE, CONTINUED

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

2.14 CONCRETE MIXING
- A. READY-MIXED CONCRETE: MEASURE, BATCH, MIX, AND DELIVER CONCRETE ACCORDING TO ASTM C 94/C 94M, AND FURNISH BATCH TICKET INFORMATION.
  - 1. WHEN AIR TEMPERATURE IS BETWEEN 85 AND 90 DEG F (30 AND 32 DEG C), REDUCE MIXING AND DELIVERY TIME FROM 1-1/2 HOURS TO 75 MINUTES; WHEN AIR TEMPERATURE IS ABOVE 90 DEG F (32 DEG C), REDUCE MIXING AND DELIVERY TIME TO 60 MINUTES.

PART 3 EXECUTION

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 FOLLOWS:
  - 1. CLASS A, 1/8 INCH (3.2 MM) FOR SMOOTH-FORMED FINISHED SURFACES.
  - 2. CLASS B, 1/4 INCH (6 MM) 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. PROVIDE TOP FORMS FOR INCLINED SURFACES STEEPER THAN 1.5 HORIZONTAL TO 1 VERTICAL.
  - 1. INSTALL KEYWAYS, REGLETS, RECESSES, AND THE LIKE, FOR EASY REMOVAL.
  - 2. DO NOT USE RUST-STAINED STEEL FORM-FACING MATERIAL.
- F. SET EDGE FORMS, BULKHEADS, AND INTERMEDIATE SCREED STRIPS FOR SLABS TO ACHIEVE REQUIRED ELEVATIONS AND SLOPES IN FINISHED CONCRETE SURFACES. PROVIDE AND SECURE UNITS TO SUPPORT SCREED STRIPS; USE STRIKE-OFF TEMPLATES OR COMPACTING-TYPE SCREEDS.
- G. 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.
- H. CHAMFER EXTERIOR CORNERS AND EDGES OF PERMANENTLY EXPOSED CONCRETE.
- I. FORM OPENINGS, CHASES, OFFSETS, SINKAGES, KEYWAYS, REGLETS, BLOCKING, SCREEDS, AND BULKHEADS REQUIRED IN THE WORK. DETERMINE SIZES AND LOCATIONS FROM TRADES PROVIDING SUCH ITEMS.
- J. CLEAN FORMS AND ADJACENT SURFACES TO RECEIVE CONCRETE. REMOVE CHIPS, WOOD, SAWDUST, DIRT, AND OTHER DEBRIS JUST BEFORE PLACING CONCRETE.
- K. RETIGHTEN FORMS AND BRACING BEFORE PLACING CONCRETE, AS REQUIRED, TO PREVENT MORTAR LEAKS AND MAINTAIN PROPER ALIGNMENT.
- L. COAT CONTACT SURFACES OF FORMS WITH FORM-RELEASE AGENT, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, BEFORE PLACING REINFORCEMENT.

3.2 EMBEDDED ITEMS
- A. PLACE AND SECURE ANCHORAGE DEVICES AND OTHER EMBEDDED ITEMS REQUIRED FOR ADJOINING WORK THAT IS ATTACHED TO OR SUPPORTED BY CAST-IN-PLACE CONCRETE. USE SETTING DRAWINGS, TEMPLATES, DIAGRAMS, INSTRUCTIONS, AND DIRECTIONS FURNISHED WITH ITEMS TO BE EMBEDDED.
  - 1. INSTALL ANCHOR RODS, ACCURATELY LOCATED, TO ELEVATIONS REQUIRED AND COMPLYING WITH TOLERANCES IN SECTION 7.5 OF AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

3.3 REMOVING AND REUSING FORMS
- A. GENERAL: FORMWORK FOR SIDES OF BEAMS, WALLS, COLUMNS, AND SIMILAR PARTS OF THE WORK THAT DOES NOT SUPPORT WEIGHT OF CONCRETE MAY BE REMOVED AFTER CUMULATIVELY CURING AT NOT LESS THAN 50 DEG F (10 DEG C) FOR 24 HOURS AFTER PLACING CONCRETE, IF CONCRETE IS HARD ENOUGH TO NOT BE DAMAGED BY FORM-REMOVAL OPERATIONS AND CURING AND PROTECTION OPERATIONS ARE MAINTAINED.
  - 1. LEAVE FORMWORK FOR BEAM SOFFITS, JOISTS, SLABS, AND OTHER STRUCTURAL ELEMENTS THAT SUPPORTS WEIGHT OF CONCRETE IN PLACE UNTIL CONCRETE HAS ACHIEVED AT LEAST 70 PERCENT OF ITS 28-DAY DESIGN COMPRESSIVE STRENGTH.
  - 2. REMOVE FORMS ONLY IF SHORES HAVE BEEN ARRANGED TO PERMIT REMOVAL OF FORMS WITHOUT LOOSENING OR DISTURBING SHORES.
- B. CLEAN AND REPAIR SURFACES OF FORMS TO BE REUSED IN THE WORK. SPLIT, FRAYED, DELAMINATED, OR OTHERWISE DAMAGED FORM-FACING MATERIAL WILL NOT BE ACCEPTABLE FOR EXPOSED SURFACES.
  APPLY NEW FORM-RELEASE AGENT.
- C. WHEN FORMS ARE REUSED, CLEAN SURFACES, REMOVE FINS AND LAITANCE, AND TIGHTEN TO CLOSE JOINTS. ALIGN AND SECURE JOINTS TO AVOID OFFSETS. DO NOT USE PATCHED FORMS FOR EXPOSED CONCRETE SURFACES UNLESS APPROVED BY ARCHITECT.

3.4 VAPOR RETARDERS
- A. PLASTIC VAPOR RETARDERS: PLACE, PROTECT, AND REPAIR VAPOR RETARDERS ACCORDING TO ASTM E 1643 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
  - 1. LAP JOINTS 6 INCHES (150 MM) AND SEAL WITH MANUFACTURERS RECOMMENDED TAPE.

3.5 STEEL REINFORCEMENT
- A. GENERAL: COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR PLACING REINFORCEMENT.
  - 1. DO NOT CUT OR PUNCTURE VAPOR RETARDER. REPAIR DAMAGE AND RESEAL VAPOR RETARDER BEFORE PLACING CONCRETE.
- B. CLEAN REINFORCEMENT OF LOOSE RUST AND MILL SCALE, EARTH, ICE, AND OTHER FOREIGN MATERIALS THAT WOULD REDUCE BOND TO CONCRETE.
- C. ACCURATELY POSITION, SUPPORT, AND SECURE REINFORCEMENT AGAINST DISPLACEMENT. LOCATE AND SUPPORT REINFORCEMENT WITH BAR SUPPORTS TO MAINTAIN MINIMUM CONCRETE COVER. DO NOT TACK WELD CROSSING REINFORCING BARS.
- D. SET WIRE TIES WITH ENDS DIRECTED INTO CONCRETE, NOT TOWARD EXPOSED CONCRETE SURFACES.
- E. INSTALL WELDED WIRE REINFORCEMENT IN LONGEST PRACTICABLE LENGTHS ON BAR SUPPORTS SPACE TO MINIMIZE SAGGING. LAP EDGES AND ENDS OF ADJOINING SHEETS AT LEAST ONE MESH SPACING. OFFSET LAPS OF ADJOINING SHEET WIDTHS TO PREVENT CONTINUOUS LAPS IN EITHER DIRECTION. LACE OVERLAPS WITH WIRE.

3.6 JOINTS
- A. GENERAL: CONSTRUCT JOINTS TRUE TO LINE WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE.
- B. CONSTRUCTION JOINTS: INSTALL SO STRENGTH AND APPEARANCE OF CONCRETE ARE NOT IMPAIRED, AT LOCATIONS INDICATED OR AS APPROVED BY ENGINEER.
  - 1. FORM KEYED JOINTS AS INDICATED. EMBED KEYS AT LEAST 1-1/2 INCHES (38 MM) INTO CONCRETE.
  - 2. SPACE VERTICAL JOINTS IN WALLS AS INDICATED. LOCATE JOINTS BESIDE PIERS INTEGRAL WITH WALLS, NEAR CORNERS, AND IN CONCEALED LOCATIONS WHERE POSSIBLE.
  - 3. USE A BONDING AGENT AT LOCATIONS WHERE FRESH CONCRETE IS PLACED AGAINST HARDENED OR PARTIALLY HARDENED CONCRETE SURFACES.
- C. CONTRACTION JOINTS IN SLABS-ON-GRADE: FORM WEAKENED-PLANE CONTRACTION JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED. CONSTRUCT CONTRACTION JOINTS FOR A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF CONCRETE THICKNESS AS FOLLOWS:
  - 1. SAWED JOINTS: FORM CONTRACTION JOINTS WITH POWER SAWS EQUIPPED WITH SHATTERPROOF ABRASIVE OR DIAMOND-RIMMED BLADES. CUT 1/8-INCH- (3.2-MM-) WIDE JOINTS INTO CONCRETE WHEN CUTTING ACTION WILL NOT TEAR, ABRADE, OR OTHERWISE DAMAGE SURFACE AND BEFORE CONCRETE DEVELOPS RANDOM CONTRACTION CRACKS.
- D. ISOLATION JOINTS IN SLABS-ON-GRADE: AFTER REMOVING FORMWORK, INSTALL JOINT-FILLER STRIPS AT SLAB JUNCTIONS WITH VERTICAL SURFACES, SUCH AS COLUMN PEDESTALS, FOUNDATION WALLS, GRADE BEAMS, AND OTHER LOCATIONS, AS INDICATED.
  - 1. TERMINATE FULL-WIDTH JOINT-FILLER STRIPS NOT LESS THAN 1/2 INCH (13 MM) OR MORE THAN 1 INCH (25 MM) BELOW FINISHED CONCRETE SURFACE WHERE JOINT SEALANTS, SPECIFIED IN DIVISION 07 SECTION "JOINT SEALANTS," ARE INDICATED.
  - 2. INSTALL JOINT-FILLER STRIPS IN LENGTHS AS LONG AS PRACTICABLE. WHERE MORE THAN ONE
     LENGTH IS REQUIRED, LACE OR CLIP SECTIONS TOGETHER.

3.7 WATERSTOPS
- A. SELF-EXPANDING STRIP WATERSTOPS: INSTALL IN CONSTRUCTION JOINTS AND AT OTHER LOCATIONS INDICATED, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, ADHESIVE BONDING, MECHANICALLY FASTENING, AND FIRMLY PRESSING INTO PLACE. INSTALL IN LONGEST LENGTHS PRACTICABLE.

3.8 CONCRETE PLACEMENT
- A. BEFORE PLACING CONCRETE, VERIFY THAT INSTALLATION OF FORMWORK, REINFORCEMENT, AND EMBEDDED ITEMS IS COMPLETE AND THAT REQUIRED INSPECTIONS HAVE BEEN PERFORMED.
- B. DO NOT ADD WATER TO CONCRETE DURING DELIVERY, AT PROJECT SITE, OR DURING PLACEMENT UNLESS APPROVED BY ARCHITECT.
- C. DEPOSIT CONCRETE CONTINUOUSLY IN ONE LAYER OR IN HORIZONTAL LAYERS OF SUCH THICKNESS THAT NO NEW CONCRETE WILL BE PLACED ON CONCRETE THAT HAS HARDENED ENOUGH TO CAUSE SEAMS OR PLANES OF WEAKNESS. IF A SECTION CANNOT BE PLACED CONTINUOUSLY, PROVIDE CONSTRUCTION JOINTS AS INDICATED. DEPOSIT CONCRETE TO AVOID SEGREGATION.
  - 1. DEPOSIT CONCRETE IN HORIZONTAL LAYERS OF DEPTH TO NOT EXCEED FORMWORK DESIGN PRESSURES AND IN A MANNER TO AVOID INCLINED CONSTRUCTION JOINTS.
  - 2. CONSOLIDATE PLACED CONCRETE WITH MECHANICAL VIBRATING EQUIPMENT ACCORDING TO ACI 301.
  - 3. DO NOT USE VIBRATORS TO TRANSPORT CONCRETE INSIDE FORMS. INSERT AND WITHDRAW VIBRATORS VERTICALLY AT UNIFORMLY SPACED LOCATIONS TO RAPIDLY PENETRATE PLACED LAYER AND AT LEAST 6 INCHES (150 MM) 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 CAUSING MIXTURE CONSTITUENTS TO SEGREGATE.
- D. DEPOSIT AND CONSOLIDATE CONCRETE FOR FLOORS AND SLABS IN A CONTINUOUS OPERATION, WITHIN LIMITS OF CONSTRUCTION JOINTS, UNTIL PLACEMENT OF A PANEL OR SECTION IS COMPLETE.
  - 1. CONSOLIDATE CONCRETE DURING PLACEMENT OPERATIONS SO CONCRETE IS THOROUGHLY WORKED AROUND REINFORCEMENT AND OTHER EMBEDDED ITEMS AND INTO CORNERS.
  - 2. MAINTAIN REINFORCEMENT IN POSITION ON CHAIRS DURING CONCRETE PLACEMENT.
  - 3. SCREED SLAB SURFACES WITH A STRAIGHTEDGE AND STRIKE OFF TO CORRECT ELEVATIONS.
  - 4. SLOPE SURFACES UNIFORMLY TO DRAINS WHERE REQUIRED.
  - 5. BEGIN INITIAL FLOATING USING BULL FLOATS OR DARBIES TO FORM A UNIFORM AND OPEN-TEXTURED SURFACE PLANE, BEFORE EXCESS BLEEDWATER APPEARS ON THE SURFACE. DO NOT FURTHER DISTURB SLAB SURFACES BEFORE STARTING FINISHING OPERATIONS.
- E. COLD-WEATHER PLACEMENT: COMPLY WITH ACI 306.1 AND AS FOLLOWS. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST, FREEZING ACTIONS, OR LOW TEMPERATURES.
  - 1. WHEN AVERAGE HIGH AND LOW TEMPERATURE IS EXPECTED TO FALL BELOW 40 DEG F (4.4 DEG C) FOR THREE SUCCESSIVE DAYS, MAINTAIN DELIVERED CONCRETE MIXTURE TEMPERATURE WITHIN THE TEMPERATURE RANGE REQUIRED BY ACI 301.
  - 2. DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS.
  - 3. DO NOT USE CALCIUM CHLORIDE, SALT, OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS UNLESS OTHERWISE SPECIFIED AND APPROVED IN MIXTURE DESIGNS.
- F. HOT-WEATHER PLACEMENT: COMPLY WITH ACI 301 AND AS FOLLOWS:
  - 1. MAINTAIN CONCRETE TEMPERATURE BELOW 90 DEG F (32 DEG C) AT TIME OF PLACEMENT. CHILLED MIXING WATER OR CHOPPED ICE MAY BE USED TO CONTROL TEMPERATURE, PROVIDED WATER EQUIVALENT OF ICE IS CALCULATED TO TOTAL AMOUNT OF MIXING WATER. USING LIQUID NITROGEN TO COOL CONCRETE IS CONTRACTOR'S OPTION.
  - 2. FOG-SPRAY FORMS, STEEL REINFORCEMENT, AND SUBGRADE JUST BEFORE PLACING CONCRETE. KEEP SUBGRADE UNIFORMLY MOIST WITHOUT STANDING WATER, SOFT SPOTS, OR DRY AREAS.

3.9 FINISHING FORMED SURFACES
- 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 EXCEED SPECIFIED LIMITS ON FORMED-SURFACE IRREGULARITIES.
  - 1. APPLY TO CONCRETE SURFACES NOT EXPOSED TO PUBLIC VIEW.
- B. SMOOTH-FORMED FINISH: AS-CAST CONCRETE TEXTURE IMPARTED BY FORM-FACING MATERIAL, ARRANGED IN AN ORDERLY AND SYMMETRICAL MANNER WITH A MINIMUM OF SEAMS. REPAIR AND PATCH TIE HOLES AND DEFECTS. REMOVE FINS AND OTHER PROJECTIONS THAT EXCEED SPECIFIED LIMITS ON FORMED-SURFACE IRREGULARITIES.
  - 1. APPLY TO CONCRETE SURFACES EXPOSED TO PUBLIC VIEW, TO BE COVERED WITH A COATING OR COVERING MATERIAL APPLIED DIRECTLY TO CONCRETE .
- C. RELATED UNFORMED SURFACES: AT TOPS OF WALLS, HORIZONTAL OFFSETS, AND SIMILAR UNFORMED SURFACES ADJACENT TO FORMED SURFACES, STRIKE OFF SMOOTH AND FINISH WITH A TEXTURE MATCHING ADJACENT FORMED SURFACES. CONTINUE FINAL SURFACE TREATMENT OF FORMED SURFACES UNIFORMLY ACROSS ADJACENT UNFORMED SURFACES, UNLESS OTHERWISE INDICATED.

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CAST-IN-PLACE CONCRETE, CONTINUED

3.10 FINISHING FLOORS AND SLABS

A. GENERAL: COMPLY WITH ACI 302.1R RECOMMENDATIONS FOR SCREEDING, RESTRAIGHTENING, AND FINISHING OPERATIONS FOR CONCRETE SURFACES. DO NOT WET CONCRETE SURFACES.

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, AND FILL LOW SPOTS. REPEAT FLOAT PASSES AND RESTRAIGHTENING UNTIL SURFACE IS LEFT WITH A UNIFORM, SMOOTH, GRANULAR TEXTURE.
   1. APPLY FLOAT FINISH TO SURFACES TO RECEIVE TROWEL FINISH.

C. TROWEL FINISH: AFTER APPLYING FLOAT FINISH, APPLY FIRST TROWELING AND CONSOLIDATE CONCRETE BY HAND OR POWER-DRIVEN TROWEL. CONTINUE TROWELING PASSES AND RESTRAIGHTEN UNTIL SURFACE IS FREE OF TROWEL MARKS AND UNIFORM IN TEXTURE AND APPEARANCE. GRIND SMOOTH ANY SURFACE DEFECTS THAT WOULD TELEGRAPH THROUGH APPLIED COATINGS OR FLOOR COVERINGS.
   1. APPLY A TROWEL FINISH TO SURFACES EXPOSED TO VIEW OR TO BE COVERED WITH RESILIENT FLOORING, CARPET, CERAMIC OR QUARRY TILE SET OVER A CLEAVAGE MEMBRANE, PAINT, OR ANOTHER THIN-FILM-FINISH COATING SYSTEM .
   2. FINISH SURFACES TO THE FOLLOWING TOLERANCES, ACCORDING TO ASTM E 1155 (ASTM E 1155M), FOR A RANDOMLY TRAFFICKED FLOOR SURFACE:
      a. SPECIFIED OVERALL VALUES OF FLATNESS, F(F) 35; AND OF LEVELNESS, F(L) 25; WITH MINIMUM LOCAL VALUES OF FLATNESS, F(F) 24; AND OF LEVELNESS, F(L) 17; FOR SLABS-ON-GRADE.
      b. SPECIFIED OVERALL VALUES OF FLATNESS, F(F); AND OF LEVELNESS, F(L) 20; WITH MINIMUM LOCAL VALUES OF FLATNESS, F(F) 24; AND OF LEVELNESS, F(L) 15; FOR SUSPENDED SLABS.
   3. FINISH AND MEASURE SURFACE SO GAP AT ANY POINT BETWEEN CONCRETE SURFACE AND AN UNLEVELED, FREESTANDING, 10-FOOT- (3.05-M-) LONG STRAIGHTEDGE RESTING ON 2 HIGH SPOTS AND PLACED ANYWHERE ON THE SURFACE DOES NOT EXCEED 3/16 INCH (4.8 MM).

D. BROOM FINISH: APPLY A BROOM FINISH TO EXTERIOR CONCRETE PLATFORMS, STEPS, AND RAMPS, AND ELSEWHERE AS INDICATED.
   1. IMMEDIATELY AFTER FLOAT FINISHING, SLIGHTLY ROUGHEN TRAFFICKED SURFACE BY BROOMING WITH FIBER-BRISTLE BROOM PERPENDICULAR TO MAIN TRAFFIC ROUTE. COORDINATE REQUIRED
   FINAL FINISH WITH ARCHITECT BEFORE APPLICATION.

3.11 MISCELLANEOUS CONCRETE ITEMS

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 FILLING INDICATED OR REQUIRED TO COMPLETE THE WORK.

B. CURBS: PROVIDE MONOLITHIC FINISH TO INTERIOR CURBS BY STRIPPING FORMS WHILE CONCRETE IS STILL GREEN AND BY STEEL-TROWELING SURFACES TO A HARD, DENSE FINISH WITH CORNERS, INTERSECTIONS, AND TERMINATIONS SLIGHTLY ROUNDED.

C. EQUIPMENT BASES AND FOUNDATIONS: PROVIDE MACHINE AND EQUIPMENT BASES AND FOUNDATIONS AS SHOWN ON DRAWINGS. SET ANCHOR BOLTS FOR MACHINES AND EQUIPMENT AT CORRECT ELEVATIONS, COMPLYING WITH DIAGRAMS OR TEMPLATES FROM MANUFACTURER FURNISHING MACHINES AND EQUIPMENT.

D. STEEL PAN STAIRS: PROVIDE CONCRETE FILL FOR STEEL PAN STAIR TREADS, LANDINGS, AND ASSOCIATED ITEMS. CAST-IN INSERTS AND ACCESSORIES AS SHOWN ON DRAWINGS. SCREED, TAMP, AND TROWEL-FINISH CONCRETE SURFACES.

3.12 CONCRETE PROTECTING AND CURING

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. FORMED SURFACES: CURE FORMED CONCRETE SURFACES, INCLUDING UNDERSIDE OF BEAMS, 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.

C. UNFORMED SURFACES: BEGIN CURING IMMEDIATELY AFTER FINISHING CONCRETE. CURE UNFORMED
SURFACES, INCLUDING FLOORS AND SLABS, CONCRETE FLOOR TOPPINGS, AND OTHER SURFACES.

D. CURE CONCRETE ACCORDING TO ACI 308.1, BY ONE OR A COMBINATION OF THE FOLLOWING METHODS:
   1. MOISTURE CURING: KEEP SURFACES CONTINUOUSLY MOIST FOR NOT LESS THAN SEVEN DAYS WITH THE FOLLOWING MATERIALS:
      a. WATER.
      b. CONTINUOUS WATER-FOG SPRAY.
      c. ABSORPTIVE COVER, WATER SATURATED, AND KEPT CONTINUOUSLY WET. COVER CONCRETE SURFACES AND EDGES WITH 12-INCH (300-MM) LAP OVER ADJACENT ABSORPTIVE COVERS.

3.13 JOINT FILLING

A. PREPARE, CLEAN, AND INSTALL JOINT FILLER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
   1. DEFER JOINT FILLING UNTIL CONCRETE HAS AGED AT LEAST ONE MONTH. DO NOT FILL JOINTS UNTIL CONSTRUCTION TRAFFIC HAS PERMANENTLY CEASED.

B. REMOVE DIRT, DEBRIS, SAW CUTTINGS, CURING COMPOUNDS, AND SEALERS FROM JOINTS; LEAVE CONTACT FACES OF JOINT CLEAN AND DRY.

3.14 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 APPROVAL.

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 (1.18-MM) 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 (13 MM) IN ANY DIMENSION IN SOLID CONCRETE, BUT NOT LESS THAN 1 INCH (25 MM) 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.
   2. REPAIR DEFECTS ON SURFACES EXPOSED TO VIEW BY BLENDING WHITE PORTLAND CEMENT AND STANDARD PORTLAND CEMENT SO THAT, WHEN DRY, PATCHING MORTAR WILL MATCH SURROUNDING COLOR. PATCH A TEST AREA AT INCONSPICUOUS LOCATIONS TO VERIFY MIXTURE AND COLOR MATCH BEFORE PROCEEDING WITH PATCHING. COMPACT MORTAR IN PLACE AND STRIKE OFF SLIGHTLY HIGHER THAN SURROUNDING SURFACE.
   3. REPAIR DEFECTS ON CONCEALED FORMED SURFACES THAT AFFECT CONCRETE'S DURABILITY AND STRUCTURAL PERFORMANCE AS DETERMINED BY ARCHITECT.

D. REPAIRING UNFORMED SURFACES: TEST UNFORMED SURFACES, SUCH AS FLOORS AND SLABS, FOR FINISH AND VERIFY SURFACE TOLERANCES SPECIFIED FOR EACH SURFACE. CORRECT LOW AND HIGH AREAS. TEST SURFACES SLOPED TO DRAIN FOR TRUENESS OF SLOPE AND SMOOTHNESS; USE A SLOPED TEMPLATE.
   1. REPAIR FINISHED SURFACES CONTAINING DEFECTS. SURFACE DEFECTS INCLUDE SPALLS, POPOUTS, HONEYCOMBS, ROCK POCKETS, CRAZING AND CRACKS IN EXCESS OF 0.01 INCH (0.25 MM) WIDE OR THAT PENETRATE TO REINFORCEMENT OR COMPLETELY THROUGH UNREINFORCED SECTIONS REGARDLESS OF WIDTH, AND OTHER OBJECTIONABLE CONDITIONS.
   2. AFTER CONCRETE HAS CURED AT LEAST 14 DAYS, CORRECT HIGH AREAS BY GRINDING.
   3. CORRECT LOCALIZED LOW AREAS DURING OR IMMEDIATELY AFTER COMPLETING SURFACE FINISHING OPERATIONS BY CUTTING OUT LOW AREAS AND REPLACING WITH PATCHING MORTAR. FINISH REPAIRED AREAS TO BLEND INTO ADJACENT CONCRETE.
   4. REPAIR DEFECTIVE AREAS, EXCEPT RANDOM CRACKS AND SINGLE HOLES 1 INCH (25 MM) OR LESS IN DIAMETER, BY CUTTING OUT AND REPLACING WITH FRESH CONCRETE. REMOVE DEFECTIVE AREAS WITH CLEAN, SQUARE CUTS AND EXPOSE STEEL REINFORCEMENT WITH AT LEAST A 3/4-INCH (19-MM) CLEARANCE ALL AROUND. DAMPEN CONCRETE SURFACES IN CONTACT WITH PATCHING CONCRETE AND APPLY BONDING AGENT. MIX PATCHING CONCRETE OF SAME MATERIALS AND MIXTURE AS ORIGINAL CONCRETE EXCEPT WITHOUT COARSE AGGREGATE. PLACE, COMPACT, AND FINISH TO BLEND WITH ADJACENT FINISHED CONCRETE. CURE IN SAME MANNER AS ADJACENT CONCRETE.
   5. REPAIR RANDOM CRACKS AND SINGLE HOLES 1 INCH (25 MM) OR LESS IN DIAMETER WITH PATCHING MORTAR. GROOVE TOP OF CRACKS AND CUT OUT HOLES TO SOUND CONCRETE AND CLEAN OFF DUST, DIRT, AND LOOSE PARTICLES. DAMPEN CLEANED CONCRETE SURFACES AND APPLY BONDING AGENT. PLACE PATCHING MORTAR BEFORE BONDING AGENT HAS DRIED. COMPACT PATCHING MORTAR AND FINISH TO MATCH ADJACENT CONCRETE. KEEP PATCHED AREA CONTINUOUSLY MOIST FOR AT LEAST 72 HOURS.

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

3.15 FIELD QUALITY CONTROL

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

B. INSPECTIONS:
   1. STEEL REINFORCEMENT PLACEMENT.
   2. HEADED BOLTS AND STUDS.
   3. VERIFICATION OF USE OF REQUIRED DESIGN MIXTURE.
   4. CONCRETE PLACEMENT, INCLUDING CONVEYING AND DEPOSITING.
   5. 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 AT LEAST ONE COMPOSITE SAMPLE FOR EACH 100 CU. YD. (76 CU. M) OR FRACTION THEREOF OF EACH CONCRETE MIXTURE PLACED EACH DAY.
      a. 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/C 143M; ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE FIXTURE. 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/C 1064M; ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEG F (4.4 DEG C) AND BELOW AND WHEN 80 DEG F (27 DEG C) AND ABOVE, AND ONE TEST FOR EACH COMPOSITE SAMPLE.
   5. COMPRESSION TEST SPECIMENS: ASTM C 31/C 31M.
      a. CAST AND LABORATORY CURE TWO SETS OF TWO STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE.
   6. COMPRESSIVE-STRENGTH TESTS: ASTM C 39/C 39M; TEST ONE SET OF TWO LABORATORY-CURED SPECIMENS AT 7 DAYS AND ONE SET OF TWO SPECIMENS AT 28 DAYS.
      a. 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 INDICATED.
   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 (3.4 MPA).
   8. TEST RESULTS SHALL BE REPORTED IN WRITING TO 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. NONDESTRUCTIVE TESTING: IMPACT HAMMER, SONOSCOPE, OR OTHER NONDESTRUCTIVE DEVICE MAY BE PERMITTED BY ARCHITECT BUT WILL NOT BE USED AS SOLE BASIS FOR APPROVAL OR REJECTION OF CONCRETE.
   10. 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 ARCHITECT. TESTING AND INSPECTING AGENCY MAY CONDUCT TESTS TO DETERMINE ADEQUACY OF CONCRETE BY CORED CYLINDERS COMPLYING WITH ASTM C 42/C 42M OR BY OTHER METHODS AS DIRECTED BY ARCHITECT.
   11. ADDITIONAL TESTING AND INSPECTING, AT CONTRACTOR'S EXPENSE, WILL BE PERFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.
   12. CORRECT DEFICIENCIES IN THE WORK THAT TEST REPORTS AND INSPECTIONS INDICATE DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS.

D. MEASURE FLOOR AND SLAB FLATNESS AND LEVELNESS ACCORDING TO ASTM E 1155 (ASTM E 1155M) WITHIN 48 HOURS OF FINISHING.

SHIVEHATTERY
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ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL SPECIFICATIONS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

COLORED CONCRETE

PART 1 - GENERAL

1.1 SUMMARY: SPECIFICATIONS OF COLORED CONCRETE FOR LETDOWN STRUCTURE GRADE LEVEL SLAB AND UPPER LEVEL TOPPING ARE DESCRIBED. FOR THE COLORING MATERIALS USED, ALL LIMITATIONS AND RECOMMENDATIONS SPECIFIED BY THE MANUFACTURER SHALL BE USED AND ADHERED TO.

1.2 COLOR SHALL BE DETERMINED BY THE OWNER/ARCHITECT DURING CONSTRUCTION FROM COLOR SAMPLES. COLOR SAMPLES SHALL BE SUPPLIED TO THE ENGINEER AND APPROVED BY ENGINEER PRIOR TO USE.

1.3 CONCRETE COLOR ADMIXTURE SHALL BE ADDED AT THE BATCH PLANT. THE MINIMUM CONCRETE BATCH SIZE SHALL BE: 3.0 CU. YD. IN 1.0 CU. YD. INCREMENTS.

1.4 THOROUGHLY CLEAN MIXER DRUM TO ASSURE ABSENCE OF CONTAMINATES WHICH MAY AFFECT CONSISTENCY OF COLOR.

PART 2 QUALITY ASSURANCE

2.1 DESIGN CRITERIA: THE CONCRETE MIX USED WITH PIGMENT ADDED SHALL MEET THE REQUIREMENTS OF THESE SPECIAL PROVIONS. THE AGGREGATE, CEMENT, AND INTEGRAL COLOR SHALL BE FROM THE SAME SOURCE THROUGHOUT THE ENTIRE PROJECT. THE MATERIAL SOURCES AND MIX PROPORTIONS USED DURING THE PROJECT SHALL BE ACCURATELY RECORDED AND FURNISHED TO THE ENGINEER AT THE COMPLETION OF THE PROJECT.

2.2 TEST REPORTS: SUBMIT CERTIFIED TEST REPORTS OF PIGMENT SHOWING COMPLIANCE WITH ASTM C 979. COLOR PIGMENTS SHALL BE LIGHT FAST, WETTABLE, WEATHER RESISTANT, ALKALI RESISTANT, AND FREE OF DELETERIOUS FILLERS AND EXTENDERS.

PART 3 - CURING

3.1 FRESH CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING AND MOISTURE LOSS FOR A TOTAL OF 7 DAYS USING METHODS THAT FOLLOW THE MANUFACTURES RECOMMENDATIONS.

3.2 DURING PERIODS OF HIGH TEMPERATURES (ABOVE 80°F) LOW HUMIDITY AND HIGH WINDS, CONTRACTOR SHALL PROVIDE PROTECTION TO PREVENT EXCESSIVE DRYING OF CONCRETE DURING PLACEMENT AND CURING IN ACCORDANCE WITH ACI 305R.

3.3 DURING FINISHING OPERATION, EVAPORATION-RETARDING AGENT MAY BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO PREVENT PLASTIC SHRINKAGE CRACKING; DEPENDING ON CONDITION, APPLICATION OF EVAPORATION-RETARDING AGENT MAY BE REQUIRED MORE THAN ONE TIME DURING CONCRETE FINISHING OPERATION. UNDER NO CIRCUMSTANCE SHALL ANY PORTION OF THE EVAPORATION-RETARDING AGENT BE FINISHED INTO THE CONCRETE SURFACE.

PART 4 - INTEGRAL (FULL-DEPTH) COLOR

4.1 PRODUCT DESCRIPTION
AN ADMIXTURE OF SPECIAL PIGMENTS DESIGNED TO COLOR, BEAUTIFY, STRENGTHEN, AND IMPROVE THE WORKABILITY OF CONCRETE.

4.2 MIX DESIGN
THE CONTRACTOR SHALL USE THE LOWEST SLUMP CONCRETE FOR THE PLACEMENT AND FINISHING METHODS BEING USED. WATER ADDITIONS SHALL BE KEPT TO A MINIMUM AND TOTAL WATER ADDED TO THE MIX SHALL BE KEPT AS CONSISTENT AS POSSIBLE FOR ALL CONCRETE. CALCIUM CHLORIDE SHALL NOT BE ALLOWED.

4.3 BATCHING AND MIXING
MIX HALF OF THE CEMENT, COARSE AGGREGATE, FINE AGGREGATE, AND WATER. WITH MIXER RUNNING, ADD THE COLOR AND MIX FOR AT LEAST A MINUTE BEFORE ADDING THE BALANCE OF MATERIALS. TURN THE DRUM AT MIXING SPEED FOR AN ADDITIONAL 3 TO 5 MINUTES BEFORE THE TRUCK LEAVES THE YARD. IF THE PIGMENT IS BATCHED FROM LARGE BAGS, ALWAYS USE A WHOLE NUMBER OF BAGS PER TRUCK. DO NOT BATCH PARTIAL BAGS. USING A PARTIAL BAG OF COLOR PIGMENTS CAN CAUSE CHANGES IN THE CONCRETE COLOR. ON JOBS REQUIRING MORE THAN ONE TRUCK LOAD OF CONCRETE, USE THE SAME SIZE TRUCK FOR EACH LOAD. MONITOR SLUMP CLOSELY DURING BATCHING. SLUMP VARIATIONS OFTEN INDICATE THAT WATER CONTENT HAS CHANGED. CHANGES IN WATER CONTENT CAUSE COLOR VARIATIONS.

4.4 FINISHING AND CURING FLATWORK
DO NOT START FINISHING COLORED CONCRETE UNTIL THE BLEED WATER HAS EVAPORATED. FINISHING TOO EARLY CAUSES DISCOLORATION AND A WEAK, NON-DURABLE SURFACE. USE MECHANICAL FLOAT OR TROWEL, IF POSSIBLE. THE ONE-WAY MOTION OF THE BLADES CREATES A MORE UNIFORM COLORED SURFACE THAN THE BACK AND FORTH MOTION USED IN HAND FINISHING. MOVE EDGERS IN ONE DIRECTION ONLY TO PRODUCE A MORE UNIFORM COLOR. TIME THE POUR TO AVOID HAVING SUNLIT AND SHADED AREAS.

PART 5 - CLEAR SEAL

5.1 PRODUCT DESCRIPTION
A SOLVENT-BASED CONCRETE SEALER FORMULATED WITH ACRYLIC RESINS DESIGNED FOR DEEP PENETRATION SHALL BE USED. THE SEALER SHALL BE APPROVED BY THE ENGINEER AND SHALL BE COMPATIBLE WITH THE COLORING AGENT, CONCRETE, AND RELEASE AGENT. THE SEALER SHALL BE RESISTANT TO SALT-SPRAY, ACIDS, ALKALI, WATER, ULTRAVIOLET RAYS, AND WET AND DRY ABRASION AND SHALL NOT FADE, DISCOLOR, OR YELLOW THE COLOR IN ANY FASHION.

5.2 APPLICATION
PREPARATION: CONCRETE MUST BE AT LEAST TEN DAYS OLD. ALL OLD PAINT, OIL, AND GREASE MUST BE REMOVED. MOST CONCRETE MUST BE ETCHED AS A POROUS SURFACE IS REQUIRED. ETCHING SHOULD BE DONE WITH A 6-PART WATER TO 1-PART MURATIC ACID SOLUTION. EXTREMELY HARD OR POLISHED CONCRETE MAY REQUIRE A SECOND APPLICATION WITH A STRONGER SOLUTION. RINSE SURFACE THOROUGHLY WITH PLENTY OF CLEAN WATER AND LET DRY COMPLETELY. SPRAY APPLICATION: USE AN AIRLESS SPRAYER WITH A MEDIUM TIP SIZE AND VERY LOW PRESSURE. IF CONDITIONS ARE WINDY OR EXTREMELY HOT, ADJUST TECHNIQUE TO AVOID "DRY SPRAYING" THE SURFACE. A SECOND COAT SHOULD BE SPRAYED AFTER THE FIRST COAT IS DRY.

EXCAVATION FOR STRUCTURES

THE IOWA DOT STANDARD SPECIFICATIONS, SERIES 2009, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE SPECIFICATIONS SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

DESCRIPTION

THESE SPECIFICATIONS DESCRIBE MODIFICATIONS TO THE IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION SECTON 2402 EXCAVATION FOR STRUCTURES.

1. MODIFICATIONS.

A. ADD FOUNDATIONS AND FOOTINGS TO 2402.03 H.5., 11. AND 12.
B. EXCAVATION LINE SHALL BE THE BOTTOM OF FOOTING.
C. IF NATIVE EXCAVATED SOIL IS UNSUITABLE OR CANNOT BE COMPACTED FOR BACKFILL ACCORDING TO PLAN NOTES AND SPECIFICATIONS, THEN STANDARD SPECIFICATIONS SECTION 4133 GRANULAR BACKFILL SHALL BE USED.

STRUCTURAL STEEL FRAMING

DESCRIPTION

THESE SPECIFICATIONS DESCRIBE STRUCTURAL STEEL FRAMING REQUIREMENTS FOR THE LETDOWN BUILLDING STRUCTURE ADJACENT TO THE BIKE PATH OF THE I-74 MISSISSIPPI RIVER CROSSING MAIN BRIDGE. THESE SPECIFICATIONS EXCLUDE THE PEDESTRIAN BRIDGE STEEL.

PART 1 GENERAL

1.1 SUMMARY
- A. THIS SECTION INCLUDES THE FOLLOWING FOR THE LETDOWN BUILDING STRUCTURE (PEDESTRIAN BRIDGE EXCLUDED):
  1. STRUCTURAL.
  2. GROUT.

1.2 DEFINITIONS
- A. STRUCTURAL STEEL: ELEMENTS OF STRUCTURAL-STEEL FRAME, AS CLASSIFIED BY AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES," THAT SUPPORT DESIGN LOADS.

1.3 PERFORMANCE REQUIREMENTS
- A. CONNECTIONS: PROVIDE DETAILS OF SIMPLE SHEAR CONNECTIONS REQUIRED BY THE CONTRACT DOCUMENTS TO BE SELECTED OF COMPLETED BY STRUCTURAL-STEEL FABRICATOR TO WITHSTAND ASD-SERVICE LOADS INDICATED AND COMPLY WITH OTHER INFORMATION AND RESTRICTIONS INDICATED.
  1. SELECT AND COMPLETE CONNECTIONS USING SCHEMATIC DETAILS INDICATED AND AISC'S "MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN," PART 4.
- B. CONSTRUCTION: TYPE 2, SIMPLE FRAMING.

1.4 SUBMITTALS
- A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
- B. SHOP DRAWINGS: SHOW FABRICATION OF STRUCTURAL-STEEL COMPONENTS.
  1. INCLUDE DETAILS OF CUTS, CONNECTIONS, SPLICES, CAMBER, HOLES, AND OTHER PERTINENT DATA.
  2. INCLUDE EMBEDMENT DRAWINGS.
  3. INDICATE WELDS BY STANDARD AWS SYMBOLS, DISTINGUISHING BETWEEN SHOP AND FIELD WELDS, AND SHOW SIZE, LENGTH, AND TYPE OF EACH WELD.
  4. INDICATE TYPE, SIZE, AND LENGTH OF BOLTS, DISTINGUISHING BETWEEN SHOP AND FIELD BOLTS. IDENTIFY PRETENSIONED AND SLIP-CRITICAL HIGH-STRENGTH BOLTED CONNECTIONS.
- C. WELDING CERTIFICATES.

1.5 QUALITY ASSURANCE
- A. FABRICATOR QUALIFICATIONS: A QUALIFIED FABRICATOR WHO PARTICIPATES IN THE AISC QUALITY CERTIFICATION PROGRAM AND IS DESIGNATED AN AISC-CERTIFIED PLANT, CATEGORY STD.
- B. WELDING: QUALIFY PROCEDURES AND PERSONNEL ACCORDING TO AWS D1.1, "STRUCTURAL WELDING CODE--STEEL."
- C. COMPLY WITH APPLICABLE PROVISIONS OF THE FOLLOWING SPECIFICATIONS AND DOCUMENTS:
  1. AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."
  2. AISC'S "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS" AND "SUPPLEMENT NO. 2."
  3. AISC'S "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS--ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN."
  4. AISC'S "SPECIFICATION FOR THE DESIGN OF STEEL HOLLOW STRUCTURAL SECTIONS."
  5. AISC'S "SPECIFICATION FOR ALLOWABLE STRESS DESIGN OF SINGLE-ANGLE MEMBERS."
  6. RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS."

1.6 DELIVERY, STORAGE, AND HANDLING
- 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 EROSION AND DETERIORATION.
  1. STORE FASTENERS IN A PROTECTED PLACE. CLEAN AND RELUBRICATE BOLTS AND NUTS THAT BECOME DRY OR RUSTY BEFORE USE.
  2. 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.

1.7 COORDINATION
- A. FURNISH 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.

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL SPECIFICATIONS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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STRUCTURAL STEEL FRAMING, CONTINUED

PART 2 PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

A. W-SHAPES: ASTM A 992/A 992M.
B. CHANNELS, ANGLES, M, S-SHAPES: ASTM A 36/A 36M.
C. PLATE AND BAR: ASTM A 36/A 36M.
D. COLD-FORMED HOLLOW STRUCTURAL SECTIONS: ASTM A 500, GRADE B, STRUCTURAL TUBING.
E. STEEL PIPE: ASTM A 53/A 53M, TYPE E OR S, GRADE B.
F. WELDING ELECTRODES: COMPLY WITH AWS REQUIREMENTS.

2.2 BOLTS, CONNECTORS, AND ANCHORS

A. HIGH-STRENGTH BOLTS, NUTS, AND WASHERS: ASTM A 325X (ASTM A 325M), TYPE 1, HEAVY HEX STEEL STRUCTURAL BOLTS; ASTM A 563 (ASTM A 563M) HEAVY HEX CARBON-STEEL NUTS; AND ASTM F 436 (ASTM F 436M) HARDENED CARBON-STEEL WASHERS.
   1. FINISH: PLAIN.
   2. DIRECT-TENSION INDICATORS: ASTM F 959, TYPE 325 (ASTM F 959M, TYPE 8.8,) COMPRESSIBLE-WASHER TYPE.
      a. FINISH: PLAIN.
      b. SHEAR CONNECTORS: ASTM A 108, GRADES 1015 THROUGH 1020, HEADED-STUD TYPE, COLD-FINISHED CARBON STEEL; AWS D1.1, TYPE B.
      c. HEADED ANCHOR RODS: ASTM F 1554, GRADE 36 STRAIGHT.
         1. NUTS: ASTM A 563 (ASTM A 563M) HEAVY HEX CARBON STEEL.
         2. PLATE WASHERS: ASTM A 36/A 36M CARBON STEEL.
         3. WASHERS: ASTM F 436 (ASTM F 436M) HARDENED CARBON STEEL.
         4. FINISH: PLAIN.
      d. THREADED RODS: ASTM A 36/A 36M.
         1. NUTS: ASTM A 563 (ASTM A 563M) HEX CARBON STEEL.
         2. WASHERS: ASTM A 36/A 36M CARBON STEEL.
         3. FINISH: PLAIN.

2.3 PRIMER

A. PRIMER: FABRICATOR'S STANDARD LEAD- AND CHROMATE-FREE, NONASPHALTIC, RUST-INHIBITING PRIMER.
B. GALVANIZING REPAIR PAINT: ASTM A 780.
C. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR COLOR AND FOR LOCATIONS OF STEEL TO RECEIVE A TOP COAT OF PAINT APPLIED ON PRIMER. TOP COAT OF PAINT TO BE COMPATIBLE WITH PRIMER USED.

2.4 GROUT

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

2.5 FABRICATION

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 AISC'S "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS--ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN."
   1. CAMBER STRUCTURAL-STEEL MEMBERS WHERE INDICATED.
   2. IDENTIFY HIGH-STRENGTH STRUCTURAL STEEL ACCORDING TO ASTM A 6/ A 6M AND MAINTAIN MARKINGS UNTIL STRUCTURAL STEEL HAS BEEN ERECTED.
   3. MARK AND MATCH-MARK MATERIALS FOR FIELD ASSEMBLY.
   4. COMPLETE STRUCTURAL-STEEL ASSEMBLIES, INCLUDING WELDING OF UNITS, BEFORE STARTING SHOP-PRIMING OPERATIONS.
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.
C. BOLT HOLES: CUT, DRILL, OR PUNCH STANDARD, OVERSIZED, OR SLOTTED BOLT HOLES AS INDICATED ON DRAWINGS, PERPENDICULAR TO METAL SURFACES.
D. FINISHING: ACCURATELY FINISH ENDS OF COLUMNS AND OTHER MEMBERS TRANSMITTING BEARING LOADS.
E. 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.
F. HOLES: PROVIDE HOLES REQUIRED FOR SECURING OTHER WORK TO STRUCTURAL STEEL AND FOR PASSAGE OF OTHER WORK 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. BASE-PLATE HOLES: CUT, DRILL, MECHANICALLY THERMAL CUT, OR PUNCH HOLES PERPENDICULAR TO STEEL SURFACES.
   3. WELD THREADED NUTS TO FRAMING AND OTHER SPECIALTY ITEMS INDICATED TO RECEIVE OTHER WORK.

2.6 SHOP CONNECTIONS

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 SPECIFIED.
   1. JOINT TYPE: SNUG TIGHTENED, UNLESS NOTED OTHERWISE. SPECIFIC PRETENSIONED OR SLIP CRITICAL CONNECTIONS ARE AS INDICATED ON DRAWINGS.
B. AT PRETENSIONED OR SLIP-CRITICAL JOINTS, BOLTS SHALL BE INSTALLED USING ONE OF THE FOLLOWING METHODS:
   1. TURN-OF-NUT PRETENSIONING.
   2. CALIBRATED WRENCH PRETENSIONING
   3. TWIST-OFF-TYPE TENSION-CONTROL BOLT PRETENSIONING
   4. DIRECT-TENSION-INDICATOR PRETENSIONING
C. WELD CONNECTIONS: COMPLY WITH AWS D1.1 FOR WELDING PROCEDURE SPECIFICATIONS, TOLERANCES, APPEARANCE, AND QUALITY OF WELDS AND FOR 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 OF AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" FOR MILL MATERIAL.

2.7 SHOP PRIMING

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 (50 MM).
   2. SURFACES TO BE FIELD WELDED.
   3. SURFACES TO BE HIGH-STRENGTH BOLTED WITH SLIP-CRITICAL CONNECTIONS.
   4. SURFACES TO RECEIVE SPRAYED FIRE-RESISTIVE MATERIALS.
   5. GALVANIZED SURFACES.
B. PAINTING: APPLY A 1-COAT, NONASPHALTIC PRIMER COMPLYING WITH SSPC-PS GUIDE 7.00, "PAINTING SYSTEM GUIDE 7.00: GUIDE FOR SELECTING ONE-COAT SHOP PAINTING SYSTEMS," TO PROVIDE A DRY FILM THICKNESS OF NOT LESS THAN 1.5 MILS (0.038 MM).

2.8 GALVANIZING

A. HOT-DIP GALVANIZED FINISH: APPLY ZINC COATING BY THE HOT-DIP PROCESS TO STRUCTURAL STEEL ACCORDING TO ASTM A 123/ A 123M.
   1. FILL VENT HOLES AND GRIND SMOOTH AFTER GALVANIZING.
   2. GALVANIZE SHELF ANGLES ATTACHED TO STRUCTURAL-STEEL FRAME AND LOCATED IN EXTERIOR WALLS.
   3. GALVANIZE ITEMS INDICATED TO BE GALVANIZED ON DRAWINGS.

2.9 SOURCE QUALITY CONTROL

A. OWNER RESERVES THE RIGHT TO ENGAGE AN INDEPENDENT TESTING AND INSPECTING AGENCY TO PERFORM SHOP TESTS AND INSPECTIONS AND PREPARE TEST REPORTS.
   1. PROVIDE TESTING AGENCY WITH ACCESS TO PLACES WHERE STRUCTURAL-STEEL WORK IS BEING FABRICATED OR PRODUCED TO PERFORM TESTS AND INSPECTIONS.
   2. CORRECT DEFICIENCIES IN WORK THAT TEST REPORTS AND INSPECTIONS INDICATE DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS.
   3. BOLTED CONNECTIONS: SHOP-BOLTED CONNECTIONS WILL BE TESTED AND INSPECTED ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS."
   4. WELDED CONNECTIONS: IN ADDITION TO VISUAL INSPECTION, SHOP-WELDED CONNECTIONS 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.
      d. RADIOGRAPHIC INSPECTION: ASTM E 94.
   5. IN ADDITION TO VISUAL INSPECTION, SHOP-WELDED SHEAR CONNECTORS WILL BE TESTED AND INSPECTED ACCORDING TO REQUIREMENTS IN AWS D1.1 FOR STUD WELDING AND AS FOLLOWS:
      a. BEND TESTS WILL BE PERFORMED IF VISUAL INSPECTIONS REVEAL EITHER A LESS-THAN- CONTINUOUS 360-DEGREE FLASH OR WELDING REPAIRS TO ANY SHEAR CONNECTOR.
      b. TESTS WILL BE CONDUCTED ON ADDITIONAL SHEAR CONNECTORS IF WELD FRACTURE OCCURS ON SHEAR CONNECTORS ALREADY TESTED, ACCORDING TO REQUIREMENTS IN AWS D1.1.

PART 3 EXECUTION

3.1 EXAMINATION

A. VERIFY ELEVATIONS OF CONCRETE- AND MASONRY-BEARING SURFACES AND LOCATIONS OF ANCHOR RODS, BEARING PLATES, AND OTHER EMBEDMENTS, WITH STEEL ERECTOR PRESENT, FOR COMPLIANCE WITH REQUIREMENTS.
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 INDICATED.

3.3 ERECTION

A. SET STRUCTURAL STEEL ACCURATELY IN LOCATIONS AND TO ELEVATIONS INDICATED AND ACCORDING TO AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" AND "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS--ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN."
B. BASEPLATES: CLEAN CONCRETE- AND MASONRY-BEARING SURFACES OF BOND-REDUCING MATERIALS, AND ROUGHEN SURFACES PRIOR TO SETTING BASEPLATES. CLEAN BOTTOM SURFACE OF BASEPLATES.
   1. SET BASEPLATES FOR STRUCTURAL MEMBERS ON WEDGES, SHIMS, OR SETTING NUTS AS REQUIRED.
   2. WELD PLATE WASHERS TO TOP OF BASE PLATE.
   3. SNUG-TIGHTEN, UNLESS INDICATED OTHERWISE ON DRAWINGS, 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 BASEPLATE BEFORE PACKING WITH GROUT.
   4. PROMPTLY PACK GROUT SOLIDLY BETWEEN BEARING SURFACES AND BASEPLATES SO NO VOIDS REMAIN. NEATLY FINISH EXPOSED SURFACES; PROTECT GROUT AND ALLOW TO CURE. COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS FOR SHRINKAGE-RESISTANT GROUTS.
C. MAINTAIN ERECTION TOLERANCES OF STRUCTURAL STEEL WITHIN AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."
D. ALIGN AND ADJUST VARIOUS MEMBERS FORMING 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.
E. SPLICE MEMBERS ONLY WHERE INDICATED.
F. DO NOT USE THERMAL CUTTING DURING ERECTION UNLESS APPROVED BY ARCHITECT. 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 SPECIFIED.
   JOINT TYPE: SNUG TIGHTENED UNLESS NOTED AS PRETENSIONED OR SLIP CRITICAL ON DRAWINGS
B. AT PRETENSIONED OR SLIP-CRITICAL JOINTS, BOLTS SHALL BE INSTALLED USING ONE OF THE FOLLOWING METHODS:
   1. TURN-OF-NUT PRETENSIONING.
   2. CALIBRATED WRENCH PRETENSIONING
   3. TWIST-OFF-TYPE TENSION-CONTROL BOLT PRETENSIONING
   4. DIRECT-TENSION-INDICATOR PRETENSIONING
C. WELD CONNECTIONS: COMPLY WITH AWS D1.1 FOR WELDING PROCEDURE SPECIFICATIONS, TOLERANCES, APPEARANCE, AND QUALITY OF WELDS AND FOR METHODS USED IN CORRECTING WELDING WORK.
   1. COMPLY WITH AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" AND "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS--ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN" FOR BEARING, ADEQUACY OF TEMPORARY CONNECTIONS, ALIGNMENT, AND REMOVAL OF PAINT ON SURFACES ADJACENT TO FIELD WELDS.
   2. ASSEMBLE AND WELD BUILT-UP SECTIONS BY METHODS THAT WILL MAINTAIN TRUE ALIGNMENT OF AXES WITHOUT EXCEEDING TOLERANCES OF 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 QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO INSPECT FIELD WELDS AND HIGH-STRENGTH BOLTED CONNECTIONS.
B. BOLTED CONNECTIONS: SHOP-BOLTED CONNECTIONS WILL BE TESTED AND INSPECTED ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS."
C. WELDED CONNECTIONS: FIELD WELDS WILL BE VISUALLY INSPECTED ACCORDING TO AWS D1.1.
   1. IN ADDITION TO VISUAL INSPECTION, FIELD WELDS WILL BE TESTED 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.
      d. RADIOGRAPHIC INSPECTION: ASTM E 94.
D. 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 ON ADDITIONAL SHEAR CONNECTORS IF WELD FRACTURE OCCURS ON SHEAR CONNECTORS ALREADY TESTED, ACCORDING TO REQUIREMENTS IN AWS D1.1.
E. CORRECT DEFICIENCIES IN WORK THAT TEST REPORTS AND INSPECTIONS INDICATE DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS.

3.6 REPAIRS AND PROTECTION

A. REPAIR DAMAGED GALVANIZED COATINGS ON GALVANIZED ITEMS WITH GALVANIZED REPAIR PAINT ACCORDING TO ASTM A 780 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
B. TOUCHUP PAINTING: AFTER INSTALLATION, PROMPTLY CLEAN, PREPARE, AND PRIME OR REPRIME FIELD CONNECTIONS, RUST SPOTS, AND ABRADED SURFACES OF PRIME-PAINTED JOISTS AND ACCESSORIES AND ABUTTING STRUCTURAL STEEL.
   1. CLEAN AND PREPARE SURFACES BY SSPC-SP 2 HAND-TOOL CLEANING OR SSPC-SP 3 POWER-TOOL CLEANING.
   2. APPLY A COMPATIBLE PRIMER OF SAME TYPE AS SHOP PRIMER USED ON ADJACENT SURFACES.

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

STRUCTURAL SPECIFICATIONS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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COLD-FORMED METAL FRAMING

DESCRIPTION

THESE SPECIFICATIONS DESCRIBE COLD-FORMED METAL FRAMING REQUIREMENTS FOR THE LETDOWN BUILLDING STRUCTURE ADJACENT TO THE BIKE PATH OF THE I-74 MISSISSIPPI RIVER CROSSING MAIN BRIDGE.

PART 1 GENERAL

1.1 SUMMARY
- A. THIS SECTION INCLUDES THE FOLLOWING:
  - 1. INTERIOR NON-LOAD-BEARING WALL FRAMING.

1.2 PERFORMANCE REQUIREMENTS
- A. STRUCTURAL PERFORMANCE: PROVIDE COLD-FORMED METAL FRAMING CAPABLE OF WITHSTANDING DESIGN LOADS WITHIN LIMITS AND UNDER CONDITIONS INDICATED.
  - 1. DESIGN LOADS: AS INDICATED ON GENERAL NOTE SHEET.
  - 2. DEFLECTION LIMITS: DESIGN FRAMING SYSTEMS TO WITHSTAND DESIGN LOADS WITHOUT DEFLECTIONS GREATER THAN THE FOLLOWING:
    - a. INTERIOR WALL FRAMING: HORIZONTAL DEFLECTION PER IBC INDICATED ON PLANS.
  - 3. DESIGN FRAMING SYSTEMS TO PROVIDE FOR MOVEMENT OF FRAMING MEMBERS WITHOUT DAMAGE OR OVERSTRESSING, SHEATHING FAILURE, CONNECTION FAILURE, UNDUE STRAIN ON FASTENERS AND ANCHORS, OR OTHER DETRIMENTAL EFFECTS WHEN SUBJECT TO A MAXIMUM AMBIENT TEMPERATURE CHANGE OF 120 DEG F (67 DEG C).
  - 4. DESIGN FRAMING SYSTEM TO MAINTAIN CLEARANCES AT OPENINGS, TO ALLOW FOR CONSTRUCTION TOLERANCES, AND TO ACCOMMODATE LIVE LOAD DEFLECTION OF PRIMARY BUILDING STRUCTURE AS FOLLOWS.
- B. COLD-FORMED STEEL FRAMING, GENERAL: DESIGN ACCORDING TO AISI'S "STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS."
  - 1. DESIGN WALL FRAMING TO ACCOMMODATE HORIZONTAL DEFLECTION WITHOUT REGARD FOR CONTRIBUTION OF SHEATHING MATERIALS.

1.3 SUBMITTALS
- A. PRODUCT DATA: FOR EACH TYPE OF COLD-FORMED METAL FRAMING PRODUCT AND ACCESSORY INDICATED.
- B. SHOP DRAWINGS: SHOW LAYOUT, SPACINGS, SIZES, THICKNESSES, AND TYPES OF COLD-FORMED METAL FRAMING; FABRICATION; AND FASTENING AND ANCHORAGE DETAILS, INCLUDING MECHANICAL FASTENERS. SHOW REINFORCING CHANNELS, OPENING FRAMING, SUPPLEMENTAL FRAMING, STRAPPING, BRACING, BRIDGING, SPLICES, ACCESSORIES, CONNECTION DETAILS, AND ATTACHMENT TO ADJOINING WORK.
  - 1. FOR COLD-FORMED METAL FRAMING INDICATED TO COMPLY WITH DESIGN LOADS, INCLUDE STRUCTURAL ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

1.4 QUALITY ASSURANCE
- A. ENGINEERING RESPONSIBILITY: PREPARATION OF SHOP DRAWINGS, DESIGN CALCULATIONS, AND OTHER STRUCTURAL DATA BY A QUALIFIED PROFESSIONAL ENGINEER.
- B. PROFESSIONAL ENGINEER QUALIFICATIONS: A PROFESSIONAL ENGINEER WHO IS LEGALLY QUALIFIED TO PRACTICE IN JURISDICTION WHERE PROJECT IS LOCATED AND WHO IS EXPERIENCED IN PROVIDING ENGINEERING SERVICES OF THE KIND INDICATED. ENGINEERING SERVICES ARE DEFINED AS THOSE PERFORMED FOR INSTALLATIONS OF COLD-FORMED METAL FRAMING THAT ARE SIMILAR TO THOSE INDICATED FOR THIS PROJECT IN MATERIAL, DESIGN, AND EXTENT.
- C. FIRE-TEST-RESPONSE CHARACTERISTICS: WHERE INDICATED, PROVIDE COLD-FORMED METAL FRAMING IDENTICAL TO THAT OF ASSEMBLIES TESTED FOR FIRE RESISTANCE PER ASTM E 119 BY A TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
- D. AISI SPECIFICATIONS AND STANDARDS: COMPLY WITH AISI'S "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" AND ITS "STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS."

1.5 DELIVERY, STORAGE, AND HANDLING
- A. PROTECT COLD-FORMED METAL FRAMING FROM CORROSION, DEFORMATION, AND OTHER DAMAGE DURING DELIVERY, STORAGE, AND HANDLING.
- B. STORE COLD-FORMED METAL FRAMING, PROTECT WITH A WATERPROOF COVERING, AND VENTILATE TO AVOID CONDENSATION.

PART 2 PRODUCTS

2.1 MANUFACTURERS
- A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE COLD-FORMED METAL FRAMING BY ONE OF THE FOLLOWING OR APPROVED EQUAL:
  - 1. DIETRICH METAL FRAMING; A WORTHINGTON INDUSTRIES COMPANY.
  - 2. DALE/INCOR.
  - 3. ALLSTEEL PRODUCTS, INC.
  - 4. CLARK STEEL FRAMING.
  - 5. UNITED METAL PRODUCTS, INC.

2.2 MATERIALS
- A. STEEL SHEET: ASTM A 1003/A 1003M, STRUCTURAL GRADE, TYPE H, METALLIC COATED, OF GRADE AND COATING WEIGHT AS FOLLOWS:
  - 1. GRADE: ST33H (ST230H).
  - 2. COATING: G60 (Z180) OR EQUIVALENT.
- B. STEEL SHEET FOR VERTICAL DEFLECTION CLIPS: ASTM A 653/A 653M, STRUCTURAL STEEL, ZINC COATED, OF GRADE AND COATING AS FOLLOWS:
  - 1. GRADE: 50 (340), CLASS 1 OR 2.
  - 2. COATING: G90 (Z275).

2.3 NON-LOAD-BEARING WALL FRAMING
- A. STEEL STUDS: MANUFACTURER'S STANDARD C-SHAPED STEEL STUDS, OF WEB DEPTHS INDICATED, PUNCHED, WITH STIFFENED FLANGES, AND AS FOLLOWS:
  - 1. MINIMUM BASE-METAL THICKNESS: 0.0428 INCH (1.09 MM).
  - 2. FLANGE WIDTH: 1-3/8 INCHES (41 MM) OR WIDER IF REQUIRED BY DESIGN.
- B. STEEL TRACK: MANUFACTURER'S STANDARD U-SHAPED STEEL TRACK, OF WEB DEPTHS INDICATED, UNPUNCHED, WITH UNSTIFFENED FLANGES, AND AS FOLLOWS:
  - 1. MINIMUM BASE-METAL THICKNESS: MATCHING STEEL STUDS.
  - 2. FLANGE WIDTH: 1-1/4 INCHES (32 MM).
- C. VERTICAL DEFLECTION CLIPS: MANUFACTURER'S STANDARD BYPASS CLIPS, CAPABLE OF ACCOMMODATING UPWARD AND DOWNWARD VERTICAL DISPLACEMENT OF PRIMARY STRUCTURE THROUGH POSITIVE MECHANICAL ATTACHMENT TO STUD WEB.
  - 1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
    - a. DIETRICH METAL FRAMING; A WORTHINGTON INDUSTRIES COMPANY.
    - b. THE STEEL NETWORK, INC.
- D. SINGLE DEFLECTION TRACK: MANUFACTURER'S SINGLE, DEEP-LEG, U-SHAPED STEEL TRACK; UNPUNCHED, WITH UNSTIFFENED FLANGES, OF WEB DEPTH TO CONTAIN STUDS WHILE ALLOWING FREE VERTICAL MOVEMENT, WITH FLANGES DESIGNED TO SUPPORT HORIZONTAL AND LATERAL LOADS AND TRANSFER THEM TO THE PRIMARY STRUCTURE, AND AS FOLLOWS:
  - 1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING OR APPROVED EQUAL:
    - a. CLARK STEEL FRAMING.
    - b. DALE/INCOR.
    - c. DIETRICH METAL FRAMING; A WORTHINGTON INDUSTRIES COMPANY
  - 2. MINIMUM BASE-METAL THICKNESS: 0.0428 INCH (1.09 MM).
  - 3. FLANGE WIDTH: 1 INCH (25 MM) PLUS THE DESIGN GAP FOR 1-STORY STRUCTURES AND 1 INCH (25 MM) PLUS TWICE THE DESIGN GAP FOR OTHER APPLICATIONS.

2.4 FRAMING ACCESSORIES
- A. FABRICATE STEEL-FRAMING ACCESSORIES FROM STEEL SHEET, ASTM A 1003/A 1003M, STRUCTURAL GRADE, TYPE H, METALLIC COATED, OF SAME GRADE AND COATING WEIGHT USED FOR FRAMING MEMBERS.
- B. PROVIDE ACCESSORIES OF MANUFACTURER'S STANDARD THICKNESS AND CONFIGURATION, UNLESS OTHERWISE INDICATED, AS FOLLOWS:
  - 1. SUPPLEMENTARY FRAMING.
  - 2. BRACING, BRIDGING, AND SOLID BLOCKING.
  - 3. WEB STIFFENERS.
  - 4. STUD KICKERS, KNEE BRACES, AND GIRTS.

2.5 ANCHORS, CLIPS, AND FASTENERS
- A. STEEL SHAPES AND CLIPS: ASTM A 36/A 36M, ZINC COATED BY HOT-DIP PROCESS ACCORDING TO ASTM A 123/A 123M.
- B. POWER-ACTUATED ANCHORS: FASTENER SYSTEM OF TYPE SUITABLE FOR APPLICATION INDICATED, FABRICATED FROM CORROSION-RESISTANT MATERIALS, WITH CAPABILITY TO SUSTAIN, WITHOUT FAILURE, A LOAD EQUAL TO 10 TIMES DESIGN LOAD, AS DETERMINED BY TESTING PER ASTM E 1190 CONDUCTED BY A QUALIFIED INDEPENDENT TESTING AGENCY.
- C. MECHANICAL FASTENERS: ASTM C 1513, CORROSION-RESISTANT-COATED, SELF-DRILLING, SELF-TAPPING STEEL DRILL SCREWS.
  - 1. HEAD TYPE: LOW-PROFILE HEAD BENEATH SHEATHING, MANUFACTURER'S STANDARD ELSEWHERE.

2.6 MISCELLANEOUS MATERIALS
- A. GALVANIZING REPAIR PAINT: ASTM A 780.
- B. SEALER GASKETS: CLOSED-CELL NEOPRENE FOAM, 1/4 INCH (6.4 MM) THICK, SELECTED FROM MANUFACTURER'S STANDARD WIDTHS TO MATCH WIDTH OF BOTTOM TRACK OR RIM TRACK MEMBERS.

PART 3 EXECUTION

3.1 EXAMINATION
- A. EXAMINE SUPPORTING SUBSTRATES AND ABUTTING STRUCTURAL FRAMING FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE.
  - 1. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.2 PREPARATION
- A. BEFORE SPRAYED FIRE-RESISTIVE MATERIALS ARE APPLIED, ATTACH CONTINUOUS ANGLES, SUPPLEMENTARY FRAMING, OR TRACKS TO STRUCTURAL MEMBERS INDICATED TO RECEIVE SPRAYED FIRE-RESISTIVE MATERIALS.
- B. AFTER APPLYING SPRAYED FIRE-RESISTIVE MATERIALS, REMOVE ONLY AS MUCH OF THESE MATERIALS AS NEEDED TO COMPLETE INSTALLATION OF COLD-FORMED FRAMING WITHOUT REDUCING THICKNESS OF FIRE-RESISTIVE MATERIALS BELOW THAT ARE REQUIRED TO OBTAIN FIRE-RESISTANCE RATING INDICATED. PROTECT REMAINING FIRE-RESISTIVE MATERIALS FROM DAMAGE.
- C. INSTALL SEALER GASKETS TO ISOLATE THE UNDERSIDE OF WALL BOTTOM TRACK OR RIM TRACK AND THE TOP OF FOUNDATION WALL OR SLAB AT STUD OR JOIST LOCATIONS.

3.3 INSTALLATION, GENERAL
- A. COLD-FORMED METAL FRAMING MAY BE SHOP OR FIELD FABRICATED FOR INSTALLATION, OR IT MAY BE FIELD ASSEMBLED.
- B. INSTALL COLD-FORMED METAL FRAMING ACCORDING TO AISI'S "STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS" AND TO MANUFACTURER'S WRITTEN INSTRUCTIONS UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED.
- C. INSTALL COLD-FORMED METAL FRAMING AND ACCESSORIES PLUMB, SQUARE, AND TRUE TO LINE, AND WITH CONNECTIONS SECURELY FASTENED.
  - 1. CUT FRAMING MEMBERS BY SAWING OR SHEARING; DO NOT TORCH CUT.
  - 2. FASTEN COLD-FORMED METAL FRAMING MEMBERS BY WELDING, SCREW FASTENING, CLINCH FASTENING, OR RIVETING. WIRE TYING OF FRAMING MEMBERS IS NOT PERMITTED.
    - a. LOCATE MECHANICAL FASTENERS AND INSTALL ACCORDING TO SHOP DRAWINGS, AND COMPLYING WITH REQUIREMENTS FOR SPACING, EDGE DISTANCES, AND SCREW PENETRATION.
- D. INSTALL FRAMING MEMBERS IN ONE-PIECE LENGTHS UNLESS SPLICE CONNECTIONS ARE INDICATED FOR TRACK OR TENSION MEMBERS.
- E. INSTALL TEMPORARY BRACING AND SUPPORTS TO SECURE FRAMING AND SUPPORT LOADS COMPARABLE IN INTENSITY TO THOSE FOR WHICH STRUCTURE WAS DESIGNED. MAINTAIN BRACES AND SUPPORTS IN PLACE, UNDISTURBED, UNTIL ENTIRE INTEGRATED SUPPORTING STRUCTURE HAS BEEN COMPLETED AND PERMANENT CONNECTIONS TO FRAMING ARE SECURED.
- F. DO NOT BRIDGE BUILDING EXPANSION AND CONTROL JOINTS WITH COLD-FORMED METAL FRAMING. INDEPENDENTLY FRAME BOTH SIDES OF JOINTS.
- G. INSTALL INSULATION, SPECIFIED IN DIVISION 07 SECTION "THERMAL INSULATION," IN BUILT-UP EXTERIOR FRAMING MEMBERS, SUCH AS HEADERS, SILLS, BOXED JOISTS, AND MULTIPLE STUDS AT OPENINGS, THAT ARE INACCESSIBLE ON COMPLETION OF FRAMING WORK.
- H. FASTEN HOLE REINFORCING PLATE OVER WEB PENETRATIONS THAT EXCEED SIZE OF MANUFACTURER'S STANDARD PUNCHED OPENINGS.
- I. ERECTION TOLERANCES: INSTALL COLD-FORMED METAL FRAMING LEVEL, PLUMB, AND TRUE TO LINE TO A MAXIMUM ALLOWABLE TOLERANCE VARIATION OF 1/8 INCH IN 10 FEET (1:960) AND AS FOLLOWS:
  - 1. SPACE INDIVIDUAL FRAMING MEMBERS NO MORE THAN PLUS OR MINUS 1/8 INCH (3 MM) FROM PLAN LOCATION. CUMULATIVE ERROR SHALL NOT EXCEED MINIMUM FASTENING REQUIREMENTS OF SHEATHING OR OTHER FINISHING MATERIALS.

3.4 NON-LOAD-BEARING WALL INSTALLATION
- A. INSTALL CONTINUOUS TRACKS SIZED TO MATCH STUDS. ALIGN TRACKS ACCURATELY AND SECURELY ANCHOR TO SUPPORTING STRUCTURE AS INDICATED.
- B. FASTEN BOTH FLANGES OF STUDS TO TOP AND BOTTOM TRACK, UNLESS OTHERWISE INDICATED. SPACE STUDS AS FOLLOWS:
  - 1. STUD SPACING: 16 INCHES (406 MM) OR CLOSER IF REQUIRED BY DESIGN OR AS INDICATED.
- C. SET STUDS PLUMB, EXCEPT AS NEEDED FOR DIAGONAL BRACING OR REQUIRED FOR NONPLUMB WALLS OR WARPED SURFACES AND SIMILAR REQUIREMENTS.
- D. ISOLATE NON-LOAD-BEARING STEEL FRAMING FROM BUILDING STRUCTURE TO PREVENT TRANSFER OF VERTICAL LOADS WHILE PROVIDING LATERAL SUPPORT.
  - 1. INSTALL SINGLE-LEG DEFLECTION TRACKS AND ANCHOR TO BUILDING STRUCTURE.
  - 2. CONNECT VERTICAL DEFLECTION CLIPS TO BYPASSING STUDS AND ANCHOR TO BUILDING STRUCTURE.
- E. INSTALL HORIZONTAL BRIDGING IN WALL STUDS, SPACED IN ROWS INDICATED ON SHOP DRAWINGS BUT NOT MORE THAN 48 INCHES (1220 MM) APART. FASTEN AT EACH STUD INTERSECTION.
  - 1. TOP BRIDGING FOR SINGLE DEFLECTION TRACK: INSTALL ROW OF HORIZONTAL BRIDGING WITHIN 12 INCHES (305 MM) OF SINGLE DEFLECTION TRACK. INSTALL A COMBINATION OF FLAT, TAUT, STEEL SHEET STRAPS OF WIDTH AND THICKNESS INDICATED AND STUD OR STUD-TRACK SOLID BLOCKING OF WIDTH AND THICKNESS MATCHING STUDS. FASTEN FLAT STRAPS TO STUD FLANGES AND SECURE SOLID BLOCKING TO STUD WEBS OR FLANGES.
    - a. INSTALL SOLID BLOCKING AT CENTERS INDICATED ON SHOP DRAWINGS.
  - 2. BRIDGING: COLD-ROLLED STEEL CHANNEL, WELDED OR MECHANICALLY FASTENED TO WEBS OF PUNCHED STUDS.
- F. INSTALL MISCELLANEOUS FRAMING AND CONNECTIONS, INCLUDING STUD KICKERS, WEB STIFFENERS, CLIP ANGLES, CONTINUOUS ANGLES, ANCHORS, FASTENERS, AND STUD GIRTS, TO PROVIDE A COMPLETE AND STABLE WALL-FRAMING SYSTEM.

3.5 REPAIRS AND PROTECTION
- A. GALVANIZING REPAIRS: PREPARE AND REPAIR DAMAGED GALVANIZED COATINGS ON FABRICATED AND INSTALLED COLD-FORMED METAL FRAMING WITH GALVANIZED REPAIR PAINT ACCORDING TO ASTM A 780 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
- B. PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS, IN A MANNER ACCEPTABLE TO MANUFACTURER AND INSTALLER THAT ENSURE THAT COLD-FORMED METAL FRAMING IS WITHOUT DAMAGE OR DETERIORATION AT TIME OF SUBSTANTIAL COMPLETION.

STEEL DECKING

DESCRIPTION

THESE SPECIFICATIONS DESCRIBE STEEL DECKING REQUIREMENTS FOR THE LETDOWN BUILLDING STRUCTURE ADJACENT TO THE BIKE PATH OF THE I-74 MISSISSIPPI RIVER CROSSING MAIN BRIDGE. THE STEEL DECKING IS USED AT THE ROOF LEVEL AND THE UPPER FLOOR LEVEL OF THE LETDOWN STRUCTURE.

PART 1 GENERAL

1.1 SUMMARY
THIS SECTION INCLUDES THE FOLLOWING:
- 1. ROOF DECK.
- 2. COMPOSITE FLOOR DECK.

1.2 SUBMITTALS
- A. PRODUCT DATA: FOR EACH TYPE OF DECK, ACCESSORY, AND PRODUCT INDICATED.
- B. SHOP DRAWINGS: SHOW LAYOUT AND TYPES OF DECK PANELS, ANCHORAGE DETAILS, REINFORCING CHANNELS, PANS, CUT DECK OPENINGS, SPECIAL JOINTING, ACCESSORIES, AND ATTACHMENTS TO OTHER CONSTRUCTION.
- C. PRODUCT CERTIFICATES: FOR EACH TYPE OF STEEL DECK, SIGNED BY PRODUCT MANUFACTURER.

D. WELDING CERTIFICATES.

1.3 QUALITY ASSURANCE
- A. WELDING: QUALIFY PROCEDURES AND PERSONNEL ACCORDING TO AWS D1.3, "STRUCTURAL WELDING CODE - SHEET STEEL."
- B. AISI SPECIFICATIONS: COMPLY WITH CALCULATED STRUCTURAL CHARACTERISTICS OF STEEL DECK ACCORDING TO AISI'S "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS."

1.4 DELIVERY, STORAGE, AND HANDLING
- A. PROTECT STEEL DECK FROM CORROSION, DEFORMATION, AND OTHER DAMAGE DURING DELIVERY, STORAGE, AND HANDLING.
- B. STACK STEEL DECK ON PLATFORMS OR PALLETS AND SLOPE TO PROVIDE DRAINAGE. PROTECT WITH A WATERPROOF COVERING AND VENTILATE TO AVOID CONDENSATION.

PART 2 PRODUCTS

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Iowa | Illinois | Indiana | Missouri http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL SPECIFICATIONS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER S0.09

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STEEL DECKING, CONTINUED

2.1 MANUFACTURERS
A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING OR APPROVED EQUAL:
1. STEEL DECK:
a. CANAM STEEL CORP.; THE CANAM MANAC GROUP.
b. NUCOR CORP.; VULCRAFT DIVISION.
c. UNITED STEEL DECK, INC.
d. WHEELING CORRUGATING COMPANY; DIV. OF WHEELING-PITTSBURGH STEEL CORPORATION.

2.2 ROOF DECK
A. STEEL ROOF DECK: FABRICATE PANELS, WITHOUT TOP-FLANGE STIFFENING GROOVES, TO COMPLY WITH "SDI SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK," IN SDI PUBLICATION NO. 30, AND WITH THE FOLLOWING:
1. PRIME-PAINTED STEEL SHEET: ASTM A 1008/A 1008M, STRUCTURAL STEEL (SS), GRADE 33 (230) MINIMUM, SHOP PRIMED WITH MANUFACTURER'S STANDARD BAKED-ON, RUST-INHIBITIVE PRIMER.
a. COLOR: MANUFACTURER'S STANDARD.
b. SEE ARCHITECTURAL PLANS AND SPECIFICATIONS FOR EXPOSED ROOF DECK AREAS TO BE PAINTED WITH A TOP COAT OF COLOR INDICATED.

2. DECK PROFILE: TYPE WR, WIDE RIB.

3. PROFILE DEPTH: AS INDICATED.
4. DESIGN UNCOATED-STEEL THICKNESS: AS INDICATED.
5. SPAN CONDITION: TRIPLE SPAN OR MORE.

6. SIDE LAPS: OVERLAPPED.

2.3 COMPOSITE FLOOR DECK
A. COMPOSITE STEEL FLOOR DECK: FABRICATE PANELS, WITH INTEGRALLY EMBOSSED OR RAISED PATTERN RIBS AND INTERLOCKING SIDE LAPS, TO COMPLY WITH "SDI SPECIFICATIONS AND COMMENTARY FOR COMPOSITE STEEL FLOOR DECK," IN SDI PUBLICATION NO. 30, WITH THE MINIMUM SECTION PROPERTIES INDICATED, AND WITH THE FOLLOWING:

1. GALVANIZED STEEL SHEET: ASTM A 653/A 653M, STRUCTURAL STEEL (SS), GRADE 33 (230), G60 (Z180) ZINC COATING.
2. PROFILE DEPTH: AS INDICATED.
3. DESIGN UNCOATED-STEEL THICKNESS: AS INDICATED.
4. SPAN CONDITION: AS INDICATED.

2.4 ACCESSORIES
A. GENERAL: PROVIDE MANUFACTURER'S STANDARD ACCESSORY MATERIALS FOR DECK THAT COMPLY WITH REQUIREMENTS INDICATED.
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 (4.8-MM) MINIMUM DIAMETER.
D. FLEXIBLE CLOSURE STRIPS: VULCANIZED, CLOSED-CELL, SYNTHETIC RUBBER.
E. MISCELLANEOUS SHEET METAL DECK ACCESSORIES: STEEL SHEET, MINIMUM YIELD STRENGTH OF 33,000 PSI (230 MPA), NOT LESS THAN 0.0359-INCH (0.91-MM) DESIGN UNCOATED THICKNESS, OF SAME MATERIAL AND FINISH AS DECK; OF PROFILE INDICATED OR REQUIRED FOR APPLICATION.
F. POUR STOPS AND GIRDER FILLERS: STEEL SHEET, MINIMUM YIELD STRENGTH OF 33,000 PSI (230 MPA), OF SAME MATERIAL AND FINISH AS DECK, AND OF THICKNESS AND PROFILE RECOMMENDED BY SDI PUBLICATION NO. 30 FOR OVERHANG AND SLAB DEPTH.
G. COLUMN CLOSURES, END CLOSURES, Z-CLOSURES, AND COVER PLATES: STEEL SHEET, OF SAME MATERIAL, FINISH, AND THICKNESS AS DECK, UNLESS OTHERWISE INDICATED.
H. GALVANIZING REPAIR PAINT: ASTM A 780.
I. FLAT SUMP PLATE: SINGLE-PIECE STEEL SHEET, 0.0747 INCH (1.90 MM) THICK, OF SAME MATERIAL AND FINISH AS DECK. FOR DRAINS, CUT HOLES IN THE FIELD.

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.

3.2 INSTALLATION, GENERAL
A. INSTALL DECK PANELS AND ACCESSORIES ACCORDING TO APPLICABLE SPECIFICATIONS AND COMMENTARY IN SDI PUBLICATION NO. 30, 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. LOCATE MECHANICAL FASTENERS AND INSTALL ACCORDING TO DECK MANUFACTURER'S WRITTEN INSTRUCTIONS.

3.3 ROOF-DECK INSTALLATION

A. MECHANICALLY FASTEN ROOF-DECK PANELS TO STEEL SUPPORTING MEMBERS WITH SELF-DRILLING SCREWS OF SIZE AND PATTERN 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, 36 INCHES (910 MM), OR AS INDICATED ON PLANS AND AS FOLLOWS:
1. MECHANICALLY FASTEN WITH SELF-DRILLING, NO. 10 (4.8- MM-) DIAMETER OR LARGER, CARBON-STEEL SCREWS.
C. END BEARING: INSTALL DECK ENDS OVER SUPPORTING FRAME WITH A MINIMUM END BEARING OF 1-1/2 INCHES (38 MM), WITH END JOINTS AS FOLLOWS:
1. END JOINTS: LAPPED 2 INCHES (51 MM) MINIMUM.
D. ROOF SUMP PANS AND SUMP PLATES: INSTALL OVER OPENINGS PROVIDED IN ROOF DECK AND MECHANICALLY FASTEN FLANGES TO TOP OF DECK. SPACE MECHANICAL FASTENERS NOT MORE THAN 12 INCHES (305 MM) APART WITH AT LEAST ONE FASTENER AT EACH CORNER.
1. INSTALL REINFORCING CHANNELS OR ZEES IN RIBS TO SPAN BETWEEN SUPPORTS AND MECHANICALLY FASTEN.
E. MISCELLANEOUS ROOF-DECK ACCESSORIES: INSTALL RIDGE AND VALLEY PLATES, FINISH STRIPS, END CLOSURES, AND REINFORCING CHANNELS ACCORDING TO DECK MANUFACTURER'S WRITTEN INSTRUCTIONS. WELD TO SUBSTRATE TO PROVIDE A COMPLETE DECK INSTALLATION.
1. WELD COVER PLATES AT CHANGES IN DIRECTION OF ROOF-DECK PANELS, UNLESS OTHERWISE INDICATED.

3.4 FLOOR-DECK INSTALLATION
A. FASTEN FLOOR-DECK PANELS TO STEEL SUPPORTING MEMBERS BY ARC SPOT (PUDDLE) WELDS OF THE SURFACE DIAMETER INDICATED AND AS FOLLOWS:
1. WELD DIAMETER: 5/8 INCH (16 MM) NOMINAL.
2. WELD SPACING: SPACE AND LOCATE WELDS AS INDICATED.
3. WELD WASHERS: INSTALL WELD WASHERS AT EACH WELD LOCATION.
B. SIDE-LAP AND PERIMETER EDGE FASTENING: FASTEN SIDE LAPS AND PERIMETER EDGES OF PANELS BETWEEN SUPPORTS, AT INTERVALS NOT EXCEEDING THE LESSER OF HALF OF THE SPAN, 36 INCHES (910 MM), OR AS INDICATED ON PLANS AND AS FOLLOWS:

1. WELD OR MECHANICALLY FASTEN WITH SELF-DRILLING, NO. 10 (4.8 MM) DIAMETER OR LARGER, CARBON-STEEL SCREWS.
C. END BEARING: INSTALL DECK ENDS OVER SUPPORTING FRAME WITH A MINIMUM END BEARING OF 1-1/2 INCHES (38 MM), WITH END JOINTS AS FOLLOWS:
1. END JOINTS: BUTTED.
D. POUR STOPS AND GIRDER FILLERS: WELD STEEL SHEET POUR STOPS AND GIRDER FILLERS TO SUPPORTING STRUCTURE ACCORDING TO SDI RECOMMENDATIONS, UNLESS OTHERWISE INDICATED.
E. FLOOR-DECK CLOSURES: WELD STEEL SHEET COLUMN CLOSURES, CELL CLOSURES, AND Z-CLOSURES TO DECK, ACCORDING TO SDI RECOMMENDATIONS, TO PROVIDE TIGHT-FITTING CLOSURES AT OPEN ENDS OF RIBS AND SIDES OF DECK.

3.5 FIELD QUALITY CONTROL
A. TESTING AGENCY: OWNER WILL ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS.
B. FIELD WELDS WILL BE SUBJECT TO INSPECTION.
C. TESTING AGENCY WILL REPORT INSPECTION RESULTS PROMPTLY AND IN WRITING TO CONTRACTOR AND ENGINEER.
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.

3.6 REPAIRS AND 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. REPAIR PAINTING: WIRE BRUSH AND CLEAN RUST SPOTS, WELDS, AND ABRADED AREAS ON TOP SURFACES OF PRIME-PAINTED DECK IMMEDIATELY AFTER INSTALLATION, AND APPLY REPAIR PAINT.
1. APPLY REPAIR PAINT, OF SAME COLOR AS ADJACENT SHOP-PRIMED DECK, TO BOTTOM SURFACES OF DECK EXPOSED TO VIEW.
C. 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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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL SPECIFICATIONS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

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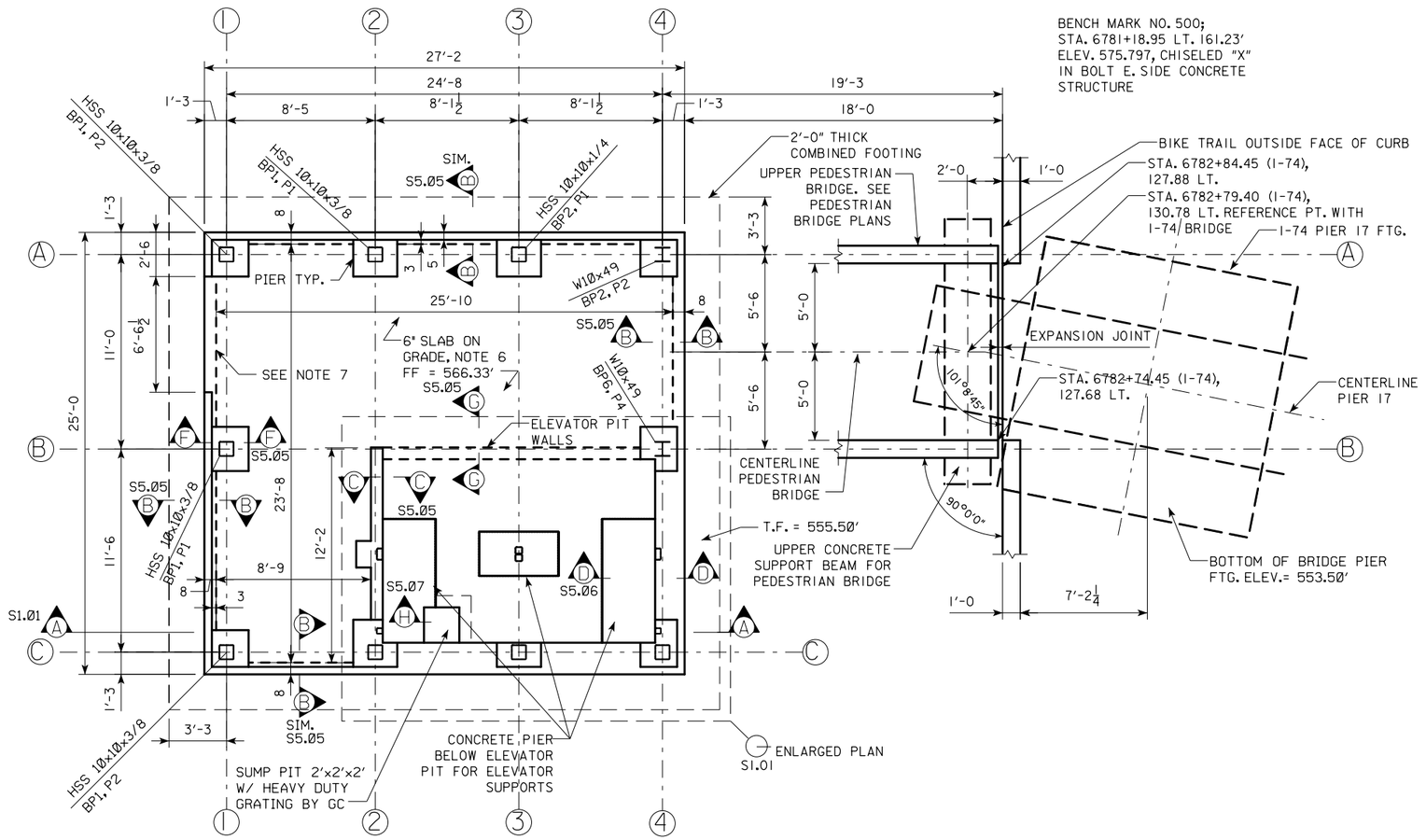
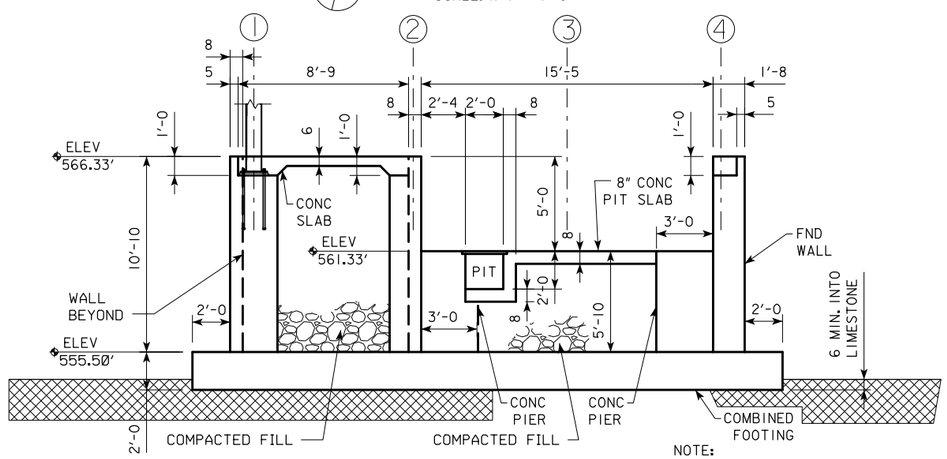


FOUNDATION PLAN

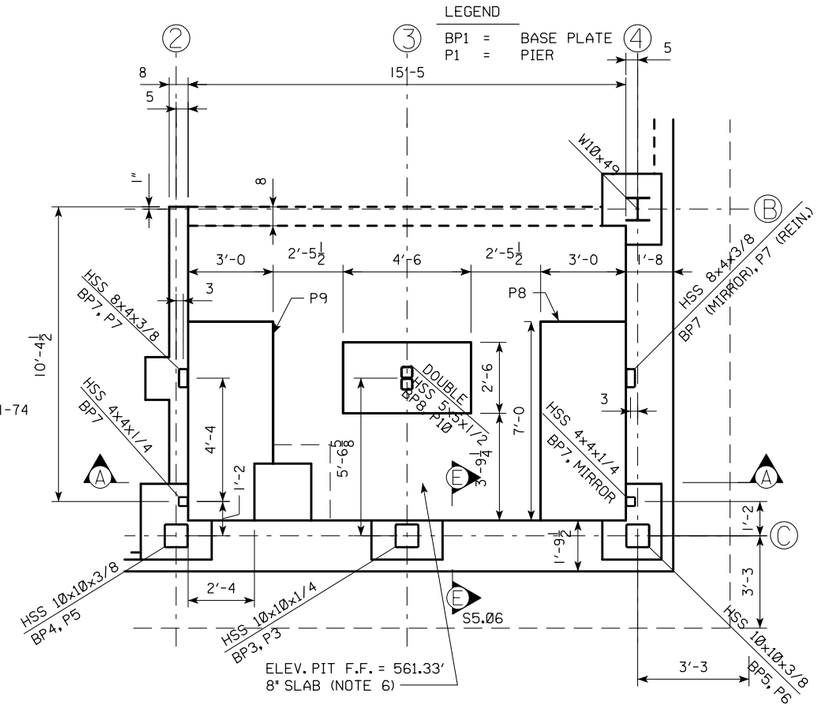
SCALE: 1/4" = 1'-0"



SECTION A-A

SCALE: 1/4" = 1'-0"

NOTE:
FOOTINGS TO EXTEND AT LEAST 6" INTO LIMESTONE WITH THE FINAL 6" EXCAVATION TO BE TO NEAT LINES OF THE FOOTING.



ENLARGED ELEVATOR PIT PLAN

SCALE: 3/8" = 1'-0"

NOTES:

1. CONTINUOUS FOUNDATION WALL REINFORCEMENT SHALL PASS THROUGH COLUMN PIERS.
2. COMPACTED FILL SHALL BE PER IOWA DOT STANDARD SPECIFICATIONS SECTION 4133.
3. BACKFILL FOUNDATION WALLS UNIFORMLY EACH SIDE PER FOUNDATION NOTES SHEET S0.01.
4. USE PVC WATERSTOP BETWEEN SUMP PIT CONCRETE SIDES AND BOTTOM AND ADJACENT WALL AND PIER. USE PVC WATERSTOP AT PERIMETER ELEVATOR PIT WALLS PER SECTION DETAILS.
5. SEE DETAIL D/S5.06 FOR #5 BENT BARS BETWEEN PIERS P8 AND P9 AND ADJACENT FOUNDATION WALLS.
6. SLABS ON GRADE REINFORCED WITH #4 BARS AT 12" O.C. EACH WAY CENTERED IN SLAB. PLACE 15 MIL. VAPOR RETARDER PER SPECS OVER 6" COMPACTED CRUSHED ROCK SUBBASE.
7. DEPRESS TOP OF FOUNDATION WALL 8" AT DOORWAY, SEE STOOP DETAIL ON SHEET S5.07

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

FOUNDATION PLAN AND DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

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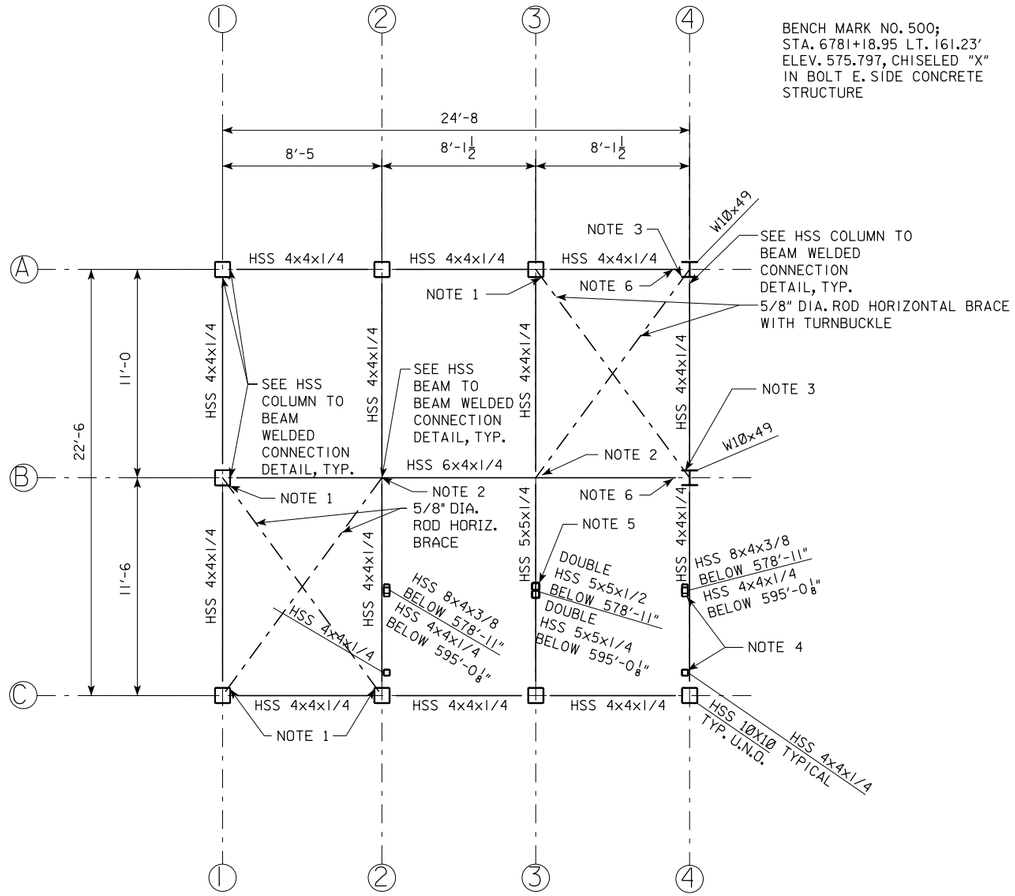
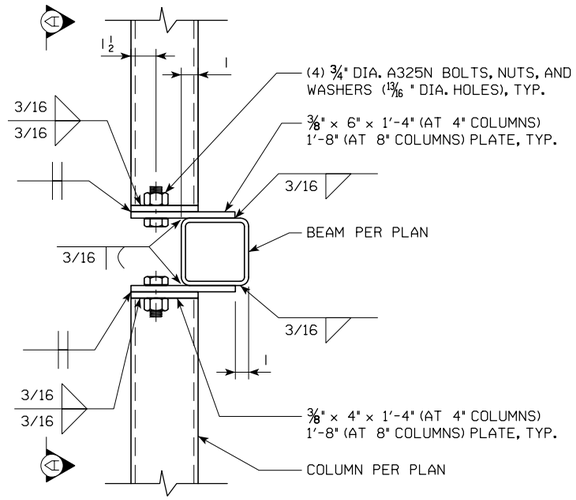


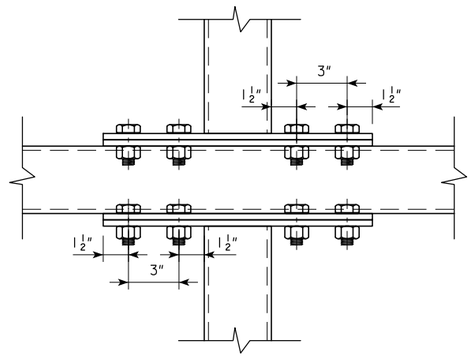
HORIZONTAL FRAMES AT T/S = 578'-11" AND 595'-0 1/8"

SCALE: 1/4" = 1'-0"

NOTES:

1. SEE HORIZONTAL BRACE DETAIL 1, SHEET S1.12.
2. SEE HORIZONTAL BRACE DETAIL 2, SHEET S1.13.
3. SEE HORIZONTAL BRACE DETAIL 3, SHEET S1.13.
4. SEE ELEVATOR SUPPORT DETAIL 1, TYP., SHEET S1.11
5. SEE ELEVATOR SUPPORT DETAIL 2, SHEET S1.11
6. SEE HSS BEAM TO W-COLUMN DETAIL SHEET S1.12

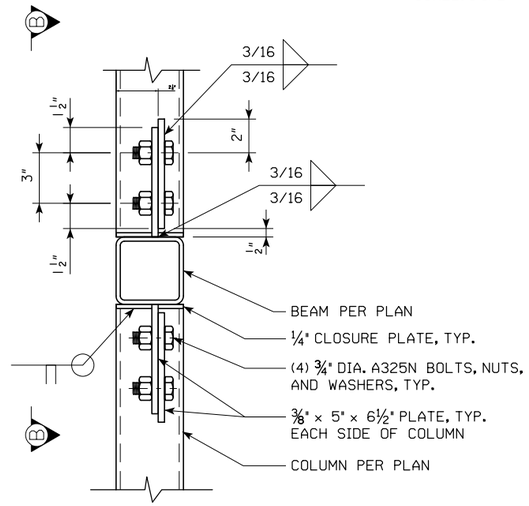


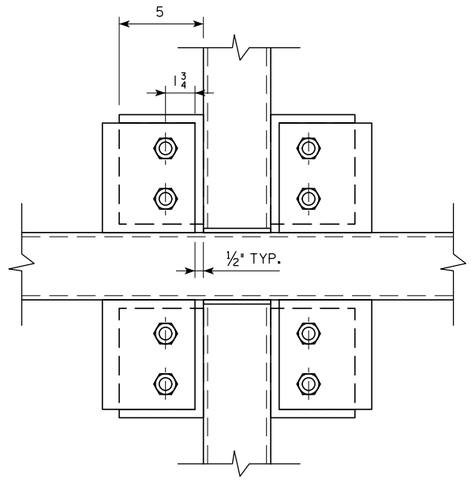


SECTION A-A

ELEVATOR SUPPORT DETAIL 1

SCALE: 1 1/2" = 1'-0"





SECTION B-B

ELEVATOR SUPPORT DETAIL 2

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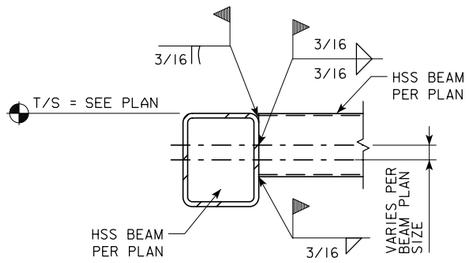
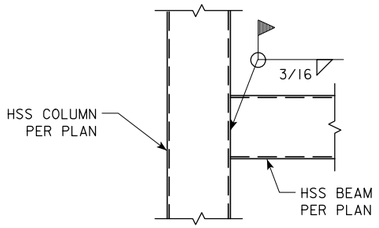


TYPICAL HSS BEAM TO BEAM WELDED CONNECTION

NOT TO SCALE



TYPICAL HSS COLUMN TO BEAM WELDED CONNECTION

NOT TO SCALE

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DESIGN FOR
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HORIZONTAL FRAMES AND DETAILS

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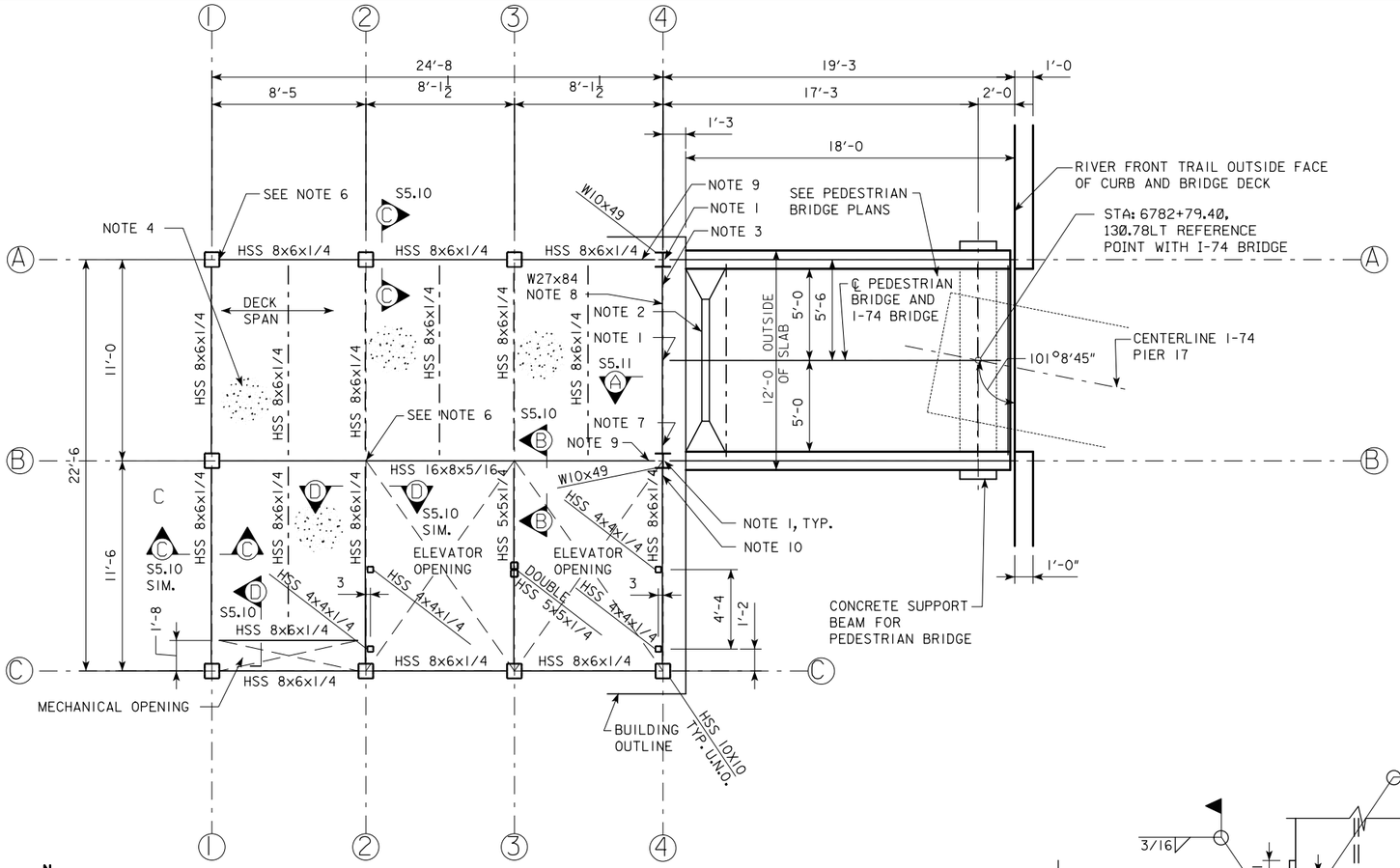
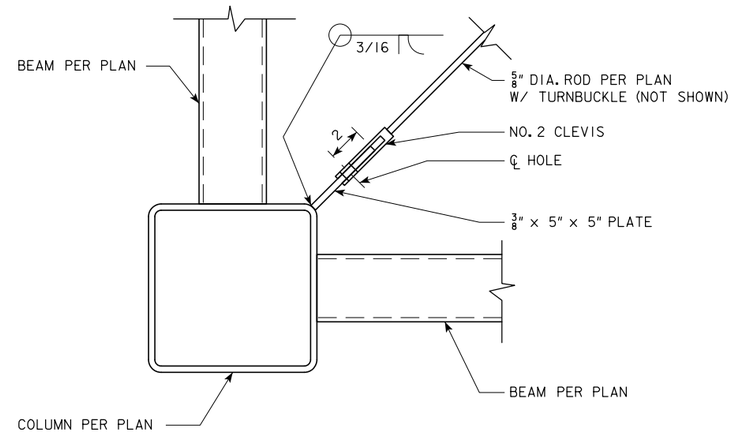


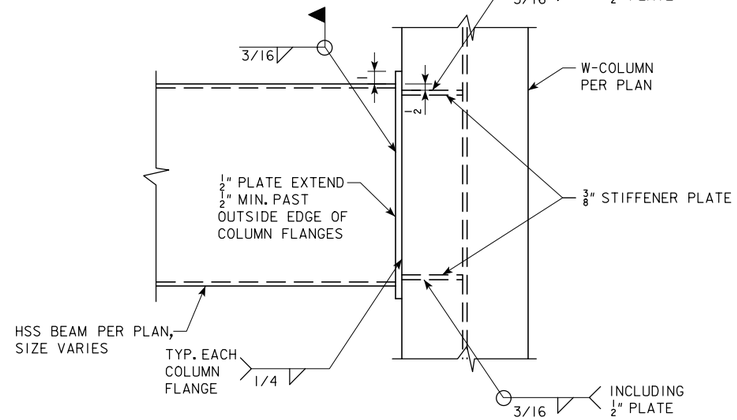
BRIDGE LEVEL FRAMING PLAN T/S = 611'-1 ½" U.N.O.

SCALE: 1/4" = 1'-0"



HORIZONTAL BRACE DETAIL 1

SCALE: 1 1/2" = 1'-0"



HSS BEAM TO W-COLUMN DETAIL

NOTES:

1. SEE PEDESTRIAN BRIDGE PLANS FOR CONNECTION. SEE W-BEAM TO W-COLUMN DETAILS SHEET S5.10 FOR CLIP ANGLES REQUIRED TO FIT WITH PEDESTRIAN BRIDGE CONNECTIONS.
2. TRENCH DRAIN, SEE PEDESTRIAN BRIDGE PLANS.
3. SEE W-BEAM TO W-COLUMN DETAIL, SHEET S1.15
4. FLOOR DECK TO BE 2" COMPOSITE 20 GAUGE GALVANIZED WITH 4 1/2" NORMAL WEIGHT CONCRETE TOPPING FOR A 6 1/2" TOTAL DECK THICKNESS. REINFORCE SLAB WITH 6x6 - W2.9xW2.9 W.W.F. CENTERED IN SLAB.
5. DECK SHALL BE WELDED TO SUPPORT FRAMING WITH A MINIMUM OF 5/8" DIA. PUDDLE WELDS AT 6" O.C. AT PERIMETER (ENDS AND SIDES) OF DECK AREA AND WITH 36/4 PATTERN AT INTERMEDIATE SUPPORTS WITHIN DECK AREA. FASTEN SIDELAPS TO ADJACENT DECK UNITS WITH TWO WELDS PER SPAN.
6. FOR HSS COLUMN TO BEAM WELDED CONNECTION AND HSS BEAM TO BEAM CONNECTION SEE DETAILS ON SHEET S1.11, TYPICAL.
7. 5" DIAMETER MAX. HOLE CENTERED IN BEAM WEB FOR 4" TRENCH PIPE. COORDINATE LOCATION WITH PLUMBING PLANS.
8. HSS4X4x1/4 BELOW, T/S = 609'-1 1/2".
9. SEE HSS BEAM TO W-COLUMN DETAIL.
10. SEE HSS COLUMN TO BEAM WELDED CONNECTION DETAIL SHEET S1.11.

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BRIDGE LEVEL FRAMING PLAN AND DETAILS

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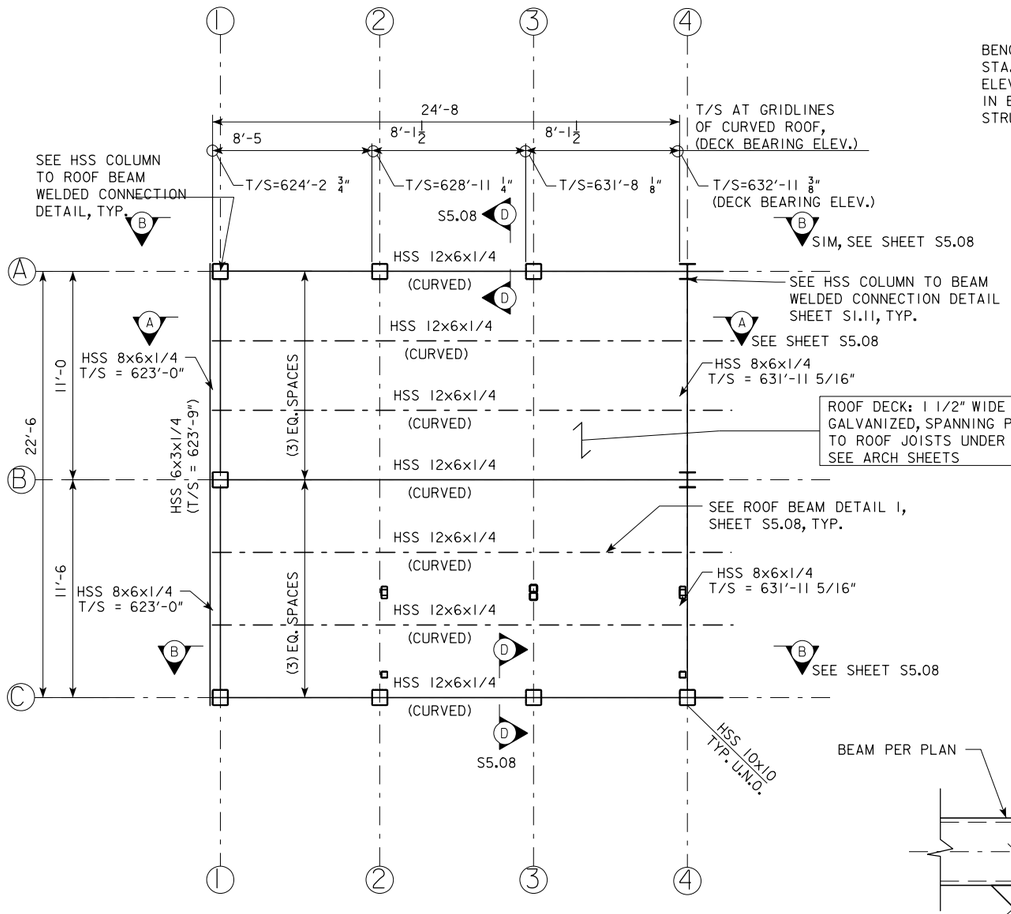


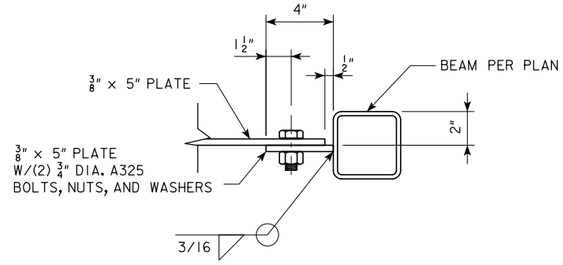
ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"

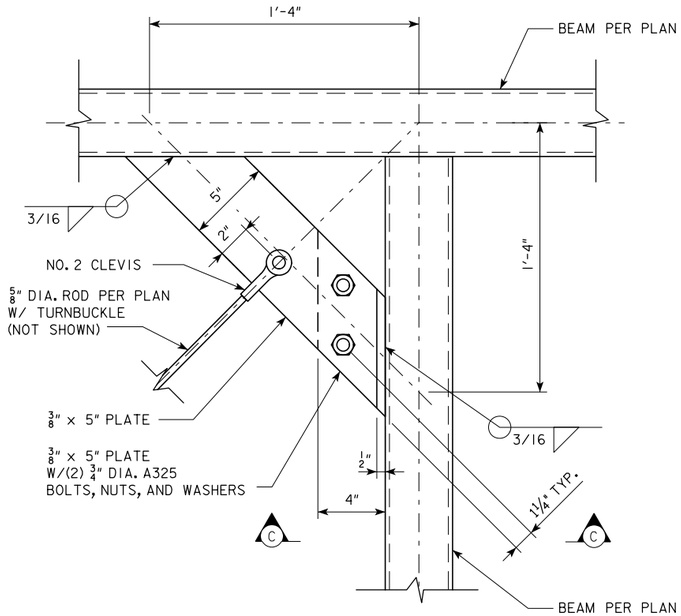
BENCH MARK NO. 500;
STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X"
IN BOLT E. SIDE CONCRETE
STRUCTURE

NOTES:

1. ROOF DECK SHALL BE FASTENED TO SUPPORT FRAMING WITH #12 TEK SCREWS AT 6" O.C. AT PERIMETER (ENDS AND SIDES) OF DECK AREA AND WITH 36/4 PATTERN AT INTERMEDIATE SUPPORTS WITHIN DECK AREA. FASTEN SIDELAPS TO ADJACENT DECK UNITS WITH TWO #10 TEK SCREWS PER SPAN.

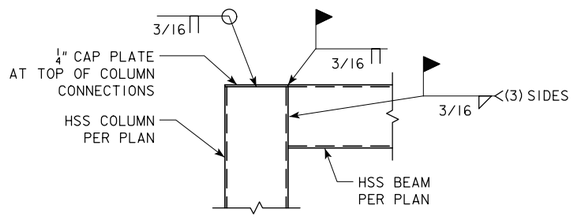


SECTION C-C



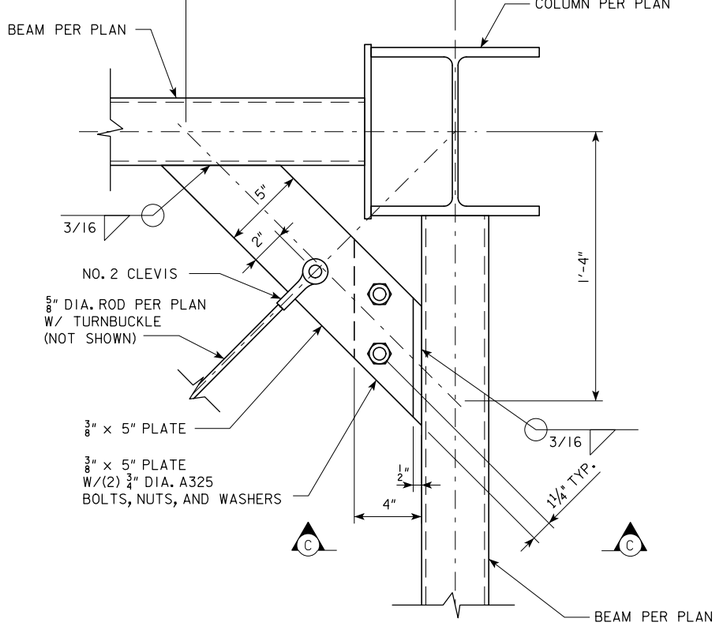
HORIZONTAL BRACE DETAIL 2

SCALE: 1 1/2" = 1'-0"



TYPICAL HSS COLUMN TO ROOF BEAM WELDED CONNECTION

NOT TO SCALE



HORIZONTAL BRACE DETAIL 3

SCALE: 1 1/2" = 1'-0"

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

ROOF FRAMING PLAN AND DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER S1.13

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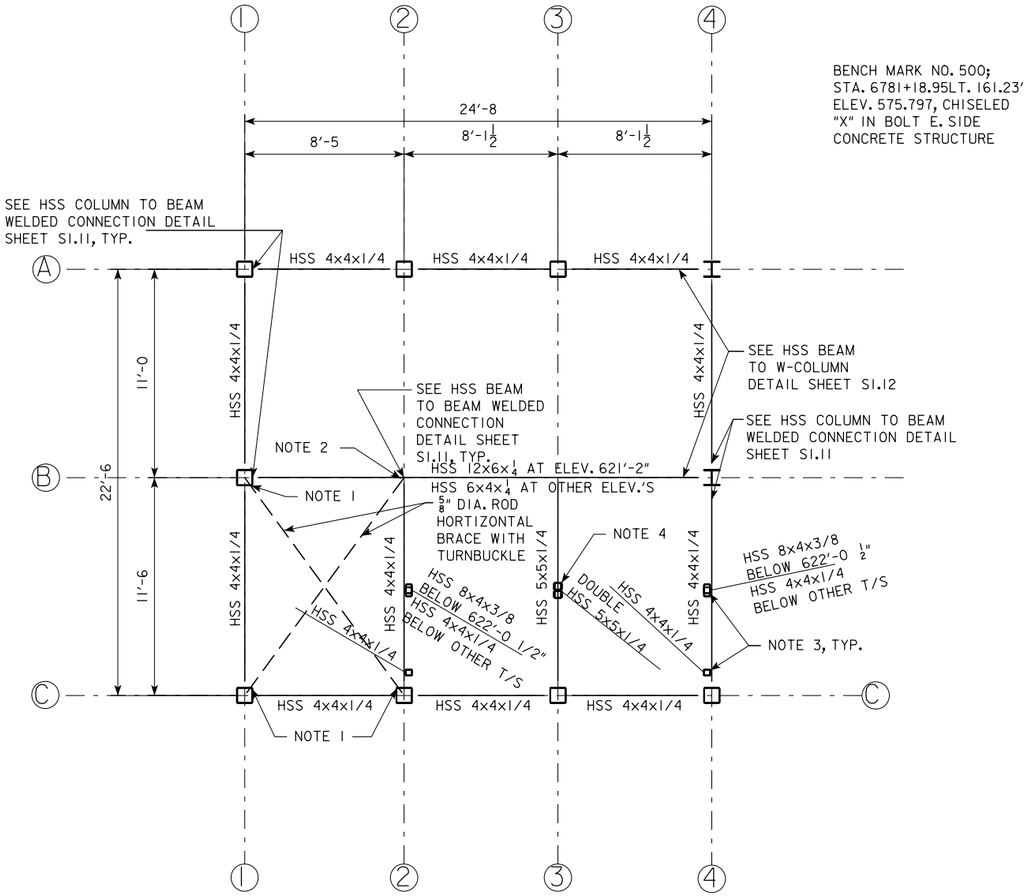
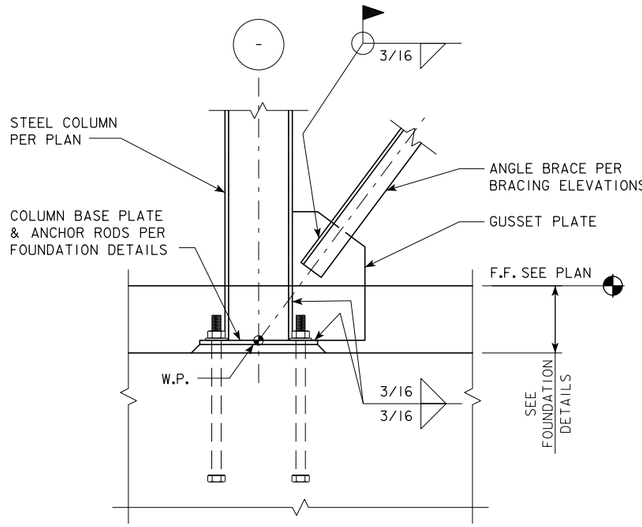


ELEVATOR SUPPORTS AND PERIMETER FRAMING PLAN AT T/S = 586'-11 ⅝", 603'-0 ¾", 621'-2"

SCALE: 1/4" = 1'-0"

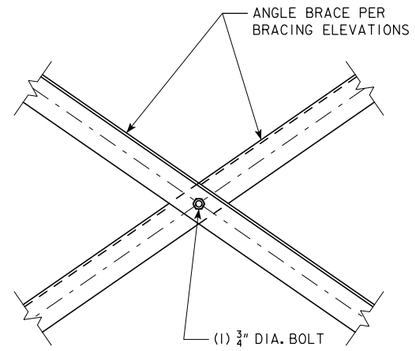
NOTES:

1. SEE HORIZONTAL BRACE DETAIL 1, SHEET S1.12.
2. SEE HORIZONTAL BRACE DETAIL 2, SHEET S1.13.
3. SEE ELEVATOR SUPPORT DETAIL 1, SHEET S1.11.
4. SEE ELEVATOR SUPPORT DETAIL 2, SHEET S1.11.



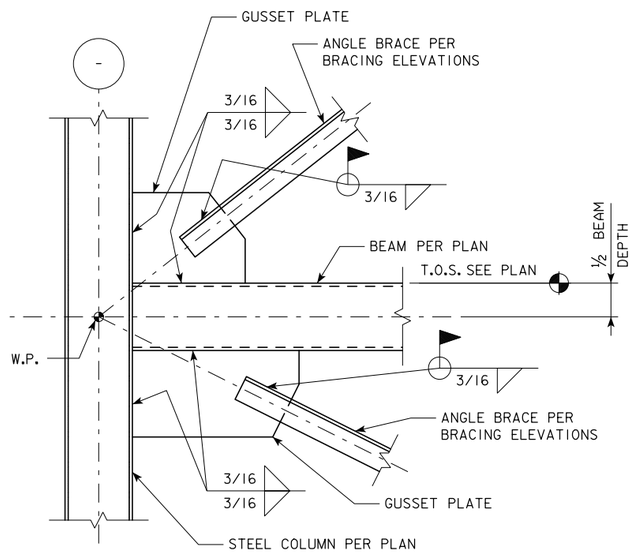
VERTICAL BRACE CONNECTION 1

SCALE: 3/4" = 1'-0"



VERTICAL BRACE CONNECTION 3

SCALE: 3/4" = 1'-0"



VERTICAL BRACE CONNECTION 2

SCALE: 3/4" = 1'-0"

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

ELEVATOR FRAMING PLAN

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER S1.14

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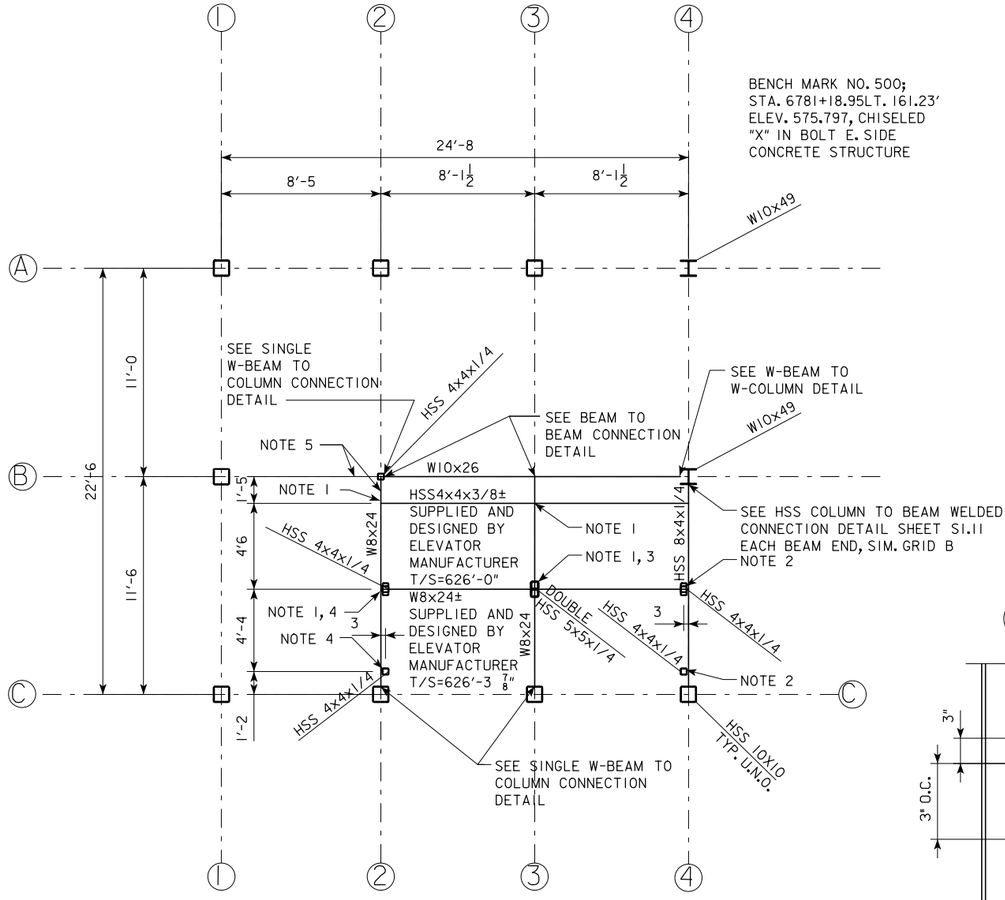


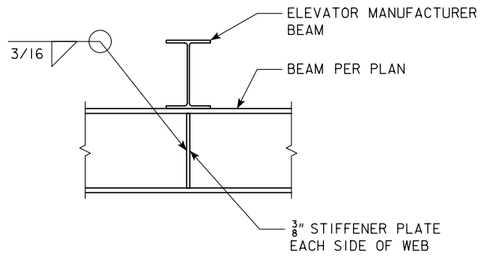
N

ELEVATOR HOIST FRAMING PLAN T/S = 625'-8" U.N.O.

SCALE: 1/4" = 1'-0"

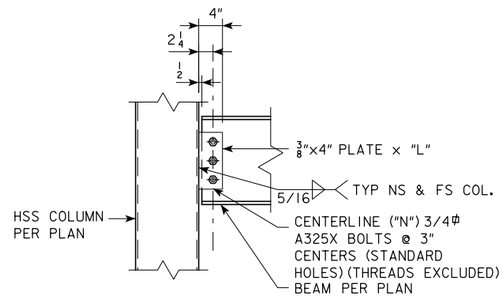
NOTES:

1. SEE BEAM STIFFENER DETAIL THIS SHEET AT ELEVATOR MANUFACTURER BEAM OVER PROVIDED BEAM LOCATIONS.
2. SEE ELEVATOR SUPPORT DETAIL 1, SHEET S1.11.
3. SEE ELEVATOR SUPPORT DETAIL 2, SHEET S1.11.
4. SEE ELEVATOR SUPPORT DETAIL 3, SHEET S5.09.
5. HSS 4x4x¼ BRACE, SEE BRACE DETAIL THIS SHEET. (2) EACH.



BEAM STIFFENER DETAIL

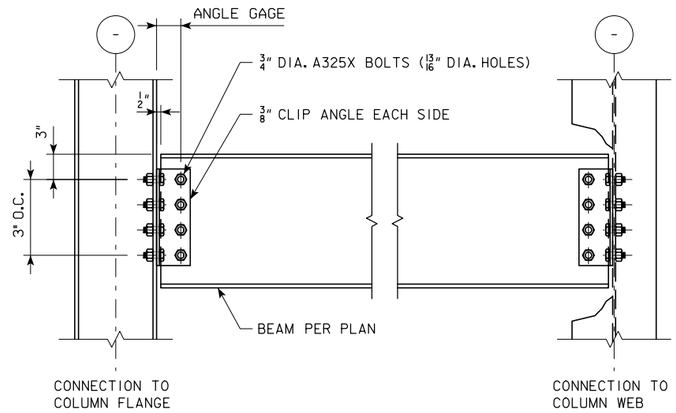
SCALE: 3/4" = 1'-0"



DIMENSION TABLE			
BEAM	N	L	REMARKS
W8	2	6"	
W14	3	9"	

SINGLE W-BEAM TO COLUMN CONNECTION

SCALE: 1" = 1'-0"

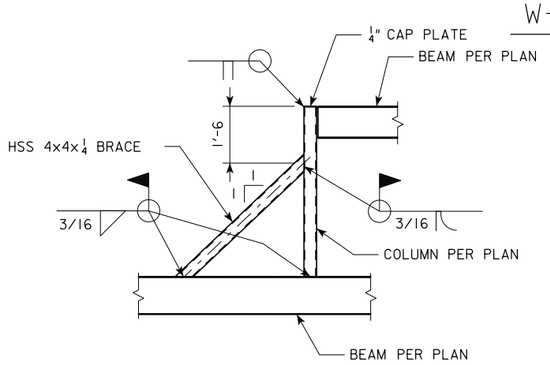


NOTES:

1. DO NOT USE FEWER BOLTS THAN THE MINIMUM ROWS OF BOLTS GIVEN BELOW:
   W8, W10 - 2 ROWS
   W12, W14 - 3 ROWS
   W16 - 4 ROWS
   W18 - 5 ROWS
   W27 - 5 ROWS
2. COPE BEAMS AS REQUIRED FOR CLEARANCE.
3. WHEN TWO BEAMS ON OPPOSITE SIDES OF SUPPORT ARE CONNECTED SHARING COMMON CONNECTION HOLES, AT LEAST ONE BOLT WITH ITS WRENCH-TIGHT NUT SHALL REMAIN CONNECTED TO THE FIRST MEMBER UNLESS A SHOP ATTACHED OR FIELD-ATTACHED SEAT IS SUPPLIED WITH THE MEMBER TO SECURE THE FIRST MEMEBER AND PREVENT THE COLUMN FROM BEING DISPLACED.
4. IF A SEAT OR EQUIVALENT DEVICE IS USED, THE SEAT (OR DEVICE) SHALL BE DESIGNED TO SUPPORT THE LOAD DURING THE DOUBLE CONNECTION PROCESS. IT SHALL BE ADEQUATELY BOLTED OR WELDED TO BOTH A SUPPORTING MEMBER AND THE FIRST MEMEBER BEOFRE THE NUTS ON THE SHARED BOLTS ARE REMOVED TO MAKE THE DOUBLE CONNECTION.

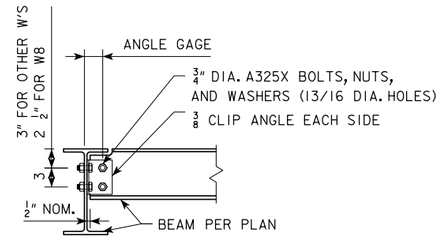
W-BEAM TO W-COLUMN DETAIL

SCALE: 3/4" = 1'-0"



BRACE DETAIL

SCALE: 1/2" = 1'-0"



NOTES:

1. PROVIDE THE NUMBER OF BOLTS SHOWN BELOW
   W8 - 2 ROWS
   W14 - 3 ROWS
2. COPE BEAMS AS REQUIRED FOR CLEARANCE.
3. IF A SEAT OR EQUIVALENT DEVICE IS USED, THE SEAT (OR DEVICE) SHALL BE DESIGNED TO SUPPORT THE LOAD DURING THE DOUBLE CONNECTION PROCESS. IT SHALL BE ADEQUATELY BOLTED/WELDED TO BOTH A SUPPORTING MEMBER AND THE FIRST MEMBER BEFORE THE NUTS ON THE SHARED BOLTS ARE REMOVED TO MAKE THE DOUBLE CONNECTION.

BEAM TO BEAM CONNECTION

SCALE: 1" = 1'-0"

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

ELEVATOR FRAMING PLAN AND DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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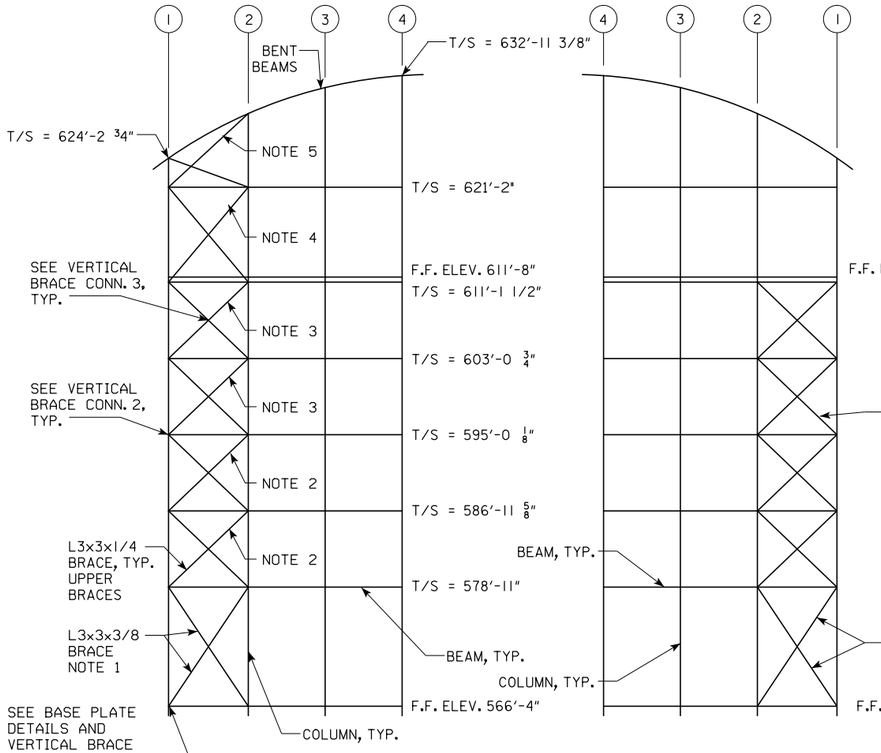
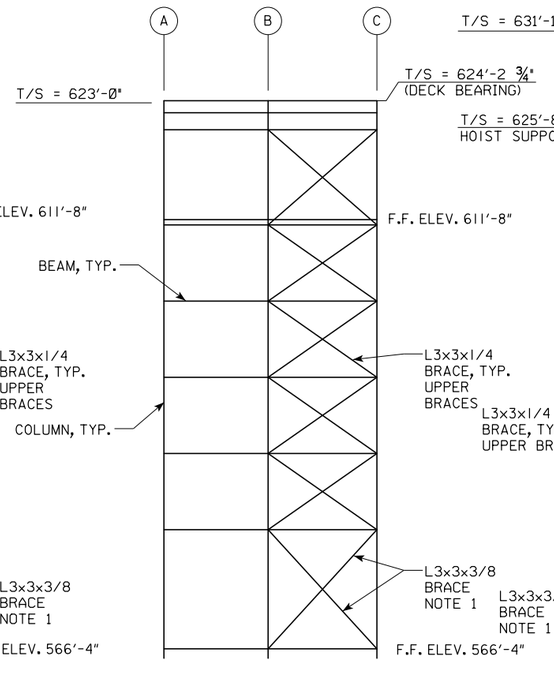


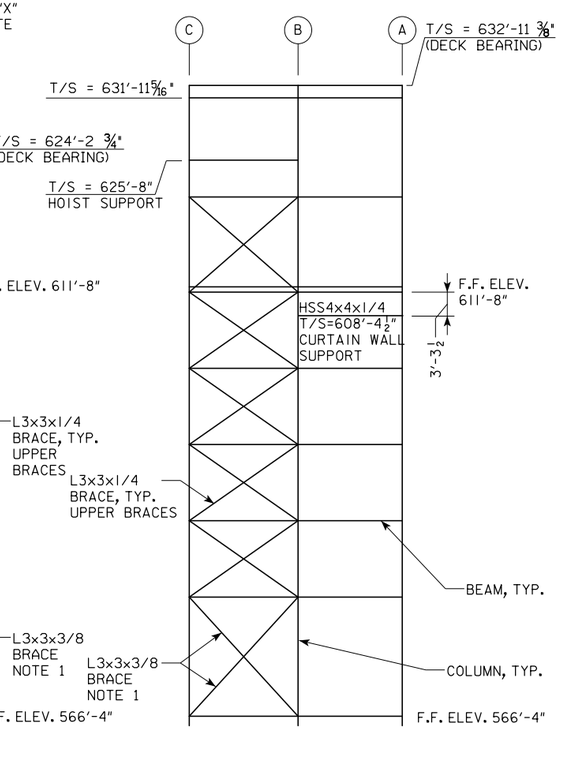
GRID C BRACING
LOOKING NORTH
SCALE: 1/8" = 1'-0"

GRID A BRACING
LOOKING SOUTH
SCALE: 1/8" = 1'-0"

BENCH MARK NO. 500;
STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X"
IN BOLT E. SIDE CONCRETE
STRUCTURE



GRID I BRACING
LOOKING EAST
SCALE: 1/8" = 1'-0"



GRID 4 BRACING
LOOKING WEST
SCALE: 1/8" = 1'-0"

COLUMN SCHEDULE

COLUMN MARK	A1,B1,C1	A2,C2	A3,C3	A4,B4, C4
ROOF LEVEL ELEV.=631'-11 5/16"				
ROOF LEVEL ELEV.=630'-7 3/4"				
ROOF LEVEL ELEV.=627'-10 1/8"				
ROOF LEVEL ELEV.=623'-0"				
F.F. ELEV.=611'-8"				HSS10x10x3/8 (C4)
COLUMN SPLICE ELEV.=599'-4"	HSS10x10x3/8	HSS10x10x3/8	HSS10x10x1/4	W10x49
F.F. ELEV.=566'-4"	HSS10x10x3/8	HSS10x10x3/8	HSS10x10x1/4	HSS10x10x3/8 (C4) W10x49
TOP OF FND. ELEV. - SEE PLAN				

NOTES: COLUMNS ARE TAPERED AT GRIDS 2, 3, AND 4. TOP OF COLUMN ELEV'S SHOWN ARE AT COLUMN CENTERLINES AND INCLUDE TOP PLATE THICKNESS.
ELEVATOR FRAMING COLUMNS NOT SHOWN. SEE S5.09 FOR SCHEDULE.

NOTE: SEE FRAMING PLANS FOR MEMBER SIZES

NOTE: HORIZONTAL DESIGN WIND MOVEMENT OF BUILDING AT PEDESTRIAN BRIDGE LEVEL = 7/8" TRANSVERSE TO PEDESTRIAN BRIDGE AND 7/8" PARALLEL TO BRIDGE.

NOTES:

1. PER SHEET S0.02 STRUCTURAL STEEL NOTES, DESIGN BRACE CONNECTION EACH END FOR 30 KIPS TENSION.
2. 20 KIPS TENSION DESIGN LOAD FOR BRACE CONNECTIONS EACH END THIS LEVEL.
3. 15 KIPS TENSION DESIGN LOAD FOR BRACE CONNECTIONS EACH END THIS LEVEL.
4. 10 KIPS TENSION DESIGN LOAD FOR BRACE CONNECTIONS EACH END THIS LEVEL.
5. 5 KIPS TENSION DESIGN LOAD FO RBRACE CONNECTIONS EACH END THIS LEVEL.

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

BRACING ELEVATIONS
AND COLUMN SCHEDULE

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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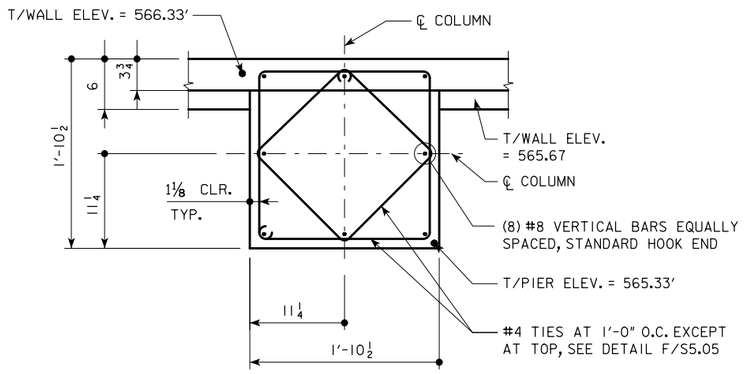
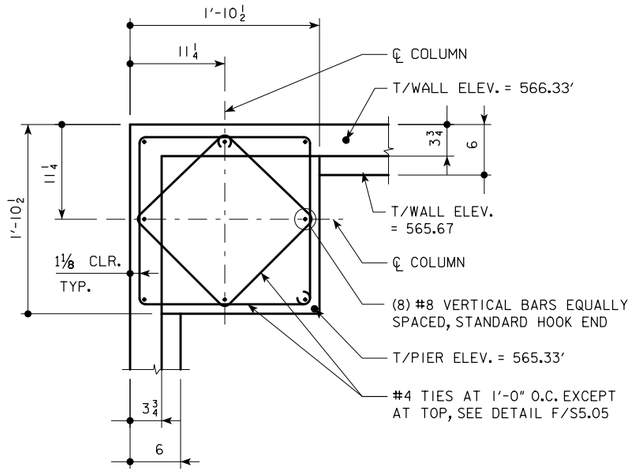


PIER DETAIL - P1

SCALE: 1/2" = 1'-0"



PIER DETAIL - P2

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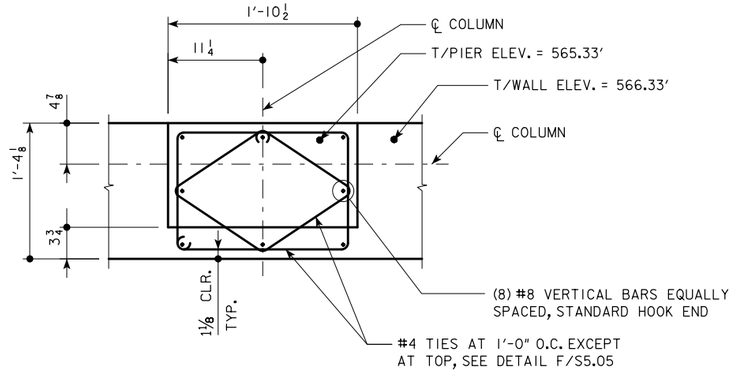

PIER DETAIL - P3

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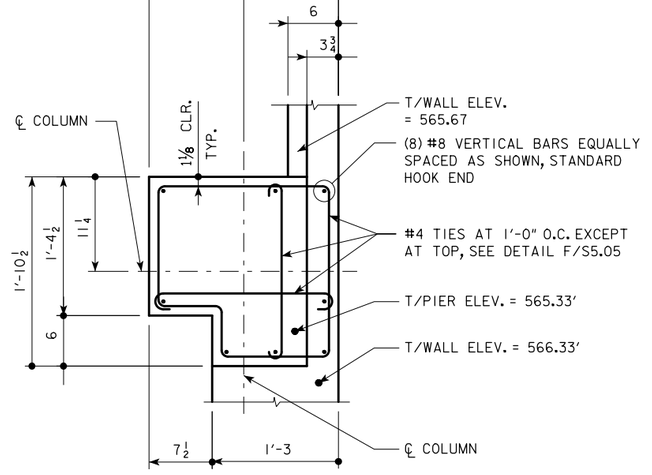
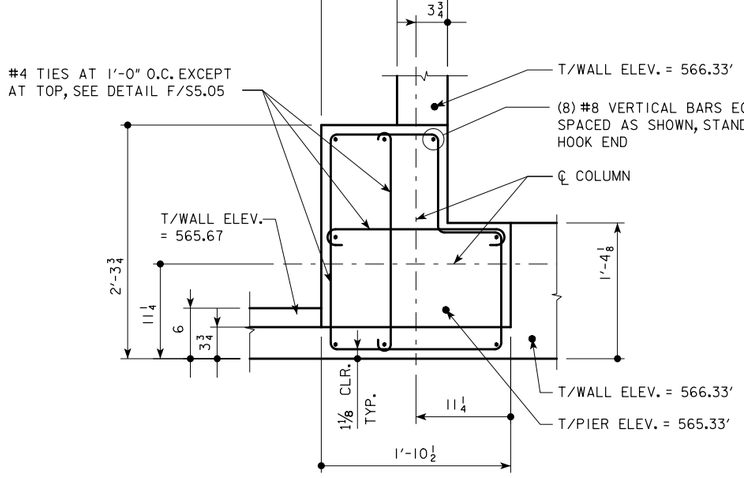


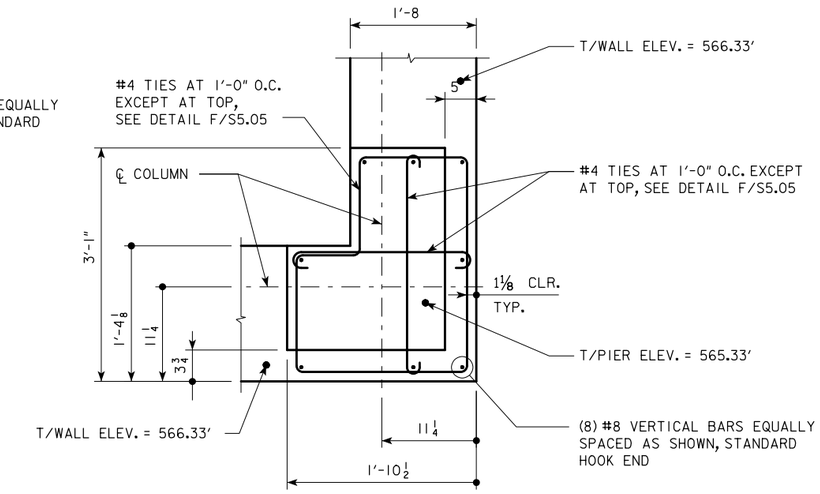
PIER DETAIL - P4

SCALE: 1/2" = 1'-0"



PIER DETAIL - P5

SCALE: 1/2" = 1'-0"



PIER DETAIL - P6

SCALE: 1/2" = 1'-0"

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

FOUNDATION DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER S5.02

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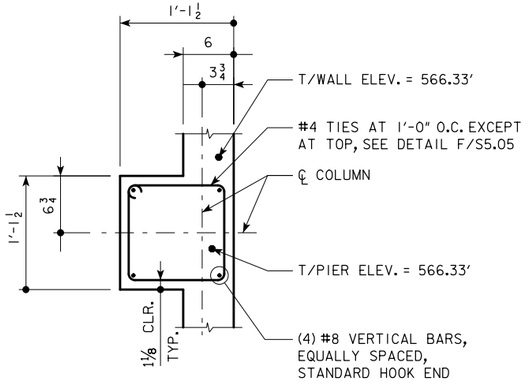

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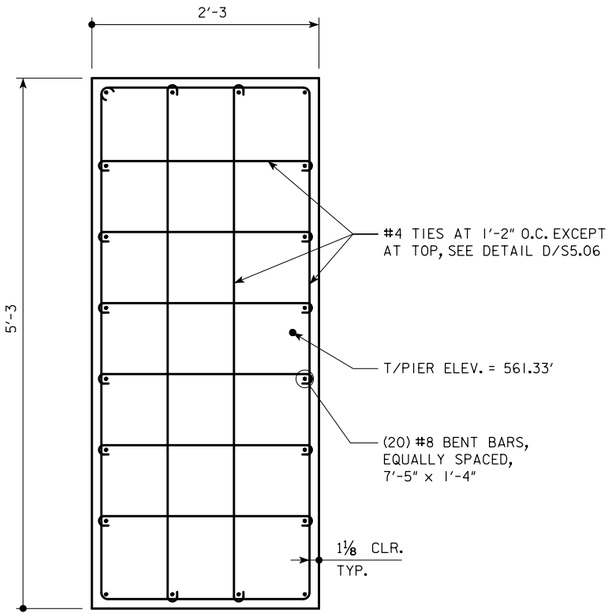
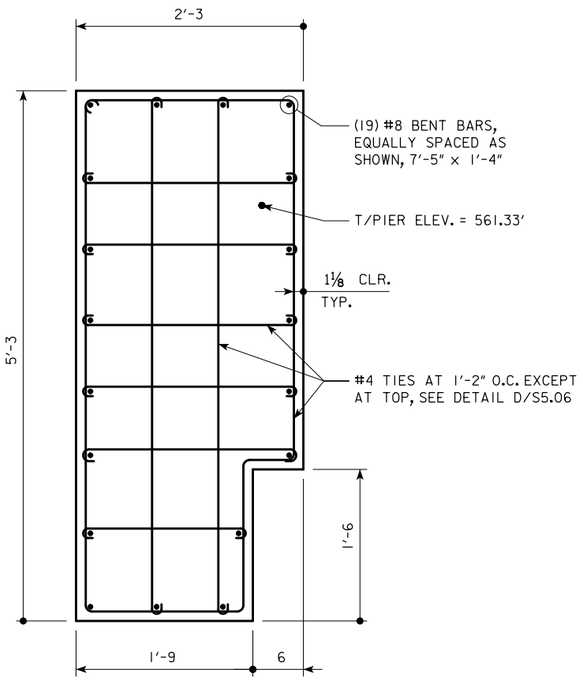


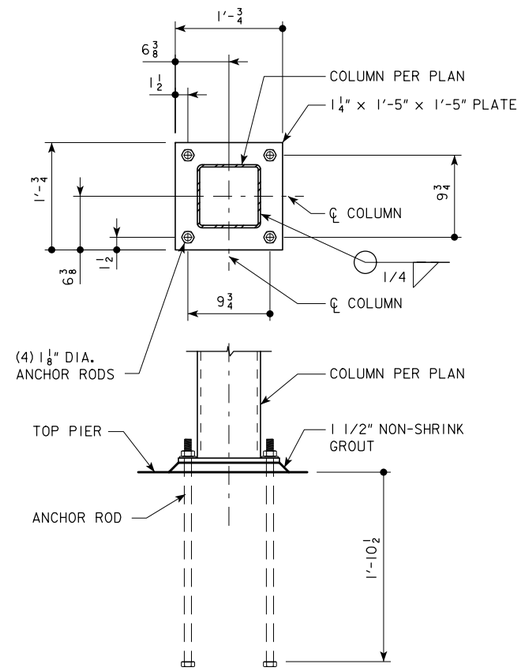
PIER DETAIL - P8

SCALE: 1/2" = 1'-0"



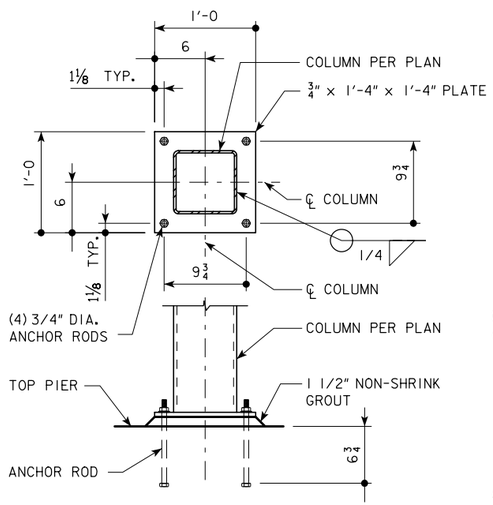
PIER DETAIL - P9

SCALE: 1/2" = 1'-0"



BASE PLATE DETAIL - BP1

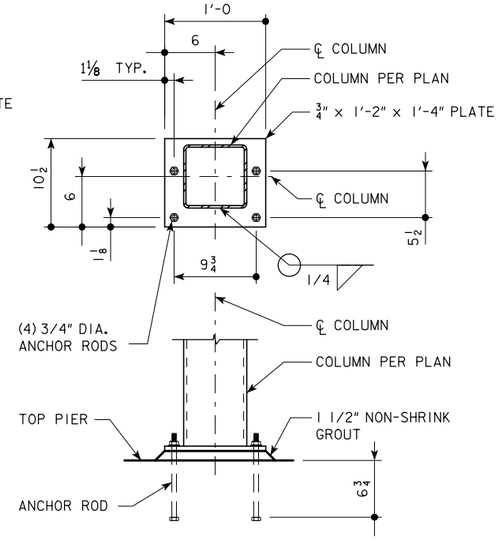
SCALE: 1/2" = 1'-0"



NOTE: COLUMN A/4 IS A W-SHAPE PER PLAN

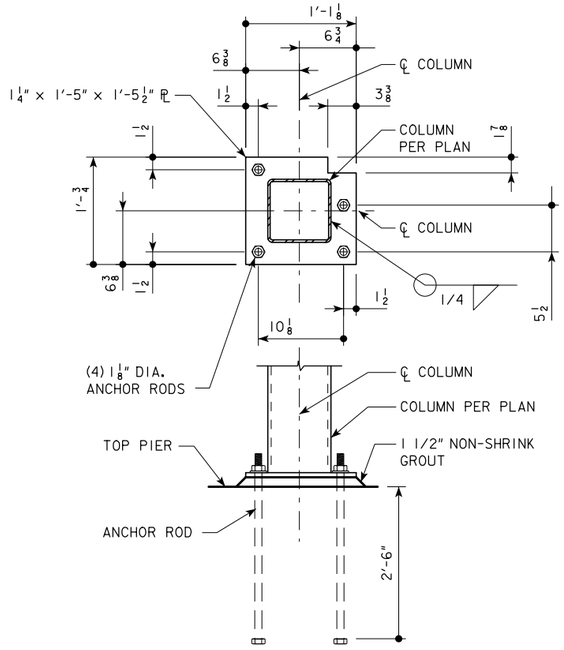
BASE PLATE DETAIL - BP2

SCALE: 1/2" = 1'-0"



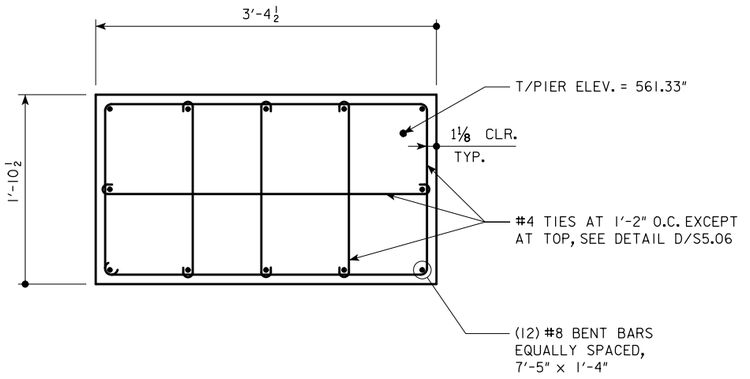
BASE PLATE DETAIL - BP3

SCALE: 1/2" = 1'-0"



BASE PLATE DETAIL - BP4

SCALE: 1/2" = 1'-0"



PIER DETAIL - P10

SCALE: 1/2" = 1'-0"

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FOUNDATION DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

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DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JDA/MAR/JDA | SCOTT COUNTY | PROJECT NUMBER IM-074-1(255)5--13-82 | SHEET NUMBER S5.03

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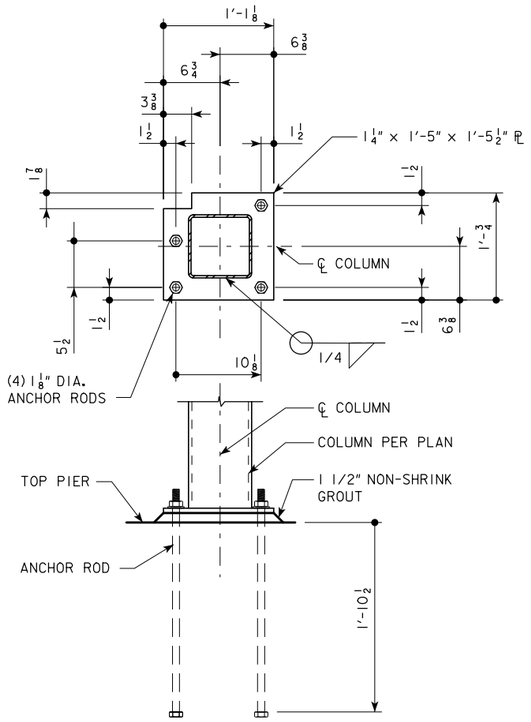
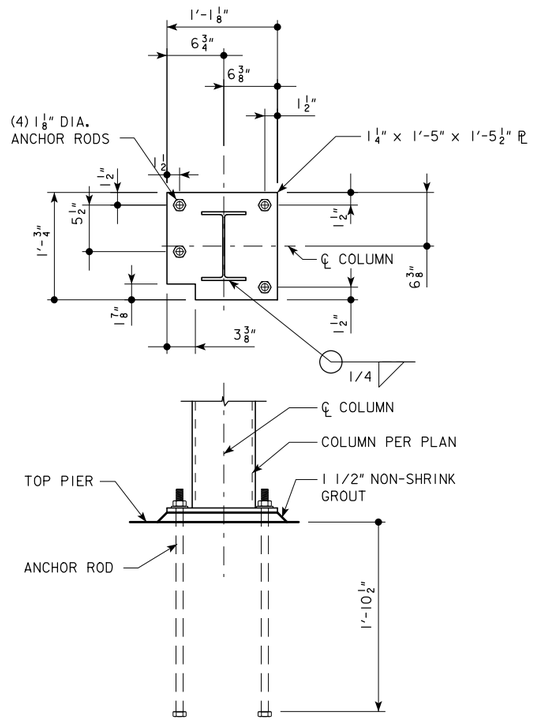


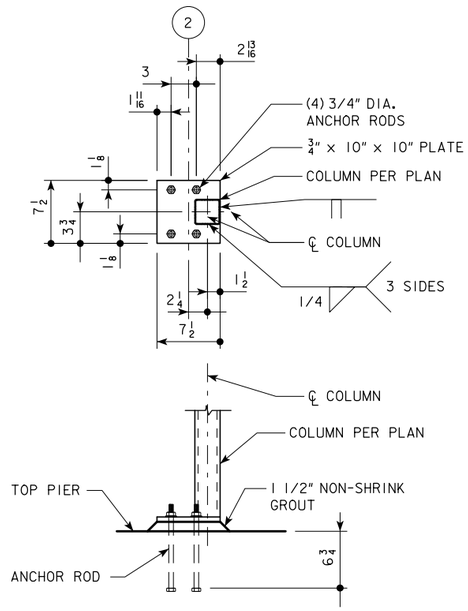
BASE PLATE DETAIL - BP5

SCALE: 1/2" = 1'-0"



BASE PLATE DETAIL - BP6

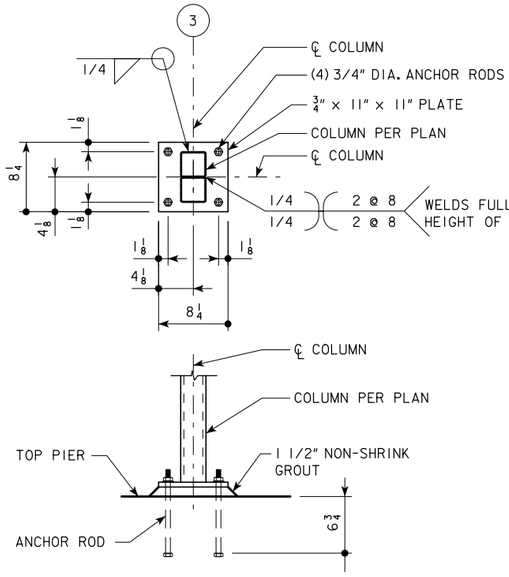
SCALE: 1/2" = 1'-0"



NOTE: DETAIL IS MIRROR IMAGE AT COLUMNS ADJACENT TO GRID 4.

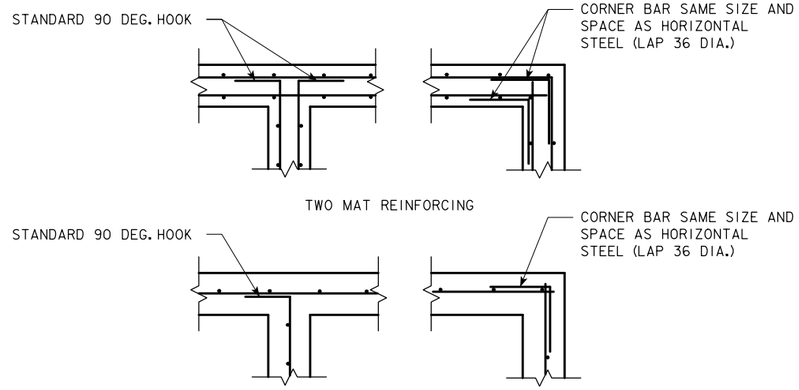
BASE PLATE DETAIL - BP7

SCALE: 1/2" = 1'-0"



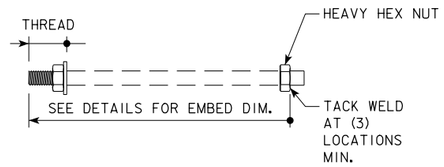
BASE PLATE DETAIL - BP8

SCALE: 1/2" = 1'-0"



TYP. WALL CORNER DETAILS

SCALE: NTS



ANCHOR ROD DETAIL

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

FOUNDATION DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JDA/MAR/JDA | SCOTT COUNTY | PROJECT NUMBER IM-074-1(255)5--13-82 | SHEET NUMBER S5.04

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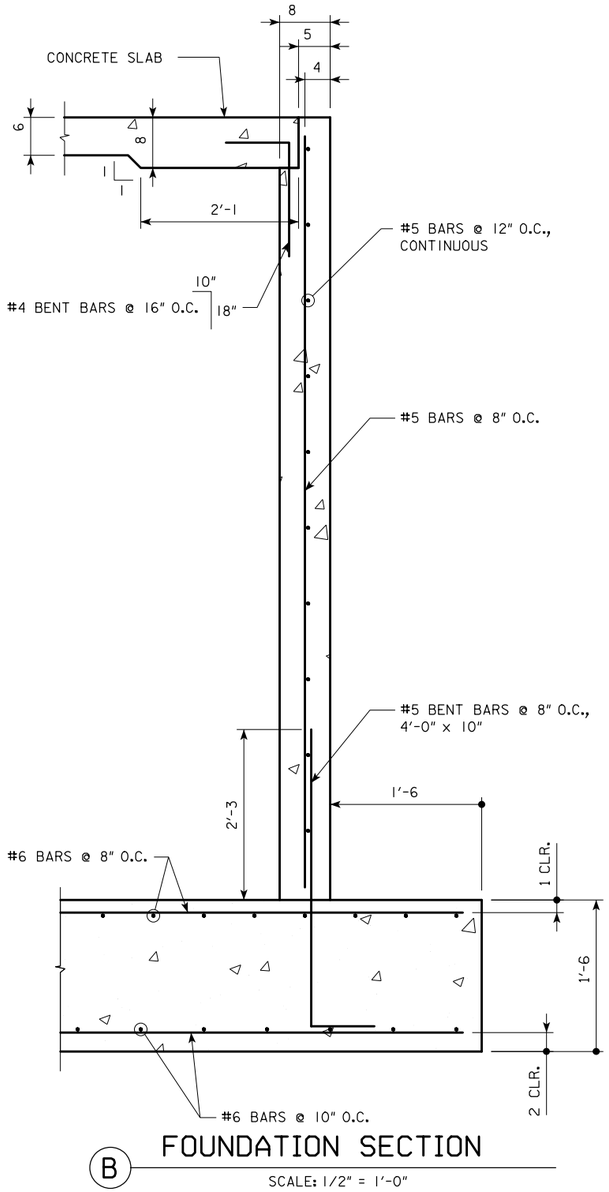
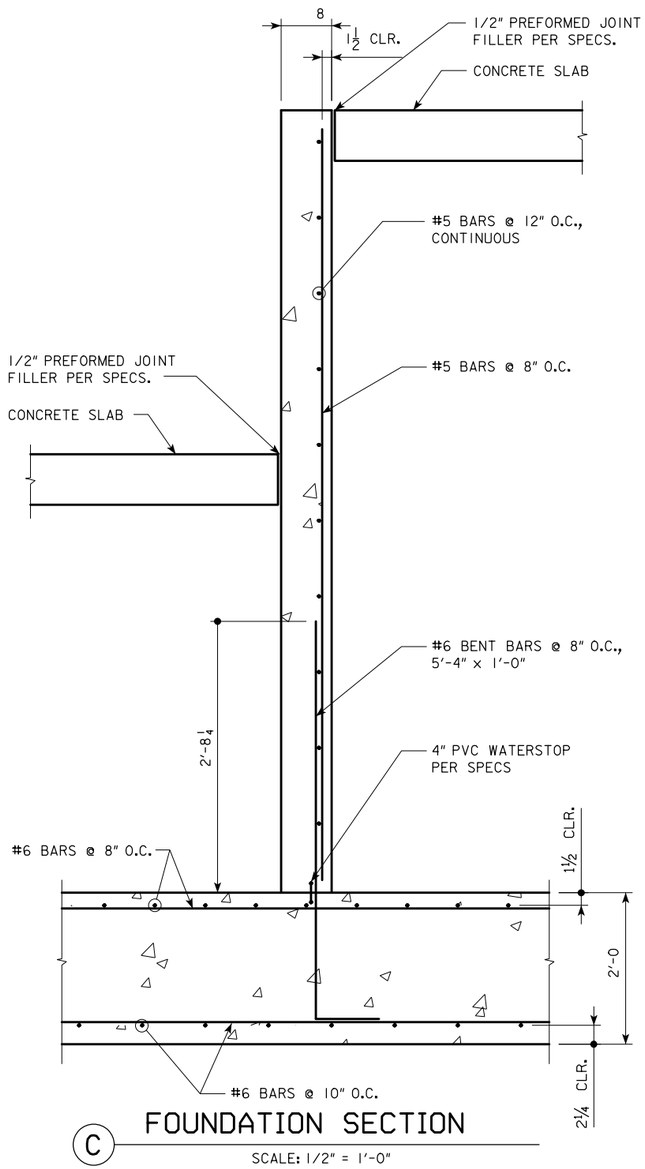


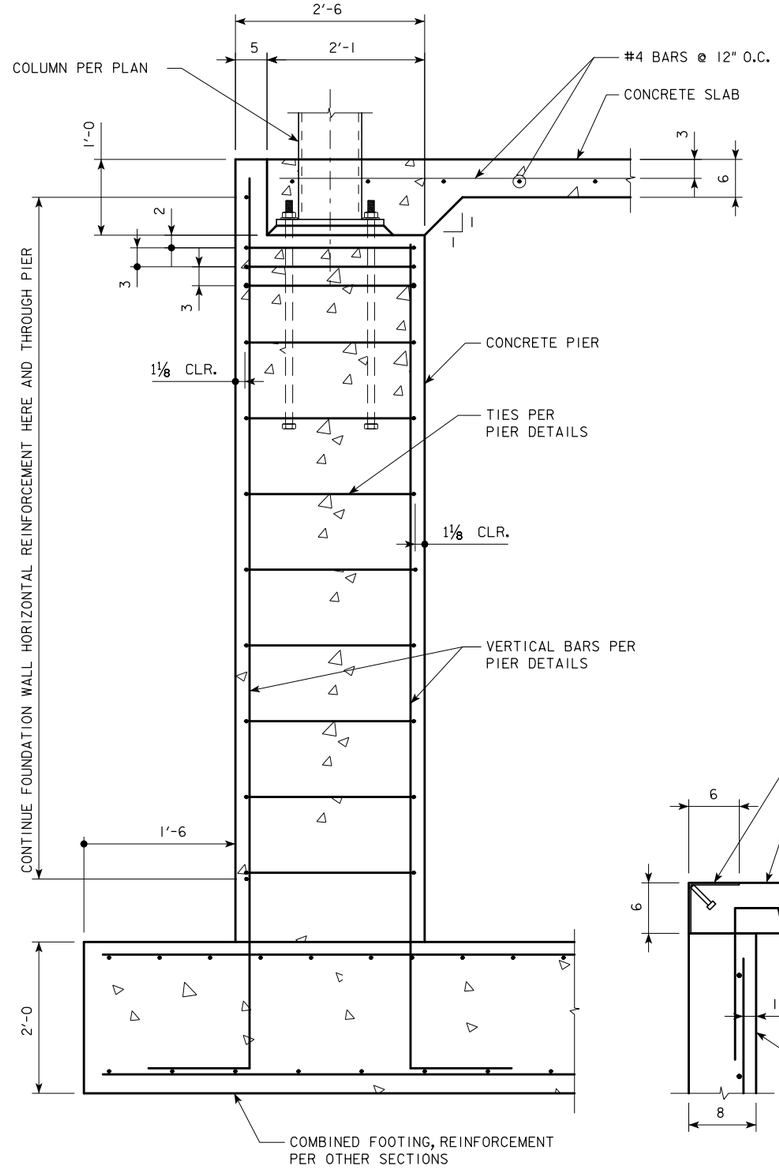
B FOUNDATION SECTION

SCALE: 1/2" = 1'-0"



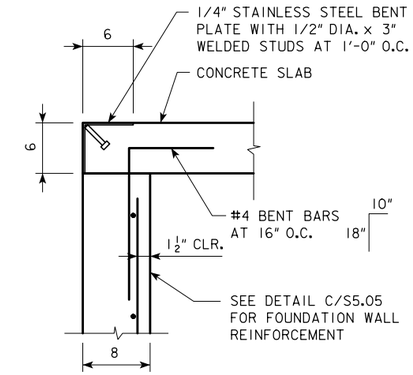
C FOUNDATION SECTION

SCALE: 1/2" = 1'-0"



F PIER SECTION, TYP.

SCALE: 1/2" = 1'-0"



G FOUNDATION SECTION

SCALE: 3/4" = 1'-0"

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DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

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SCOTT COUNTY

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DESIGN TEAM JDA/MAR/JDA | SCOTT COUNTY | PROJECT NUMBER IM-074-1(255)5--13-82 | SHEET NUMBER S5.05

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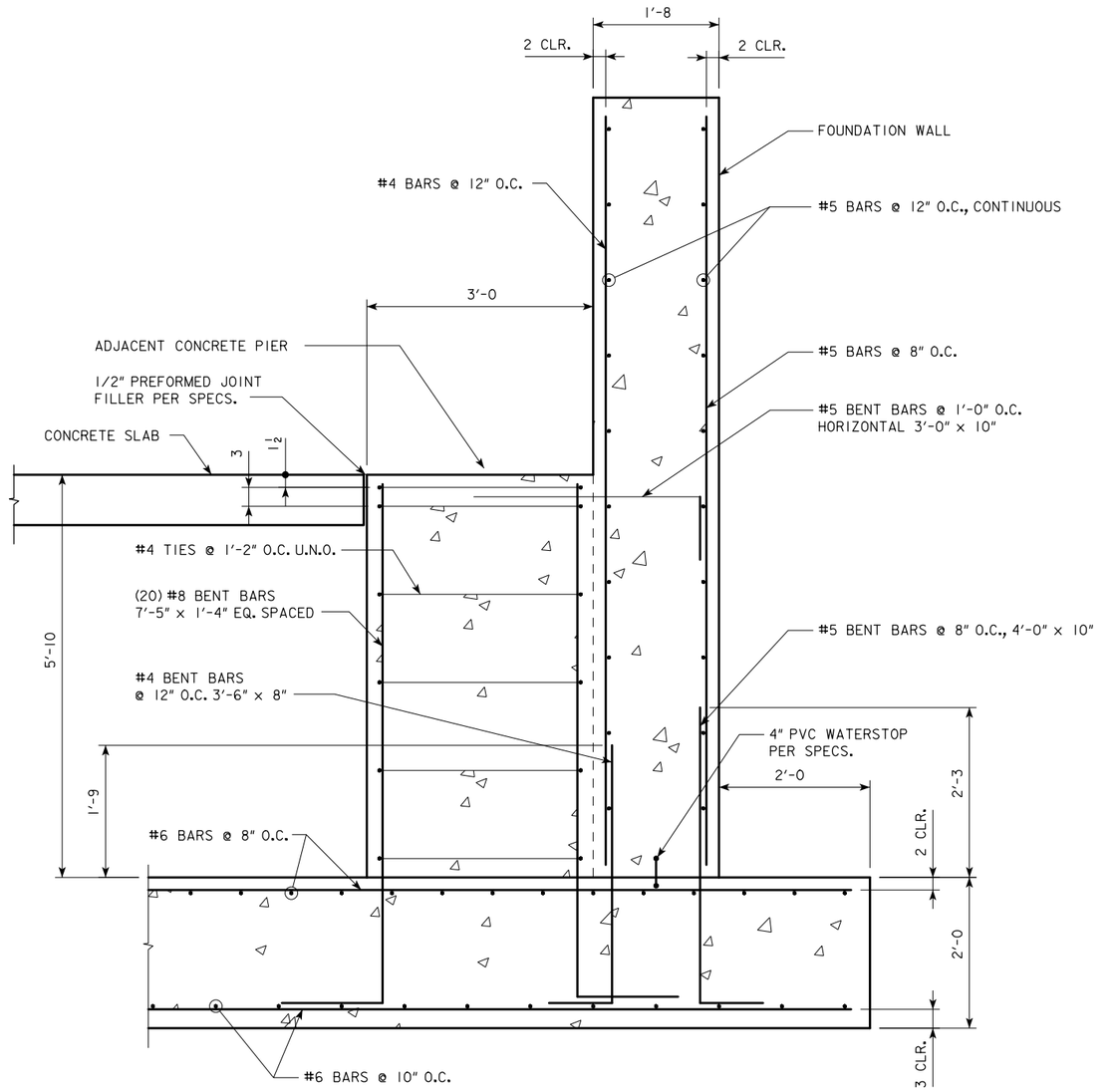
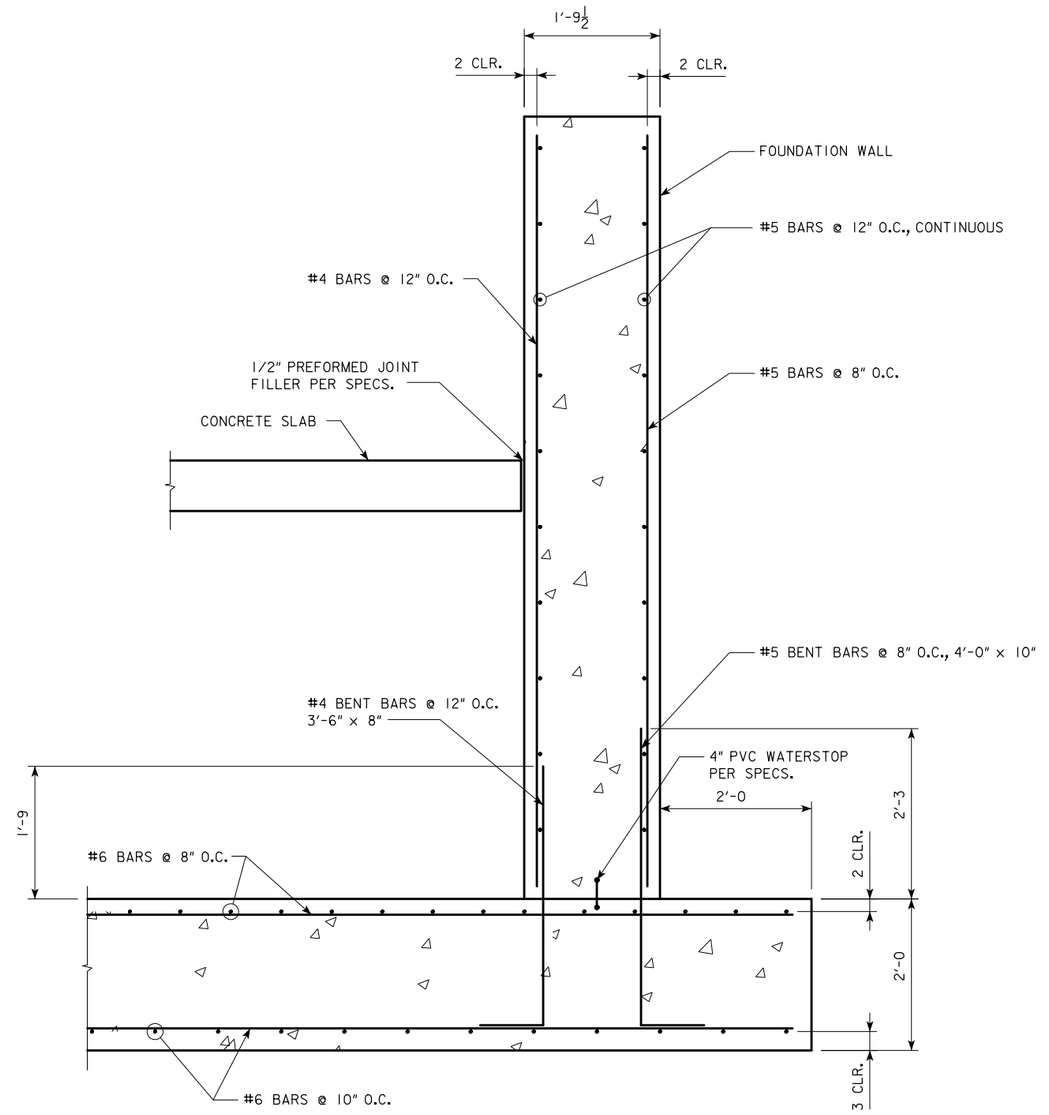


D FOUNDATION SECTION

SCALE: 1/2" = 1'-0"



E FOUNDATION SECTION

SCALE: 1/2" = 1'-0"

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

FOUNDATION DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER S5.06

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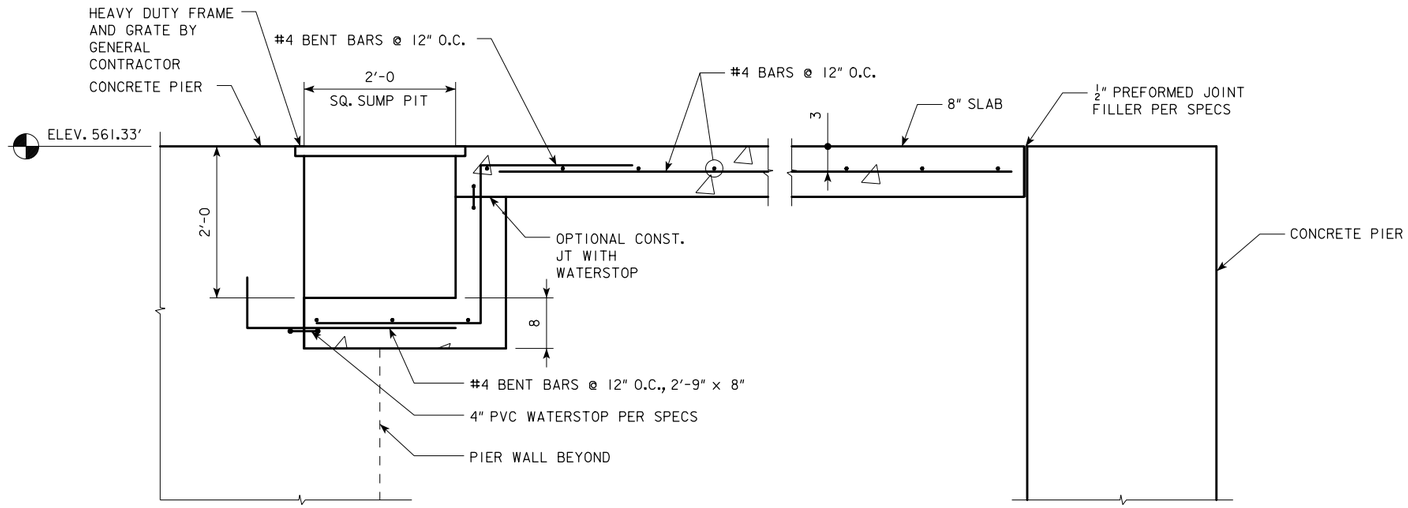
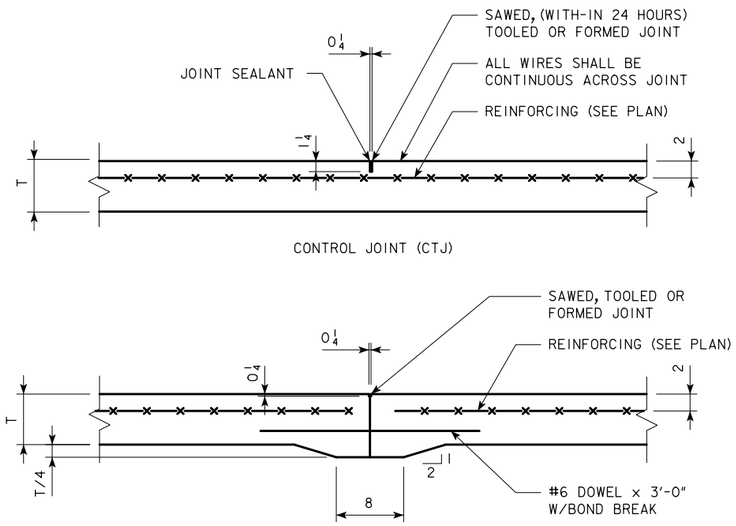


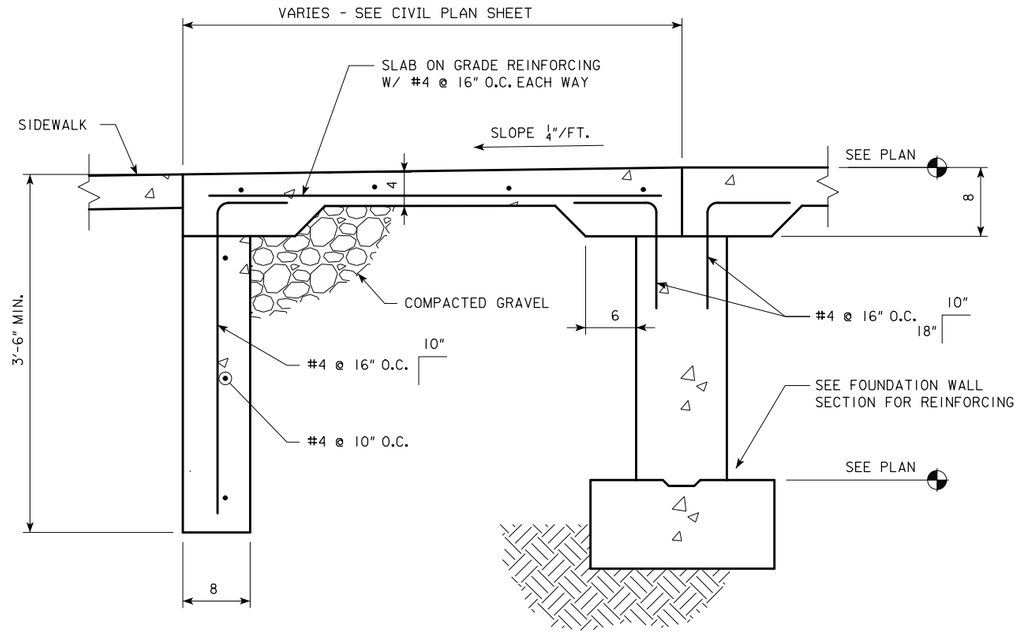
H ELEVATOR PIT AND SUMP PIT SLAB DETAIL

SCALE: 1/2" = 1'-0"



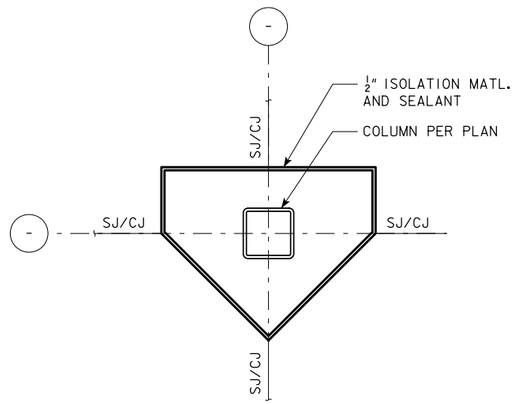
TYP. CONTROL/CONSTRUCTION JOINT DETAIL

SCALE: NTS



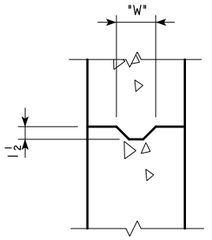
TYP. CONCRETE STOOP DETAIL

SCALE: ¾" = 1'-0"



ISOLATION JOINT DETAIL

SCALE: NTS



NOTES:

1. STOP KEYWAYS IN VERTICAL JOINTS 6" BELOW EXPOSED TOP OF WALL.
2. RUN REINFORCING CONTINUOUS THRU JOINT.

WALL CONSTRUCTION JOINT

SCALE: NTS

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

FOUNDATION DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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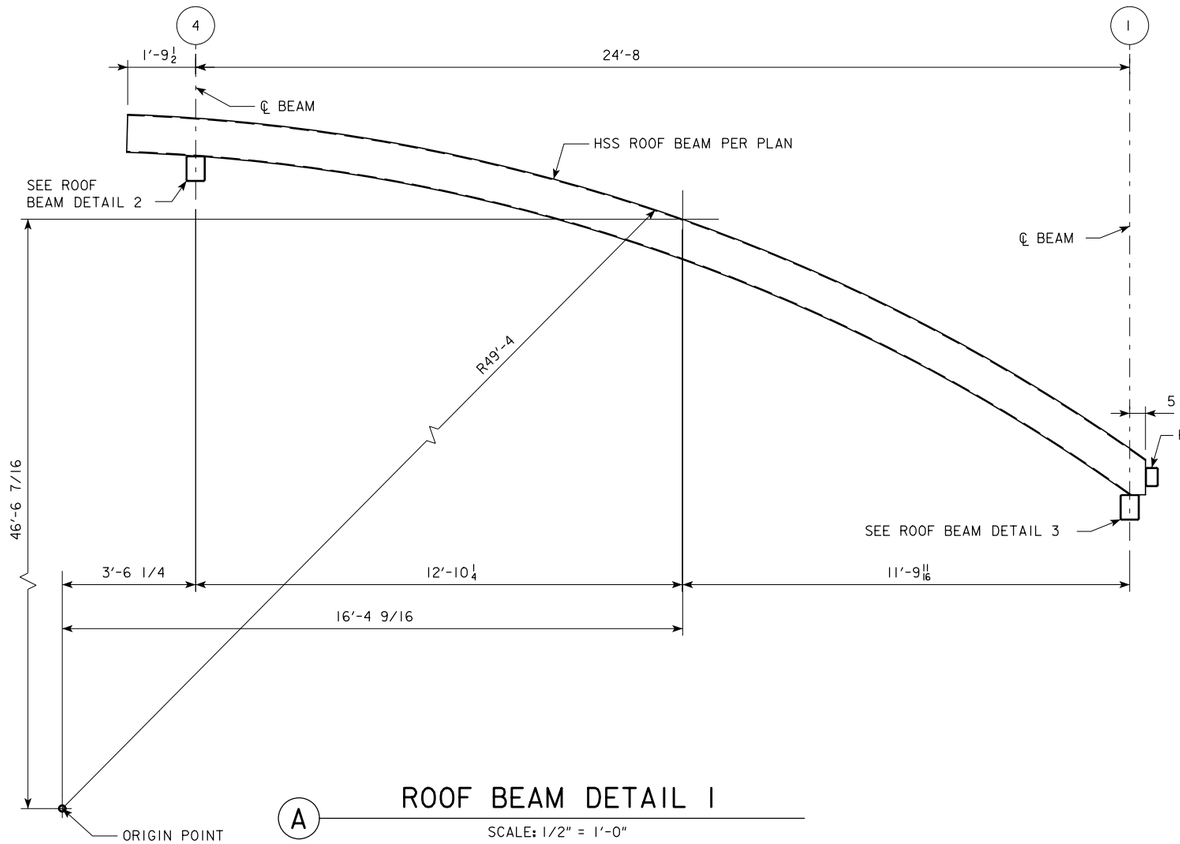
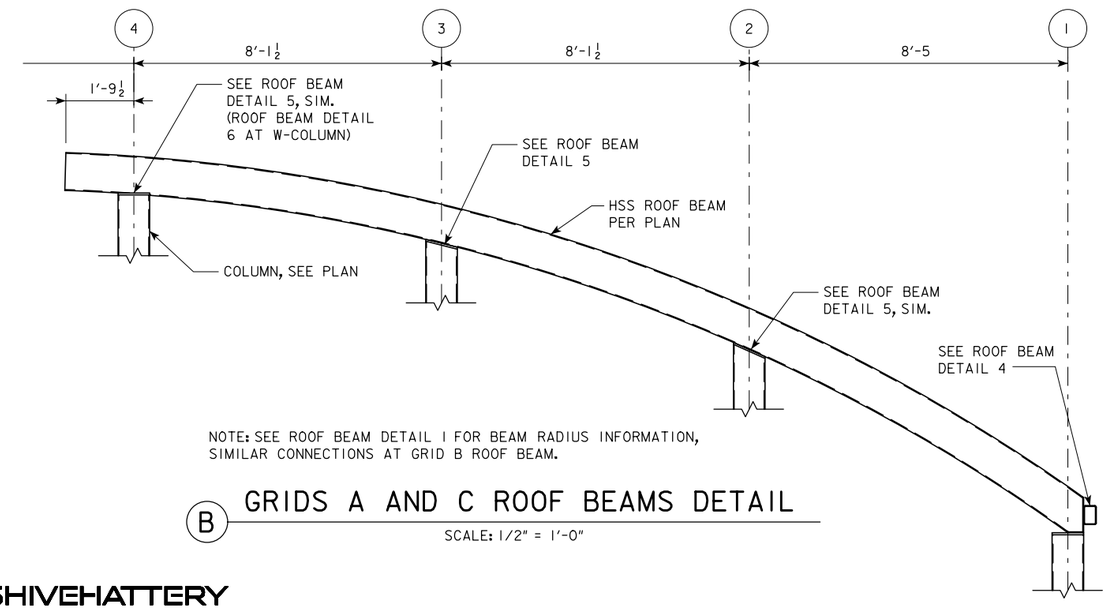


A ROOF BEAM DETAIL 1

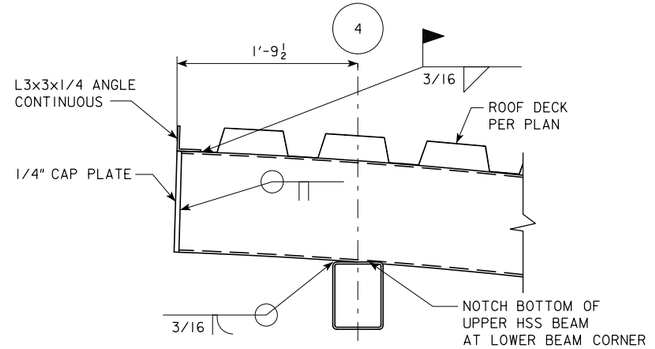
SCALE: 1/2" = 1'-0"



NOTE: SEE ROOF BEAM DETAIL 1 FOR BEAM RADIUS INFORMATION, SIMILAR CONNECTIONS AT GRID B ROOF BEAM.

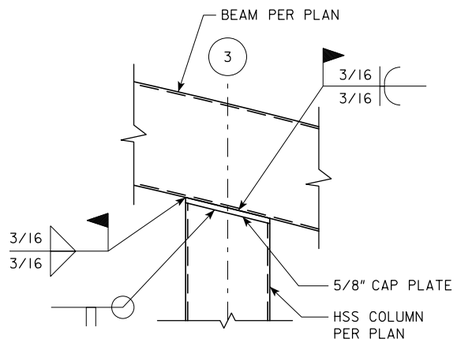
B GRIDS A AND C ROOF BEAMS DETAIL

SCALE: 1/2" = 1'-0"



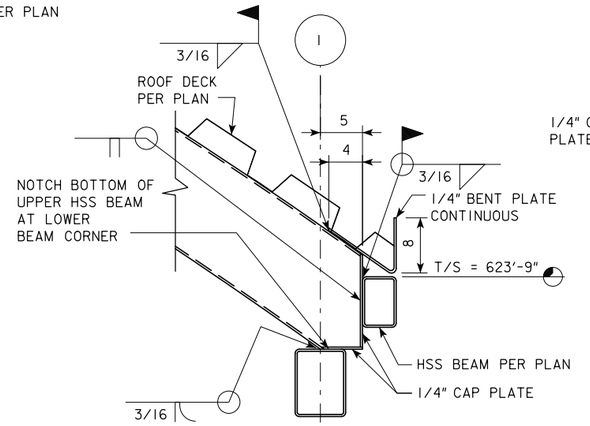
ROOF BEAM DETAIL 2

SCALE: 3/4" = 1'-0"



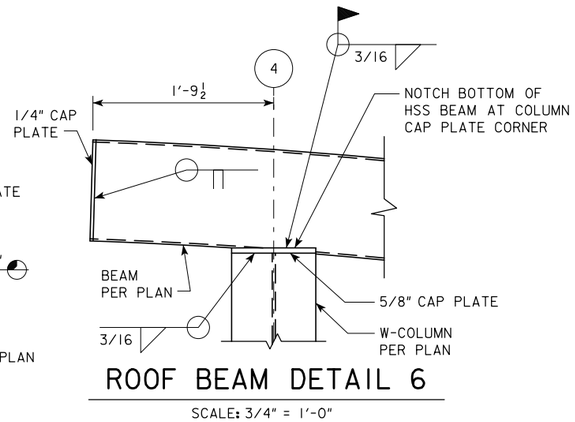
ROOF BEAM DETAIL 5

SCALE: 3/4" = 1'-0"



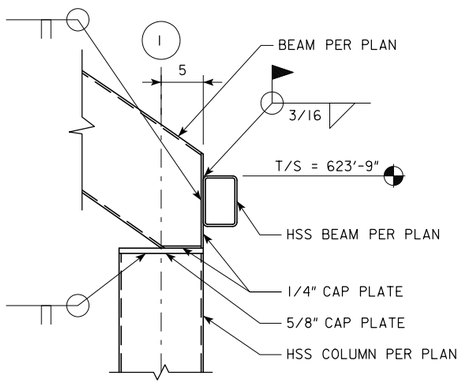
ROOF BEAM DETAIL 3

SCALE: 3/4" = 1'-0"



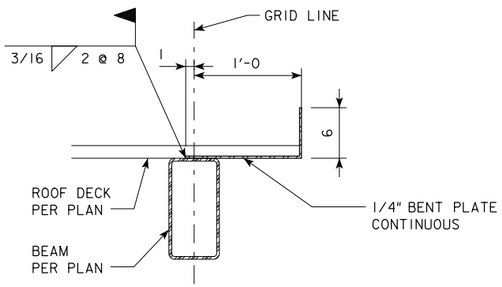
ROOF BEAM DETAIL 6

SCALE: 3/4" = 1'-0"



ROOF BEAM DETAIL 4

SCALE: 3/4" = 1'-0"



D ROOF DECK EDGE

SCALE: 3/4" = 1'-0"

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

FRAMING DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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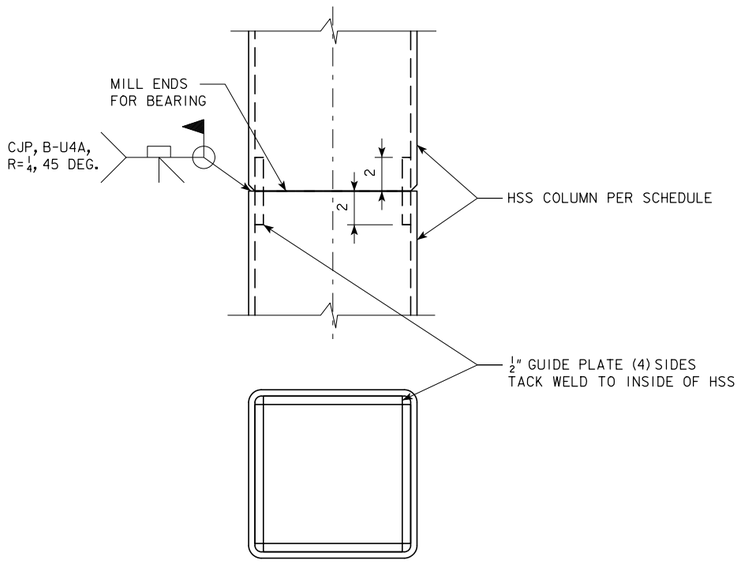
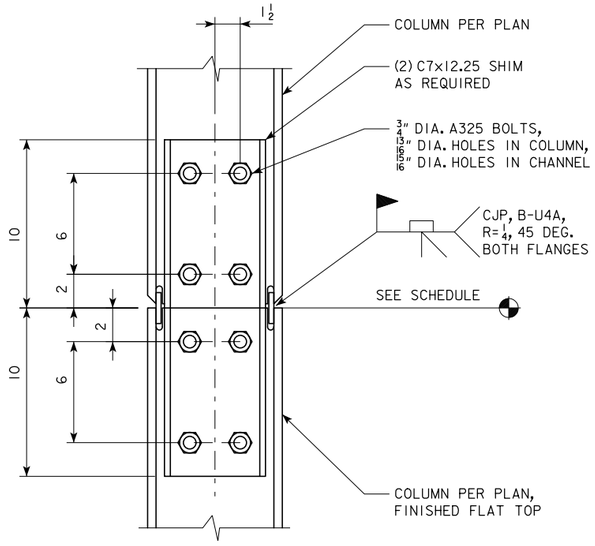


HSS COLUMN SPLICE DETAIL

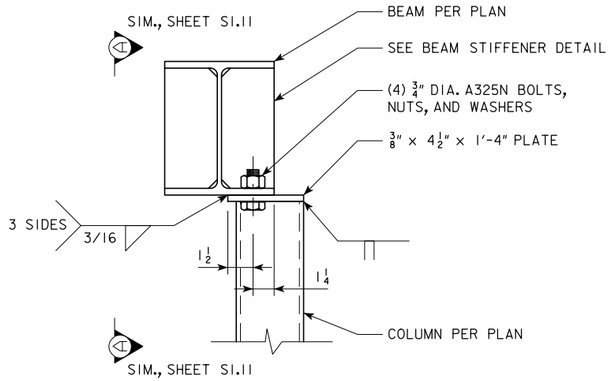
SCALE: 1 1/2" = 1'-0"



NOTE: DETAIL FOR COLUMN DEPTHS NOMINALLY THE SAME, LARGER COLUMN ON BOTTOM.

W-SHAPE COLUMN SPLICE DETAIL

SCALE: 1 1/2" = 1'-0"



ELEVATOR SUPPORT DETAIL 3

SCALE: 1 1/2" = 1'-0"

COLUMN SCHEDULE ELEVATOR SUPPORT

COLUMN MARK	B.5-2.1, B.5-3.9	B.8-2.1, B.8-3.9	B2	B.5-3	
ELEV. = 624-11 3/4" (B.5-2.1, B.8-2.1)	HSS 4x4x1/4	HSS 4x4x1/4	HSS 4x4x1/4 ELEV=625'-8"	DOUBLE HSS 5x5x1/4	
ELEV. = 624'-11 1/4"					ELEV. = 625'-0 1/8"
ELEV. = 621'-2 3/4"					ELEV. = 621'-2"
ELEV. = 620'-9 1/8"	HSS 8x4x3/8	HSS 4x4x1/4		DOUBLE HSS 5x5x1/4	ELEV. = 620'-9"
ELEV. = 611'-2 1/4"					ELEV. = 611'-1 1/2"
ELEV. = 610'-4 3/4"	HSS 4x4x1/4	HSS 4x4x1/4		DOUBLE HSS 5x5x1/4	ELEV. = 610'-8 1/2"
ELEV. = 603'-1 1/2"					ELEV. = 603'-0 3/4"
ELEV. = 602'-8"	HSS 4x4x1/4	HSS 4x4x1/4		DOUBLE HSS 5x5x1/4	ELEV. = 602'-7 3/4"
ELEV. = 595'-0 7/8"					ELEV. = 595'-0 1/8"
ELEV. = 594'-7 3/8"	HSS 4x4x1/4	HSS 4x4x1/4		DOUBLE HSS 5x5x1/4	ELEV. = 594'-7 1/8"
ELEV. = 587'-0 3/8"					ELEV. = 586'-11 5/8"
ELEV. = 586'-6 7/8"	HSS 4x4x1/4	HSS 4x4x1/4		DOUBLE HSS 5x5x1/4	ELEV. = 586'-6 5/8"
ELEV. = 578'-11 3/4"					ELEV. = 578'-11"
ELEV. = 578'-6 1/4"	HSS 8x4x3/8	HSS 4x4x1/4		DOUBLE HSS 5x5x1/2	ELEV. = 578'-6"
F.F. ELEV.=566'-4"					
TOP OF FND. ELEV. VARIES - SEE PLAN					

NOTES: STEEL SUPPLIER TO VERIFY ELEVATIONS DURING SHOP DRAWING PRODUCTION. ELEVATIONS ARE WITHOUT CONNECTING PLATE THICKNESSES.

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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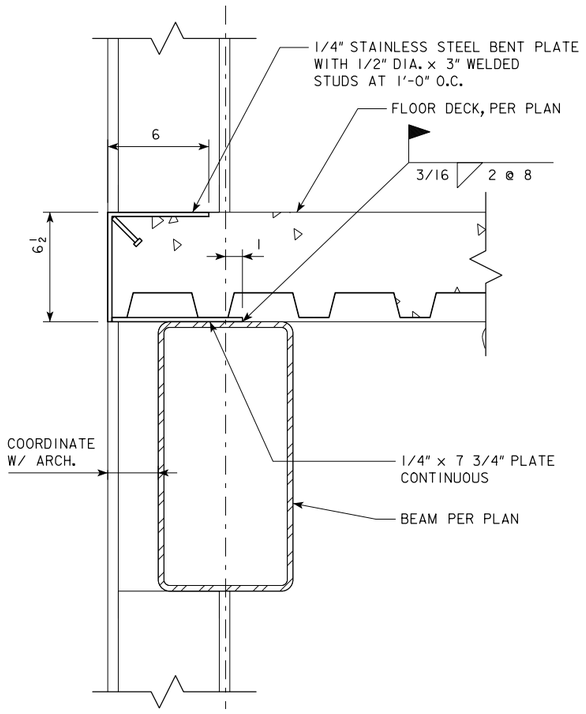
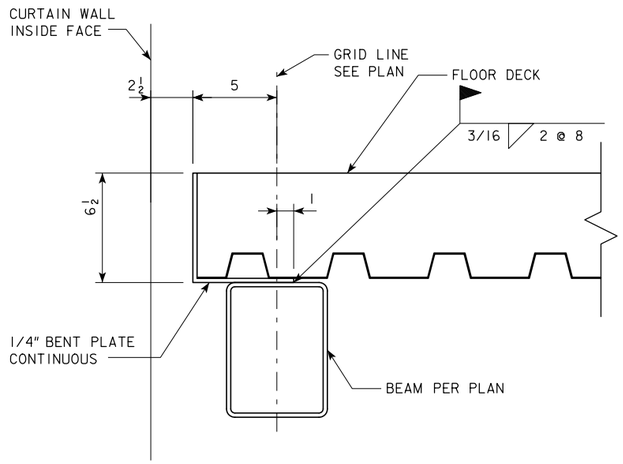


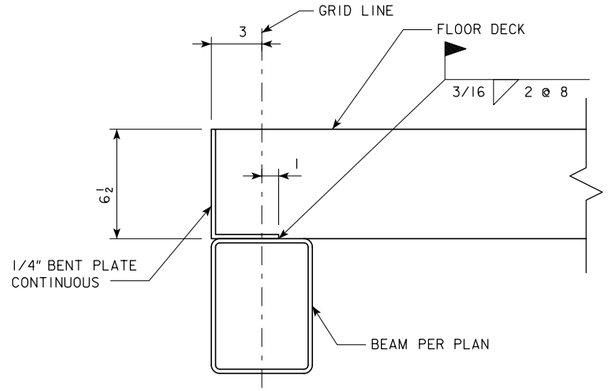
B FLOOR DECK EDGE AT ELEVATOR

SCALE: 1 1/2" = 1'-0"



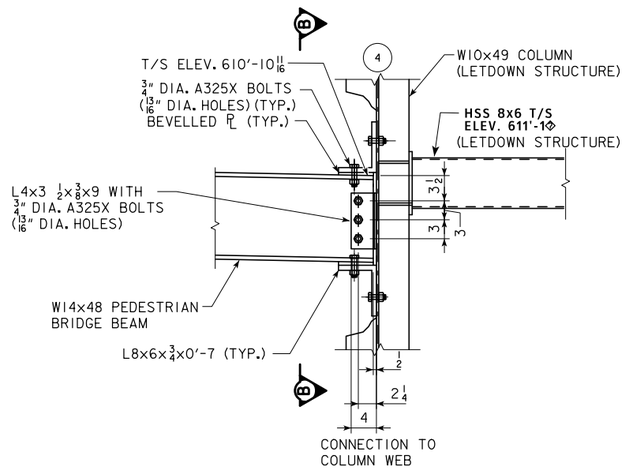
C FLOOR DECK EDGE DETAIL

SCALE: 1 1/2" = 1'-0"

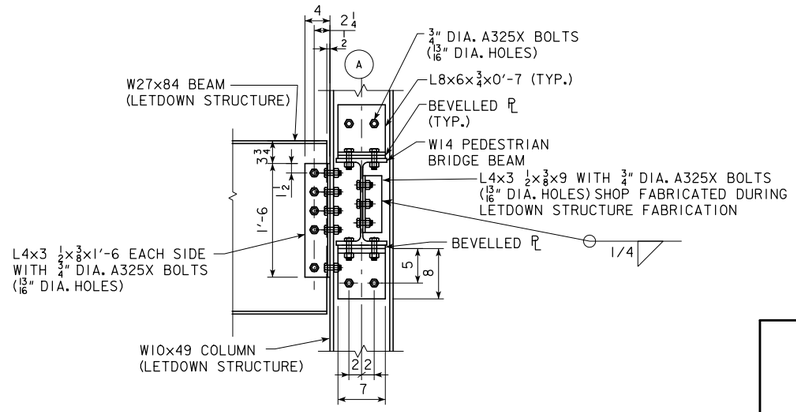


D FLOOR DECK EDGE DETAIL

SCALE: 1 1/2" = 1'-0"



PROPOSED W-BEAM TO W-COLUMN DETAIL
COLUMN LINES A/4
COLUMN LINE B/4 SIMILAR



SECTION B-B

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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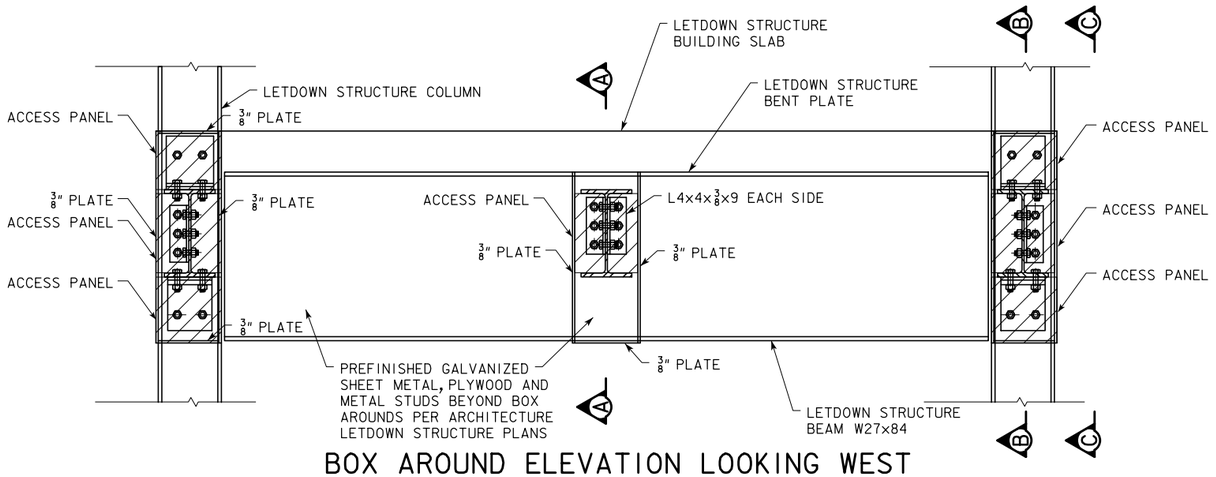
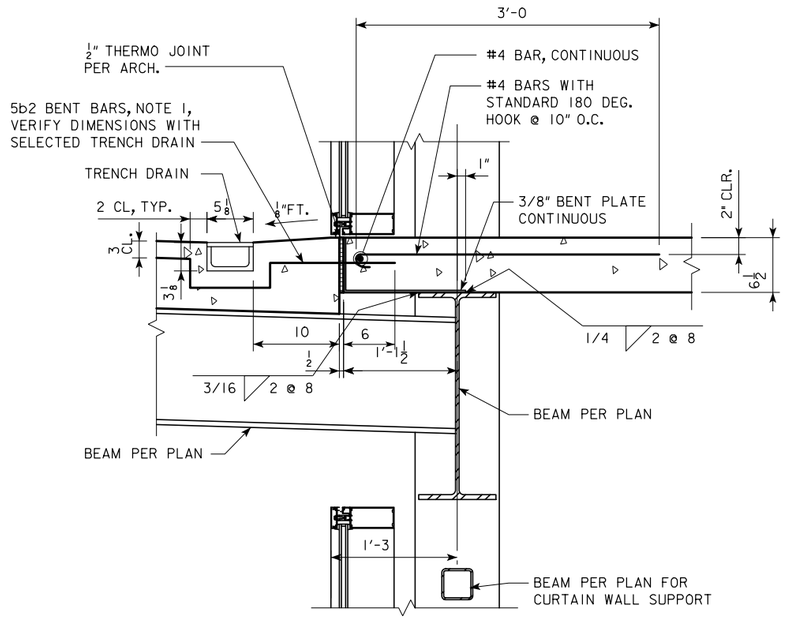


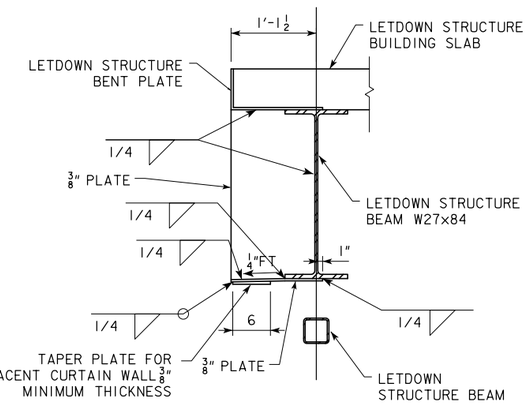
BOX AROUND ELEVATION LOOKING WEST

NOTE:
1. PAINT EXPOSED AREAS OF ACCESS PANELS AND PLATES SUPPORTING ACCESS PANELS PER PEDESTRIAN BRIDGE BEAM'S SPECIFICATIONS.
2. BOX AROUND DETAILS ARE PAID FOR IN LETDOWN STRUCTURE PROJECT BUT REPEATED HERE FOR COORDINATION.
3. MAKE WELDS CONTINUOUS AT BOX AROUND PLATES TO SEAL LETDOWN BUILDING STRUCTURE FROM WATER.
4. CONTRACTOR TO SUBMIT 1/8" GALVANIZED STEEL ACCESS PANELS AND ATTACHMENT DETAILS FOR APPROVAL. USE STAINLESS STEEL HEX HEAD FASTENERS.

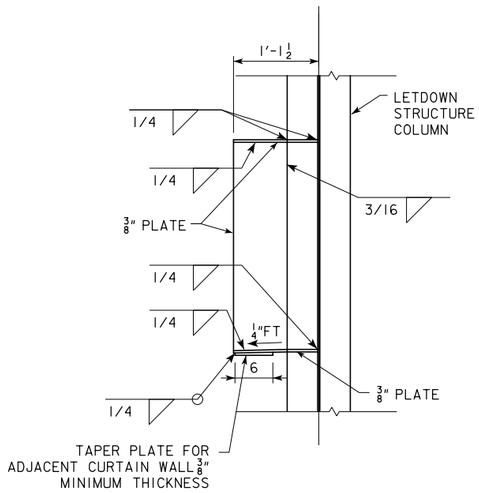


(A) PEDESTRIAN/BLDG. SLAB

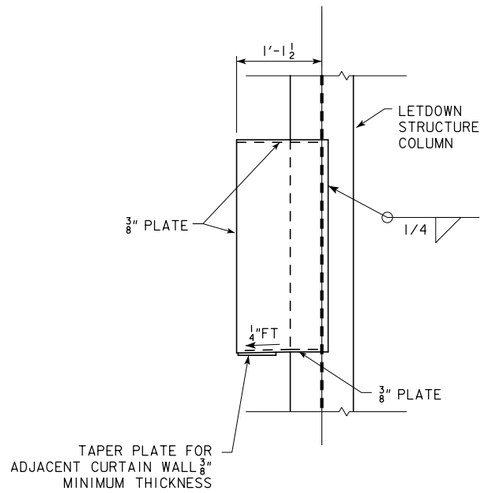
NOTE:
1. GROUT 5b2 BARS 6" EMBEDMENT INT BUILDING SLAB. POLYMER GROUT PER STANDARD SEPCIFICATIONS 2301.03, E.



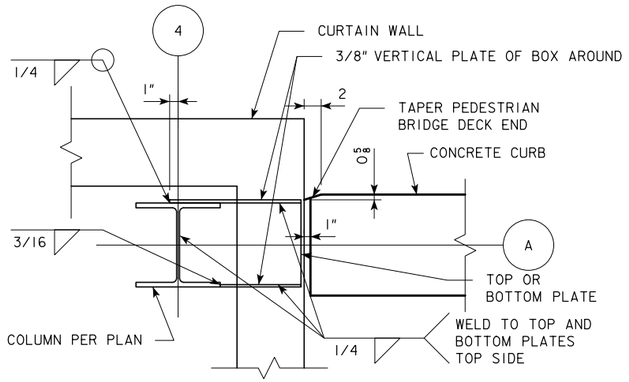
SECTION A-A BOX AROUND AT BEAM



SECTION B-B BOX AROUND AT COLUMN



SECTION C-C BOX AROUND AT COLUMN



NOTE: SIMILAR DETAIL AT GRID B
SEE DESIGN SHEET 15 FOR ADDITIONAL DETAILS

STEEL BOX AROUND PLAN DETAIL

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

STRUCTURAL DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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ILLINOIS FIRM NUMBER: 184-000214

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CODE SUMMARY
INTERNATIONAL BUILDING CODE 2009

PROJECT: I-74 Bridge Letdown Structure

CITY: Bettendorf **STATE:** IA

USE OF OCCUPANCY: Business Group B*

PROJECT MANAGER: Jennifer Radloff

SHIVE-HATTERY PROJECT NUMBER: 308172-3

CITY OF BETTENDORF CONTACT: Bill Connors

PHONE NO. 563-344-4079

DATE: 1/3/2014 **BUILDING CODE REVIEW BY:** J.C. McCormick

* DUE TO THE UNIQUE USE OF THIS BUILDING IT WAS NOT CLEAR WHICH OCCUPANCY IS APPROPRIATE. BILL CONNORS DETERMINED THAT IT SHOULD BE TREATED AS BUSINESS OCCUPANCY.

		Reference
1. Type of Construction	Type II B	Table 601
2. Allowable Building Height and Floor Area	(For Occupancy Classification B*)	Chapter 3
a. Sq Footage Allowed per Floor	23,000 SF This Project 680 SF	Table 503
b. Total Stories Allowed	3 This Project 2	Table 503
c. Height Allowed	55 This Project 45'-4"	Table 503
3. Area Calculations:		
a. Unlimited Area Increase	Type NA Group NA Public space NA	507
b. Basic Allowable Area per Floor	23,000 SF	Table 503
c. Frontage Increase	NA	506.2
d. Sprinkler Increase	NA	506.3
e. Total Area This Project	1,360 SF Total Allowed 46,000 SF	
4. Fire Barrier/Fire Partition Ratings:		
a. Primary Structural Frame	0 HR	Table 601
b. Exterior Bearing Walls	NA	Table 601
c. Interior Bearing Walls	NA	Table 601
d. Nonbearing Exterior walls and partitions	>30' = 0 HR	Table 602
e. Partitions	0 HR	Table 601

APPLICABLE CODES

CITY OF BETTENDORF, IOWA
2009 INTERNATIONAL BUILDING CODE
2009 INTERNATIONAL FIRE CODE
2009 UNIFORM PLUMBING CODE WITH AMENDMENTS
2009 INTERNATIONAL MECHANICAL CODE
2009 INTERNATIONAL ELECTRICAL CODE

STATE OF IOWA
CHAPTER 302 - STATE BUILDING CODE - ACCESSIBILITY OF BUILDINGS FACILITIES AVAILABLE TO THE PUBLIC:
2010 ADASAD

CHAPTER 303 - STATE BUILDING CODE - REQUIREMENTS FOR ENERGY CONSERVATION IN CONSTRUCTION:
2012 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)

CHAPTER 504 - STATE BUILDING CODE - STANDARDS FOR ELECTRICAL WORK:
2011 NATIONAL ELECTRICAL CODE (NEC)

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			Reference
f. Floor Construction	0 HR		Table 601
g. Roof	0 HR		Table 601
h. Corridor	NA		
i. Penetration in Rated Partitions	NA		
j. Incidental Uses: Boiler / Furnace	NA		
k. Incidental Uses:	NA		
l. Parapets Required	Yes ☐	No ☒	705.11.1
m. Protected Openings	Yes ☐	No ☒	705.5
Note: For Separation of 5' - 10' 10% of wall as Unprotected Openings or 25% of wall as Protected Openings			
n. Separation	Yes ☐	No ☒	706.4
o. Protected Openings	Yes ☐	No ☒	Table 707.3.9
5. Fire Extinguishing Systems:			
a. Automatic Fire Extinguishing System Required	Yes ☐	No ☒	903

6. Occupant Loads *(Calculate area and occupant load for each occupancy on each floor and total area and occupant load for each floor.) (* Owner actual employee count)*

a. *FLOOR*	*CLASSIFICATION*	*AREA (sf)*	*SQ.FT. OCCUPANT*	*OCCUPANT LOAD/ ACTUAL EMPLOYEE*
1	B	680	100	7
2	B	680	100	7
Total		*1360*		*14*

Reference: Table 1004.1.1

I-74 Bridge Letdown Structure
1/3/2014
Project No. 308172-3

7. Means of Egress

		Reference
a. General		
1) Tabular Occupant Load		
a)	14 x .2" = 2.8" 32" min clearance per ADA	1005.1
2) Stair Egress Width	NA	1005.1
b. Exit Access – Section 1014		
1) Number of Exits Required from Spaces per occupant load	1	Table 1021.1
2) Maximum Travel Distance	200'	Table 1016.1
3) Dead Ends	20'	1018.4
4) Corridor Widths	36"	1018.2
5) Corridor Construction Rating	NA	Table 1018.1
6) Door Ratings	NA	
7) Glazing	NA	

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

CODE INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER A0.01

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GENERAL NOTES:

1. GENERAL:

A. THE CONTRACTOR SHALL REVIEW ALL DOCUMENTS, VERIFY ALL DIMENSIONS AND FIELD CONDITIONS AND CONFIRM THAT WORK IS CONSTRUCTIBLE AS SHOWN. CONFLICTS AND/OR OMISSIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER FOR CLARIFICATION PRIOR TO STARTING ANY OF THE WORK IN QUESTION.

B. "ALIGN" SHALL MEAN TO ACCURATELY LOCATE FINISH FACES IN THE SAME PLANE.

C. "TYPICAL" OR "TYP" SHALL MEAN THAT THE CONDITION IS REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT THE PROJECT UNLESS NOTED OTHERWISE. DETAILS ARE USUALLY NOTED "TYP" ONLY ONCE, WHEN THEY FIRST OCCUR.

D. "SIMILAR" OR "SIM" MEANS COMPARABLE CHARACTERISTICS FOR THE CONDITIONS NOTED. VERIFY DIMENSIONS AND ORIENTATION ON PLANS AND ELEVATIONS.

E. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, (EXCEPT FOR THE NPDES PERMIT AND THE USACE SECTION 404 PERMIT), AND INSPECTIONS, AND COMPLY WITH ALL CODES, LAWS, ORDINANCES, RULES, AND REGULATIONS OF ALL PUBLIC AUTHORITIES (FEDERAL, STATE, OR LOCAL) GOVERNING THE WORK. THE MOST STRINGENT SHALL APPLY.

F. SUBSTITUTIONS, REVISIONS, OR CHANGES MUST BE SUBMITTED TO ARCHITECT FOR REVIEW PRIOR TO PURCHASE, FABRICATION, OR INSTALLATION. REFER TO THE SPECIFICATIONS FOR PROCEDURES.

G. CONSTRUCTION NOT SPECIFICALLY DETAILED OR SPECIFIED WITHIN THE PLANS OR IN THE PROJECT MANUAL SHALL CONFORM TO THE CITY OF BETTENDORF STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS. LATEST EDITION, AND THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, LATEST EDITION.

H. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-292-8989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS.

I. NOTIFY THE APPROPRIATE GOVERNING AUTHORITY A MINIMUM OF 48 HOURS PRIOR TO BEGINNING CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY. THE CITY OF BETTENDORF SHALL BE CONTACTED AS THE INSPECTING AUTHORITY OF NEW PUBLIC FACILITIES.

J. TRAFFIC CONTROL, RIGHT OF WAY, PERMITS AND RESPONSIBILITIES DEFINED BY IOWA DOT AGREEMENT #2012-12-204

K. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN EXISTING FIELD CONDITIONS BEFORE BIDDING ON THIS PROJECT, ORDERING MATERIALS, OR BEGINNING CONSTRUCTION AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONFLICTS.

L. CONTRACTOR TO MAINTAIN OSHA CLEARANCES AROUND ALL OVERHEAD POWER LINES.

M. STORM WATER POLLUTION CONTROL, MEASURES SHALL BE IN ACCORDANCE WITH CONTRACT DOCUMENTS.

2. INTERIOR PARTITIONS:

A. ALL PARTITIONS ARE DIMENSIONED TO FINISH FACE, UNLESS NOTED OTHERWISE.

B. ALL DOORS ARE DIMENSIONED TO THE CENTER OF THE OPENING, UNLESS NOTED OTHERWISE.

C. AT ALL DOOR JAMBS - 18 GAUGE METAL STUDS ARE TO BE USED, NOT 20 GAUGE AS STATED IN THE WALL TYPES LEGEND.

D. COORDINATE THE LOCATION OF THE TOP OF FULL HEIGHT PARTITIONS WITH STRUCTURAL ELEMENTS AND OFFSET AS REQUIRED.

E. PROVIDE UL RATED MATERIALS AT PENETRATIONS THROUGH FIRE-RATED PARTITIONS. REFER TO UL RATINGS ON THIS SHEET. PROVIDE SUBMITTALS TO LOCAL AUTHORITIES AS REQUESTED.

F. COORDINATE LOCATIONS OF GYPSUM BOARD EXPANSION JOINTS WITH OWNER. REFER TO SPECIFICATIONS SECTION 09260.

G. WATER-RESISTANT GYPSUM BOARD SHALL BE USED FOR PARTITIONS IN TOILET ROOMS AND JANITOR'S CLOSETS. REFER TO THE ROOM FINISH SCHEDULE FOR ADDITIONAL LOCATIONS.

H. FOR PARTITIONS DESIGNATED AS FULL HEIGHT, FRAMING AND GYPSUM BOARD SHALL EXTEND TO THE UNDERSIDE OF THE STRUCTURE ABOVE. SEE TYPICAL PARTITIONS DETAILS THIS SHEET.

I. ALL INTERIOR STEEL STUD PARTITIONS NOT INDICATED TO BE FULL HEIGHT SHALL EXTEND A MINIMUM OF 6" ABOVE THE FINISHED CEILING. THE TOP STEEL RUNNER SHALL BE CONTINUOUS. PROVIDE 45 DEGREE STRUT BRACING TO THE STRUCTURE ABOVE. PROVIDE BRACING ON THE CEILING SIDE ONLY. IF BOTH SIDES OF THE PARTITION HAVE CEILINGS, THE BRACING SHOULD BE ON THE LOWER CEILING SIDE.

J. PROVIDE FIRE RETARDANT WOOD BLOCKING IN PARTITIONS FOR TOILET ACCESSORIES, GRAB BARS, HANDRAILS, COAT HOOKS, SHELVING, FITTING ROOM PARTITIONS, WALL-MOUNTED EQUIPMENT, SURFACE MOUNTED STANDARDS OR FIXTURES, ETC. AS REQUIRED FOR ANCHORING.

K. ALL CODE REQUIRED LABELS, SUCH AS "UL", FACTORY MUTUAL, OR ANY EQUIPMENT IDENTIFICATION, PERFORMANCE RATING, NAME OR NOMENCLATURE PLATES SHALL REMAIN READABLE AND NOT PAINTED.

3. CEILING:

A. NOTIFY ENGINEER OF INADEQUATE CLEARANCES FOR CEILING LAYOUT PRIOR TO COMMENCING WORK.

B. LOCATIONS OF LIGHT FIXTURES, DIFFUSERS, ETC. SHALL BE AS SHOWN ON THESE PLANS AND DETAILS. NOTIFY ARCHITECT OF ANY CONFLICTS PRIOR TO PROCEEDING WITH CONSTRUCTION. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR DESIGN OF THESE SYSTEMS.

4. FIRE EXTINGUISHERS:

A. PROVIDE FIRE EXTINGUISHERS IN CABINETS AS SHOWN ON PLANS AS REQUIRED BY LOCAL CODES. TRAVEL NOT TO EXCEED 75'-0" TO ANY FIRE EXTINGUISHERS.

B. EXTINGUISHERS SHALL HAVE A MULTI-PURPOSE (A-B-C) CLASSIFICATION.

GENERAL FINISH NOTES

1. PRIME AND PAINT ALL HOLLOW METAL DOOR FRAMES & DOORS. COLOR TO BE SELECTED BY OWNER.

2. PRIME ALL WALLS PRIOR TO PROVIDING FINAL FINISH.

3. PAINT ALL EXPOSED STRUCTURAL COLUMNS.

4. FINISH MATERIALS TO COMPLY WITH APPLICABLE CODES REQUIREMENTS INCLUDING FLAME SPREAD RATINGS, SMOKE DEVELOPMENT, ETC.

5. FOR SEALED CONCRETE, SEE SPECIFICATION SECTION 03300 CAST IN PLACE CONCRETE.

6. PAINT COLOR AND CARPET COLOR SCHEDULE WILL BE PROVIDED TO CONTRACTOR DURING CONSTRUCTION.

7. ENSURE THAT SURFACES TO RECEIVE FINISHES ARE CLEAN, TRUE, AND FREE OF IRREGULARITIES. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. COMMENCEMENT OF WORK SHALL INDICATE INSTALLER'S ACCEPTANCE OF SUBSTRATE.

FINISH DESIGNATIONS

ACT	ACOUSTICAL CEILING TILE
GB	UNFINISHED GYPSUM BOARD
PLWD	5/8" FIRE RESISTANT PAINTED PLYWOOD
PT-1	PRIME & PAINT FINISH ON GYPSUM
SC	CONCRETE - SEALED
VB	VINYL COVE BASE

FINISH TAG NOTES

1. PAINT EXPOSED ROOF DECK, ROOF FRAMING, EXPOSED STEEL, DUCTWORK AND ANY OTHER EXPOSED PIPING OR CONDUIT - FINAL COLOR SHALL BE APPROVED BY OWNER PRIOR TO PAINTING.

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

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IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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SPECIFICATIONS:

SECTION 06 1000: ROUGH CARPENTRY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. ROOFING NAILERS.
B. COMMUNICATIONS AND ELECTRICAL ROOM MOUNTING BOARDS.

1.2 RELATED REQUIREMENTS

A. SECTION 07 6200 - SHEET METAL FLASHING AND TRIM: SILL FLASHINGS.

1.3 REFERENCE STANDARDS

A. ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2013A.

B. PS 2 - PERFORMANCE STANDARD FOR WOOD-BASED STRUCTURAL-USE PANELS; NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, U.S. DEPARTMENT OF COMMERCE; 2010.

C. PS 20 - AMERICAN SOFTWOOD LUMBER STANDARD; NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, DEPARTMENT OF COMMERCE; 2010.

D. SPIB (GR) - GRADING RULES; SOUTHERN PINE INSPECTION BUREAU, INC.; 2002.

1.4 DELIVERY, STORAGE, AND HANDLING

A. GENERAL: COVER WOOD PRODUCTS TO PROTECT AGAINST MOISTURE. SUPPORT STACKED PRODUCTS TO PREVENT DEFORMATION AND TO ALLOW AIR CIRCULATION.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

A. DIMENSION LUMBER: COMPLY WITH PS 20 AND REQUIREMENTS OF SPECIFIED GRADING AGENCIES.

1. SPECIES: SOUTHERN PINE, UNLESS OTHERWISE INDICATED.

2. IF NO SPECIES IS SPECIFIED, PROVIDE ANY SPECIES GRADED BY THE AGENCY SPECIFIED; IF NO GRADING AGENCY IS SPECIFIED, PROVIDE LUMBER GRADED BY ANY GRADING AGENCY MEETING THE SPECIFIED REQUIREMENTS.

3. GRADING AGENCY: ANY GRADING AGENCY WHOSE RULES ARE APPROVED BY THE BOARD OF REVIEW, AMERICAN LUMBER STANDARD COMMITTEE (WWW.ALSC.ORG) AND WHO PROVIDES GRADING SERVICE FOR THE SPECIES AND GRADE SPECIFIED; PROVIDE LUMBER STAMPED WITH GRADE MARK UNLESS OTHERWISE INDICATED.

B. LUMBER FABRICATED FROM OLD GROWTH TIMBER IS NOT PERMITTED.

2.2 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. SIZES: NOMINAL SIZES AS INDICATED ON DRAWINGS, S4S.

B. MOISTURE CONTENT: S-DRY OR MC19.

2.3 CONSTRUCTION PANELS

A. ROOF SHEATHING: ANY PS 2 TYPE, RATED STRUCTURAL I SHEATHING.

1. BOND CLASSIFICATION: EXTERIOR.

2. SPAN RATING: 60.

3. PERFORMANCE CATEGORY: 1/2 PERF CAT.

B. COMMUNICATIONS AND ELECTRICAL ROOM MOUNTING BOARDS: PS 1 A-D PLYWOOD, OR MEDIUM DENSITY FIBERBOARD; 3/4 INCH THICK; FLAME SPREAD INDEX OF 25 OR LESS, SMOKE DEVELOPED INDEX OF 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

SECTION 07 2100: THERMAL INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. BOARD INSULATION AND INTEGRAL VAPOR RETARDER AT PERIMETER FOUNDATION WALL AND OVER ROOF DECK.

B. BATT INSULATION AND VAPOR RETARDER IN EXTERIOR WALL, CEILING, ROOF, AND FLOOR CONSTRUCTION.

1.2 RELATED REQUIREMENTS

A. SECTION 06 1000 - ROUGH CARPENTRY: INSTALLATION REQUIREMENTS FOR BOARD INSULATION OVER ROOF SHEATHING OR ROOF STRUCTURE.

B. SECTION 07 2500 - WEATHER BARRIERS: SEPARATE AIR BARRIER AND VAPOR RETARDER MATERIALS.

PART 2 PRODUCTS

2.1 APPLICATIONS

A. INSULATION UNDER CONCRETE SLABS: EXTRUDED POLYSTYRENE BOARD.

B. INSULATION AT PERIMETER OF FOUNDATION: EXPANDED POLYSTYRENE BOARD.

C. INSULATION IN METAL FRAMED WALLS: BATT INSULATION WITH SEPARATE VAPOR RETARDER.

D. INSULATION ABOVE CEILING STRUCTURE AND BELOW FLOOR STRUCTURE: BATT INSULATION WITH INTEGRAL VAPOR RETARDER.

E. INSULATION OVER ROOF DECK: POLYISOCYANURATE BOARD.

2.2 FOAM BOARD INSULATION MATERIALS

A. EXPANDED POLYSTYRENE (EPS) BOARD INSULATION: ASTM C578, TYPE XI; WITH THE FOLLOWING CHARACTERISTICS:

1. FLAME SPREAD INDEX: 25 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

2. SMOKE DEVELOPED INDEX: 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

3. MANUFACTURERS:

A. AFM CORP

B. DIVERSIFOAM PRODUCTS

B. EXTRUDED POLYSTYRENE BOARD INSULATION: EXTRUDED POLYSTYRENE BOARD; ASTM C578; WITH EITHER NATURAL SKIN OR CUT CELL SURFACES, AND THE FOLLOWING CHARACTERISTICS:

1. TYPE: ASTM C578.

2. FLAME SPREAD INDEX: 25 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

3. SMOKE DEVELOPED INDEX: 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

4. R-VALUE; 1 INCH OF MATERIAL AT 72 DEGREES F: 5, MINIMUM.

5. MANUFACTURERS:

A. DOW CHEMICAL CO

B. OWENS CORNING CORPORATION

C. POLYISOCYANURATE BOARD INSULATION WITH FACERS BOTH SIDES: RIGID CELLULAR FOAM, COMPLYING WITH ASTM C1289; TYPE I, ALUMINUM FOIL BOTH FACES; CLASS 1, NON-REINFORCED FOAM CORE.

1. FLAME SPREAD INDEX: 25 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

2. SMOKE DEVELOPED INDEX: 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

3. MANUFACTURERS:

A. CARLISLE COATINGS & WATERPROOFING, INC

B. DOW CHEMICAL CO

C. JOHNS MANVILLE; AP FOIL-FACED

2.3 BATT INSULATION MATERIALS

A. GLASS FIBER BATT INSULATION: FLEXIBLE PREFORMED BATT OR BLANKET, COMPLYING WITH ASTM C665; FRICTION FIT.

1. COMBUSTIBILITY: NON-COMBUSTIBLE, WHEN TESTED IN ACCORDANCE WITH ASTM E136, EXCEPT FOR FACING, IF ANY.

2. MANUFACTURERS:

A. CERTAINTEED CORPORATION

B. JOHNS MANVILLE CORPORATION

C. OWENS CORNING CORPORATION; ECOTOUCH PINK FIBERGLAS INSULATION

2.4 ACCESSORIES

A. SHEET VAPOR RETARDER: SPECIFIED IN SECTION 07 2500.

B. TAPE JOINTS OF RIGID INSULATION IN ACCORDANCE WITH ROOFING AND INSULATION MANUFACTURERS' INSTRUCTIONS.

C. INSULATION FASTENERS: APPROPRIATE FOR PURPOSE INTENDED AND APPROVED BY ROOFING MANUFACTURER.

PART 3 EXECUTION

3.1 EXAMINATION

A. VERIFY THAT SUBSTRATE, ADJACENT MATERIALS, AND INSULATION MATERIALS ARE DRY AND THAT SUBSTRATES ARE READY TO RECEIVE INSULATION.

B. VERIFY SUBSTRATE SURFACES ARE FLAT, FREE OF HONEYCOMB, FINS, IRREGULARITIES, OR MATERIALS OR SUBSTANCES THAT MAY IMPEDE ADHESIVE BOND.

3.2 BOARD INSTALLATION AT FOUNDATION PERIMETER

A. INSTALL BOARDS HORIZONTALLY ON FOUNDATION PERIMETER.

B. CUT AND FIT INSULATION TIGHTLY TO PROTRUSIONS OR INTERRUPTIONS TO THE INSULATION PLANE.

3.3 BOARD INSTALLATION UNDER CONCRETE SLABS

A. PLACE INSULATION UNDER SLABS ON GRADE AFTER BASE FOR SLAB HAS BEEN COMPACTED.

B. CUT AND FIT INSULATION TIGHTLY TO PROTRUSIONS OR INTERRUPTIONS TO THE INSULATION PLANE.

C. PREVENT INSULATION FROM BEING DISPLACED OR DAMAGED WHILE PLACING VAPOR RETARDER AND PLACING SLAB.

3.4 BOARD INSTALLATION OVER LOW SLOPE ROOF DECK

A. BOARD INSTALLATION OVER ROOF DECK, GENERAL:

1. SEE APPLICABLE ROOFING SPECIFICATION SECTION FOR SPECIFIC BOARD INSTALLATION REQUIREMENTS.

2. FASTEN INSULATION TO DECK IN ACCORDANCE WITH ROOFING MANUFACTURER'S WRITTEN INSTRUCTIONS AND APPLICABLE FACTORY MUTUAL REQUIREMENTS.

3. DO NOT APPLY MORE INSULATION THAN CAN BE COVERED WITH ROOFING IN SAME DAY.

3.5 BATT INSTALLATION

A. INSTALL INSULATION AND VAPOR RETARDER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. INSTALL IN EXTERIOR ROOF SPACES WITHOUT GAPS OR VOIDS. DO NOT COMPRESS INSULATION.

C. TRIM INSULATION NEATLY TO FIT SPACES. INSULATE MISCELLANEOUS GAPS AND VOIDS.

D. FIT INSULATION TIGHTLY IN CAVITIES AND TIGHTLY TO EXTERIOR SIDE OF MECHANICAL AND ELECTRICAL SERVICES WITHIN THE PLANE OF THE INSULATION.

E. AT METAL FRAMING, PLACE VAPOR RETARDER ON WARM SIDE OF INSULATION; LAP AND SEAL SHEET RETARDER JOINTS OVER MEMBER FACE.

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SPECIFICATIONS:

SECTION 07 2500: WEATHER BARRIERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. WATER-RESISTIVE BARRIER: UNDER EXTERIOR WALL CLADDING, OVER SHEATHING OR OTHER SUBSTRATE; NOT AIR TIGHT OR VAPOR RETARDANT.

B. VAPOR RETARDERS: MATERIALS TO MAKE JOINTS BETWEEN EXTERIOR WALLS AND ROOF AND BETWEEN CONDITIONED AND UNCONDITIONED SPACES WATER VAPOR-RESISTANT AND AIR TIGHT.

C. AIR BARRIERS: MATERIALS THAT FORM A SYSTEM TO STOP PASSAGE OF AIR THROUGH EXTERIOR WALLS, JOINTS BETWEEN EXTERIOR WALLS AND ROOF, AND JOINTS AROUND FRAMES OF OPENINGS IN EXTERIOR WALLS.

1.2 DEFINITIONS

A. WEATHER BARRIER: ASSEMBLIES THAT FORM EITHER WATER-RESISTIVE BARRIERS, AIR BARRIERS, OR VAPOR RETARDERS.

B. AIR BARRIER: AIR TIGHT BARRIER MADE OF MATERIAL THAT IS RELATIVELY AIR IMPERMEABLE BUT WATER VAPOR PERMEABLE, BOTH TO THE DEGREE SPECIFIED, WITH SEALED SEAMS AND WITH SEALED JOINTS TO ADJACENT SURFACES. NOTE: FOR THE PURPOSES OF THIS SPECIFICATION, VAPOR IMPERMEABLE AIR BARRIERS ARE CLASSIFIED AS VAPOR RETARDERS.

C. VAPOR RETARDER: AIR TIGHT BARRIER MADE OF MATERIAL THAT IS RELATIVELY WATER VAPOR IMPERMEABLE, TO THE DEGREE SPECIFIED, WITH SEALED SEAMS AND WITH SEALED JOINTS TO ADJACENT SURFACES.

1. WATER VAPOR PERMEANCE: FOR PURPOSES OF CONVERSION, 57.2 NG/(PA S SQ M) = 1 PERM.

D. WATER-RESISTIVE BARRIER: WATER-SHEDDING BARRIER MADE OF MATERIAL THAT IS MOISTURE-RESISTANT, TO THE DEGREE SPECIFIED, INTENDED TO BE INSTALLED TO SHED WATER WITHOUT SEALED SEAMS.

1.3 REFERENCE STANDARDS

A. ASTM D4397 - STANDARD SPECIFICATION FOR POLYETHYLENE SHEETING FOR CONSTRUCTION, INDUSTRIAL, AND AGRICULTURAL APPLICATIONS; 2010.

B. ASTM E2178 - STANDARD TEST METHOD FOR AIR PERMEANCE OF BUILDING MATERIALS; 2013.

C. ICC-ES AC148 - ACCEPTANCE CRITERIA FOR FLEXIBLE FLASHING MATERIALS; ICC EVALUATION SERVICE, INC.; 2011.

1.4 SUBMITTALS

A. PRODUCT DATA: PROVIDE DATA ON MATERIAL CHARACTERISTICS.

B. SHOP DRAWINGS: PROVIDE DRAWINGS OF SPECIAL JOINT CONDITIONS.

C. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE PREPARATION.

PART 2 PRODUCTS

2.1 WEATHER BARRIER ASSEMBLIES

A. WATER-RESISTIVE BARRIER: PROVIDE ON EXTERIOR WALLS UNDER EXTERIOR CLADDING.

1. UNDER SIDING, USE FLUID-APPLIED COATING.

B. INTERIOR VAPOR RETARDER:

1. ON INSIDE FACE OF STUDS OF EXTERIOR WALLS, UNDER CLADDING, USE MECHANICALLY FASTENED VAPOR RETARDER SHEET.

2. ON BOTTOM FACE OF RAFTERS, UNDER CLADDING, USE MECHANICALLY FASTENED VAPOR RETARDER SHEET.

C. EXTERIOR VAPOR RETARDER:

1. ON OUTSIDE SURFACE OF SHEATHING USE VAPOR RETARDER COATING.

2. ON UNDER SIDE OF ELEVATED FLOORS OVER ENCLOSED SOFFIT SPACE USE VAPOR RETARDER COATING.

2.2 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

A. AIR BARRIER, FLUID APPLIED: VAPOR PERMEABLE, ELASTOMERIC WATERPROOFING.

B. AIR BARRIER COATING: FLUID-APPLIED, VAPOR PERMEABLE, ELASTOMERIC WATERPROOFING MEMBRANE.

1. MATERIAL: WATER-BASED ACRYLIC.

2. ACCEPTABLE SUBSTRATES: STATED BY MANUFACTURER AS SUITABLE FOR INSTALLATION ON VISIBLY DAMP SURFACES AND CONCRETE THAT HAS HARDENED BUT IS NOT FULLY CURED ("GREEN" CONCRETE) WITHOUT REQUIRING A PRIMER.

3. ADHESION TO PAPER AND GLASS MAT FACED SHEATHING: SUFFICIENT TO ENSURE FAILURE DUE TO DELAMINATION OF SHEATHING.

4. DRY FILM THICKNESS: 10 MILS (0.010 INCH), MINIMUM.

5. PRODUCTS:

A. BASF CORPORATION; ENERSHIELD-HP: WWW.ENERSHIELD.BASF.COM.

B. CARLISLE COATINGS AND WATERPROOFING, INC.; BARRITECH-VP: WWW.CARLISLE-CCW.COM.

C. GRACE CONSTRUCTION PRODUCTS; PERM-A-BARRIER VP: WWW.GRACECONSTRUCTION.COM.

2.3 SEALANTS

A. POLYSULFIDE SEALANT: AS SPECIFIED IN SECTION 07 9005.

B. POLYURETHANE SEALANT: AS SPECIFIED IN SECTION 07 9005.

C. SILICONE SEALANT: AS SPECIFIED IN SECTION 07 9005.

2.4 ACCESSORIES

A. FLEXIBLE FLASHING: SHEATHING FABRIC SATURATED WITH AIR BARRIER COATING AND COMPLYING WITH THE APPLICABLE REQUIREMENTS OF ICC-ES AC148.

B. LIQUID FLASHING: ONE PART, FAST CURING, NON-SAG ELASTOMERIC STPU (SILYL-TERMINATED POLYURETHANE) GUN GRADE, TROWELABLE LIQUID FLASHING.

PART 3 EXECUTION

3.1 INSTALLATION

A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. WATER-RESISTIVE BARRIERS: INSTALL CONTINUOUS BARRIER OVER SURFACES INDICATED, WITH SHEETS LAPPED TO SHED WATER BUT WITH SEAMS NOT SEALED.

C. AIR BARRIERS: INSTALL CONTINUOUS AIR TIGHT BARRIER OVER SURFACES INDICATED, WITH SEALED SEAMS AND WITH SEALED JOINTS TO ADJACENT SURFACES.

D. VAPOR RETARDERS: INSTALL CONTINUOUS AIR TIGHT BARRIER OVER SURFACES INDICATED, WITH SEALED SEAMS AND WITH SEALED JOINTS TO ADJACENT SURFACES.

E. MECHANICALLY FASTENED SHEETS - VAPOR RETARDER ON INTERIOR:

1. WHEN INSULATION IS TO BE INSTALLED IN ASSEMBLY, INSTALL VAPOR RETARDER OVER INSULATION.

2. SEAL SEAMS, LAPS, PERIMETER EDGES, PENETRATIONS, TEARS, AND CUTS WITH SELF-ADHESIVE TAPE, MAKING AIR TIGHT SEAL.

F. COATINGS:

1. PREPARE SUBSTRATE IN MANNER RECOMMENDED BY COATING MANUFACTURER; TREAT JOINTS IN SUBSTRATE AND BETWEEN DISSIMILAR MATERIALS AS RECOMMENDED BY MANUFACTURER.

2. USE FLASHING TO SEAL TO ADJACENT CONSTRUCTION AND TO BRIDGE JOINTS.

G. OPENINGS AND PENETRATIONS IN EXTERIOR WEATHER BARRIERS:

1. INSTALL FLASHING OVER SILLS, COVERING ENTIRE SILL FRAME MEMBER, EXTENDING AT LEAST 5 INCHES ONTO WEATHER BARRIER AND AT LEAST 6 INCHES UP JAMBS; MECHANICALLY FASTEN STRETCHED EDGES.

2. AT OPENINGS TO BE FILLED WITH FRAMES HAVING NAILING FLANGES, SEAL HEAD AND JAMB FLANGES USING A CONTINUOUS BEAD OF SEALANT COMPRESSED BY FLANGE AND COVER FLANGES WITH AT LEAST 4 INCHES WIDE; DO NOT SEAL SILL FLANGE.

3. AT OPENINGS TO BE FILLED WITH NON-FLANGED FRAMES, SEAL WEATHER BARRIER TO ALL SIDES OF OPENING FRAMING, USING FLASHING AT LEAST 9 INCHES WIDE, COVERING ENTIRE DEPTH OF FRAMING.

4. AT HEAD OF OPENINGS, INSTALL FLASHING UNDER WEATHER BARRIER EXTENDING AT LEAST 2 INCHES BEYOND FACE OF JAMBS; SEAL WEATHER BARRIER TO FLASHING.

5. AT INTERIOR FACE OF OPENINGS, SEAL GAP BETWEEN WINDOW/DOOR FRAME AND ROUGH FRAMING, USING JOINT SEALANT OVER BACKER ROD.

6. SERVICE AND OTHER PENETRATIONS: FORM FLASHING AROUND PENETRATING ITEM AND SEAL TO WEATHER BARRIER SURFACE.

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ARCHITECTURE + ENGINEERING
Iowa | Illinois | Indiana | Missouri
http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

SPECIFICATIONS:

SECTION 07 4113: METAL ROOF PANELS

PART 1 GENERAL

1.1 SUMMARY

A. METAL PANEL ROOFING, INCLUDING ALL COMPONENTS SPECIFIED.

1.2 REFERENCES

A. ASCE 7 - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES; AMERICAN SOCIETY OF CIVIL ENGINEERS; 2011.

B. ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2013.

C. ASTM C1289 - STANDARD SPECIFICATION FOR FACED RIGID CELLULAR POLYISOCYANURATE THERMAL INSULATION BOARD; 2014.

D. ASTM D1970/D1970M - STANDARD SPECIFICATION FOR SELF-ADHERING POLYMER MODIFIED BITUMINOUS SHEET MATERIALS USED AS STEEP ROOFING UNDERLAYMENT FOR ICE DAM PROTECTION; 2013.

E. ASTM E108 - STANDARD TEST METHODS FOR FIRE TESTS OF ROOF COVERINGS; AMERICAN SOCIETY FOR TESTING AND MATERIALS; 2011.

F. ASTM E1592 - STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF SHEET METAL ROOF AND SIDING SYSTEMS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; AMERICAN SOCIETY FOR TESTING AND MATERIALS; 2005 (REAPPROVED 2012)

G. ASTM E1646 - STANDARD TEST METHOD FOR WATER PENETRATION OF EXTERIOR METAL ROOF PANEL SYSTEMS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; AMERICAN SOCIETY FOR TESTING AND MATERIALS; 1995 (REAPPROVED 2011).

H. ASTM E1680 - STANDARD TEST METHOD FOR RATE OF AIR LEAKAGE THROUGH EXTERIOR METAL ROOF PANEL SYSTEMS; AMERICAN SOCIETY FOR TESTING AND MATERIALS; 2011.

I. PS 1 - CONSTRUCTION AND INDUSTRIAL PLYWOOD; 2009.

J. UL 580 - STANDARD FOR TESTS FOR UPLIFT RESISTANCE OF ROOF ASSEMBLIES; UNDERWRITERS LABORATORIES INC.; CURRENT EDITION, INCLUDING ALL REVISIONS.

1.3 SUBMITTALS

A. PRODUCT DATA: SUBMIT MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE INSTALLED AND MANUFACTURER'S STANDARD DETAIL DRAWINGS APPLICABLE TO THIS PROJECT.

1. WHERE UL OR FM REQUIREMENTS ARE SPECIFIED, PROVIDE DOCUMENTATION THAT SHOWS THAT THE ROOFING SYSTEM TO BE INSTALLED IS UL-CLASSIFIED OR FM-APPROVED, AS APPLICABLE; INCLUDE DATA ITEMIZING THE COMPONENTS OF THE CLASSIFIED OR APPROVED SYSTEM.

2. INSTALLATION INSTRUCTIONS: PROVIDE MANUFACTURER'S INSTRUCTIONS TO INSTALLER, MARKED UP TO SHOW EXACTLY HOW ALL COMPONENTS WILL BE INSTALLED; WHERE INSTRUCTIONS ALLOW INSTALLATION OPTIONS, CLEARLY INDICATE WHICH OPTION WILL BE USED.

B. SAMPLES: SUBMIT FOLLOWING SAMPLES FOR APPROVAL:

1. 12 INCH LONG SAMPLE OF ROOF PANEL.

2. COLOR CHIPS FOR SELECTION OF FINISH COLOR AND SHEEN.

C. SHOP DRAWINGS: PROVIDE DRAWINGS PREPARED ESPECIALLY FOR THIS PROJECT FOR ALL RELEVANT CONDITIONS, INCLUDING PLANS AND ELEVATIONS, SECTIONS AND DETAILS, SPECIFIED LOADS, FLASHINGS, ROOF EDGES, TERMINATIONS, EXPANSION JOINTS, CURBS, PENETRATIONS, AND DRAINAGE. SPECIFICALLY INCLUDE INTERFACES WITH MATERIALS NOT SUPPLIED BY METAL ROOF PANEL MANUFACTURER AND IDENTIFY EACH COMPONENT AND ITS FINISH.

D. SPECIMEN WARRANTY: SUBMIT PRIOR TO STARTING WORK.

E. MANUFACTURER'S INSTALLATION INSPECTION REPORTS: MANUFACTURER MAY, AT ITS OPTION, INSPECT THE INSTALLATION AT ANY TIME TO APPRAISE THE INSTALLING CONTACTOR OF THEIR COMPLIANCE WITH MANUFACTURER'S REQUIREMENTS. TYPICAL INSPECTIONS WILL INCLUDE:

F. EXECUTED WARRANTY, BY AUTHORIZED COMPANY OFFICIAL.

1.4 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: ROOFING INSTALLER SHALL HAVE RECEIVED TRAINING FROM METAL PANEL MANUFACTURER FOR INSTALLATION OF THE SPECIFIED ROOF PANEL SYSTEM, AND:

1.5 DELIVERY, STORAGE AND HANDLING

A. DELIVER PRODUCTS IN MANUFACTURER'S ORIGINAL CONTAINERS, DRY AND UNDAMAGED, WITH SEALS AND LABELS INTACT AND LEGIBLE.

1.6 WARRANTY

A. COMPLY WITH ALL WARRANTY PROCEDURES REQUIRED BY MANUFACTURER, INCLUDING NOTIFICATIONS, SCHEDULING, AND INSPECTIONS.

B. MANUFACTURER'S WARRANTY IS IN ADDITION TO, AND NOT A LIMITATION OF, OTHER RIGHTS THE OWNER MAY HAVE UNDER THE CONTRACT DOCUMENTS.

C. WARRANTY: FIRESTONE RED SHIELD LIMITED WARRANTY COVERING ROOF PANELS AND ASSOCIATED METAL COMPONENTS, ROOF SHEATHING/INSULATION MANUFACTURED BY FIRESTONE, AND ACCESSORIES, COVERING WEATHERTIGHTNESS, FINISH, MATERIALS, LABOR, AND WORKMANSHIP.

1. LIMIT OF LIABILITY: NO DOLLAR LIMITATION.

D. PAINTED FINISH WARRANTY: PROVIDE FIRESTONE STANDARD RED SHIELD NON-PRORATED WARRANTY COVERING DURABILITY OF PAINTED FINISH, TO INCLUDE FILM INTEGRITY, COLOR CHANGE, FADING, AND CHALKING, UNLESS OTHERWISE INDICATED BELOW.

1. WARRANTY PERIOD: 20 YEARS COMMENCING ON DATE OF SUBSTANTIAL COMPLETION.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. BASIS OF DESIGN: METAL ROOF PANELS AND ASSOCIATED SHEET METAL COMPONENTS SHALL BE FIRESTONE BUILDING PRODUCTS LLC, CARMEL, IN: WWW.FIRESTONEBPCO.COM.

1. PROVIDE ALL COMPONENTS OF SYSTEM SUPPLIED OR SPECIFIED BY SAME MANUFACTURER.

2. ROOFING SYSTEMS MANUFACTURED BY OTHERS ARE ACCEPTABLE PROVIDED THE ROOFING SYSTEM IS COMPLETELY EQUIVALENT IN MATERIALS AND WARRANTY CONDITIONS AND THE MANUFACTURER MEETS THE FOLLOWING QUALIFICATIONS:

A. SPECIALIZING IN MANUFACTURING THE ROOFING SYSTEM TO BE PROVIDED.

B. ABLE TO PROVIDE WATERPROOFING MEMBRANE UNDERLAYMENT.

2.2 ROOFING SYSTEM DESCRIPTION

A. ROOFING SYSTEM: STANDING SEAM METAL ROOF PANELS AND OTHER COMPONENTS, TOGETHER FORMING A WATERTIGHT ASSEMBLY HAVING THE FOLLOWING CHARACTERISTICS:

1. WARRANTY: 20 YEARS.

2. PANEL SEAM TYPE: MECHANICALLY DOUBLE-LOCKED IN THE FIELD WITH A MECHANICAL SEAMER.

3. PANEL MATERIAL: STEEL, 26 GAGE, 0.0179 INCH MINIMUM BASE METAL THICKNESS, WITH FLUOROPOLYMER FINISH, OVER G90 HOT-DIPPED GALVANIZED COATING.

4. COLOR: TO BE SELECTED FROM MANUFACTURER'S STANDARD COLORS.

5. DESIGN LOADS: AS SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS.

6. AIR INFILTRATION: MAXIMUM OF 0.007 CFM/SQ FT AT PRESSURE DIFFERENTIAL OF 6.24 PSF, WHEN TESTED IN ACCORDANCE WITH ASTM E1680.

7. WATER LEAKAGE: NO UNCONTROLLABLE WATER LEAKAGE AT PRESSURE DIFFERENTIAL OF 2.86 PSF, WHEN TESTED IN ACCORDANCE WITH ASTM E1646.

8. IMPACT RESISTANCE: MINIMUM OF CLASS 4, WHEN TESTED IN ACCORDANCE WITH UL 2218.

9. THERMAL EFFECTS: DESIGN ROOF PANELS AND THEIR ATTACHMENT TO ALLOW FREE MOVEMENT IN RESPONSE TO EXPANSION AND CONTRACTION FORCES RESULTING FROM TEMPERATURE VARIATION, AS SPECIFIED IN THE MBMA METAL ROOFING SYSTEMS DESIGN MANUAL.

10. EXTERNAL FIRE RESISTANCE: CLASS A, WHEN TESTED IN ACCORDANCE WITH ASTM E108 OR UL 790.

11. INTERNAL FIRE RESISTANCE: PROVIDE ROOF PANELS, SHEATHING, INSULATION, AND UNDERLAYMENT THAT ARE ACCEPTABLE AS PART OF FIRE-RESISTANCE-RATED ROOF-CEILING ASSEMBLY UL 90.

12. PROVIDE ALL NECESSARY MEMBERS AND CONNECTIONS, WHETHER INDICATED IN THE MANUFACTURER'S STANDARD DETAIL DRAWINGS OR NOT.

13. ACCESSORIES AND THEIR FASTENERS: CAPABLE OF RESISTING THE SPECIFIED DESIGN WIND UPLIFT FORCES AND ALLOWING FOR THERMAL MOVEMENT OF THE ROOF PANEL SYSTEM, NOT RESTRICTING FREE MOVEMENT OF THE ROOF PANEL SYSTEM RESULTING FROM THERMAL FORCES EXCEPT AT DESIGNED POINTS OF ROOF PANEL FIXITY.

B. ROOF SYSTEM COMPONENTS: IN ORDER FROM THE TOP DOWN:

1. METAL ROOFING PANELS AND TRIM.

2. UNDERLAYMENT: SELF-ADHERING UNDERLAYMENT OVER ENTIRE ROOF; MATERIAL AS SPECIFIED.

3. COVER BOARD: PLYWOOD (FT) MINIMUM 7/16" THICK.

4. ROOF INSULATION: ISOCYANURATE FOAM INSULATION BOARD.

A. THICKNESS: 4 INCHES.

5. VAPOR RETARDER

2.3 ROOF PANELS AND SHEET METAL FABRICATIONS

A. ROOF PANELS: FIRESTONE UNA-CLAD UC-3 ROOFING PANEL; FACTORY FORMED DOUBLE-LOCK STANDING SEAM, MECHANICALLY SEAMED IN THE FIELD.

1. SEAM HEIGHT: 2 INCH.

2. SEAM SPACING (PANEL WIDTH): 12 INCHES.

3. PROFILE: FLAT, NO RIBS OR STRIATIONS.

4. TEXTURE: SMOOTH.

5. FORM ROOFING PANELS IN LONGEST PRACTICAL LENGTHS, TRUE TO SHAPE, ACCURATE IN SIZE, SQUARE, AND FREE FROM DISTRIBUTION OR MANUFACTURING DEFECTS.

B. STEEL SHEET: ASTM A653/A653M, LOCK-FORMING QUALITY, EXTRA SMOOTH, TENSION-LEVELED, GALVANIZED/GALVANNEALED STEEL, MINIMUM SPANGLE.

C. FLUOROPOLYMER COATING: 70 PERCENT FULL STRENGTH KYNAR 500/HYLAR 5000.

1. EXPOSED SURFACE: 1.0 MIL PLUS/MINUS 0.1 MIL TOTAL DRY FILM THICKNESS.

2. CONCEALED SURFACE: 0.2 TO 0.3 MILS TOTAL DRY FILM THICKNESS.

D. SHEET METAL COMPONENTS ASSOCIATED WITH METAL ROOF PANELS: MADE BY SAME MANUFACTURER AND COMPATIBLE WITH ROOF PANELS; OF NOT LESS THAN MINIMUM THICKNESS REQUIRED BY ROOF PANEL MANUFACTURER.

1. FABRICATE TRIM, FLASHING, AND ACCESSORIES TO ROOFING MANUFACTURER'S SPECIFIED OR APPROVED PROFILES.

2. EXPOSED METAL COMPONENTS OF SAME FINISH AS PANELS.

2.4 ROOF INSULATION AND COVER BOARDS

A. POLYISOCYANURATE BOARD INSULATION: CLOSED CELL POLYISOCYANURATE FOAM WITH BLACK GLASS REINFORCED MAT LAMINATED TO FACES, COMPLYING WITH ASTM C1289 TYPE I CLASS 1, WITH THE FOLLOWING ADDITIONAL CHARACTERISTICS:

1. THICKNESS: AS INDICATED ELSEWHERE.

2. COMPRESSIVE STRENGTH: 20 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C1289.

3. UL-CLASSIFIED AND FM-APPROVED FOR DIRECT TO STEEL DECK APPLICATIONS.

4. ACCEPTABLE PRODUCT: ISO 95+ GL POLYISOCYANURATE INSULATION BY FIRESTONE.

B. HIGH DENSITY POLYISOCYANURATE COVER BOARD: NON-COMBUSTIBLE, WATER RESISTANT, HIGH DENSITY CLOSED CELL POLYISOCYANURATE CORE WITH COATED GLASS MAT FACERS, WITH THE FOLLOWING CHARACTERISTICS:

1. SIZE: 48 INCHES BY 96 INCHES, NOMINAL.

2. THICKNESS: 1/2 INCH.

3. THERMAL VALUE: R-VALUE OF 2.5, WHEN TESTED IN ACCORDANCE WITH ASTM C518 AND ASTM C177.

4. SURFACE WATER ABSORPTION: 3 PERCENT, MAXIMUM, WHEN TESTED IN ACCORDANCE WITH ASTM C209.

5. COMPRESSIVE STRENGTH: 120 PSI, WHEN TESTED IN ACCORDANCE WITH ASTM D1621.

6. DENSITY: 5 PCF, WHEN TESTED IN ACCORDANCE WITH ASTM D1622.

7. FACTORY MUTUAL APPROVED FOR USE WITH FM 1-60 AND 1-90 RATED ROOFING ASSEMBLIES.

8. MOLD GROWTH RESISTANCE: PASSING ASTM D3273.

C. INSULATION/COVER BOARD FASTENERS: TYPE AND SIZE AS REQUIRED BY ROOF MEMBRANE MANUFACTURER FOR ROOFING SYSTEM AND WARRANTY TO BE PROVIDED; USE ONLY FASTENERS FURNISHED BY ROOF MEMBRANE MANUFACTURER.

2.5 ACCESSORY MATERIALS

A. SELF-ADHERED UNDERLAYMENT: RUBBERIZED SHEET WATERPROOF MEMBRANE COMPLYING WITH ASTM D 1970/D1970M, SELF-ADHERING.

B. FASTENERS: IN STRICT ACCORDANCE WITH METAL ROOF PANEL MANUFACTURER'S REQUIREMENTS; MINIMIZE EXPOSED FASTENERS.

C. MOLDED CLOSURE STRIPS: NON-ABSORPTIVE CLOSED-CELL OR SOLID-CELL SYNTHETIC RUBBER OR NEOPRENE OR POLYVINYLCHLORIDE, OR METAL PRE-MOLDED TO MATCH CONFIGURATION OF THE COVERING; CONFIGURATION TO PREVENT RETENTION OF WATER.

CONTINUED ON A0.06

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ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

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MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
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SPECIFICATIONS:

PART 3 INSTALLATION

3.1 GENERAL

A. INSTALL ROOFING, INSULATION, FLASHINGS, AND ACCESSORIES IN ACCORDANCE WITH ROOFING MANUFACTURER'S PUBLISHED INSTRUCTIONS AND RECOMMENDATIONS FOR THE SPECIFIED ROOFING SYSTEM. WHERE MANUFACTURER PROVIDES NO INSTRUCTIONS OR RECOMMENDATIONS, FOLLOW GOOD ROOFING PRACTICES AND INDUSTRY STANDARDS. COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

3.2 EXAMINATION

A. EXAMINE ROOF DECK TO DETERMINE THAT IT IS SUFFICIENTLY RIGID TO SUPPORT INSTALLERS AND THEIR MECHANICAL EQUIPMENT AND THAT DEFLECTION WILL NOT STRAIN OR RUPTURE ROOF COMPONENTS OR DEFORM DECK.

3.3 INSULATION INSTALLATION

A. INSTALL INSULATION OVER ENTIRE AREA TO BE ROOFED, MECHANICALLY FASTENED AS REQUIRED BY ROOFING MANUFACTURER.

B. PROVIDE WOOD NAILERS AT ALL PERIMETERS OF INSULATION AND AT OTHER LOCATIONS WHERE INDICATED ON THE DRAWINGS, OF TOTAL HEIGHT MATCHING THE TOTAL THICKNESS OF INSULATION BEING USED.

3.4 COVER BOARD INSTALLATION

A. INSTALL COVER BOARD OVER ENTIRE AREA TO BE ROOFED, MECHANICALLY FASTENED AS REQUIRED BY ROOFING MANUFACTURER.

3.5 UNDERLAYMENT INSTALLATION

A. INSTALL UNDERLAYMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. INSTALL SELF-ADHERED UNDERLAYMENT OVER ENTIRE ROOFING SURFACE.

3.6 ROOF PANEL INSTALLATION

A. INSTALL THE METAL ROOF PANEL SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, INSTALLATION DRAWINGS, AND APPROVED SHOP DRAWINGS, SO THAT IT IS WEATHERTIGHT AND ALLOWS FOR THERMAL MOVEMENT.

3.7 FLASHING AND ACCESSORIES INSTALLATION

A. INSTALL FLASHINGS, INCLUDING LAPS, SPLICES, JOINTS, BONDING, ADHESION, AND ATTACHMENT, AS REQUIRED BY ROOF PANEL MANUFACTURER'S RECOMMENDATIONS AND DETAILS.

3.8 FIELD QUALITY CONTROL

A. INSPECTION BY MANUFACTURER: PROVIDE FINAL INSPECTION OF THE ROOFING SYSTEM BY A TECHNICAL REPRESENTATIVE EMPLOYED BY ROOFING SYSTEM MANUFACTURER SPECIFICALLY TO INSPECT INSTALLATION FOR WARRANTY PURPOSES (I.E. NOT A SALES PERSON).

SECTION 07 4264: METAL COMPOSITE MATERIAL WALL PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. EXTERIOR CLADDING CONSISTING OF FORMED METAL COMPOSITE MATERIAL (MCM) SHEET, SECONDARY SUPPORTS, AND ANCHORS TO STRUCTURE, ATTACHED TO SOLID BACKUP.

B. MATCHING FLASHING AND TRIM.

1.2 REFERENCE STANDARDS

A. AAMA 611 - VOLUNTARY SPECIFICATION FOR ANODIZED ARCHITECTURAL ALUMINUM; 2012.

B. ASTM A153/A153M - STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE; 2009.

C. ASTM A276 - STANDARD SPECIFICATION FOR STAINLESS STEEL BARS AND SHAPES; 2013A.

D. ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2013.

E. ASTM A792/A792M - STANDARD SPECIFICATION FOR STEEL SHEET, 55% ALUMINUM-ZINC ALLOY-COATED BY THE HOT-DIP PROCESS; 2010.

F. ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE; 2010.

G. ASTM D523 - STANDARD TEST METHOD FOR SPECULAR GLOSS; 2008.

H. ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2014.

I. ASTM E283 - STANDARD TEST METHOD FOR DETERMINING THE RATE OF AIR LEAKAGE THROUGH EXTERIOR WINDOWS, CURTAIN WALLS AND DOORS UNDER SPECIFIED PRESSURE DIFFERENCES ACROSS THE SPECIMEN; 2004 (REAPPROVED 2012).

J. ASTM E330/E330M - STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF EXTERIOR WINDOWS, DOORS, SKYLIGHTS AND CURTAIN WALLS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; 2014.

K. ASTM E331 - STANDARD TEST METHOD FOR WATER PENETRATION OF EXTERIOR WINDOWS, CURTAIN WALLS AND DOORS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; 2000 (REAPPROVED 2009).

L. NFPA 285 - STANDARD FIRE TEST METHOD FOR EVALUATION OF FIRE PROPAGATION CHARACTERISTICS OF EXTERIOR NON-LOAD-BEARING WALL ASSEMBLIES CONTAINING COMBUSTIBLE COMPONENTS; 2012.

1.3 SUBMITTALS

A. WALL SYSTEM MANUFACTURER QUALIFICATIONS.

B. PRODUCT DATA - MCM SHEETS: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING THICKNESS, PHYSICAL CHARACTERISTICS, AND FINISH, AND:

C. PRODUCT DATA - WALL SYSTEM: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING:

D. SHOP DRAWINGS: SHOW LAYOUT AND ELEVATIONS, DIMENSIONS AND THICKNESS OF PANELS, CONNECTIONS, DETAILS AND LOCATION OF JOINTS, SEALANTS AND GASKETS, METHOD OF ANCHORAGE, NUMBER OF ANCHORS, SUPPORTS, REINFORCEMENT, TRIM, FLASHINGS, AND ACCESSORIES.

E. DESIGN DATA: SUBMIT STRUCTURAL CALCULATIONS STAMPED BY DESIGN ENGINEER, FOR ARCHITECT/ENGINEER'S INFORMATION AND PROJECT RECORD.

F. SELECTION SAMPLES: FOR EACH FINISH PRODUCT SPECIFIED, COLOR CHIPS REPRESENTING MANUFACTURER'S FULL RANGE OF AVAILABLE COLORS AND PATTERNS.

G. MAINTENANCE DATA: CARE OF FINISHES AND WARRANTY REQUIREMENTS.

H. EXECUTED WARRANTY: SUBMIT WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

1.4 QUALITY ASSURANCE

A. DESIGN ENGINEER'S QUALIFICATIONS: DESIGN STRUCTURAL SUPPORTS AND ANCHORAGES UNDER DIRECT SUPERVISION OF A STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS TYPE OF WORK AND LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

1.5 DELIVERY, STORAGE, AND HANDLING

A. DELIVER PRODUCTS IN MANUFACTURER'S ORIGINAL, UNOPENED, UNDAMAGED CONTAINERS WITH IDENTIFICATION LABELS INTACT.

B. STORE PRODUCTS PROTECTED FROM EXPOSURE TO HARMFUL WEATHER CONDITIONS AND AT TEMPERATURE CONDITIONS RECOMMENDED BY MANUFACTURER.

1.6 WARRANTY

A. WALL SYSTEM WARRANTY: PROVIDE JOINT WRITTEN WARRANTY BY MANUFACTURER AND INSTALLER, AGREEING TO CORRECT DEFECTS IN MANUFACTURING OR INSTALLATION WITHIN A TWO YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION.

B. MCM SHEET MANUFACTURER'S FINISH WARRANTY: PROVIDE MANUFACTURER'S WRITTEN WARRANTY STATING THAT THE FINISH WILL PERFORM AS FOLLOWS FOR MINIMUM OF 5 YEARS:

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. METAL COMPOSITE MATERIAL METAL PANEL SYSTEM - BASIS OF DESIGN:

1. CENTRIA, FORMABOND II COMPOSITE WALL PANEL SYSTEM. MOON TOWNSHIP, PA 15108-2944. WWW.CENTRIA.COM.

2.2 WALL PANEL SYSTEM

A. WALL PANEL SYSTEM: METAL PANELS, FASTENERS, AND ANCHORS DESIGNED TO BE SUPPORTED BY FRAMING OR OTHER SUBSTRATE PROVIDED BY OTHERS; PROVIDE INSTALLED PANEL SYSTEM CAPABLE OF MAINTAINING SPECIFIED PERFORMANCE WITHOUT DEFECTS, DAMAGE OR FAILURE.

1. PROVIDE STRUCTURAL DESIGN BY OR UNDER DIRECT SUPERVISION OF A STRUCTURAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

B. PERFORMANCE REQUIREMENTS:

1. WIND PERFORMANCE: PROVIDE SYSTEM TESTED IN ACCORDANCE WITH ASTM E330/E330M WITHOUT PERMANENT DEFORMATION OR FAILURES OF STRUCTURAL MEMBERS UNDER THE FOLLOWING CONDITIONS:

A. MAXIMUM DEFLECTION OF PERIMETER FRAMING MEMBER OF L/175 NORMAL TO PLANE OF THE WALL; MAXIMUM DEFLECTION OF INDIVIDUAL PANELS OF L/60.

B. MAXIMUM ANCHOR DEFLECTION IN ANY DIRECTION OF 1/16 INCH AT CONNECTION POINTS OF FRAMING MEMBERS TO ANCHORS.

2. AIR INFILTRATION: 0.06 CFM/SQ FT OF WALL AREA, MAXIMUM, WHEN TESTED AT 1.57 PSF IN ACCORDANCE WITH ASTM E283.

3. WATER PENETRATION: NO WATER PENETRATION UNDER STATIC PRESSURE WHEN TESTED IN ACCORDANCE WITH ASTM E331 AT A DIFFERENTIAL OF 10 PERCENT OF INWARD ACTING DESIGN LOAD, 6.24 PSF MINIMUM, AFTER 15 MINUTES.

A. WATER PENETRATION IS DEFINED AS THE APPEARANCE OF UNCONTROLLED WATER ON THE INTERIOR FACE OF THE WALL.

B. DESIGN TO DRAIN LEAKAGE AND CONDENSATION TO THE EXTERIOR FACE OF THE WALL.

C. PANELS: ONE INCH DEEP PANS FORMED OF METAL COMPOSITE MATERIAL SHEET BY ROUTING EDGES OF SHEET, REMOVING CORNERS, AND FOLDING EDGES.

1. PROVIDE CONCEALED ATTACHMENT TO SUPPORTING STRUCTURE BY ADHERING ATTACHMENT MEMBERS TO BACK OF PANEL; ATTACHMENT MEMBERS MAY ALSO FUNCTION AS STIFFENERS.

2. PROVIDE JOINT DETAILS PROVIDING A WATERTIGHT AND STRUCTURALLY SOUND WALL PANEL SYSTEM THAT ALLOWS NO UNCONTROLLED WATER PENETRATION ON INSIDE FACE OF PANEL SYSTEM.

2.3 MATERIALS

A. METAL COMPOSITE MATERIAL (MCM) SHEET: TWO SHEETS OF ALUMINUM SANDWICHING A SOLID CORE OF EXTRUDED THERMOPLASTIC MATERIAL FORMED IN A CONTINUOUS PROCESS WITH NO GLUES OR ADHESIVES BETWEEN DISSIMILAR MATERIALS; CORE MATERIAL FREE OF VOIDS AND SPACES; NO FOAMED INSULATION MATERIAL CONTENT.

1. FACTORY FINISH: TWO COAT FLUOROPOLYMER RESIN COATING, APPROVED BY THE COATING MANUFACTURER FOR THE LENGTH OF WARRANTY SPECIFIED FOR THE PROJECT, AND APPLIED BY COIL MANUFACTURING FACILITY THAT SPECIALIZES IN COIL APPLIED FINISHES.

A. BASIS OF DESIGN: CENTRIA FLUOURFINISH.

2. COLOR/TEXTURE: AS SELECTED BY ARCHITECT/ENGINEER FROM MANUFACTURER'S STANDARD RANGE.

B. METAL FRAMING MEMBERS: INCLUDE ALL SUB-GIRTS, ZEE-CLIPS, BASE AND SILL ANGLES AND CHANNELS, HAT-SHAPED AND RIGID CHANNELS, AND FURRING CHANNELS REQUIRED FOR COMPLETE INSTALLATION.

1. PROVIDE MATERIAL STRENGTH, DIMENSIONS, CONFIGURATION AS REQUIRED TO MEET THE APPLIED LOADS APPLIED AND IN COMPLIANCE WITH APPLICABLE BUILDING CODE.

2. SHEET STEEL COMPONENTS: ASTM A653/A653M GALVANIZED TO G90/Z275 OR ZINC-IRON ALLOY-COATED TO A60/ZF180; OR ASTM A792/A792M ALUMINUM-ZINC COATED TO AZ60/AZM180.

C. FLASHING: SHEET ALUMINUM; 0.040 INCH THICK, MINIMUM; FINISH AND COLOR TO MATCH MCM SHEET.

D. ANCHORS, CLIPS AND ACCESSORIES:

1. STEEL COMPLYING WITH ASTM A36/A36M AND HOT-DIPPED GALVANIZED TO ASTM A153/A153M.

E. FASTENERS:

1. SCREWS: SELF-DRILLING OR SELF-TAPPING TYPE 410 STAINLESS STEEL OR ZINC-ALLOY STEEL HEX WASHER HEAD, WITH EPDM OR PVC WASHER UNDER HEADS OF FASTENERS BEARING ON WEATHER SIDE OF METAL WALL PANELS.

F. PROVIDE PANEL SYSTEM MANUFACTURER'S AND INSTALLER'S STANDARD CORROSION RESISTANT ACCESSORIES, INCLUDING FASTENERS, CLIPS, ANCHORAGE DEVICES AND ATTACHMENTS.

PART 3 EXECUTION

3.1 INSTALLATION

A. COMPLY WITH INSTRUCTIONS AND RECOMMENDATIONS OF MCM SHEET MANUFACTURER AND WALL SYSTEM MANUFACTURER, AS WELL AS WITH APPROVED SHOP DRAWINGS.

B. SEPARATE DISSIMILAR METALS; USE GASKET FASTENERS, ISOLATION SHIMS, OR ISOLATION TAPE WHERE NEEDED TO ELIMINATE POSSIBILITY OF ELECTROLYTIC ACTION BETWEEN METALS.

C. INSTALL FLASHINGS AS INDICATED ON SHOP DRAWINGS AT FLASHING BUTT JOINTS, PROVIDE A LAP STRAP UNDER FLASHING AND SEAL LAPPED SURFACES WITH A FULL BED OF NON-HARDENING SEALANT.

D. INSTALL SQUARE, PLUMB, STRAIGHT, AND TRUE, ACCURATELY FITTED, WITH TIGHT JOINTS AND INTERSECTIONS MAINTAINING THE FOLLOWING INSTALLATION TOLERANCES:

E. REPLACE DAMAGED PRODUCTS

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
Iowa | Illinois | Indiana | Missouri http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

SPECIFICATIONS:

SECTION 07 6200: SHEET METAL FLASHING AND TRIM
PART 1 GENERAL

1.1 SECTION INCLUDES

A. FABRICATED SHEET METAL ITEMS, INCLUDING FLASHINGS, COUNTERFLASHINGS, GUTTERS, SHEET METAL ROOFING, AND SOFFITS.

1.2 RELATED REQUIREMENTS

A. SECTION 06 1000 - ROUGH CARPENTRY: WOOD NAILERS.

B. SECTION 07 4113: METAL ROOF PANELS.

C. SECTION 07 6100 - SHEET METAL ROOFING.

D. SECTION 07 9005 - JOINT SEALERS.

1.3 REFERENCE STANDARDS

A. AAMA 611 - VOLUNTARY SPECIFICATION FOR ANODIZED ARCHITECTURAL ALUMINUM; AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION; 2012.

B. AAMA 2603 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR PIGMENTED ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS; 2013.

C. ASTM A666 - STANDARD SPECIFICATION FOR ANNEALED OR COLD-WORKED AUSTENITIC STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BAR; 2010.

D. ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE; 2010.

E. ASTM B209M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE [METRIC]; 2010.

F. ASTM D4586/D4586M - STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS-FREE; 2007 (REAPPROVED 2012)E1.

G. SMACNA (ASMM) - ARCHITECTURAL SHEET METAL MANUAL; SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION; 2012.

1.4 SUBMITTALS

A. SEE SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

B. SHOP DRAWINGS: INDICATE MATERIAL PROFILE, JOINTING PATTERN, JOINTING DETAILS, FASTENING METHODS, FLASHINGS, TERMINATIONS, AND INSTALLATION DETAILS.

C. SAMPLES: SUBMIT TWO SAMPLES 4"X4" INCH IN SIZE ILLUSTRATING METAL FINISH COLOR.

1.5 QUALITY ASSURANCE

A. PERFORM WORK IN ACCORDANCE WITH SMACNA (ASMM) AND CDA CA4050 REQUIREMENTS AND STANDARD DETAILS, EXCEPT AS OTHERWISE INDICATED.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

A. ALUMINUM: ASTM B209 (ASTM B209M); 0.032 INCH THICK; ANODIZED FINISH OF COLOR AS SELECTED.

1. COLOR ANODIZED FINISH: AAMA 611 AA-M12C22A42/44 CLASS 1 INTEGRALLY OR ELECTROLYTICALLY COLORED ANODIC COATING NOT LESS THAN 0.7 MILS THICK.

B. PRE-FINISHED ALUMINUM: ASTM B209 (ASTM B209M); 0.032 INCH THICK; PLAIN FINISH SHOP PRE-COATED WITH MODIFIED SILICONE COATING.

1. MODIFIED SILICONE POLYESTER COATING: PIGMENTED ORGANIC COATING SYSTEM, AAMA 2603; BAKED ENAMEL FINISH SYSTEM.

2. COLOR: AS SELECTED BY ARCHITECT/ENGINEER FROM MANUFACTURER'S STANDARD COLORS.

C. STAINLESS STEEL: ASTM A666 TYPE 304, SOFT TEMPER, 0.015 INCH THICK; SMOOTH NO. 4 FINISH.

2.2 ACCESSORIES

A. FASTENERS: GALVANIZED STEEL, WITH SOFT NEOPRENE WASHERS.

B. SLIP SHEET: ROSIN SIZED BUILDING PAPER.

C. PRIMER: ZINC CHROMATE TYPE.

D. SEALANT: TYPE ____ SPECIFIED IN SECTION 07 9005.

E. PLASTIC CEMENT: ASTM D4586, TYPE I.

2.3 FABRICATION

A. FORM SECTIONS TRUE TO SHAPE, ACCURATE IN SIZE, SQUARE, AND FREE FROM DISTORTION OR DEFECTS.

B. FORM PIECES IN LONGEST POSSIBLE LENGTHS.

C. HEM EXPOSED EDGES ON UNDERSIDE 1/2 INCH; MITER AND SEAM CORNERS.

D. FORM MATERIAL WITH FLAT LOCK SEAMS, EXCEPT WHERE OTHERWISE INDICATED. AT MOVING JOINTS, USE SEALED LAPPED, BAYONET-TYPE OR INTERLOCKING HOOKED SEAMS.

E. FABRICATE CORNERS FROM ONE PIECE WITH MINIMUM 18 INCH LONG LEGS; SEAM FOR RIGIDITY, SEAL WITH SEALANT.

F. FABRICATE FLASHINGS TO ALLOW TOE TO EXTEND 2 INCHES OVER ROOFING GRAVEL. RETURN AND BRAKE EDGES.

2.4 GUTTER AND DOWNSPOUT FABRICATION

A. GUTTERS: PROFILE AS INDICATED.

B. SEAL METAL JOINTS.

SECTION 07 9005: JOINT SEALERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. SEALANTS AND JOINT BACKING.

1.2 RELATED REQUIREMENTS

A. SECTION 01 6116 - VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS.

1.3 REFERENCE STANDARDS

A. ASTM C834 - STANDARD SPECIFICATION FOR LATEX SEALANTS; 2010.

B. ASTM C920 - STANDARD SPECIFICATION FOR ELASTOMERIC JOINT SEALANTS; 2014.

C. ASTM C1193 - STANDARD GUIDE FOR USE OF JOINT SEALANTS; 2013.

1.4 SUBMITTALS

A. PRODUCT DATA: PROVIDE DATA INDICATING SEALANT CHEMICAL CHARACTERISTICS, PERFORMANCE CRITERIA, SUBSTRATE PREPARATION, LIMITATIONS, AND COLOR AVAILABILITY.

1.5 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.

B. APPLICATOR QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE AND APPROVED BY MANUFACTURER.

1.6 WARRANTY

A. CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION.

B. WARRANTY: INCLUDE COVERAGE FOR INSTALLED SEALANTS AND ACCESSORIES WHICH FAIL TO ACHIEVE AIRTIGHT SEAL AND WATERTIGHT SEAL, EXHIBIT LOSS OF ADHESION OR COHESION, OR DO NOT CURE.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. GUNNABLE AND POURABLE SEALANTS:

1. BASF CONSTRUCTION CHEMICALS-BUILDING SYSTEMS: WWW.BUILDINGSYSTEMS.BASF.COM.

2. DOW CORNING CORPORATION: WWW.DOWCORNING.COM.

3. TREMCO GLOBAL SEALANTS: WWW.TREMCOSEALANTS.COM.

B. PREFORMED COMPRESSIBLE FOAM SEALERS:

1. EMSEAL JOINT SYSTEMS, LTD: WWW.EMSEAL.COM.

2. DAYTON SUPERIOR CORPORATION: WWW.DAYTONSUPERIOR.COM.

3. TREMCO GLOBAL SEALANTS: WWW.TREMCOSEALANTS.COM.

2.2 SEALANTS

A. SEALANTS AND PRIMERS - GENERAL: PROVIDE PRODUCTS HAVING VOLATILE ORGANIC COMPOUND (VOC) CONTENT AS SPECIFIED IN SECTION 01 6116.

B. TYPE 1 - GENERAL PURPOSE EXTERIOR SEALANT: POLYURETHANE; ASTM C920, GRADE NS, CLASS 25, USES M, G, AND A; SINGLE COMPONENT.

1. COLOR: MATCH ADJACENT FINISHED SURFACES.

2. COLOR: TO BE SELECTED BY ARCHITECT/ENGINEER FROM MANUFACTURER'S STANDARD RANGE.

C. TYPE 2 - EXTERIOR METAL LAP JOINT SEALANT: BUTYL OR POLYISOBUTYLENE, NONDRYING, NONSKINNING, NONCURING.

1. APPLICATIONS: USE FOR:

A. CONCEALED SEALANT BEAD IN SHEET METAL WORK.

D. TYPE 3 - GENERAL PURPOSE INTERIOR SEALANT: ACRYLIC EMULSION LATEX; ASTM C834, TYPE OP, GRADE NF SINGLE COMPONENT, PAINTABLE.

1. COLOR: MATCH ADJACENT FINISHED SURFACES.

E. TYPE 4 - INTERIOR FLOOR JOINT SEALANT: POLYURETHANE, SELF-LEVELING; ASTM C920, GRADE P, CLASS 25, USES T, M AND A; SINGLE COMPONENT.

1. APPROVED BY MANUFACTURER FOR WIDE JOINTS UP TO 1-1/2 INCHES.

2. COLOR: MATCH ADJACENT FINISHED SURFACES.

F. TYPE 5 - SILICONE SEALANT: ASTM C920, GRADE NS, CLASS 25, USES NT, A, G, M, O; SINGLE COMPONENT, SOLVENT CURING, NON-SAGGING, NON-STAINING, FUNGUS RESISTANT, NON-BLEEDING.

1. COLOR: MATCH ADJACENT FINISHED SURFACES.

2. MOVEMENT CAPABILITY: PLUS AND MINUS 25 PERCENT.

3. SERVICE TEMPERATURE RANGE: -65 TO 180 DEGREES F.

4. SHORE A HARDNESS RANGE: 15 TO 35.

5. PRODUCTS:

A. BASF CONSTRUCTION CHEMICALS-BUILDING SYSTEMS; ____: WWW.BUILDINGSYSTEMS.BASF.COM.

B. TREMCO GLOBAL SEALANTS; ____: WWW.TREMCOSEALANTS.COM.

2.3 ACCESSORIES

A. PRIMER: NON-STAINING TYPE, RECOMMENDED BY SEALANT MANUFACTURER TO SUIT APPLICATION.

B. JOINT BACKING: ROUND FOAM ROD COMPATIBLE WITH SEALANT; ASTM D 1667, CLOSED CELL PVC; OVERSIZED 30 TO 50 PERCENT LARGER THAN JOINT WIDTH.

C. BOND BREAKER: PRESSURE SENSITIVE TAPE RECOMMENDED BY SEALANT MANUFACTURER TO SUIT APPLICATION.

PART 3 EXECUTION

3.1 EXAMINATION

A. VERIFY THAT SUBSTRATE SURFACES ARE READY TO RECEIVE WORK.

B. VERIFY THAT JOINT BACKING AND RELEASE TAPES ARE COMPATIBLE WITH SEALANT.

3.2 PREPARATION

A. REMOVE LOOSE MATERIALS AND FOREIGN MATTER THAT COULD IMPAIR ADHESION OF SEALANT.

B. CLEAN AND PRIME JOINTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

C. PERFORM PREPARATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ASTM C1193.

D. PROTECT ELEMENTS SURROUNDING THE WORK OF THIS SECTION FROM DAMAGE OR DISFIGUREMENT.

3.3 INSTALLATION

A. PERFORM WORK IN ACCORDANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS FOR PREPARATION OF SURFACES AND MATERIAL INSTALLATION INSTRUCTIONS.

B. PERFORM INSTALLATION IN ACCORDANCE WITH ASTM C1193.

C. INSTALL BOND BREAKER WHERE JOINT BACKING IS NOT USED.

D. INSTALL SEALANT FREE OF AIR POCKETS, FOREIGN EMBEDDED MATTER, RIDGES, AND SAGS.

E. APPLY SEALANT WITHIN RECOMMENDED APPLICATION TEMPERATURE RANGES. CONSULT MANUFACTURER WHEN SEALANT CANNOT BE APPLIED WITHIN THESE TEMPERATURE RANGES.

F. TOOL JOINTS CONCAVE.

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
Iowa | Illinois | Indiana | Missouri
http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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SPECIFICATIONS:

SECTION 08 1113: HOLLOW METAL DOORS AND FRAMES
PART 1 GENERAL

1.1 SECTION INCLUDES

A. NON-FIRE-RATED STEEL DOORS AND FRAMES.

B. FIRE-RATED STEEL DOORS AND FRAMES.

1.2 REFERENCE STANDARDS
A. ANSI A250.8 - SDI-100 RECOMMENDED SPECIFICATIONS FOR STANDARD STEEL DOORS AND FRAMES; 2003.

B. ANSI A250.10 - TEST PROCEDURE AND ACCEPTANCE CRITERIA FOR PRIME PAINTED STEEL SURFACES FOR STEEL DOORS AND FRAMES; 1998 (R2011).

C. BHMA A156.115 - HARDWARE PREPARATION IN STEEL DOORS AND STEEL FRAMES; 2006.

D. NAAMM HMMA 840 - GUIDE SPECIFICATIONS FOR INSTALLATION AND STORAGE OF HOLLOW METAL DOORS AND FRAMES; THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS; 2007.

E. NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2013.

F. UL (BMD) - BUILDING MATERIALS DIRECTORY; UNDERWRITERS LABORATORIES INC.; CURRENT EDITION.

G. UL 10C - STANDARD FOR POSITIVE PRESSURE FIRE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

1.3 SUBMITTALS

A. PRODUCT DATA: MATERIALS AND DETAILS OF DESIGN AND CONSTRUCTION, HARDWARE LOCATIONS, REINFORCEMENT TYPE AND LOCATIONS, ANCHORAGE AND FASTENING METHODS, AND FINISHES; AND ONE COPY OF REFERENCED GRADE STANDARD.

B. SHOP DRAWINGS: DETAILS OF EACH OPENING, SHOWING ELEVATIONS, GLAZING, FRAME PROFILES, ANCHORAGE, CONNECTIONS, AND IDENTIFYING LOCATION OF DIFFERENT FINISHES, IF ANY.

1.4 PROJECT CONDITIONS

A. FIELD MEASUREMENTS: VERIFY ACTUAL DIMENSIONS OF OPENINGS BY FIELD MEASUREMENTS BEFORE FABRICATION.

PART 2 PRODUCTS

2.1 DOORS AND FRAMES

A. REQUIREMENTS FOR ALL DOORS AND FRAMES:

1. DOOR EDGE PROFILE: BEVELED ON BOTH EDGES.

2. DOOR TEXTURE: SMOOTH FACES.

3. HARDWARE PREPARATION: IN ACCORDANCE WITH BHMA A156.115, WITH REINFORCEMENT WELDED IN PLACE, IN ADDITION TO OTHER REQUIREMENTS SPECIFIED IN DOOR GRADE STANDARD.

4. FINISH: FACTORY PRIMED, FOR FIELD FINISHING.

B. COMBINED REQUIREMENTS: IF A PARTICULAR DOOR AND FRAME UNIT IS INDICATED TO COMPLY WITH MORE THAN ONE TYPE OF REQUIREMENT, COMPLY WITH ALL THE SPECIFIED REQUIREMENTS FOR EACH TYPE; FOR INSTANCE, AN EXTERIOR DOOR THAT IS ALSO INDICATED AS BEING SOUND-RATED MUST COMPLY WITH THE REQUIREMENTS SPECIFIED FOR EXTERIOR DOORS AND FOR SOUND-RATED DOORS; WHERE TWO REQUIREMENTS CONFLICT, COMPLY WITH THE MOST STRINGENT.

2.2STEEL DOORS

A. INTERIOR DOORS, NON-FIRE-RATED:

1. GRADE: ANSI A250.8 LEVEL 4, PHYSICAL PERFORMANCE LEVEL A, MODEL 1, FULL FLUSH.

2. CORE: CARDBOARD HONEYCOMB.

3. THICKNESS: 1-3/4 INCHES.

4. TEXTURE: SMOOTH FACES.

5. FINISH: FACTORY PRIMED, FOR FIELD FINISHING.

B. INTERIOR DOORS, FIRE-RATED:

1. GRADE: ANSI A250.8 LEVEL 4, PHYSICAL PERFORMANCE LEVEL A, MODEL 1, FULL FLUSH.

2. THICKNESS: 1 3/4"

3. FIRE RATING: AS INDICATED ON DOOR AND FRAME SCHEDULE, TESTED IN ACCORDANCE WITH UL 10C ("POSITIVE PRESSURE").

A. PROVIDE UNITS LISTED AND LABELED BY UL.

B. ATTACH FIRE RATING LABEL TO EACH FIRE RATED UNIT.

4. CORE: MINERAL FIBERBOARD.

5. THICKNESS: 1-3/4 INCH.

6. TEXTURE: SMOOTH FACES.

7. FINISH: FACTORY PRIMED, FOR FIELD FINISHING.

2.3 STEEL FRAMES

A. GENERAL:

1. COMPLY WITH THE REQUIREMENTS OF GRADE SPECIFIED FOR CORRESPONDING DOOR.

A. ANSI A250.8 LEVEL 4 DOORS: 12 GAGE FRAMES.

2. FINISH: SAME AS FOR DOOR.

B. INTERIOR DOOR FRAMES, NON-FIRE-RATED: FULLY WELDED TYPE.

1. FINISH: FACTORY PRIMED, FOR FIELD FINISHING.

C. INTERIOR DOOR FRAMES, FIRE-RATED: FULLY WELDED TYPE.

1. FIRE RATING: SAME AS DOOR, LABELED.

2. FINISH: FACTORY PRIMED, FOR FIELD FINISHING.

2.4 ACCESSORY MATERIALS

A. FRAME ANCHORS

1. JAMB ANCHORS:

A. STUD-WALL TYPE: DESIGNED TO ENGAGE STUD, WELDED TO BACK OF FRAMES; NOT LESS THAN 0.042 INCH (1.0 MM) THICK.

2. FLOOR ANCHORS: FORMED FROM SAME MATERIAL AS FRAMES, NOT LESS THAN 0.042 INCH (1.0 MM) THICK, AND AS FOLLOWS:

A. MONOLITHIC CONCRETE SLABS: CLIP-TYPE ANCHORS, WITH TWO HOLES TO RECEIVE FASTENERS.

B. SILENCERS: RESILIENT RUBBER, FITTED INTO DRILLED HOLE; 3 ON STRIKE SIDE OF SINGLE DOOR, 3 ON CENTER MULLION OF PAIRS, AND 2 ON HEAD OF PAIRS WITHOUT CENTER MULLIONS.

B. TOLERANCES: FABRICATE HOLLOW METAL WORK TO TOLERANCES INDICATED IN SDI 117.

C. HOLLOW METAL FRAMES: WHERE FRAMES ARE FABRICATED IN SECTIONS DUE TO SHIPPING OR HANDLING LIMITATIONS, PROVIDE ALIGNMENT PLATES OR ANGLES AT EACH JOINT, FABRICATED OF SAME THICKNESS METAL AS FRAMES.

1. WELDED FRAMES: WELD FLUSH FACE JOINTS CONTINUOUSLY; GRIND, FILL, DRESS, AND MAKE SMOOTH, FLUSH, AND INVISIBLE.

2. JAMB ANCHORS: PROVIDE NUMBER AND SPACING OF ANCHORS AS FOLLOWS:

A. STUD-WALL TYPE: LOCATE ANCHORS NOT MORE THAN 18 INCHES (457 MM) FROM TOP AND BOTTOM OF FRAME. SPACE ANCHORS NOT MORE THAN 32 INCHES (813 MM) O.C. AND AS FOLLOWS:
1) FOUR ANCHORS PER JAMB FROM 60 TO 90 INCHES (1524 TO 2286 MM) HIGH.

3. DOOR SILENCERS: EXCEPT ON WEATHER-STRIPPED DOORS, DRILL STOPS TO RECEIVE DOOR SILENCERS AS FOLLOWS. KEEP HOLES CLEAR DURING CONSTRUCTION.

A. SINGLE-DOOR FRAMES: DRILL STOP IN STRIKE JAMB TO RECEIVE THREE DOOR SILENCERS.

4. HARDWARE PREPARATION: FACTORY PREPARE HOLLOW METAL WORK TO RECEIVE TEMPLATED MORTISED HARDWARE; INCLUDE CUTOUTS, REINFORCEMENT, MORTISING, DRILLING, AND TAPPING ACCORDING TO THE DOOR HARDWARE SCHEDULE AND TEMPLATES FURNISHED AS SPECIFIED IN DIVISION 08 SECTION "DOOR HARDWARE."

A. LOCATE HARDWARE AS INDICATED, OR IF NOT INDICATED, ACCORDING TO ANSI/SDI A250.8.

B. REINFORCE DOORS AND FRAMES TO RECEIVE NONTEMPLATED, MORTISED AND SURFACE-MOUNTED DOOR HARDWARE.

PART 3 EXECUTION

3.1 EXAMINATION

A. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.

B. VERIFY THAT OPENING SIZES AND TOLERANCES ARE ACCEPTABLE.

C. EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.

D. EXAMINE ROUGHING-IN FOR EMBEDDED AND BUILT-IN ANCHORS TO VERIFY ACTUAL LOCATIONS BEFORE FRAME INSTALLATION.

E. RETAIN FIRST PARAGRAPH BELOW IF REQUIRED.

F. FOR THE RECORD, PREPARE WRITTEN REPORT, ENDORSED BY INSTALLER, LISTING CONDITIONS DETRIMENTAL TO PERFORMANCE OF THE WORK.

G. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.2 PREPARATION

A. PRIOR TO INSTALLATION, ADJUST AND SECURELY BRACE WELDED HOLLOW METAL FRAMES FOR SQUARENESS, ALIGNMENT, TWIST, AND PLUMBNESS TO THE FOLLOWING TOLERANCES:

1. SQUARENESS: PLUS OR MINUS 1/16 INCH (1.6 MM), MEASURED AT DOOR RABBET ON A LINE 90 DEGREES FROM JAMB PERPENDICULAR TO FRAME HEAD.

2. ALIGNMENT: PLUS OR MINUS 1/16 INCH (1.6 MM), MEASURED AT JAMBS ON A HORIZONTAL LINE PARALLEL TO PLANE OF WALL.

3. TWIST: PLUS OR MINUS 1/16 INCH (1.6 MM), MEASURED AT OPPOSITE FACE CORNERS OF JAMBS ON PARALLEL LINES, AND PERPENDICULAR TO PLANE OF WALL.

4. PLUMBNESS: PLUS OR MINUS 1/16 INCH (1.6 MM), MEASURED AT JAMBS ON A PERPENDICULAR LINE FROM HEAD TO FLOOR.

3.3 INSTALLATION

A. INSTALL IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFIED DOOR GRADE STANDARD AND NAAMM HMMA 840.

B. IN ADDITION, INSTALL FIRE RATED UNITS IN ACCORDANCE WITH NFPA 80.

C. COORDINATE FRAME ANCHOR PLACEMENT WITH WALL CONSTRUCTION.

D. COORDINATE INSTALLATION OF HARDWARE.

E. GENERAL: INSTALL HOLLOW METAL WORK PLUMB, RIGID, PROPERLY ALIGNED, AND SECURELY FASTENED IN PLACE; COMPLY WITH DRAWINGS AND MANUFACTURER'S WRITTEN INSTRUCTIONS.

F. HOLLOW METAL FRAMES: INSTALL HOLLOW METAL FRAMES OF SIZE AND PROFILE INDICATED. COMPLY WITH ANSI/SDI A250.11.

1. SET FRAMES ACCURATELY IN POSITION, PLUMBED, ALIGNED, AND BRACED SECURELY UNTIL PERMANENT ANCHORS ARE SET. AFTER WALL CONSTRUCTION IS COMPLETE, REMOVE TEMPORARY BRACES, LEAVING SURFACES SMOOTH AND UNDAMAGED.

A. AT FIRE-PROTECTION-RATED OPENINGS, INSTALL FRAMES ACCORDING TO NFPA 80.

B. CHECK PLUMBNESS, SQUARENESS, AND TWIST OF FRAMES AS WALLS ARE CONSTRUCTED. SHIM AS NECESSARY TO COMPLY WITH INSTALLATION TOLERANCES.

2. IN-PLACE GYPSUM BOARD PARTITIONS: SECURE FRAMES IN PLACE WITH POSTINSTALLED EXPANSION ANCHORS THROUGH FLOOR ANCHORS AT EACH JAMB. COUNTERSINK ANCHORS, AND FILL AND MAKE SMOOTH, FLUSH, AND INVISIBLE ON EXPOSED FACES.

3. INSTALLATION TOLERANCES: ADJUST HOLLOW METAL DOOR FRAMES FOR SQUARENESS, ALIGNMENT, TWIST, AND PLUMB TO THE FOLLOWING TOLERANCES:

A. SQUARENESS: PLUS OR MINUS 1/16 INCH (1.6 MM), MEASURED AT DOOR RABBET ON A LINE 90 DEGREES FROM JAMB PERPENDICULAR TO FRAME HEAD.

B. ALIGNMENT: PLUS OR MINUS 1/16 INCH (1.6 MM), MEASURED AT JAMBS ON A HORIZONTAL LINE PARALLEL TO PLANE OF WALL.

C. TWIST: PLUS OR MINUS 1/16 INCH (1.6 MM), MEASURED AT OPPOSITE FACE CORNERS OF JAMBS ON PARALLEL LINES, AND PERPENDICULAR TO PLANE OF WALL.

D. PLUMBNESS: PLUS OR MINUS 1/16 INCH (1.6 MM), MEASURED AT JAMBS AT FLOOR.

G. HOLLOW METAL DOORS: FIT HOLLOW METAL DOORS ACCURATELY IN FRAMES, WITHIN CLEARANCES SPECIFIED BELOW. SHIM AS NECESSARY.

1. NON-FIRE-RATED STANDARD STEEL DOORS:

A. JAMBS AND HEAD: 1/8 INCH (3 MM) PLUS OR MINUS 1/16 INCH (1.6 MM).

B. BETWEEN EDGES OF PAIRS OF DOORS: 1/8 INCH (3 MM) PLUS OR MINUS 1/16 INCH (1.6 MM).

C. BETWEEN BOTTOM OF DOOR AND TOP OF THRESHOLD: MAXIMUM 3/8 INCH (9.5 MM).

D. BETWEEN BOTTOM OF DOOR AND TOP OF FINISH FLOOR (NO THRESHOLD): MAXIMUM 3/4 INCH (19 MM).

2. FIRE-RATED DOORS: INSTALL DOORS WITH CLEARANCES ACCORDING TO NFPA 80.

3.4 TOLERANCES

A. CLEARANCES BETWEEN DOOR AND FRAME: AS SPECIFIED IN ANSI A250.8.

B. MAXIMUM DIAGONAL DISTORTION: 1/16 IN MEASURED WITH STRAIGHT EDGE, CORNER TO CORNER.

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
Iowa | Illinois | Indiana | Missouri http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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SPECIFICATIONS:

SECTION 08 4313: ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. ALUMINUM DOORS AND FRAMES.

B. WEATHERSTRIPPING.

C. DOOR HARDWARE.

1.2 REFERENCE STANDARDS

A. AAMA 501.2 - FIELD CHECK OF METAL STOREFRONTS, CURTAIN WALLS, AND SLOPED GLAZING SYSTEMS FOR WATER LEAKAGE; AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION; 2009 (PART OF AAMA 501).

B. AAMA 611 - VOLUNTARY SPECIFICATION FOR ANODIZED ARCHITECTURAL ALUMINUM; AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION; 2012.

C. AAMA 612 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR COMBINED COATINGS OF ANODIC OXIDE AND TRANSPARENT ORGANIC COATINGS ON ARCHITECTURAL ALUMINUM; 2002.

D. ASCE 7 - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES; AMERICAN SOCIETY OF CIVIL ENGINEERS; 2011.

E. ASTM E283 - STANDARD TEST METHOD FOR DETERMINING THE RATE OF AIR LEAKAGE THROUGH EXTERIOR WINDOWS, CURTAIN WALLS, AND DOORS UNDER SPECIFIED PRESSURE DIFFERENCES ACROSS THE SPECIMEN; 2004 (REAPPROVED 2012).

F. ASTM E331 - STANDARD TEST METHOD FOR WATER PENETRATION OF EXTERIOR WINDOWS, SKYLIGHTS, DOORS, AND CURTAIN WALLS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; 2000 (REAPPROVED 2009).

1.3 SUBMITTALS

A. PRODUCT DATA: PROVIDE COMPONENT DIMENSIONS, DESCRIBE COMPONENTS WITHIN ASSEMBLY, ANCHORAGE AND FASTENERS, GLASS AND INFILL, DOOR HARDWARE, INTERNAL DRAINAGE DETAILS.

B. SHOP DRAWINGS: INDICATE SYSTEM DIMENSIONS, FRAMED OPENING REQUIREMENTS AND TOLERANCES, AFFECTED RELATED WORK, EXPANSION AND CONTRACTION JOINT LOCATION AND DETAILS, AND FIELD WELDING REQUIRED.

C. HARDWARE SCHEDULE: COMPLETE ITEMIZATION OF EACH ITEM OF HARDWARE TO BE PROVIDED FOR EACH DOOR, CROSS-REFERENCED TO DOOR IDENTIFICATION NUMBERS IN CONTRACT DOCUMENTS.

D. WARRANTY: SUBMIT MANUFACTURER WARRANTY AND ENSURE FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

1.4 WARRANTY

A. CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION.

B. PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST FAILURE OF GLASS SEAL ON INSULATING GLASS UNITS, INCLUDING INTERPANE DUSTING OR MISTING. INCLUDE PROVISION FOR REPLACEMENT OF FAILED UNITS.

C. PROVIDE 20 YEAR MANUFACTURER WARRANTY AGAINST EXCESSIVE DEGRADATION OF EXTERIOR FINISH. INCLUDE PROVISION FOR REPLACEMENT OF UNITS WITH EXCESSIVE FADING, CHALKING, OR FLAKING.

PART 2 PRODUCTS

2.1 BASIS OF DESIGN -- SWINGING DOORS

A. WIDE STILE, INSULATING GLAZING, THERMALLY-BROKEN:5 9/16" VERTICAL AND TOP STILE, 7 1/16" BOTTOM RAIL.

1. BASIS OF DESIGN: KAWNEER, 560 INSULCLAD ENTRANCE.

2. THICKNESS: 2-1/4 INCH.

B. OTHER MANUFACTURERS: PROVIDE EITHER THE PRODUCT IDENTIFIED AS "BASIS OF DESIGN" OR AN EQUIVALENT PRODUCT OF ANOTHER MANUFACTURER.

2.2 COMPONENTS

A. SWING DOORS: GLAZED ALUMINUM.

1. THICKNESS: 2 1/4" INCHES.

2. TOP RAIL: 5 9/16" INCHES WIDE.

3. VERTICAL STILES: 5 9/16" INCHES WIDE.

4. BOTTOM RAIL: 7 1/16" INCHES WIDE.

5. GLAZING STOPS: BEVELED.

6. FINISH: SAME AS STOREFRONT.

2.3 FINISHES

A. CLASS II NATURAL ANODIZED FINISH: AAMA 611 AA-M12C22A31 CLEAR ANODIC COATING NOT LESS THAN 0.4 MILS THICK.

2.4 HARDWARE

A. FOR EACH DOOR, INCLUDE WEATHERSTRIPPING, SILL SWEEP STRIP, AND THRESHOLD.

B. OTHER DOOR HARDWARE: STOREFRONT MANUFACTURER'S STANDARD TYPE TO SUIT APPLICATION.

1. FINISH ON HAND-CONTACTED ITEMS: POLISHED STAINLESS STEEL.

2. FOR EACH DOOR, INCLUDE PIVOTS, PULL HANDLE, EXIT DEVICE, AND CLOSER.

C. WEATHERSTRIPPING: WOOL PILE, CONTINUOUS AND REPLACEABLE; PROVIDE ON ALL DOORS.

D. SILL SWEEP STRIPS: RESILIENT SEAL TYPE, OF NEOPRENE; PROVIDE ON ALL DOORS.

E. THRESHOLD: EXTRUDED ALUMINUM, ONE PIECE PER DOOR OPENING, RIBBED SURFACE, ADA COMPLIANT; PROVIDE ON ALL DOORS.

F. PIVOTS: OFFSET TYPE; TOP AND BOTTOM.

1. PROVIDE ON ALL DOORS.

G. EXIT DEVICES: CONCEALED ROD, DOR-O-MATIC/FALCON 1990, EXIT DEVICE PULL - ARCHITECT'S CLASSIC STYLE CO-9..

1. PROVIDE ON ALL DOORS.

H. CLOSERS: SURFACE OVERHEAD TYPE.

1. PROVIDE ON ALL DOORS.

PART 3 EXECUTION

3.1 INSTALLATION

A. INSTALL DOOR SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. SET THRESHOLDS IN BED OF MASTIC AND SECURE.

C. TOUCH-UP MINOR DAMAGE TO FACTORY APPLIED FINISH; REPLACE COMPONENTS THAT CANNOT BE SATISFACTORILY REPAIRED.

3.2 TOLERANCES

A. MAXIMUM VARIATION FROM PLUMB: 0.06 INCHES EVERY 3 FT NON-CUMULATIVE OR 1/16 INCHES PER 10 FT, WHICHEVER IS LESS.

B. MAXIMUM MISALIGNMENT OF TWO ADJOINING MEMBERS ABUTTING IN PLANE: 1/32 INCH.

3.3 ADJUSTING

A. ADJUST OPERATING HARDWARE AND SASH FOR SMOOTH OPERATION.

3.4 CLEANING

A. REMOVE PROTECTIVE MATERIAL FROM PRE-FINISHED ALUMINUM SURFACES.

B. WASH DOWN SURFACES WITH A SOLUTION OF MILD DETERGENT IN WARM WATER, APPLIED WITH SOFT, CLEAN WIPING CLOTHS. TAKE CARE TO REMOVE DIRT FROM CORNERS. WIPE SURFACES CLEAN.

C. REMOVE EXCESS SEALANT BY METHOD ACCEPTABLE TO SEALANT MANUFACTURER.

SECTION 08 4413: GLAZED ALUMINUM CURTAIN WALLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. ALUMINUM-FRAMED CURTAIN WALL, WITH VISION GLAZING AND GLASS AND METAL INFILL PANELS.

B. ASSOCIATED LOUVERS AND OPERABLE SASH.

C. COLUMN COVERS.

1.2 SUBMITTALS

A. PRODUCT DATA: PROVIDE COMPONENT DIMENSIONS, DESCRIBE COMPONENTS WITHIN ASSEMBLY, ANCHORAGE AND FASTENERS, GLAZING AND INFILL, INTERNAL DRAINAGE DETAILS..

B. SHOP DRAWINGS: INDICATE SYSTEM DIMENSIONS, FRAMED OPENING REQUIREMENTS AND TOLERANCES, AFFECTED RELATED WORK, EXPANSION AND CONTRACTION JOINT LOCATION AND DETAILS, AND FIELD WELDING REQUIRED.

C. SAMPLES: SUBMIT TWO SAMPLES 12" X 12" INCHES IN SIZE ILLUSTRATING FINISHED ALUMINUM SURFACE, GLAZING, INFILL PANELS, GLAZING MATERIALS.

1.3 FIELD CONDITIONS

A. DO NOT INSTALL SEALANTS WHEN AMBIENT TEMPERATURE IS LESS THAN 40 DEGREES F. MAINTAIN THIS MINIMUM TEMPERATURE DURING AND 48 HOURS AFTER INSTALLATION.

1.4 WARRANTY

A. PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST FAILURE OF GLASS SEAL ON INSULATING GLASS UNITS, INCLUDING INTERPANE DUSTING OR MISTING. INCLUDE PROVISION FOR REPLACEMENT OF FAILED UNITS.

B. PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST EXCESSIVE DEGRADATION OF EXTERIOR FINISH. INCLUDE PROVISION FOR REPLACEMENT OF UNITS WITH EXCESSIVE FADING, CHALKING, OR FLAKING.

PART 2 PRODUCTS

2.1 BASIS OF DESIGN

A. PRESSURE CAP HORIZONTALS WITH STRUCTURAL SEALANT VERTICALS; UNITIZED.

1. BASIS OF DESIGN: KAWNEER 1600 WALL SYSTEM 1 AND

2.2 CURTAIN WALL

A. ALUMINUM-FRAMED CURTAIN WALL: FACTORY FABRICATED, FACTORY FINISHED ALUMINUM FRAMING MEMBERS WITH INFILL, AND RELATED FLASHINGS, ANCHORAGE AND ATTACHMENT DEVICES.

1. FINISH: CLASS I NATURAL ANODIZED.

B. STRUCTURAL PERFORMANCE REQUIREMENTS: DESIGN AND SIZE COMPONENTS TO WITHSTAND THE FOLLOWING LOAD REQUIREMENTS WITHOUT DAMAGE OR PERMANENT SET.

1. DESIGN WIND LOADS: COMPLY WITH THE FOLLOWING:

A. POSITIVE DESIGN WIND LOAD: ____ LBF/SQ FT.

B. NEGATIVE DESIGN WIND LOAD: ____ LBF/SQ FT.

C. MEASURE PERFORMANCE BY TESTING IN ACCORDANCE WITH ASTM E330/E330M, USING TEST LOADS EQUAL TO 1.5 TIMES THE DESIGN WIND LOADS AND 10 SECOND DURATION OF MAXIMUM PRESSURE.

2. MOVEMENT: ACCOMMODATE THE FOLLOWING MOVEMENT WITHOUT DAMAGE TO COMPONENTS OR DETERIORATION OF SEALS:

A. EXPANSION AND CONTRACTION CAUSED BY 180 DEGREES F SURFACE TEMPERATURE.

C. WATER PENETRATION RESISTANCE: NO UNCONTROLLED WATER ON INDOOR FACE WHEN TESTED AS FOLLOWS:

1. TEST PRESSURE DIFFERENTIAL: 10 LBF/SQ FT.

D. AIR LEAKAGE: MAXIMUM OF 0.06 CU FT/MIN/SQ FT OF WALL AREA, WHEN TESTED IN ACCORDANCE WITH ASTM E283 AT 6.27 POUNDS PER SQUARE FOOT PRESSURE DIFFERENTIAL ACROSS ASSEMBLY.

2.3 COMPONENTS

A. ALUMINUM FRAMING MEMBERS: TUBULAR ALUMINUM SECTIONS, THERMALLY BROKEN WITH INTERIOR SECTION INSULATED FROM EXTERIOR, DRAINAGE HOLES AND INTERNAL WEEP DRAINAGE SYSTEM.

B. GLAZING: AS SPECIFIED IN SECTION 08 8000.

C. INFILL PANELS: 1 INCH THICK ALUMINUM SHEET.

1. EXTERIOR FINISH: CLASS I NATURAL ANODIZED.

2. INTERIOR FINISH: FIELD PAINTED IN ACCORDANCE WITH SECTION 09 9000.

D. COLUMN COVERS: ALUMINUM, 0.032 INCH THICK, FULL CONTACT PRESSURE BONDED TO TREATED PLYWOOD FOR FLAT SURFACE, FINISH TO MATCH CURTAIN WALL FRAMING MEMBERS.

E. BEAM COVERS: ALUMINUM, 0.032 INCH THICK, FULL CONTACT PRESSURE BONDED TO TREATED PLYWOOD FOR FLAT SURFACE, FINISH TO MATCH CURTAIN WALL FRAMING MEMBERS.

F. SUN SCREENS: SHOP FABRICATED, SHOP FINISHED, EXTRUDED ALUMINUM OUTRIGGERS, LOUVERS, AND FASCIA, FREE OF DEFECTS IMPAIRING STRENGTH, DURABILITY OR APPEARANCE.

1. BASIS OF DESIGN: KAWNEER, VERSOLEIL SUNSHADE - OUTRIGGER SYSTEM, 36" CURVED OUTRIGGER WITH CIRCULAR BLADE, AS INDICATED ON DRAWINGS.

2. FINISH: SAME AS CURTAIN WALL FRAMING.

3. SHOP FABRICATE TO THE GREATEST EXTENT POSSIBLE; DISASSEMBLE IF NECESSARY FOR SHIPPING.

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
Iowa | Illinois | Indiana | Missouri http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

SPECIFICATIONS:

SECTION 08 7100: DOOR HARDWARE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. HARDWARE FOR HOLLOW STEEL DOORS.

B. HARDWARE FOR FIRE-RATED DOORS.

1.2 RELATED REQUIREMENTS

A. SECTION 08 7110 - BASIS OF DESIGN DOOR HARDWARE - HAGER.

1.3 REFERENCE STANDARDS

A. 36 CFR 1191 - AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES; FINAL RULE; CURRENT EDITION; (ADA STANDARDS FOR ACCESSIBLE DESIGN).

B. BHMA A156.4 - AMERICAN NATIONAL STANDARD FOR DOOR CONTROLS - CLOSERS; BUILDERS HARDWARE MANUFACTURERS ASSOCIATION, INC.; 2008 (ANSI/BHMA A156.4).

C. BHMA A156.6 - AMERICAN NATIONAL STANDARD FOR ARCHITECTURAL DOOR TRIM; BUILDERS HARDWARE MANUFACTURERS ASSOCIATION; 2010 (ANSI/BHMA A156.6).

D. BHMA A156.18 - AMERICAN NATIONAL STANDARD FOR MATERIALS AND FINISHES; BUILDERS HARDWARE MANUFACTURERS ASSOCIATION, INC.; 2012 (ANSI/BHMA A156.18).

E. NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2013.

F. UL (BMD) - BUILDING MATERIALS DIRECTORY; UNDERWRITERS LABORATORIES INC.; CURRENT EDITION.

1.4 ADMINISTRATIVE REQUIREMENTS

A. COORDINATE THE MANUFACTURE, FABRICATION, AND INSTALLATION OF PRODUCTS ONTO WHICH DOOR HARDWARE WILL BE INSTALLED.

1.5 SUBMITTALS

A. PRODUCT DATA: MANUFACTURER'S CATALOG LITERATURE FOR EACH TYPE OF HARDWARE, MARKED TO CLEARLY SHOW PRODUCTS TO BE FURNISHED FOR THIS PROJECT.

B. HARDWARE SCHEDULE: DETAILED LISTING OF EACH ITEM OF HARDWARE TO BE INSTALLED ON EACH DOOR. USE DOOR NUMBERING SCHEME AS INCLUDED IN THE CONTRACT DOCUMENTS. IDENTIFY ELECTRICALLY OPERATED ITEMS AND INCLUDE POWER REQUIREMENTS.

C. KEYING SCHEDULE: SUBMIT FOR APPROVAL OF OWNER.

D. KEYS: DELIVER WITH IDENTIFYING TAGS TO OWNER BY SECURITY SHIPMENT DIRECT FROM HARDWARE SUPPLIER.

E. WARRANTY: SUBMIT MANUFACTURER'S WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

F. MAINTENANCE MATERIALS AND TOOLS: FURNISH THE FOLLOWING FOR OWNER'S USE IN MAINTENANCE OF PROJECT.

1. TOOLS: ONE SET OF ALL SPECIAL WRENCHES OR TOOLS APPLICABLE TO EACH DIFFERENT OR SPECIAL HARDWARE COMPONENT, WHETHER SUPPLIED BY THE HARDWARE COMPONENT MANUFACTURER OR NOT.

1.6 QUALITY ASSURANCE

A. STANDARDS FOR FIRE-RATED DOORS: MAINTAIN ONE COPY OF EACH REFERENCED STANDARD ON SITE, FOR USE BY ARCHITECT/ENGINEER AND CONTRACTOR.

B. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS OF DOCUMENTED EXPERIENCE.

1.7 WARRANTY

A. PROVIDE FIVE YEAR WARRANTY FOR DOOR CLOSERS.

PART 2 PRODUCTS

2.1 MANUFACTURERS - BASIS OF DESIGN

A. HAGER COMPANIES PRODUCTS AS SPECIFIED IN SECTION 08 7110, FOR HINGES, LOCKS, CLOSERS, AND OTHER ITEMS SPECIFIED: WWW.HAGERCO.COM.

2.2 DOOR HARDWARE - GENERAL

A. PROVIDE ALL HARDWARE SPECIFIED OR REQUIRED TO MAKE DOORS FULLY FUNCTIONAL, COMPLIANT WITH APPLICABLE CODES, AND SECURE TO THE EXTENT INDICATED.

B. PROVIDE ALL ITEMS OF A SINGLE TYPE OF THE SAME MODEL BY THE SAME MANUFACTURER.

C. PROVIDE PRODUCTS THAT COMPLY WITH THE FOLLOWING:

1. APPLICABLE PROVISIONS OF FEDERAL, STATE, AND LOCAL CODES.

2. ADA STANDARDS FOR ACCESSIBLE DESIGN.

3. FIRE-RATED DOORS: NFPA 80.

4. ALL HARDWARE ON FIRE-RATED DOORS: LISTED AND CLASSIFIED BY UL AS SUITABLE FOR THE PURPOSE SPECIFIED AND INDICATED.

D. FINISHES: ALL DOOR HARDWARE THE SAME FINISH UNLESS OTHERWISE INDICATED.

1. PRIMARY FINISH: SATIN CHROME PLATED OVER NICKEL ON BRASS OR BRONZE, 626 (APPROX US26D).

2. FINISH DEFINITIONS: BHMA A156.18.

PART 3 EXECUTION

3.1 EXAMINATION

A. VERIFY THAT DOORS AND FRAMES ARE READY TO RECEIVE WORK; LABELED, FIRE-RATED DOORS AND FRAMES ARE PRESENT AND PROPERLY INSTALLED, AND DIMENSIONS ARE AS INDICATED ON SHOP DRAWINGS.

3.2 INSTALLATION

A. INSTALL HARDWARE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPLICABLE CODES.

B. USE TEMPLATES PROVIDED BY HARDWARE ITEM MANUFACTURER.

C. INSTALL HARDWARE ON FIRE-RATED DOORS AND FRAMES IN ACCORDANCE WITH CODE AND NFPA 80.

3.3 ADJUSTING

A. ADJUST HARDWARE FOR SMOOTH OPERATION.

HARDWARE SETS

4.1 GENERAL

A. THESE HARDWARE SETS INDICATE REQUIREMENTS FOR SINGLE DOORS OF THAT TYPE, WITH CONDITIONAL REQUIREMENTS FOR PAIRS AND OTHER SITUATIONS.

4.2 SWING DOORS -- MAY NOT BE LEFT UNLOCKED

A. HW-3OF: ALWAYS-LOCKED, FIRE-RATING INDICATED ON SCHEDULE:

1. 1 1/2 PR HINGES.
2. 1 EA CLOSER
3. 1 EA LOCKSET, ALWAYS-LOCKED.
4. 1 SET KICKPLATES

SECTION 08 7110: BASIS OF DESIGN DOOR HARDWARE - HAGER

PART 2 PRODUCTS

1.1 HINGES

A. FIRE RATED HINGES: UL LISTED UP TO AND INCLUDING 90-MINUTE APPLICATIONS FOR WOOD DOORS AND UP TO 3-HOUR APPLICATIONS FOR METAL DOORS.

B. BUTT HINGES: COMPLYING WITH ANSI/BHMA A156.1 AND A156.7; SQUARE CORNER FIVE-KNUCKLE DESIGN; FLAT BUTTON TIPS AND BALL BEARINGS.

1. WIDTH OF LEAVES: 4-1/2 INCH HIGH, MINIMUM, AND AS REQUIRED TO CLEAR SURROUNDING TRIM.

2. THICKNESS:

A. DOORS UP TO 36 INCH WIDE AND UP TO 1-3/4 INCH THICK; 0.134 INCH THICK, MINIMUM.

3. BASE MATERIAL:

A. INTERIOR DOORS: STEEL.

B. FIRE RATED DOORS: STEEL.

4. QUANTITY OF HINGES PER DOOR:

A. DOORS FROM 60 INCHES HIGH UP TO 90 INCHES HIGH: THREE HINGES.

5. NON-REMOVABLE PINS (NRP): AT OUT-SWINGING EXTERIOR AND OUT-SWINGING ACCESS CONTROLLED DOORS.

6. SHIMMING: WHERE REQUIRED TO CORRECT FRAME OR DOOR IRREGULARITIES, PROVIDE METAL SHIMS ONLY.

7. PRODUCTS:

A. HAGER COMPANIES: STANDARD WEIGHT HINGES, BB1191 / BB1279.

1.2 CYLINDERS AND KEYING

A. PROVIDE PRODUCTS MADE BY A SINGLE MANUFACTURER.

B. COMPLY WITH FOLLOWING STANDARDS:

1. ANSI/BHMA A156.5 - CYLINDERS AND INPUT DEVICES FOR LOCKS.

C. CYLINDERS: STANDARD TUMBLER TYPE, PROVIDE 7-PIN CONVENTIONAL CORE SUPPORTED BY HAGER HI KEYWAY.

D. KEYING:

1. PROVIDE VISUAL KEY CONTROL IDENTIFICATION ON EACH KEY.

E. PRODUCTS:

1. HAGER COMPANIES: LOCKS.

1.3 LOCKS AND LATCHES

A. PROVIDE MORTISE LOCKSETS WHEREVER LOCKSETS ARE CALLED FOR, UNLESS OTHERWISE INDICATED.

B. LOCKSETS - GENERAL:

1. ON FIRE-RATED AND SMOKE-RATED DOORS, PROVIDE PRODUCTS COMPLYING WITH:

A. UL/CUL LABELED AND LISTED FOR FUNCTIONS UP TO 3 HOURS FOR *A* LABEL AND FOR SINGLE DOORS UP TO 48 INCHES IN WIDTH AND UP TO 96 INCHES IN HEIGHT.

2. ALL DOORS: COMPLY WITH ADA STANDARDS AND ICC A117.1.

3. LOCK AND LATCH CHASSIS: ZINC DICHROMATE.

4. LATCH BOLTS: STAINLESS STEEL; 1/2 INCH MINIMUM THROW AND DEADLOCKING.

A. STANDARD BACKSET: 2-3/4 INCHES.

B. FACEPLATE: ADJUSTABLE FOR SQUARE DOOR EDGE OR 1/8 INCH BEVELED DOOR EDGE.

5. KEYED FUNCTIONS: FREEWHEELING, VANDAL-RESISTANT.

6. HANDING: NON-HANDED, FIELD REVERSIBLE.

7. MOUNTING: THROUGH-BOLTED WITH NO EXPOSED SCREWS.

C. TRIM:

1. LEVERS: CAST ZINC; PLATED TO MATCH FINISH DESIGNATION SPECIFIED IN SECTION 08 7100.

D. STRIKES: ANSI A115; 1-1/4 INCHES X 4-7/8 INCHES; SELECT LIP LENGTH TO PROTECT SURROUNDING TRIM.

1.4 MORTISE LOCKSETS

A. MORTISE LOCKSETS: PROVIDE PRODUCTS COMPLYING WITH ANSI/BHMA A156.13, SERIES 1000, CERTIFIED TO GRADE 1 - OPERATIONAL AND SECURITY, REQUIREMENTS SPECIFIED ABOVE, AND AS FOLLOWS:

1. LOCK CASE: FULLY-WRAPPED, 12 GAGE, 0.1046 INCH MINIMUM STEEL THICKNESS.

2. SPINDLES: BREAKAWAY; PREVENT UNLOCKING DURING FORCED ENTRY OR VANDALISM.

3. LEVERS: CAST ZINC; PLATED TO MATCH FINISH INDICATED IN HARDWARE SCHEDULE.

4. PRODUCTS:

A. HAGER COMPANIES: 3800 SERIES WITH ARCHER TRIM.

1.5 CLOSERS

A. SURFACE-MOUNTED, DOOR-MOUNTED CLOSERS: NON-HANDED, COMPLY WITH ANSI/BHMA A156.4 GRADE 1, WITH ALUMINUM BODY AND FULL PLASTIC COVERS.

1. COMPLY WITH THE FOLLOWING:

A. ICC A117.1 AND ADA STANDARDS.

2. SPRINGS: DOUBLE HEAT-TREATED, TEMPERED STEEL.

3. PISTON: PRECISION-MACHINED, HEAT-TREATED STEEL.

4. SPINDLE: TRIPLE HEAT-TREATED STEEL.

5. OPERATION: FULL RACK AND PINION.

6. ADJUSTMENT: SEPARATE, STAKED, ADJUSTABLE VALVE SCREWS FOR LATCH SPEED, SWEEP SPEED, AND BACKCHECK.

7. ARMS AND BRACKETS:

A. ARM TYPE: MANUFACTURER'S STANDARD.

B. MOUNTING TYPES: MANUFACTURER'S STANDARD "TRI-PACK" OF REGULAR ARM, TOP JAMB ARM AND PARALLEL ARM.

8. SIZE: COMPLY WITH REFERENCED STANDARD FOR ACCESSIBILITY, INCLUDING FOLLOWING MAXIMUM OPENING FORCE REQUIREMENTS.

A. INTERIOR HINGED OPENINGS: 5.0 POUNDS.

B. EXTERIOR HINGED OPENINGS: 8.5 POUNDS.

C. FIRE RATED OPENINGS: MINIMUM OPENING FORCE ALLOWABLE BY AUTHORITY HAVING JURISDICTION.

SPECIFICATION CONTINUED ON A0.11

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ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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SPECIFICATIONS:

9. FASTENERS: PROVIDE SELF-REAMING AND SELF-TAPPING WOOD AND MACHINE SCREWS AND SEX NUTS AND BOLTS FOR EACH CLOSER.

B. PRODUCTS: CAST IRON BODY.

1. HAGER COMPANIES: 5100 SERIES.

1.6 STOPS AND HOLDERS

A. PROVIDE PRODUCTS COMPLYING WITH ANSI/BHMA A156.8 GRADE 1.

B. PRODUCTS: OVERHEAD STOPS/HOLDERS.

1. HAGER COMPANIES: 7000 SRF SERIES, HEAVY DUTY SURFACE MOUNTED.

1.7 PROTECTION PLATES AND ARCHITECTURAL TRIM

A. COMPLY WITH ANSI/BHMA A156.6.

B. TRIM: 0.050 INCH THICK STAINLESS STEEL; BEVELED FOUR EDGES AND COUNTERSUNK HOLES.

1. SINGLE DOORS:

A. PROVIDE TWO INCHES LESS THAN DOOR WIDTH ON PUSH SIDE OF DOOR AND ONE INCH LESS THAN DOOR WIDTH ON PULL SIDE OF DOOR.

B. KICKPLATE: 8 INCHES HIGH.

C. FASTENERS: SUPPLY #6 X 5/8 INCH OVAL HEAD SCREWS, UNLESS OTHERWISE NOTED.

D. PRODUCTS:

1. HAGER COMPANIES: 194S.

2. ROCKWOOD: K1050 X B4E.

3. BURNS.

1.8 GASKETING AND THRESHOLDS

A. FIRE-RATED GASKETS: FRAME-APPLIED INTUMESCENT SEALS FOR CATEGORY B WOOD DOORS.

1. COMPLY WITH THE FOLLOWING:

A. NFPA 80; LISTED, LABELED, AND ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, FOR FIRE RATINGS INDICATED.

B. POSITIVE PRESSURE: UBC 7-2 AND UL10C.

2. APPLY TO FRAME WITH MANUFACTURER APPROVED ADHESIVE.

3. PRODUCTS:

A. HAGER COMPANIES: 720S FOR SINGLE OPENINGS, AND 720S X 724S FOR PAIRED OPENINGS.

B. WEATHERSTRIPPING GASKETS:

1. PRODUCTS:

A. HAGER COMPANIES: 881SN.

C. DOOR BOTTOM SWEEPS:

1. PRODUCTS:

A. HAGER COMPANIES: 759SV.

D. THRESHOLDS: COMPLY WITH ANSI/BHMA A156.21.

1. PRODUCTS:

A. HAGER COMPANIES: 413S/520S.

PART 3 EXECUTION

2.1 INSTALLATION

A. INSTALL IN ACCORDANCE WITH HARDWARE SCHEDULE AND MANUFACTURER'S INSTRUCTIONS.

B. SEE SECTION 08 7100 FOR ADDITIONAL REQUIREMENTS

SECTION 08 8000: GLAZING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. GLASS.

B. GLAZING COMPOUNDS AND ACCESSORIES.

1.2 REFERENCE STANDARDS

A. 16 CFR 1201 - SAFETY STANDARD FOR ARCHITECTURAL GLAZING MATERIALS; CURRENT EDITION.

B. ASTM C864 - STANDARD SPECIFICATION FOR DENSE ELASTOMERIC COMPRESSION SEAL GASKETS, SETTING BLOCKS, AND SPACERS; 2005 (REAPPROVED 2011).

C. ASTM C920 - STANDARD SPECIFICATION FOR ELASTOMERIC JOINT SEALANTS; 2014.

D. ASTM C1036 - STANDARD SPECIFICATION FOR FLAT GLASS; 2011E1.

E. ASTM C1048 - STANDARD SPECIFICATION FOR HEAT-STRENGTHENED AND FULLY TEMPERED FLAT GLASS; 2012.

F. ASTM C1193 - STANDARD GUIDE FOR USE OF JOINT SEALANTS; 2013.

G. ASTM E1300 - STANDARD PRACTICE FOR DETERMINING LOAD RESISTANCE OF GLASS IN BUILDINGS; 2012A.

H. ASTM E2190 - STANDARD SPECIFICATION FOR INSULATING GLASS UNIT PERFORMANCE AND EVALUATION; 2010.

I. GANA (GM) - GANA GLAZING MANUAL; GLASS ASSOCIATION OF NORTH AMERICA; 2009.

J. GANA (SM) - GANA SEALANT MANUAL; GLASS ASSOCIATION OF NORTH AMERICA; 2008.

K. ICC (IBC) - INTERNATIONAL BUILDING CODE; 2012.

1.3 SUBMITTALS

A. PRODUCT DATA ON GLASS TYPES: PROVIDE STRUCTURAL, PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS, SIZE LIMITATIONS, SPECIAL HANDLING OR INSTALLATION REQUIREMENTS.

B. PRODUCT DATA ON GLAZING COMPOUNDS: PROVIDE CHEMICAL, FUNCTIONAL, AND ENVIRONMENTAL CHARACTERISTICS, LIMITATIONS, SPECIAL APPLICATION REQUIREMENTS. IDENTIFY AVAILABLE COLORS.

C. SAMPLES: SUBMIT TWO SAMPLES 8 X 8 INCH IN SIZE OF GLASS AND PLASTIC UNITS, SHOWING COLORATION AND DESIGN.

1.4 QUALITY ASSURANCE

A. PERFORM WORK IN ACCORDANCE WITH GANA GLAZING MANUAL AND GANA SEALANT MANUAL FOR GLAZING INSTALLATION METHODS.

1.5 WARRANTY

A. SEALED INSULATING GLASS UNITS: PROVIDE A FIVE (5) YEAR WARRANTY TO INCLUDE COVERAGE FOR SEAL FAILURE, INTERPANE DUSTING OR MISTING, INCLUDING REPLACEMENT OF FAILED UNITS.

PART 2 PRODUCTS

2.1 GLAZING TYPES

A. TYPE IG-1 - SEALED INSULATING GLASS UNITS: VISION GLAZING.

1. APPLICATION(S): ALL EXTERIOR GLAZING UNLESS OTHERWISE INDICATED.

2. OUTBOARD LITE: ANNEALED FLOAT GLASS, 1/4 INCH THICK, MINIMUM.

A. TINT: CLEAR.

B. COATING: SELF-CLEANING TYPE, ON #1 SURFACE.

C. COATING: LOW-E TYPE, ON #2 SURFACE.

3. INBOARD LITE: ANNEALED FLOAT GLASS, 1/4 INCH THICK, MINIMUM.

A. TINT: GRAY.

4. TOTAL THICKNESS: 1 INCH.

2.2 GLAZING UNITS

A. TYPE IG-2 - SEALED INSULATING GLASS UNITS: SPANDREL GLAZING.

1. OUTBOARD LITE: ANNEALED FLOAT GLASS, 1/4 INCH THICK, MINIMUM.

A. TINT: CLEAR.

2. INBOARD LITE: HEAT-STRENGTHENED FLOAT GLASS, 1/4 INCH THICK.

A. TINT: CLEAR.

B. OPACIFIER: CERAMIC FRIT, ON #4 SURFACE.

3. TOTAL THICKNESS: 1 INCH.

B. TYPE IG-3 - SEALED INSULATING GLASS UNITS: SAFETY GLAZING:

1. APPLICATIONS: PROVIDE THIS TYPE OF GLAZING IN THE FOLLOWING LOCATIONS:

A. GLAZED LITES IN EXTERIOR DOORS.

B. GLAZED SIDELIGHTS AND PANELS NEXT TO DOORS.

C. OTHER LOCATIONS REQUIRED BY APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS.

2. TYPE: SAME AS OTHER VISION GLAZING EXCEPT USE FULLY TEMPERED FLOAT GLASS FOR BOTH OUTBOARD AND INBOARD LITES.

2.3 EXTERIOR GLAZING ASSEMBLIES

A. STRUCTURAL DESIGN CRITERIA: SELECT TYPE AND THICKNESS TO WITHSTAND DEAD LOADS AND WIND LOADS ACTING NORMAL TO PLANE OF GLASS AT DESIGN PRESSURES CALCULATED IN ACCORDANCE WITH LOCAL CODE.

1. DESIGN PRESSURE: IN ACCORDANCE WITH APPLICABLE CODES.

2.4 GLASS MATERIALS

A. FLOAT GLASS MANUFACTURERS:

1. CARDINAL GLASS INDUSTRIES: WWW.CARDINALCORP.COM.

2. GUARDIAN INDUSTRIES CORP: WWW.SUNGUARDGLASS.COM.

3. PILKINGTON NORTH AMERICA INC: WWW.PILKINGTON.COM/NA.

4. PPG INDUSTRIES, INC: WWW.PPGIDEASCAPES.COM.

B. FLOAT GLASS: ALL GLAZING IS TO BE FLOAT GLASS UNLESS OTHERWISE INDICATED.

1. ANNEALED TYPE: ASTM C1036, TYPE 1, TRANSPARENT FLAT, CLASS 1 CLEAR, QUALITY Q3 (GLAZING SELECT).

2. HEAT-STRENGTHENED AND FULLY TEMPERED TYPES: ASTM C1048.

C. FIRE-PROTECTION-RATED GLAZING: TYPE, THICKNESS, AND CONFIGURATION AS REQUIRED TO ACHIEVE INDICATED RATINGS.

2.5 GLAZING COMPOUNDS

A. MANUFACTURERS:

1. BOSTIK INC: WWW.BOSTIK-US.COM.

2. MOMENTIVE PERFORMANCE MATERIALS, INC (FORMERLY GE SILICONES): WWW.MOMENTIVE.COM.

3. BASF CONSTRUCTION CHEMICALS-BUILDING SYSTEMS: WWW.BUILDINGSYSTEMS.BASF.COM.

B. SILICONE SEALANT: SINGLE COMPONENT; NEUTRAL CURING; CAPABLE OF WATER IMMERSION WITHOUT LOSS OF PROPERTIES; NON-BLEEDING, NON-STAINING; ASTM C 920, TYPE S, GRADE NS, CLASS 25, USES M, A, AND G; CURED SHORE A HARDNESS OF 15 TO 25; MATCHING COLOR.

PART 3 EXECUTION

3.1 INSTALLATION - EXTERIOR WET METHOD (SEALANT AND SEALANT)

A. PLACE SETTING BLOCKS AT 1/4 POINTS AND INSTALL GLAZING PANE OR UNIT.

B. FILL GAPS BETWEEN GLAZING AND STOPS WITH SILICONE TYPE SEALANT TO DEPTH OF BITE ON GLAZING, BUT NOT MORE THAN 3/8 INCH BELOW SIGHT LINE TO ENSURE FULL CONTACT WITH GLAZING AND CONTINUE THE AIR AND VAPOR SEAL.

3.2 INSTALLATION - EXTERIOR BUTT GLAZED METHOD (SEALANT ONLY)

A. TEMPORARILY BRACE GLASS IN POSITION FOR DURATION OF GLAZING PROCESS. MASK EDGES OF GLASS AT ADJOINING GLASS EDGES AND BETWEEN GLASS EDGES AND FRAMING MEMBERS.

B. TEMPORARILY SECURE A SMALL DIAMETER NON-ADHERING FOAMED ROD ON BACK SIDE OF JOINT.

C. APPLY SEALANT TO OPEN SIDE OF JOINT IN CONTINUOUS OPERATION; THOROUGHLY FILL THE JOINT WITHOUT DISPLACING THE FOAM ROD. TOOL THE SEALANT SURFACE SMOOTH TO CONCAVE PROFILE.

D. PERMIT SEALANT TO CURE THEN REMOVE FOAM BACKER ROD. APPLY SEALANT TO OPPOSITE SIDE, TOOL SMOOTH TO CONCAVE PROFILE.

E. REMOVE MASKING TAPE.

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SPECIFICATIONS:

SECTION 09 2116: GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. PERFORMANCE CRITERIA FOR GYPSUM BOARD ASSEMBLIES.

B. METAL STUD WALL FRAMING.

C. METAL CHANNEL CEILING FRAMING.

D. GYPSUM WALLBOARD.

E. JOINT TREATMENT AND ACCESSORIES.

1.2 REFERENCE STANDARDS

A. AISI SG02-1 - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS; AMERICAN IRON AND STEEL INSTITUTE; 2001 WITH 2004 SUPPLEMENT. (REPLACED SG-971)

B. ASTM C475/C475M - STANDARD SPECIFICATION FOR JOINT COMPOUND AND JOINT TAPE FOR FINISHING GYPSUM BOARD; 2012.

C. ASTM C645 - STANDARD SPECIFICATION FOR NONSTRUCTURAL STEEL FRAMING MEMBERS; 2013.

D. ASTM C754 - STANDARD SPECIFICATION FOR INSTALLATION OF STEEL FRAMING MEMBERS TO RECEIVE SCREW-ATTACHED GYPSUM PANEL PRODUCTS; 2011.

E. ASTM C840 - STANDARD SPECIFICATION FOR APPLICATION AND FINISHING OF GYPSUM BOARD; 2013.

F. ASTM C1396/C1396M - STANDARD SPECIFICATION FOR GYPSUM BOARD; 2013.

G. GA-216 - APPLICATION AND FINISHING OF GYPSUM BOARD; GYPSUM ASSOCIATION; 2013.

1.3 SUBMITTALS

A. PRODUCT DATA: PROVIDE DATA ON METAL FRAMING, GYPSUM BOARD, ACCESSORIES, AND JOINT FINISHING SYSTEM.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

A. PROVIDE COMPLETED ASSEMBLIES COMPLYING WITH ASTM C840 AND GA-216.

B. SHAFT WALLS AT HVAC SHAFTS: PROVIDE COMPLETED ASSEMBLIES WITH THE FOLLOWING CHARACTERISTICS:

1. AIR PRESSURE WITHIN SHAFT: SUSTAINED LOADS OF 5 LBF/SQ FT WITH MAXIMUM MID-SPAN DEFLECTION OF L/240.

C. SHAFT WALLS AT ELEVATOR SHAFTS: PROVIDE COMPLETED ASSEMBLIES WITH THE FOLLOWING CHARACTERISTICS:

1. AIR PRESSURE WITHIN SHAFT: INTERMITTENT LOADS OF 5 LBF/SQ FT WITH MAXIMUM MID-SPAN DEFLECTION OF L/240.

D. FIRE RATED ASSEMBLIES: PROVIDE COMPLETED ASSEMBLIES COMPLYING WITH APPLICABLE CODE.

2.2 METAL FRAMING MATERIALS

A. MANUFACTURERS - METAL FRAMING, CONNECTORS, AND ACCESSORIES:

1. CLARKWESTERN DIETRICH BUILDING SYSTEMS LLC: WWW.CLARKDIETRICH.COM.

2. MARINO: WWW.MARINOWARE.COM.

3. PHILLIPS MANUFACTURING COMPANY: WWW.PHILLIPSMFG.COM.

B. NON-LOADBEARING FRAMING SYSTEM COMPONENTS: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 FOR THE SPACING INDICATED, WITH MAXIMUM DEFLECTION OF WALL FRAMING OF L/240 AT 5 PSF.

1. STUDS: "C" SHAPED WITH FLAT OR FORMED WEBS WITH KNURLED FACES.

2. RUNNERS: U SHAPED, SIZED TO MATCH STUDS.

3. CEILING CHANNELS: C SHAPED.

4. FURRING: HAT-SHAPED SECTIONS, MINIMUM DEPTH OF 7/8 INCH.

C. SHAFT WALL STUDS AND ACCESSORIES: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754.

D. CEILING HANGERS: TYPE AND SIZE AS SPECIFIED IN ASTM C754 FOR SPACING REQUIRED.

2.3 BOARD MATERIALS

A. MANUFACTURERS - GYPSUM-BASED BOARD:

1. CERTAINTEED CORPORATION: WWW.CERTAINTEED.COM.

2. GEORGIA-PACIFIC GYPSUM: WWW.GPGYPSUM.COM.

3. USG CORPORATION: WWW.USG.COM.

B. GYPSUM WALLBOARD: PAPER-FACED GYPSUM PANELS AS DEFINED IN ASTM C1396/C1396M; SIZES TO MINIMIZE JOINTS IN PLACE; ENDS SQUARE CUT.

1. AT ASSEMBLIES INDICATED WITH FIRE-RATING: USE TYPE REQUIRED BY INDICATED TESTED ASSEMBLY; IF NO TESTED ASSEMBLY IS INDICATED, USE TYPE X BOARD, UL OR WH LISTED.

C. SHAFTWALL AND COREBOARD: TYPE X; 1 INCH THICK BY 24 INCHES WIDE, BEVELED LONG EDGES, ENDS SQUARE CUT.

2.4 ACCESSORIES

A. FINISHING ACCESSORIES: ASTM C1047, GALVANIZED STEEL OR ROLLED ZINC, UNLESS OTHERWISE INDICATED.

B. JOINT MATERIALS: ASTM C475 AND AS RECOMMENDED BY GYPSUM BOARD MANUFACTURER FOR PROJECT CONDITIONS.

C. SCREWS FOR ATTACHMENT TO STEEL MEMBERS FROM 0.033 TO 0.112 INCH IN THICKNESS: ASTM C954; STEEL DRILL SCREWS FOR APPLICATION OF GYPSUM BOARD TO LOADBEARING STEEL STUDS.

PART 3 EXECUTION

3.1 SHAFT WALL INSTALLATION

A. SHAFT WALL FRAMING: INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

3.2 FRAMING INSTALLATION

A. METAL FRAMING: INSTALL IN ACCORDANCE WITH ASTM C754 AND MANUFACTURER'S INSTRUCTIONS.

B. SUSPENDED CEILINGS AND SOFFITS: SPACE FRAMING AND FURRING MEMBERS AS INDICATED.

C. STUDS: SPACE STUDS AS PERMITTED BY STANDARD.

1. EXTEND PARTITION FRAMING TO STRUCTURE WHERE INDICATED AND TO CEILING IN OTHER LOCATIONS.

2. PARTITIONS TERMINATING AT CEILING: ATTACH CEILING RUNNER SECURELY TO CEILING TRACK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

3.3 BOARD INSTALLATION

A. COMPLY WITH ASTM C 840, GA-216, AND MANUFACTURER'S INSTRUCTIONS. INSTALL TO MINIMIZE BUTT END JOINTS, ESPECIALLY IN HIGHLY VISIBLE LOCATIONS.

B. FIRE-RATED CONSTRUCTION: INSTALL GYPSUM BOARD IN STRICT COMPLIANCE WITH REQUIREMENTS OF ASSEMBLY LISTING.

3.4 INSTALLATION OF TRIM AND ACCESSORIES

A. CONTROL JOINTS: PLACE CONTROL JOINTS CONSISTENT WITH LINES OF BUILDING SPACES AND AS INDICATED.

1. NOT MORE THAN 30 FEET APART ON WALLS AND CEILINGS OVER 50 FEET LONG.

3.5 JOINT TREATMENT

A. FINISH GYPSUM BOARD IN ACCORDANCE WITH LEVELS DEFINED IN ASTM C840, AS FOLLOWS:

1. LEVEL 5: WALLS AND CEILINGS TO RECEIVE SEMI-GLOSS OR GLOSS PAINT FINISH AND OTHER AREAS SPECIFICALLY INDICATED.

2. LEVEL 1: FIRE RATED WALL AREAS ABOVE FINISHED CEILINGS, WHETHER OR NOT ACCESSIBLE IN THE COMPLETED CONSTRUCTION.

B. WHERE LEVEL 5 FINISH IS INDICATED, SPRAY APPLY HIGH BUILD DRYWALL SURFACER OVER ENTIRE SURFACE AFTER JOINTS HAVE BEEN PROPERLY TREATED; ACHIEVE A FLAT AND TOOL MARK-FREE FINISH.

SECTION 09 2216: NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. METAL PARTITION, CEILING, AND SOFFIT FRAMING.

B. FRAMING ACCESSORIES.

1.2 REFERENCE STANDARDS

A. ASTM C645 - STANDARD SPECIFICATION FOR NONSTRUCTURAL STEEL FRAMING MEMBERS; 2013.

B. ASTM C754 - STANDARD SPECIFICATION FOR INSTALLATION OF STEEL FRAMING MEMBERS TO RECEIVE SCREW-ATTACHED GYPSUM PANEL PRODUCTS; 2011.

1.3 SUBMITTALS

A. PRODUCT DATA: PROVIDE DATA DESCRIBING FRAMING MEMBER MATERIALS AND FINISH, PRODUCT CRITERIA, LOAD CHARTS, AND LIMITATIONS.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. METAL FRAMING, CONNECTORS, AND ACCESSORIES:

1. CEMCO: WWW.CEMCOSTEEL.COM.

2. CLARKWESTERN DIETRICH BUILDING SYSTEMS LLC: WWW.CLARKDEITRICH.COM.

3. SIMPSON STRONG TIE: WWW.STRONGTIE.COM.

2.2 FRAMING MATERIALS

A. FIRE RATED ASSEMBLIES: COMPLY WITH APPLICABLE CODE AND AS INDICATED ON DRAWINGS.

B. NON-LOADBEARING FRAMING SYSTEM COMPONENTS: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 FOR THE SPACING INDICATED, WITH MAXIMUM DEFLECTION OF WALL FRAMING OF L/240 AT 5 PSF.

1. STUDS: C SHAPED WITH FLAT OR FORMED WEBS WITH KNURLED FACES.

2. RUNNERS: U SHAPED, SIZED TO MATCH STUDS.

3. CEILING CHANNELS: C SHAPED.

4. FURRING: HAT-SHAPED SECTIONS, MINIMUM DEPTH OF 7/8 INCH.

PART 3 EXECUTION

3.1 INSTALLATION OF STUD FRAMING

A. COMPLY WITH REQUIREMENTS OF ASTM C754.

B. EXTEND PARTITION FRAMING TO STRUCTURE WHERE INDICATED AND TO CEILING IN OTHER LOCATIONS.

C. PARTITIONS TERMINATING AT CEILING: ATTACH CEILING RUNNER SECURELY TO CEILING TRACK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

D. ALIGN AND SECURE TOP AND BOTTOM RUNNERS AT 24 INCHES ON CENTER.

E. FIT RUNNERS UNDER AND ABOVE OPENINGS; SECURE INTERMEDIATE STUDS TO SAME SPACING AS WALL STUDS.

F. INSTALL STUDS VERTICALLY AT 16 INCHES ON CENTER.

G. ALIGN STUD WEB OPENINGS HORIZONTALLY.

H. SECURE STUDS TO TRACKS USING FASTENER METHOD. DO NOT WELD.

I. FABRICATE CORNERS USING A MINIMUM OF THREE STUDS.

J. DOUBLE STUD AT WALL OPENINGS, DOOR AND WINDOW JAMBS, NOT MORE THAN 2 INCHES FROM EACH SIDE OF OPENINGS.

K. BRACE STUD FRAMING SYSTEM RIGID.

L. COORDINATE INSTALLATION OF BUCKS, ANCHORS, AND BLOCKING WITH ELECTRICAL, MECHANICAL, AND OTHER WORK TO BE PLACED WITHIN OR BEHIND STUD FRAMING.

3.2 CEILING AND SOFFIT FRAMING

A. COMPLY WITH REQUIREMENTS OF ASTM C754.

B. INSTALL FURRING AFTER WORK ABOVE CEILING OR SOFFIT IS COMPLETE. COORDINATE THE LOCATION OF HANGERS WITH OTHER WORK.

C. INSTALL FURRING INDEPENDENT OF WALLS, COLUMNS, AND ABOVE-CEILING WORK.

D. SECURELY ANCHOR HANGERS TO STRUCTURAL MEMBERS OR EMBED IN STRUCTURAL SLAB. SPACE HANGERS AS REQUIRED TO LIMIT DEFLECTION TO CRITERIA INDICATED. USE RIGID HANGERS AT EXTERIOR SOFFITS

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SPECIFICATIONS:

SECTION 09 5100: ACOUSTICAL CEILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. SUSPENDED METAL GRID CEILING SYSTEM.

B. ACOUSTICAL UNITS.

1.2 REFERENCE STANDARDS

A. ASTM C635/C635M - STANDARD SPECIFICATION FOR THE MANUFACTURE, PERFORMANCE, AND TESTING OF METAL SUSPENSION SYSTEMS FOR ACOUSTICAL TILE AND LAY-IN PANEL CEILINGS; 2013A.

B. ASTM C636/C636M - STANDARD PRACTICE FOR INSTALLATION OF METAL CEILING SUSPENSION SYSTEMS FOR ACOUSTICAL TILE AND LAY-IN PANELS; 2013.

C. ASTM E580/E580M - STANDARD PRACTICE FOR INSTALLATION OF CEILING SUSPENSION SYSTEMS FOR ACOUSTICAL TILE AND LAY-IN PANELS IN AREAS SUBJECT TO EARTHQUAKE GROUND MOTIONS; 2014.

D. ASTM E1264 - STANDARD CLASSIFICATION FOR ACOUSTICAL CEILING PRODUCTS; 2008E1.

1.3 SUBMITTALS

A. PRODUCT DATA: PROVIDE DATA ON SUSPENSION SYSTEM COMPONENTS.

B. SAMPLES: SUBMIT TWO SAMPLES 4"X4" INCH IN SIZE ILLUSTRATING MATERIAL AND FINISH OF ACOUSTICAL UNITS.

1.4 QUALITY ASSURANCE

A. SUSPENSION SYSTEM MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.

B. ACOUSTICAL UNIT MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. ACOUSTIC PANELS:

1. ARMSTRONG WORLD INDUSTRIES, INC; ____: WWW.ARMSTRONG.COM.

2. ACOUSTIC CEILING PRODUCTS, INC; ____: WWW.ACPIDEAS.COM.

3. CERTAINTEED CORPORATION; ____: WWW.CERTAINTEED.COM.

B. SUSPENSION SYSTEMS:

1. SAME AS FOR ACOUSTICAL UNITS.

2.2 ACOUSTICAL UNITS

A. ACOUSTICAL UNITS - GENERAL: ASTM E1264, CLASS A.

B. ACOUSTICAL TILE TYPE 1: PAINTED MINERAL FIBER, ASTM E1264 TYPE III, WITH THE FOLLOWING CHARACTERISTICS:

1. SIZE: 24 X 24 INCHES.

2. THICKNESS: 3/4 INCHES.

3. EDGE: BEVELED TEGULAR.

4. SURFACE COLOR: WHITE.

5. SURFACE PATTERN: SMOOTH.

6. SUSPENSION SYSTEM: CONCEALED GRID TYPE

7. PRODUCTS:

A. ARMSTRONG: BRIGHTEX.

2.3 SUSPENSION SYSTEM(S)

A. SUSPENSION SYSTEMS - GENERAL: COMPLYING WITH ASTM C635/C635M; DIE CUT AND INTERLOCKING COMPONENTS, WITH STABILIZER BARS, CLIPS, SPLICES, PERIMETER MOLDINGS, AND HOLD DOWN CLIPS AS REQUIRED.

B. EXPOSED STEEL SUSPENSION SYSTEM TYPE 1: FORMED STEEL, COMMERCIAL QUALITY COLD ROLLED; HEAVY-DUTY.

1. PROFILE: TEE; 15/16 INCH WIDE FACE.

2. CONSTRUCTION: DOUBLE WEB.

3. FINISH: WHITE PAINTED.

2.4 ACCESSORIES

A. SUPPORT CHANNELS AND HANGERS: GALVANIZED STEEL; SIZE AND TYPE TO SUIT APPLICATION AND CEILING SYSTEM FLATNESS REQUIREMENT SPECIFIED.

B. PERIMETER MOLDINGS: SAME MATERIAL AND FINISH AS GRID.

1. AT EXPOSED GRID: PROVIDE L-SHAPED MOLDING FOR MOUNTING AT SAME ELEVATION AS FACE OF GRID.

C. GASKET FOR PERIMETER MOLDINGS: CLOSED CELL RUBBER SPONGE TAPE.

D. *DO NOT ATTACH TO CURTAIN WALL SYSTEM: PROVIDE GASKET SEPERATION AND SUSPEND MOLDING FROM ABOVE.

PART 3 EXECUTION

3.1 EXAMINATION

A. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.

B. VERIFY THAT LAYOUT OF HANGERS WILL NOT INTERFERE WITH OTHER WORK.

3.2 INSTALLATION - SUSPENSION SYSTEM

A. INSTALL SUSPENSION SYSTEM IN ACCORDANCE WITH ASTM C636/C636M, ASTM E580/E580M, AND MANUFACTURER'S INSTRUCTIONS AND AS SUPPLEMENTED IN THIS SECTION.

B. RIGIDLY SECURE SYSTEM, INCLUDING INTEGRAL MECHANICAL AND ELECTRICAL COMPONENTS, FOR MAXIMUM DEFLECTION OF 1:360.

C. LAY OUT SYSTEM TO A BALANCED GRID DESIGN WITH EDGE UNITS NO LESS THAN 50 PERCENT OF ACOUSTICAL UNIT SIZE.

D. INSTALL AFTER MAJOR ABOVE-CEILING WORK IS COMPLETE. COORDINATE THE LOCATION OF HANGERS WITH OTHER WORK.

E. HANG SUSPENSION SYSTEM INDEPENDENT OF WALLS, COLUMNS, DUCTS, PIPES AND CONDUIT. WHERE CARRYING MEMBERS ARE SPLICED, AVOID VISIBLE DISPLACEMENT OF FACE PLANE OF ADJACENT MEMBERS.

F. WHERE DUCTS OR OTHER EQUIPMENT PREVENT THE REGULAR SPACING OF HANGERS, REINFORCE THE NEAREST AFFECTED HANGERS AND RELATED CARRYING CHANNELS TO SPAN THE EXTRA DISTANCE.

G. DO NOT SUPPORT COMPONENTS ON MAIN RUNNERS OR CROSS RUNNERS IF WEIGHT CAUSES TOTAL DEAD LOAD TO EXCEED DEFLECTION CAPABILITY.

H. SUPPORT FIXTURE LOADS USING SUPPLEMENTARY HANGERS LOCATED WITHIN 6 INCHES OF EACH CORNER, OR SUPPORT COMPONENTS INDEPENDENTLY.

I. DO NOT ECCENTRICALLY LOAD SYSTEM OR INDUCE ROTATION OF RUNNERS.

J. PERIMETER MOLDING: INSTALL AT INTERSECTION OF CEILING AND VERTICAL SURFACES AND AT JUNCTIONS WITH OTHER INTERRUPTIONS.

1. USE LONGEST PRACTICAL LENGTHS.

2. OVERLAP AND RIVET CORNERS.

3.3 INSTALLATION - ACOUSTICAL UNITS

A. INSTALL ACOUSTICAL UNITS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. FIT ACOUSTICAL UNITS IN PLACE, FREE FROM DAMAGED EDGES OR OTHER DEFECTS DETRIMENTAL TO APPEARANCE AND FUNCTION.

C. FIT BORDER TRIM NEATLY AGAINST ABUTTING SURFACES.

D. INSTALL UNITS AFTER ABOVE-CEILING WORK IS COMPLETE.

E. INSTALL ACOUSTICAL UNITS LEVEL, IN UNIFORM PLANE, AND FREE FROM TWIST, WARP, AND DENTS.

F. CUTTING ACOUSTICAL UNITS:

1. MAKE FIELD CUT EDGES OF SAME PROFILE AS FACTORY EDGES.

G. WHERE ROUND OBSTRUCTIONS OCCUR, PROVIDE PREFORMED CLOSURES TO MATCH PERIMETER MOLDING.

H. INSTALL HOLD-DOWN CLIPS ON EACH PANEL TO RETAIN PANELS TIGHT TO GRID SYSTEM.

3.4 TOLERANCES

A. MAXIMUM VARIATION FROM FLAT AND LEVEL SURFACE: 1/8 INCH IN 10 FEET.

B. MAXIMUM VARIATION FROM PLUMB OF GRID MEMBERS CAUSED BY ECCENTRIC LOADS: 2 DEGREES.

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

SPECIFICATIONS:

SECTION 09 6500: RESILIENT FLOOR AND BASE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. RESILIENT SHEET FLOORING.

B. RESILIENT BASE.

1.2 REFERENCE STANDARDS

A. ASTM F1861 - STANDARD SPECIFICATION FOR RESILIENT WALL BASE; 2008 (REAPPROVED 2012)E1.

B. BAAQMD 8-51 - BAY AREA AIR QUALITY MANAGEMENT DISTRICT REGULATION 8, RULE 51, ADHESIVE AND SEALANT PRODUCTS; WWW.BAAQMD.GOV; 2002.

C. SCAQMD 1168 - SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE NO.1168; CURRENT EDITION; WWW.AQMD.GOV.

1.3 SUBMITTALS

A. PRODUCT DATA: PROVIDE DATA ON SPECIFIED PRODUCTS, DESCRIBING PHYSICAL AND PERFORMANCE CHARACTERISTICS; INCLUDING SIZES, PATTERNS AND COLORS AVAILABLE; AND INSTALLATION INSTRUCTIONS.

B. SELECTION SAMPLES: SUBMIT MANUFACTURER'S COMPLETE SET OF COLOR SAMPLES FOR ARCHITECT/ENGINEER'S INITIAL SELECTION.

PART 2 PRODUCTS

2.1 SHEET FLOORING

A. RUBBER SHEET FLOORING: 100 PERCENT RUBBER COMPOSITION, COLOR AND PATTERN THROUGH TOTAL THICKNESS:

1. CRITICAL RADIANT FLUX (CRF): MINIMUM 0.45 WATT PER SQUARE CENTIMETER, WHEN TESTED IN ACCORDANCE WITH ASTM E 648 OR NFPA 253.

2. TOTAL THICKNESS: 0.125 INCH MINIMUM.

3. SHEET WIDTH: 72 INCH MINIMUM.

4. DESIGN: CIRCLE.

5. PATTERN: SOLID COLOR.

6. MANUFACTURERS:

A. JOHNSONITE, A TARKETT COMPANY: WWW.JOHNSONITE.COM.

B. PRF USA, INC: WWW.RUBBERFLOORS.COM.

C. R.C.A. RUBBER CO: WWW.RCARUBBER.COM.

2.2 RESILIENT BASE

A. RESILIENT BASE: ASTM F1861, TYPE TS RUBBER, VULCANIZED THERMOSET; TOP SET STYLE B, COVE, AND AS FOLLOWS:

1. CRITICAL RADIANT FLUX (CRF): MINIMUM 0.45 WATT PER SQUARE CENTIMETER, WHEN TESTED IN ACCORDANCE WITH ASTM E 648 OR NFPA 253.

2. HEIGHT: 4 INCH.

3. THICKNESS: 0.125 INCH THICK.

4. FINISH: SATIN.

5. LENGTH: ROLL.

6. COLOR: COLOR AS SELECTED FROM MANUFACTURER'S STANDARDS.

7. ACCESSORIES: PREMOLDED EXTERNAL CORNERS AND END STOPS.

8. MANUFACTURERS:

A. BURKE FLOORING: WWW.BURKEMERCER.COM.

B. JOHNSONITE, A TARKETT COMPANY: WWW.JOHNSONITE.COM.

C. ROPPE CORP: WWW.ROPPE.COM.

2.3 ACCESSORIES

A. SUBFLOOR FILLER: WHITE PREMIX LATEX; TYPE RECOMMENDED BY ADHESIVE MATERIAL MANUFACTURER.

B. PRIMERS, ADHESIVES, AND SEAMING MATERIALS: WATERPROOF; TYPES RECOMMENDED BY FLOORING MANUFACTURER.

1. PROVIDE ONLY PRODUCTS HAVING LOWER VOLATILE ORGANIC COMPOUND (VOC) CONTENT THAN REQUIRED BY THE MORE STRINGENT OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE NO.1168 AND THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT REGULATION 8, RULE 51.

C. MOLDINGS, TRANSITION AND EDGE STRIPS: SAME MATERIAL AS FLOORING.

D. FILLER FOR COVED BASE: PLASTIC.

E. SEALER AND WAX: TYPES RECOMMENDED BY FLOORING MANUFACTURER.

PART 3 EXECUTION

3.1 EXAMINATION

A. VERIFY THAT SURFACES ARE FLAT TO TOLERANCES ACCEPTABLE TO FLOORING MANUFACTURER, FREE OF CRACKS THAT MIGHT TELEGRAPH THROUGH FLOORING, CLEAN, DRY, AND FREE OF CURING COMPOUNDS, SURFACE HARDENERS, AND OTHER CHEMICALS THAT MIGHT INTERFERE WITH BONDING OF FLOORING TO SUBSTRATE.

B. VERIFY THAT WALL SURFACES ARE SMOOTH AND FLAT WITHIN THE TOLERANCES SPECIFIED FOR THAT TYPE OF WORK, ARE DUST-FREE, AND ARE READY TO RECEIVE RESILIENT BASE.

3.2 PREPARATION

A. PREPARE FLOOR SUBSTRATES AS RECOMMENDED BY FLOORING AND ADHESIVE MANUFACTURERS.

B. REMOVE SUB-FLOOR RIDGES AND BUMPS. FILL MINOR LOW SPOTS, CRACKS, JOINTS, HOLES, AND OTHER DEFECTS WITH SUB-FLOOR FILLER TO ACHIEVE SMOOTH, FLAT, HARD SURFACE.

C. PROHIBIT TRAFFIC UNTIL FILLER IS CURED.

3.3 INSTALLATION

A. STARTING INSTALLATION CONSTITUTES ACCEPTANCE OF WALL CONDITIONS.

B. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

C. SPREAD ONLY ENOUGH ADHESIVE TO PERMIT INSTALLATION OF MATERIALS BEFORE INITIAL SET.

D. FIT JOINTS TIGHTLY.

E. SET FLOORING IN PLACE, PRESS WITH HEAVY ROLLER TO ATTAIN FULL ADHESION.

F. WHERE TYPE OF FLOOR FINISH, PATTERN, OR COLOR ARE DIFFERENT ON OPPOSITE SIDES OF DOOR, TERMINATE FLOORING UNDER CENTERLINE OF DOOR.

G. INSTALL EDGE STRIPS AT UNPROTECTED OR EXPOSED EDGES, WHERE FLOORING TERMINATES, AND WHERE INDICATED.

H. SCRIBE FLOORING TO WALLS, COLUMNS, CABINETS, FLOOR OUTLETS, AND OTHER APPURTENANCES TO PRODUCE TIGHT JOINTS.

3.4 SHEET FLOORING

A. LAY FLOORING WITH JOINTS AND SEAMS PARALLEL TO LONGER ROOM DIMENSIONS, TO PRODUCE MINIMUM NUMBER OF SEAMS. LAY OUT SEAMS TO AVOID WIDTHS LESS THAN 1/3 OF ROLL WIDTH; MATCH PATTERNS CAREFULLY AT SEAMS.

B. DOUBLE CUT SHEET AT SEAMS.

C. LAY FLOORING WITH TIGHTLY BUTTED SEAMS, WITHOUT ANY SEAM SEALER.

D. DOUBLE CUT SHEET; PROVIDE HEAT WELDED SEAMS.

E. COVED BASE: INSTALL AS DETAILED ON DRAWINGS, USING COVED BASE FILLER AS BACKING AT FLOOR TO WALL JUNCTION. EXTEND SHEET FLOORING VERTICALLY TO HEIGHT INDICATED, AND COVER TOP EDGE WITH METAL CAP STRIP.

3.5 RESILIENT BASE

A. FIT JOINTS TIGHTLY AND MAKE VERTICAL. MAINTAIN MINIMUM DIMENSION OF 18 INCHES BETWEEN JOINTS.

B. MITER INTERNAL CORNERS. AT EXTERNAL CORNERS, USE PREMOLDED UNITS. AT EXPOSED ENDS, USE PREMOLDED UNITS.

C. INSTALL BASE ON SOLID BACKING. BOND TIGHTLY TO WALL AND FLOOR SURFACES.

D. SCRIBE AND FIT TO DOOR FRAMES AND OTHER INTERRUPTIONS

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SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF xx FILE NO. 31152 DESIGN NO. 120

SPECIFICATIONS:

SECTION 09 9000: PAINTING AND COATING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. SURFACE PREPARATION.

B. FIELD APPLICATION OF PAINTS, STAINS, VARNISHES, AND OTHER COATINGS.

C. SCOPE: FINISH ALL INTERIOR SURFACES EXPOSED TO VIEW, UNLESS FULLY FACTORY-FINISHED AND UNLESS OTHERWISE INDICATED, INCLUDING THE FOLLOWING:

1. BOTH SIDES AND EDGES OF PLYWOOD BACKBOARDS FOR ELECTRICAL AND TELECOM EQUIPMENT BEFORE INSTALLING EQUIPMENT.

2. ELEVATOR PIT LADDERS.

3. INTERIOR WALLS AND BOTTOM OF SWIMMING POOLS AND FOUNTAINS.

4. MECHANICAL AND ELECTRICAL:

A. IN FINISHED AREAS, PAINT ALL INSULATED AND EXPOSED PIPES, CONDUIT, BOXES, INSULATED AND EXPOSED DUCTS, HANGERS, BRACKETS, COLLARS AND SUPPORTS, MECHANICAL EQUIPMENT, AND ELECTRICAL EQUIPMENT, UNLESS OTHERWISE INDICATED.

B. IN FINISHED AREAS, PAINT SHOP-PRIMED ITEMS.

C. PAINT INTERIOR SURFACES OF AIR DUCTS AND CONVECTOR AND BASEBOARD HEATING CABINETS THAT ARE VISIBLE THROUGH GRILLES AND LOUVERS WITH ONE COAT OF FLAT BLACK PAINT TO VISIBLE SURFACES.

D. PAINT DAMPERS EXPOSED BEHIND LOUVERS, GRILLES, AND CONVECTOR AND BASEBOARD CABINETS TO MATCH FACE PANELS.

D. DO NOT PAINT OR FINISH THE FOLLOWING ITEMS:

1. ITEMS FULLY FACTORY-FINISHED UNLESS SPECIFICALLY SO INDICATED; MATERIALS AND PRODUCTS HAVING FACTORY-APPLIED PRIMERS ARE NOT CONSIDERED FACTORY FINISHED.

2. ITEMS INDICATED TO RECEIVE OTHER FINISHES.

3. ITEMS INDICATED TO REMAIN UNFINISHED.

4. FIRE RATING LABELS, EQUIPMENT SERIAL NUMBER AND CAPACITY LABELS, AND OPERATING PARTS OF EQUIPMENT.

5. STAINLESS STEEL, ANODIZED ALUMINUM, BRONZE, TERNE, AND LEAD ITEMS.

6. FLOORS, UNLESS SPECIFICALLY SO INDICATED.

7. GLASS.

8. CONCEALED PIPES, DUCTS, AND CONDUITS.

1.2 REFERENCE STANDARDS

A. 40 CFR 59, SUBPART D - NATIONAL VOLATILE ORGANIC COMPOUND EMISSION STANDARDS FOR ARCHITECTURAL COATINGS; U.S. ENVIRONMENTAL PROTECTION AGENCY; CURRENT EDITION.

1.3 SUBMITTALS

A. SEE SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

B. PRODUCT DATA: PROVIDE COMPLETE LIST OF ALL PRODUCTS TO BE USED, WITH THE FOLLOWING INFORMATION FOR EACH:

1. MANUFACTURER'S NAME, PRODUCT NAME AND/OR CATALOG NUMBER, AND GENERAL PRODUCT CATEGORY (E.G. "ALKYD ENAMEL").

2. MPI PRODUCT NUMBER (E.G. MPI #47).

3. CROSS-REFERENCE TO SPECIFIED PAINT SYSTEM(S) PRODUCT IS TO BE USED IN; INCLUDE DESCRIPTION OF EACH SYSTEM.

C. SAMPLES: SUBMIT THREE PAPER "DRAW DOWN" SAMPLES, 8-1/2 BY 11 INCHES IN SIZE, ILLUSTRATING RANGE OF COLORS AVAILABLE FOR EACH FINISHING PRODUCT SPECIFIED.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. PROVIDE ALL PAINT AND COATING PRODUCTS USED IN ANY INDIVIDUAL SYSTEM FROM THE SAME MANUFACTURER; NO EXCEPTIONS.

B. PAINTS:

1. BENJAMIN MOORE & CO: WWW.BENJAMINMOORE.COM.

2. PPG ARCHITECTURAL FINISHES, INC: WWW.PPGAF.COM.

3. SHERWIN-WILLIAMS COMPANY: WWW.SHERWIN-WILLIAMS.COM.

2.2 PAINTS AND COATINGS - GENERAL

A. PAINTS AND COATINGS: READY MIXED, UNLESS INTENDED TO BE A FIELD-CATALYZED COATING.

1. PROVIDE PAINTS AND COATINGS OF A SOFT PASTE CONSISTENCY, CAPABLE OF BEING READILY AND UNIFORMLY DISPERSED TO A HOMOGENEOUS COATING, WITH GOOD FLOW AND BRUSHING PROPERTIES, AND CAPABLE OF DRYING OR CURING FREE OF STREAKS OR SAGS.

2. SUPPLY EACH COATING MATERIAL IN QUANTITY REQUIRED TO COMPLETE ENTIRE PROJECT'S WORK FROM A SINGLE PRODUCTION RUN.

3. DO NOT REDUCE, THIN, OR DILUTE COATINGS OR ADD MATERIALS TO COATINGS UNLESS SUCH PROCEDURE IS SPECIFICALLY DESCRIBED IN MANUFACTURER'S PRODUCT INSTRUCTIONS.

B. PRIMERS: AS FOLLOWS UNLESS OTHER PRIMER IS REQUIRED OR RECOMMENDED BY MANUFACTURER OF TOP COATS; WHERE THE MANUFACTURER OFFERS OPTIONS ON PRIMERS FOR A PARTICULAR SUBSTRATE, USE PRIMER CATEGORIZED AS "BEST" BY THE MANUFACTURER.

C. VOLATILE ORGANIC COMPOUND (VOC) CONTENT:

1. PROVIDE COATINGS THAT COMPLY WITH THE MOST STRINGENT REQUIREMENTS SPECIFIED IN THE FOLLOWING:

A. 40 CFR 59, SUBPART D--NATIONAL VOLATILE ORGANIC COMPOUND EMISSION STANDARDS FOR ARCHITECTURAL COATINGS.

2. DETERMINATION OF VOC CONTENT: TESTING AND CALCULATION IN ACCORDANCE WITH 40 CFR 59, SUBPART D (EPA METHOD 24), EXCLUSIVE OF COLORANTS ADDED TO A TINT BASE AND WATER ADDED AT PROJECT SITE; OR OTHER METHOD ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

D. COLORS: TO BE SELECTED FROM MANUFACTURER'S FULL RANGE OF AVAILABLE COLORS.

1. SELECTION TO BE MADE BY ARCHITECT/ENGINEER AFTER AWARD OF CONTRACT.

2. IN FINISHED AREAS, FINISH PIPES, DUCTS, CONDUIT, AND EQUIPMENT THE SAME COLOR AS THE WALL/CEILING THEY ARE MOUNTED ON/UNDER.

2.3 PAINT SYSTEMS - INTERIOR

A. PAINT WI-OP-3L - WOOD, OPAQUE, LATEX, 3 COAT:

1. ONE COAT OF LATEX PRIMER SEALER.

2. EGGSHELL: TWO COATS OF LATEX ENAMEL;

B. PAINT CI-OP-3L - CONCRETE/MASONRY, OPAQUE, LATEX, 3 COAT:

1. ONE COAT OF BLOCK FILLER.

2. SEMI-GLOSS: TWO COATS OF LATEX ENAMEL; ____.

C. PAINT MI-OP-2L - FERROUS METALS, PRIMED, LATEX, 2 COAT:

1. TOUCH-UP WITH LATEX PRIMER.

2. SEMI-GLOSS: TWO COATS OF LATEX ENAMEL; ____.

D. PAINT GI-OP-3LA - GYPSUM BOARD/PLASTER, LATEX-ACRYLIC, 3 COAT:

1. ONE COAT OF ALKYD PRIMER SEALER.

2. EGGSHELL: TWO COATS OF LATEX-ACRYLIC ENAMEL;

PART 3 EXECUTION

3.1 PREPARATION

A. CLEAN SURFACES THOROUGHLY AND CORRECT DEFECTS PRIOR TO COATING APPLICATION.

B. PREPARE SURFACES USING THE METHODS RECOMMENDED BY THE MANUFACTURER FOR ACHIEVING THE BEST RESULT FOR THE SUBSTRATE UNDER THE PROJECT CONDITIONS.

C. REMOVE OR MASK SURFACE APPURTENANCES, INCLUDING ELECTRICAL PLATES, HARDWARE, LIGHT FIXTURE TRIM, ESCUTCHEONS, AND FITTINGS, PRIOR TO PREPARING SURFACES OR FINISHING.

D. SEAL SURFACES THAT MIGHT CAUSE BLEED THROUGH OR STAINING OF TOPCOAT.

E. REMOVE MILDEW FROM IMPERVIOUS SURFACES BY SCRUBBING WITH SOLUTION OF TETRA-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.

3.2 APPLICATION

A. REMOVE UNFINISHED LOUVERS, GRILLES, COVERS, AND ACCESS PANELS ON MECHANICAL AND ELECTRICAL COMPONENTS AND PAINT SEPARATELY.

B. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

C. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY. ALLOW APPLIED COATS TO DRY BEFORE NEXT COAT IS APPLIED.

D. APPLY EACH COAT TO UNIFORM APPEARANCE.

E. VACUUM CLEAN SURFACES OF LOOSE PARTICLES. USE TACK CLOTH TO REMOVE DUST AND PARTICLES JUST PRIOR TO APPLYING NEXT COAT.

F. REINSTALL ELECTRICAL COVER PLATES, HARDWARE, LIGHT FIXTURE TRIM, ESCUTCHEONS, AND FITTINGS REMOVED PRIOR TO FINISHING

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SPECIFICATIONS:

SECTION 142100
ELECTRIC TRACTION ELEVATORS
PART 1 GENERAL
1.01 SUMMARY BASIS FOR DESIGN
A. SECTION INCLUDES: ELECTRIC TRACTION ELEVATORS.

B. PRODUCTS SUPPLIED BUT NOT INSTALLED UNDER THIS SECTION:

1. HOIST BEAM

2. PIT LADDER

3. INSERTS MOUNTED IN BLOCK WALLS FOR RAIL ATTACHMENTS

C. INDUSTRY AND GOVERNMENT STANDARDS:

1. ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

2. ADAAG - ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES

3. ANSI/NFPA 70, NATIONAL ELECTRICAL CODE

4. ANSI/NFPA 80, STANDARD FOR FIRE DOORS AND FIRE WINDOWS

5. ASME/ANSI A17.1, SAFETY CODE FOR ELEVATORS AND ESCALATORS.

1.02 DESCRIPTION OF ELEVATOR
A. ELEVATOR EQUIPMENT: KONE ECOSPACE* GEARLESS TRACTION ELEVATOR

B. EQUIPMENT CONTROL: KCM831

C. DRIVE: REGENERATIVE

D. QUANTITY OF ELEVATORS: 2

E. LANDINGS: 3

F. OPENINGS: 3 FRONT OPENINGS,

G. TRAVEL: 45' 0"

H. RATED CAPACITY: 5000 LBS SERVICE SHAPE

I. RATED SPEED: 150 FPM

J. CLEAR INSIDE DIMENSIONS (W X D): 5' 6" X 8' 9"

K. CAB HEIGHT: 8' 0"

L. CLEAR HEIGHT UNDER SUSPENDED CEILING: 7' 7"

M. ENTRANCE WIDTH AND TYPE: 4' 0" AND RIGHT/LEFT OPENINGS

N. ENTRANCE HEIGHT: 7' 0"

O. MAIN POWER SUPPLY: 208 VOLTS + 5%, THREE-PHASE

P. OPERATION: DUPLEX

Q. MACHINE LOCATION: INSIDE THE HOISTWAY MOUNTED ON CAR GUIDE RAIL

R. CONTROL SPACE LOCATION: REMOTE ROOM

S. ELEVATOR EQUIPMENT SHALL CONFORM TO THE REQUIREMENTS OF SEISMIC ZONE: NON-SEISMIC

T. MAINTENANCE SERVICE PERIOD: 12

1.03 PERFORMANCE REQUIREMENTS
A. CAR PERFORMANCE

1. CAR SPEED ± 5% OF CONTRACT SPEED UNDER ANY LOADING CONDITION OR DIRECTION OF TRAVEL.

2. CAR CAPACITY: SAFELY LOWER, STOP AND HOLD (PER CODE) UP TO 125% OF RATED LOAD.

B. SYSTEM PERFORMANCE

1. VERTICAL VIBRATION (MAXIMUM): 25 MG

2. HORIZONTAL VIBRATION (MAXIMUM): 25 MG

3. JERK RATE (MAXIMUM): 1.3 FT/SEC3

4. ACCELERATION (MAXIMUM) 1.3 FT/SEC2

5. IN CAR NOISE: = 55 DB(A)

6. LEVELING ACCURACY: ±0.2 INCHES

7. STARTS PER HOUR (MAXIMUM): 120

1.04 SUBMITTALS
A. PRODUCT DATA: SUBMIT MANUFACTURER'S PRODUCT LITERATURE FOR EACH PROPOSED SYSTEM.

1. CAB DESIGN, DIMENSIONS AND LAYOUT.

2. LAYOUT, FINISHES, AND ACCESSORIES AND AVAILABLE OPTIONS.

3. CONTROLS, SIGNALS AND OPERATING SYSTEM.

4. COLOR SELECTION CHARTS FOR CAB AND ENTRANCES.

B. SHOP DRAWINGS:

1. CLEARANCES AND TRAVEL OF CAR.

2. CLEAR INSIDE HOISTWAY AND PIT DIMENSIONS.

3. LOCATION AND LAYOUT OF EQUIPMENT AND SIGNALS.

4. CAR, GUIDE RAILS, BUFFERS AND OTHER COMPONENTS IN HOISTWAY.

5. MAXIMUM RAIL BRACKET SPACING.

6. MAXIMUM LOADS IMPOSED ON BUILDING STRUCTURE.

7. HOIST BEAM REQUIREMENTS.

8. LOCATION AND SIZES OF ACCESS DOORS.

9. LOCATION AND DETAILS OF HOISTWAY DOOR AND FRAMES.

10. ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.

C. OPERATION AND MAINTENANCE DATA:

1. PROVIDE MANUFACTURER'S STANDARD MAINTENANCE AND OPERATION MANUAL.

D. DIAGNOSTIC TOOLS

1. PRIOR TO SEEKING FINAL ACCEPTANCE FOR THE COMPLETED PROJECT AS SPECIFIED BY THE CONTRACT DOCUMENTS, THE ELEVATOR CONTRACTOR SHALL DELIVER TO THE OWNER ANY SPECIALIZED TOOL(S) THAT MAY BE REQUIRED TO PERFORM DIAGNOSTIC EVALUATIONS, ADJUSTMENTS, AND/OR PARAMETRIC SOFTWARE CHANGES AND/OR TEST AND INSPECTIONS ON ANY PIECE OF CONTROL OR MONITORING EQUIPMENT INSTALLED. THIS SHALL INCLUDE ANY SPECIALIZED TOOL(S) REQUIRED FOR MONITORING, INSPECTION AND/OR MAINTENANCE WHERE THE MEANS OF SUSPENSION OTHER THAN CONVENTIONAL WIRE ROPES ARE FURNISHED AND INSTALLED BY THE ELEVATOR CONTRACTOR. ANY AND ALL SUCH TOOL(S) SHALL BECOME PROPERTY OF THE OWNER. ANY DIAGNOSTIC TOOL PROVIDED TO THE OWNER BY THE ELEVATOR CONTRACTOR SHALL BE CONFIGURED TO PERFORM ALL LEVELS OF DIAGNOSTICS, SYSTEMS ADJUSTMENT AND PARAMETRIC SOFTWARE CHANGES WHICH ARE AVAILABLE TO THE ELEVATOR CONTRACTOR. IN THOSE CASES WHERE DIAGNOSTIC TOOLS PROVIDED TO THE OWNER REQUIRE PERIODIC RECALIBRATION/OR RE-INITIATION, THE ELEVATOR CONTRACTOR SHALL PERFORM SUCH TASKS AT NO ADDITIONAL COST TO THE OWNER FOR A PERIOD EQUAL TO THE TERM OF THE MAINTENANCE AGREEMENT FROM THE DATE OF FINAL ACCEPTANCE OF THE COMPETED PROJECT DURING THOSE INTERVALS IN WHICH THE OWNER MIGHT FIND IT NECESSARY TO SURRENDER A DIAGNOSTIC TOOL FOR RE-CALIBRATION, RE-INITIATION, OR REPAIR, THE ELEVATOR CONTRACTOR SHALL PROVIDE A TEMPORARY REPLACEMENT FOR THE TOOL AT NO ADDITIONAL COST TO THE OWNER. THE ELEVATOR CONTRACTOR SHALL DELIVER TO THE OWNER, PRINTED INSTRUCTIONS FOR THE PROPER USE OF ANY TOOL THAT MAY BE NECESSARY TO PERFORM DIAGNOSTIC EVALUATIONS, SYSTEM ADJUSTMENT, AND/OR PARAMETRIC SOFTWARE CHANGES ON ANY UNIT OF MICROPROCESSOR-BASED ELEVATOR CONTROL EQUIPMENT AND MEANS OF SUSPENSION OTHER THAN STANDARD ELEVATOR STEEL CABLES FURNISHED AND INSTALL BY THE ELEVATOR CONTRACTOR. ACCOMPANYING THE PRINTED INSTRUCTIONS SHALL BE ANY AND ALL ACCESS CODES, PASSWORD, OR OTHER PROPRIETARY INFORMATION THAT IS NECESSARY TO INTERFACE WITH THE MICROPROCESSOR-CONTROL EQUIPMENT.

1.05 QUALITY ASSURANCE
A. MANUFACTURER: MINIMUM OF FIFTEEN YEARS EXPERIENCE IN THE FABRICATION, INSTALLATION AND SERVICE OF ELEVATORS OF THE TYPE AND PERFORMANCE OF THE SPECIFIED. THE MANUFACTURER SHALL HAVE A DOCUMENTED QUALITY ASSURANCE PROGRAM.

B. INSTALLER: THE EQUIPMENT MANUFACTURER SHALL INSTALL THE ELEVATOR.

C. INSPECTION AND TESTING: IN ACCORDANCE WITH REQUIREMENTS OF LOCAL JURISDICTION, OBTAIN REQUIRED PERMITS, INSPECTIONS AND TESTS.

1.06 DELIVERY, STORAGE AND HANDLING
A. IF THE CONSTRUCTION SITE IS NOT PREPARED TO RECEIVE THE ELEVATOR EQUIPMENT AT THE AGREED SHIP DATE, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A SAFE, DRY, AND EASILY ACCESSIBLE STORAGE AREA ON OR OFF THE PREMISES. ADDITIONAL LABLOR COSTS FOR DOUBLE HANDLING WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

B. DELIVERED ELEVATOR MATERIALS SHALL BE STORED IN A PROTECTED ENVIRONMENT IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. A MINIMUM STORAGE AREA OF 10 FEET BY 20 FEET IS REQUIRED ADJACENT TO THE HOISTWAY.

1.07 WARRANTY
A. PROVIDE MANUFACTURER WARRANTY FOR A PERIOD OF ONE YEAR. THE WARRANTY PERIOD IS TO BEGIN UPON SUBSTANTIAL COMPLETION OF THE CONTRACT. WARRANTY COVERS DEFECTS IN MATERIALS AND WORKMANSHIP. DAMAGE DUE TO ORDINARY USE, VANDALISM, IMPROPER OR INSUFFICIENT MAINTENANCE, MISUSE, OR NEGLECT DO NOT CONSTITUTE DEFECTIVE MATERIAL OR WORKMANSHIP.

1.08 MAINTENANCE SERVICE
A. THE ELEVATOR MANUFACTURER SHALL PROVIDE MAINTENANCE SERVICE CONSISTING OF REGULAR EXAMINATIONS AND ADJUSTMENTS OF THE ELEVATOR EQUIPMENT FOR A PERIOD OF 12 AFTER DATE OF SUBSTANTIAL COMPLETION. REPLACEMENT PARTS SHALL BE PRODUCED BY THE ORIGINAL EQUIPMENT MANUFACTURER.

B. MAINTENANCE SERVICE BE PERFORMED DURING REGULAR WORKING HOURS OF REGULAR WORKING DAYS AND SHALL INCLUDE EMERGENCY 24-HOUR CALL BACK SERVICE.

C. MAINTENANCE SERVICE SHALL NOT INCLUDE ADJUSTMENTS, REPAIRS OR REPLACEMENT OF PARTS DUE TO NEGLIGENCE, MISUSE, ABUSE OR ACCIDENTS.

PART 2 PRODUCTS
2.01 MANUFACTURER
A. PROVIDE AC GEARLESS MACHINE ROOM-LESS ELEVATOR SYSTEMS SUBJECT TO COMPLIANCE WITH THE DESIGN AND PERFORMANCE REQUIREMENTS OF THIS SPECIFICATION. ELEVATOR MANUFACTURERS MAY INCLUDE BUT ARE NOT LIMITED TO ONE OF THE FOLLOWING:

1. BASIS OF DESIGN: ECOSPACE* TRACTION ELEVATORS BY KONE, INC. (WWW.KONE.COM).

2. OTHER ACCEPTABLE MACHINE ROOM-LESS PRODUCTS: MANUFACTURER WITH MINIMUM 15 YEARS EXPERIENCE IN MANUFACTURING, INSTALLING, AND SERVICING ELEVATORS OF THE TYPE REQUIRED FOR THE PROJECT.

2.02 EQUIPMENT: CONTROL COMPONENTS AND CONTROL SPACE
A. CONTROLLER: PROVIDE MICROCOMPUTER BASED CONTROL SYSTEM TO PERFORM ALL OF THE FUNCTIONS.

1. ALL HIGH VOLTAGE (110V OR ABOVE) CONTACT POINTS INSIDE THE CONTROLLER CABINET SHALL BE PROTECTED FROM ACCIDENTAL CONTACT IN A SITUATION WHERE THE CONTROLLER DOORS ARE OPEN.

2. CONTROLLER SHALL BE SEPARATED INTO TWO DISTINCT HALVES; MOTOR DRIVE SIDE AND CONTROL SIDE. HIGH VOLTAGE MOTOR POWER CONDUCTORS SHALL BE ROUTED AND PHYSICALLY SEGREGATED FROM THE REST OF THE CONTROLLER.

3. PROVIDE A SERIAL CARDRACK AND MAIN CPU BOARD CONTAINING A NON-ERASABLE EPROM AND OPERATING SYSTEM FIRMWARE.

4. VARIABLE FIELD PARAMETERS AND ADJUSTMENTS SHALL BE CONTAINED IN A NON-VOLATILE MEMORY MODULE.

B. DRIVE: PROVIDE VARIABLE VOLTAGE VARIABLE FREQUENCY AC DRIVE SYSTEM TO DEVELOP HIGH STARTING TORQUE WITH LOW STARTING CURRENT. THE DRIVE WILL BE SET UP FOR REGENERATION OF AC POWER BACK INTO THE BUILDING GRID.

C. CONTROLLER LOCATION: WITHIN 100'-0" (30.48M) CONTROLLERS± SHALL BE LOCATED IN A REMOTE CABINET WITHIN 140'-0" (42.6 M) WIRE FEET OF THE ELEVATOR MACHINE.

2.03 EQUIPMENT: HOISTWAY COMPONENTS
A. MACHINE: AC GEARLESS MACHINE, WITH PERMANENT MAGNET SYNCHRONOUS MOTOR, DIRECT CURRENT ELECTRO-MECHANICAL DISC BRAKES AND INTEGRAL TRACTION DRIVE SHEAVE, MOUNTED TO THE CAR GUIDE RAIL AT THE TOP OF THE HOISTWAY.

B. GOVERNOR: FRICTION TYPE OVER-SPEED GOVERNOR RATED FOR THE DUTY OF THE ELEVATOR SPECIFIED.

C. BUFFERS, CAR AND COUNTERWEIGHT: POLYURETHANE BUFFER.

D. HOISTWAY OPERATING DEVICES:

1. EMERGENCY STOP SWITCH IN THE PIT

2. TERMINAL STOPPING SWITCHES.

3. EMERGENCY STOP SWITCH ON THE MACHINE

E. POSITIONING SYSTEM: SYSTEM CONSISTING OF MAGNETS AND PROXIMITY SWITCHES.

F. GUIDE RAILS AND ATTACHMENTS: STEEL RAILS WITH BRACKETS AND FASTENERS.

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

SPECIFICATIONS:

2.04 EQUIPMENT: HOISTWAY ENTRANCES
A. HOISTWAY ENTRANCES

1. SILLS: EXTRUDED.

2. DOORS: HOLLOW METAL CONSTRUCTION WITH VERTICAL INTERNAL CHANNEL REINFORCEMENTS.

3. FIRE RATING: ENTRANCE AND DOORS SHALL BE UL FIRE-RATED FOR 1-1/2 HOUR.

4. ENTRANCE FINISH: BRUSHED STAINLESS STEEL.

5. ENTRANCE MARKINGS JAMB PLATES: PROVIDE STANDARD ENTRANCE JAMB TACTILE MARKINGS ON BOTH JAMBS, AT ALL FLOORS. PLATE MOUNTING: REFER TO MANUFACTURER DRAWINGS.

2.05 EQUIPMENT: CAR COMPONENTS
A. CAR FRAME: PROVIDE CAR FRAME WITH ADEQUATE BRACING TO SUPPORT THE PLATFORM AND CAR ENCLOSURE.

B. PLATFORM: PLATFORM SHALL BE ALL STEEL CONSTRUCTION.

C. CAR GUIDES: PROVIDE GUIDE-SHOES MOUNTED TO TOP AND BOTTOM OF BOTH CAR AND COUNTERWEIGHT FRAME. EACH GUIDE-SHOE ASSEMBLY SHALL BE ARRANGED TO MAINTAIN CONSTANT CONTACT ON THE RAIL SURFACES. PROVIDE RETAINERS IN AREAS WITH SEISMIC DESIGN REQUIREMENTS.

D. STEEL CAB (GLASS SERIES)

1. REAR WALL: PANEL: CLEAR GLASS WITH ALUMINUM FRAME

2. SIDE WALL PANELS: FLUSH PANELS BRUSHED STAINLESS STEEL

3. CAR FRONT FINISH: BRUSHED STAINLESS STEEL.

4. CAR DOOR FINISH: BRUSHED STAINLESS STEEL.

5. CEILING:

a. RECTANGLE LED DOWN LIGHT DROP CEILING - LF-98: SATIN FINISHED STAINLESS STEEL THREE PANEL SUSPENDED CEILING WITH THREE HOLES PER PANEL FOR RECTANGULAR LED LIGHTS.

6. HANDRAIL:

a. CUSTOM FLAT - SATIN STAINLESS STEEL - 2 IN. WIDE. RAILS TO BE LOCATED ON BACK WALL AND SIDE WALLS OF CAR ENCLOSURE.

7. FLOORING: BY OTHERS. (NOT TO EXCEED 2SQFT AND 1/2" FINISHED DEPTH.)

8. THRESHOLD: ALUMINUM

E. EMERGENCY CAR SIGNALS

1. EMERGENCY SIREN: SIREN MOUNTED ON TOP OF CAB THAT IS ACTIVATED WHEN THE ALARM BUTTON IN THE CAR OPERATING PANEL IS ENGAGED. SIREN SHALL HAVE RATED SOUND PRESSURE LEVEL OF 80 DB(A) AT A DISTANCE OF THREE FEET FROM DEVICE. SIREN SHALL RESPOND WITH A DELAY OF NOT MORE THAN ONE SECOND AFTER ACTIVATION OF ALARM BUTTON.

2. EMERGENCY CAR LIGHTING: PROVIDE EMERGENCY POWER UNIT EMPLOYING A 12-VOLT SEALED RECHARGEABLE BATTERY AND TOTALLY STATIC CIRCUITS SHALL ILLUMINATE THE ELEVATOR CAR AND PROVIDE CURRENT TO THE ALARM BELL IN THE EVENT OF BUILDING POWER FAILURE.

3. EMERGENCY EXIT CONTACT: AN ELECTRICAL CONTACT SHALL BE PROVIDED ON THE CAR-TOP EXIT.

F. VENTILATION: FAN.

2.06 EQUIPMENT: SIGNAL DEVICES AND FIXTURES
A. CAR OPERATING PANEL: PROVIDE VANDAL RESISTANT CAR OPERATING PANEL WITH ALL PUSH BUTTONS, KEY SWITCHES, AND MESSAGE INDICATORS FOR ELEVATOR OPERATION. FIXTURE FINISH TO BE: SCOTTISH QUAD TEXTURED STAINESS STEEL.

I. FLUSH MOUNTED CAR OPERATING PANEL SHALL CONTAIN A BANK OF ROUND, MECHANICAL, ILLUMINATED BUTTONS MARKED TO CORRESPOND TO LANDINGS SERVED, EMERGENCY CALL BUTTON, DOOR OPEN BUTTON, DOOR CLOSE BUTTON, AND KEY SWITCHES FOR LIGHTS, INSPECTION, AND EXHAUST FAN. BUTTONS HAVE AMBER ILLUMINATION (HALO). ALL BUTTONS TO HAVE RAISED TEXT AND BRAILLE MARKING ON LEFT HAND SIDE. THE CAR OPERATING DISPLAY PANEL SHALL BE AMBER DOT-MATRIX. ALL TEXTS, WHEN ILLUMINATED, SHALL BE AMBER. THE CAR OPERATING PANEL SHALL HAVE A SCOTTISH QUAD TEXTURED STAINLESS STEEL FINISH.

2. ADDITIONAL FEATURES OF CAR OPERATING PANEL SHALL INCLUDE:

a. CAR POSITION INDICATOR WITHIN OPERATING PANEL (AMBER).

b. ELEVATOR DATA PLATE MARKED WITH ELEVATOR CAPACITY AND CAR NUMBER ON CAR TOP.

c. HELP BUTTONS WITH RAISED MARKINGS.

d. IN CAR STOP SWITCH PER LOCAL CODE.

e. FIREFIGHTER'S HAT.

f. FIREFIGHTER'S PHASE II KEY-SWITCH.

g. CALL CANCEL BUTTON.

h. PRE-PROGRAMMED INTEGRATED ADA PHONE (COMPLETE DESCRIPTION OF KRMS FEATURES INCLUDED AS STANDARD)

i. HELP BUTTON/COMMUNICATOR. ACTIVATION OF HELP BUTTON WILL INITIATE TWO-WAY COMMUNICATION BETWEEN CAR AND A LOCATION INSIDE THE BUILDING, SWITCHING OVER TO ALTERNATE LOCATION IF CALL IS UNANSWERED, WHERE PERSONNEL ARE AVAILABLE TO TAKE THE APPROPRIATE ACTION. VISUAL INDICATORS ARE PROVIDED FOR CALL INITIATION AND CALL ACKNOWLEDGEMENT.

j. FIREFIGHTER'S PHASE II EMERGENCY IN-CAR OPERATING INSTRUCTIONS.

B. HALL FIXTURES: WALL MOUNTED VANDAL RESISTANT HALL FIXTURES SHALL BE PROVIDED WITH NECESSARY PUSH BUTTONS AND KEY SWITCHES FOR ELEVATOR OPERATION. WALL MOUNTED HALL FIXTURES SHALL HAVE A SCOTTISH QUAD TEXTURED STAINLESS STEEL FINISH.

1. HALL FIXTURES SHALL FEATURE ROUND, MECHANICAL, ILLUMINATED BUTTONS IN FLUSH FIXTURE HOUSINGS. HALL FIXTURES SHALL CORRESPOND TO OPTIONS AVAILABLE FROM THAT LANDING.

C. CAR LANTERN AND CHIME: A VANDAL RESISTANT DIRECTIONAL LANTERN VISIBLE FROM THE CORRIDOR SHALL BE PROVIDED IN THE CAR ENTRANCE. WHEN THE CAR STOPS AND THE DOORS ARE OPENING, THE LANTERN SHALL INDICATE THE DIRECTION IN WHICH THE CAR IS TO TRAVEL AND A CHIME WILL SOUND. THE CHIME WILL SOUND ONCE FOR UP AND TWICE FOR DOWN. THE CAR RIDING LANTERN FACE PLATE SHALL HAVE A SCOTTISH QUAD TEXTURED STAINLESS STEEL FINISH.

D. COMBINATION HALL POSITION INDICATOR AND HALL LANTERN LOCATED AT $\mathbb{E}$LANTERNLOCATION±. HALL LANTERNS AND HALL INDICATORS SHALL FEATURE AMBER ILLUMINATION, ALL NUMBERS WILL BE AMBER DISPLAY.

2.07 EQUIPMENT: ELEVATOR OPERATION AND CONTROLLER
A. ELEVATOR OPERATION

1. DUPLEX COLLECTIVE OPERATION (TWO CARS): USING A MICROPROCESSOR-BASED CONTROLLER, THE OPERATION SHALL BE AUTOMATIC BY MEANS OF THE CAR AND HALL BUTTONS. IN THE ABSENCE OF SYSTEM ACTIVITY, ONE CAR CAN BE MADE TO PARK AT THE PRE-SELECTED MAIN LANDING. THE OTHER CAR SHALL REMAIN AT THE LAST LANDING SERVED. ONLY ONE CAR SHALL RESPOND TO A HALL CALL. IF EITHER CAR IS REMOVED FROM SERVICE, THE OTHER CAR SHALL IMMEDIATELY ANSWER ALL HALL CALLS, AS WELL AS ITS OWN CAR CALLS.

2. ZONED CAR PARKING.

3. RELATIVE SYSTEM RESPONSE DISPATCHING.

B. STANDARD OPERATING FEATURES TO INCLUDE:

1. FULL COLLECTIVE OPERATION

2. FAN AND LIGHT CONTROL.

3. LOAD WEIGHING BYPASS.

4. ASCENDING CAR UNCONTROLLED MOVEMENT PROTECTION

5. TOP OF CAR INSPECTION STATION.

C. ADDITIONAL OPERATING FEATURES TO INCLUDE:

1. INDEPENDENT SERVICE.

2. HOISTWAY ACCESS BOTTOM LANDING

3. HOISTWAY ACCESS TOP LANDING

4. EMERGENCY BATTERY POWER SUPPLY

a. WHEN THE MAIN LINE POWER IS LOST FOR LONGER THAN 5 SECONDS THE EMERGENCY BATTERY POWER SUPPLY PROVIDES POWER AUTOMATICALLY TO THE ELEVATOR CONTROLLER. THE ELEVATOR WILL RISE OR LOWER TO THE FIRST AVAILABLE LANDING, OPEN THE DOORS, AND SHUT DOWN. THE ELEVATOR WILL RETURN TO SERVICE UPON THE RETURN OF NORMAL MAIN LINE POWER. AN AUXILIARY CONTACT ON THE MAIN LINE DISCONNECT AND SHUNT TRIP BREAKER (IF USED) WILL BE PROVIDED BY OTHERS.

D. ELEVATOR CONTROL SYSTEM FOR INSPECTIONS AND EMERGENCY

1. PROVIDE DEVICES WITHIN CONTROLLER TO RUN THE ELEVATOR IN INSPECTION OPERATION.

2. PROVIDE DEVICES ON CAR TOP TO RUN THE ELEVATOR IN INSPECTION OPERATION.

3. PROVIDE WITHIN CONTROLLER AN EMERGENCY STOP SWITCH TO DISCONNECT POWER FROM THE BRAKE AND PREVENTS MOTOR FROM RUNNING.

4. PROVIDE THE MEANS FROM THE CONTROLLER TO MECHANICALLY LIFT AND CONTROL THE ELEVATOR BRAKE TO SAFELY BRING CAR TO NEAREST AVAILABLE LANDING WHEN POWER IS INTERRUPTED.

5. PROVIDE THE MEANS FROM THE CONTROLLER TO RESET THE GOVERNOR OVER SPEED SWITCH AND ALSO TRIP THE GOVERNOR.

6. PROVIDE THE MEANS FROM THE CONTROLLER TO RESET THE EMERGENCY BRAKE WHEN SET BECAUSE OF AN UNINTENDED CAR MOVEMENT OR ASCENDING CAR OVER SPEED.

7. PROVIDE THE MEANS FOR THE CONTROL TO RESET ELEVATOR EARTHQUAKE OPERATION.

2.08 EQUIPMENT: DOOR OPERATOR AND CONTROL
A. DOOR OPERATOR: A CLOSED LOOP PERMANENT MAGNET VVVF HIGH-PERFORMANCE DOOR OPERATOR SHALL BE PROVIDED TO OPEN AND CLOSE THE CAR AND HOISTWAY DOORS SIMULTANEOUSLY. DOOR MOVEMENT SHALL BE CUSHIONED AT BOTH LIMITS OF TRAVEL. ELECTRO-MECHANICAL INTERLOCK SHALL BE PROVIDED AT EACH HOISTWAY ENTRANCE TO PREVENT OPERATION OF THE ELEVATOR UNLESS ALL DOORS ARE CLOSED AND LOCKED. AN ELECTRIC CONTACT SHALL BE PROVIDED ON THE CAR AT EACH CAR ENTRANCE TO PREVENT THE OPERATION OF THE ELEVATOR UNLESS THE CAR DOOR IS CLOSED.

B. THE DOOR OPERATOR SHALL BE ARRANGED SO THAT, IN CASE OF INTERRUPTION OR FAILURE OF ELECTRIC POWER, THE DOORS CAN BE READILY OPENED BY HAND FROM WITHIN THE CAR, IN ACCORDANCE WITH APPLICABLE CODE. EMERGENCY DEVICES AND KEYS FOR OPENING DOORS FROM THE LANDING SHALL BE PROVIDED AS REQUIRED BY LOCAL CODE.

C. DOORS SHALL OPEN AUTOMATICALLY WHEN THE CAR HAS ARRIVED AT OR IS LEVELING AT THE RESPECTIVE LANDINGS. DOORS SHALL CLOSE AFTER A PREDETERMINED TIME INTERVAL OR IMMEDIATELY UPON PRESSING OF A CAR BUTTON. A DOOR OPEN BUTTON SHALL BE PROVIDED IN THE CAR. MOMENTARY PRESSING OF THIS BUTTON SHALL REOPEN THE DOORS AND RESET THE TIME INTERVAL.

D. DOOR HANGERS AND TRACKS SHALL BE PROVIDED FOR EACH CAR AND HOISTWAY DOOR. TRACKS SHALL BE CONTOURED TO MATCH THE HANGER SHEAVES. THE HANGERS SHALL BE DESIGNED FOR POWER OPERATION WITH PROVISIONS FOR VERTICAL AND LATERAL ADJUSTMENT. HANGER SHEAVES SHALL HAVE POLYURETHANE TIRES AND PRE-LUBRICATED SEALED-FOR-LIFE BEARINGS.

E. ELECTRONIC DOOR SAFETY DEVICE. THE ELEVATOR CAR SHALL BE EQUIPPED WITH AN ELECTRONIC PROTECTIVE DEVICE EXTENDING THE FULL HEIGHT OF THE CAR. WHEN ACTIVATED, THIS SENSOR SHALL PREVENT THE DOORS FROM CLOSING OR CAUSE THEM TO STOP AND REOPEN IF THEY ARE IN THE PROCESS OF CLOSING. THE DOORS SHALL REMAIN OPEN AS LONG AS THE FLOW OF TRAFFIC CONTINUES AND SHALL CLOSE SHORTLY AFTER THE LAST PERSON PASSES THROUGH THE DOOR OPENING.

PART 3 EXECUTION
3.01 EXAMINATION
A. FIELD MEASURE AND EXAMINE SUBSTRATES, SUPPORTS, AND OTHER CONDITIONS UNDER WHICH ELEVATOR WORK IS TO BE PERFORMED.

B. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.

C. PRIOR TO START OF WORK, VERIFY HOISTWAY IS IN ACCORDANCE WITH SHOP DRAWINGS. DIMENSIONAL TOLERANCE OF HOISTWAY FROM SHOP DRAWINGS: -0 INCHES +2 INCHES. DO NOT BEGIN WORK OF THIS SECTION UNTIL DIMENSIONS ARE WITHIN TOLERANCES.

D. PRIOR TO START OF WORK, VERIFY PROJECTIONS GREATER THEN 2 INCHES (4 INCHES IF ASME A17.1/CSA B44 2000 APPLIES) MUST BE BEVELED NOT LESS THEN 75 DEGREES FROM HORIZONTAL.

E. PRIOR TO START OF WORK, VERIFY LANDINGS HAVE BEEN PREPARED FOR ENTRANCE SILL INSTALLATION. TRADITIONAL SILL ANGLE OR CONCRETE SILL SUPPORT SHALL NOT BE REQUIRED.

F. PRIOR TO START OF WORK, VERIFY ELEVATOR PIT HAS BEEN CONSTRUCTED IN ACCORDANCE WITH REQUIREMENTS, IS DRY AND REINFORCED TO SUSTAIN VERTICAL FORCES, AS INDICATED IN APPROVED SUBMITTAL. VERIFY THAT SUMPS OR SUMP PUMPS LOCATED WITHIN PIT WILL NOT INTERFERE WITH INSTALLED ELEVATOR EQUIPMENT.

G. PRIOR TO START OF WORK, VERIFY CONTROL SPACE HAS BEEN CONSTRUCTED IN ACCORDANCE WITH REQUIREMENTS, WITH ACCESS COORDINATED WITH ELEVATOR SHOP DRAWINGS, INCLUDING SLEEVES AND PENETRATIONS.

H. VERIFY INSTALLATION OF GFCI PROTECTED 20-AMP IN PIT AND ADJACENT TO EACH SIGNAL CONTROL CABINET IN CONTROL SPACE.

3.02 PREPARATION
A. COORDINATE INSTALLATION OF ANCHORS, BEARING PLATES, BRACKETS AND OTHER RELATED ACCESSORIES.

3.03 INSTALLATION
A. INSTALL EQUIPMENT, GUIDES, CONTROLS, CAR AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER INSTALLATION METHODS AND RECOMMENDED PRACTICES.

B. PROPERLY LOCATE GUIDE RAILS AND RELATED SUPPORTS AT LOCATIONS IN ACCORDANCE WITH MANUFACTURER*S RECOMMENDATIONS AND APPROVED SHOP DRAWINGS. ANCHOR TO BUILDING STRUCTURE USING ISOLATION SYSTEM TO MINIMIZE TRANSMISSION OF VIBRATION TO STRUCTURE.

C. ALL HOISTWAY FRAMES SHALL BE SECURELY FASTENED TO FIXING ANGLES MOUNTED IN THE HOISTWAY. COORDINATE INSTALLATION OF SILLS AND FRAMES WITH OTHER TRADES.

D. LUBRICATE OPERATING SYSTEM COMPONENTS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

E. PERFORM FINAL ADJUSTMENTS, AND NECESSARY SERVICE PRIOR TO SUBSTANTIAL COMPLETION.

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL INFORMATION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF XX FILE NO. 31152 DESIGN NO. 120

SPECIFICATIONS:

3.04 CONSTRUCTION
A. INTERFACE WITH OTHER WORK:

1. GUIDE RAIL BRACKETS ATTACHED TO STEEL SHALL BE INSTALLED PRIOR TO APPLICATION OF FIREPROOFING.

2. COORDINATE CONSTRUCTION OF ENTRANCE WALLS WITH INSTALLATION OF DOOR FRAMES AND SILLS. MAINTAIN FRONT WALL OPENING UNTIL ELEVATOR EQUIPMENT HAS BEEN INSTALLED.

a. ENSURE ADEQUATE SUPPORT FOR ENTRANCE ATTACHMENT POINTS AT ALL LANDINGS.

b. COORDINATE WALL OPENINGS FOR HALL PUSH BUTTONS, SIGNAL FIXTURES AND SLEEVES. EACH ELEVATOR REQUIRES SLEEVES WITHIN THE HOISTWAY WALL.

c. COORDINATE EMERGENCY POWER TRANSFER SWITCH AND POWER CHANGE PENDING SIGNALS AS REQUIRED FOR TERMINATION AT THE PRIMARY ELEVATOR SIGNAL CONTROL CABINET IN EACH GROUP.

d. COORDINATE INTERFACE OF ELEVATORS AND FIRE ALARM SYSTEM.

e. COORDINATE INTERFACE OF DEDICATED TELEPHONE LINE.

3.05 TESTING AND INSPECTIONS
A. PERFORM RECOMMENDED AND REQUIRED TESTING IN ACCORDANCE WITH AUTHORITY HAVING JURISDICTION.

B. OBTAIN REQUIRED PERMITS AND PROVIDE ORIGINALS TO OWNER*S REPRESENTATIVE.

3.06 DEMONSTRATION
A. PRIOR TO SUBSTANTIAL COMPLETION, INSTRUCT OWNER*S REPRESENTATIVE ON THE PROPER FUNCTION AND REQUIRED DAILY MAINTENANCE OF ELEVATORS. INSTRUCT PERSONNEL ON EMERGENCY PROCEDURES.

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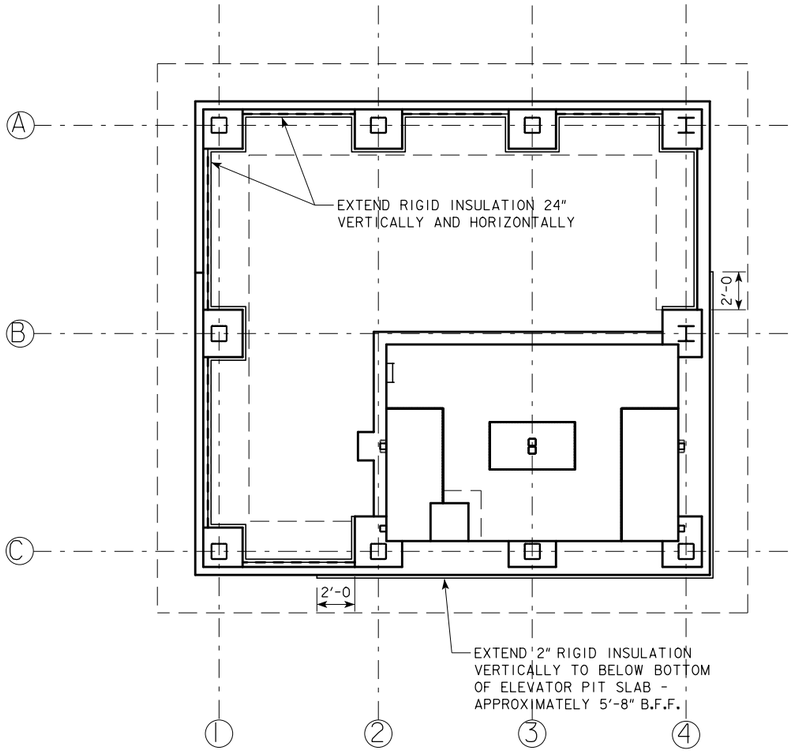

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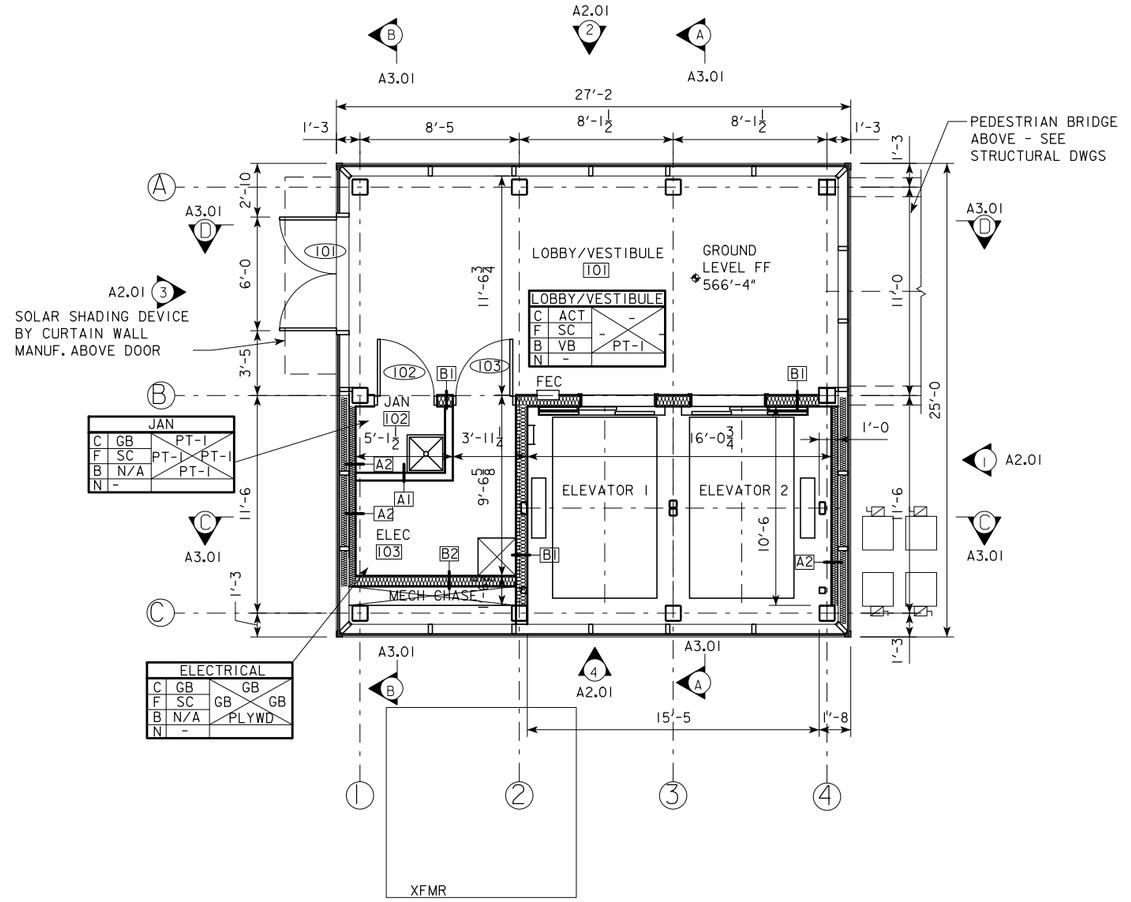
BELOW GROUND LEVEL PLAN

SCALE: 1/4" = 1'-0"



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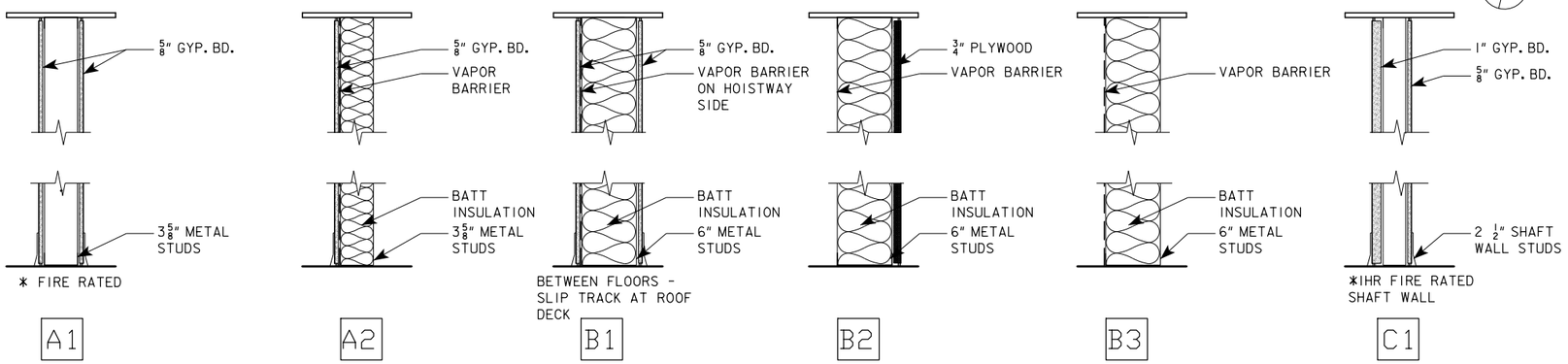
GROUND LEVEL PLAN

SCALE: 1/4" = 1'-0"



WALL TYPES LEGEND

SCALE: 1" = 1'-0"

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GROUND LEVEL FLOOR PLAN

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DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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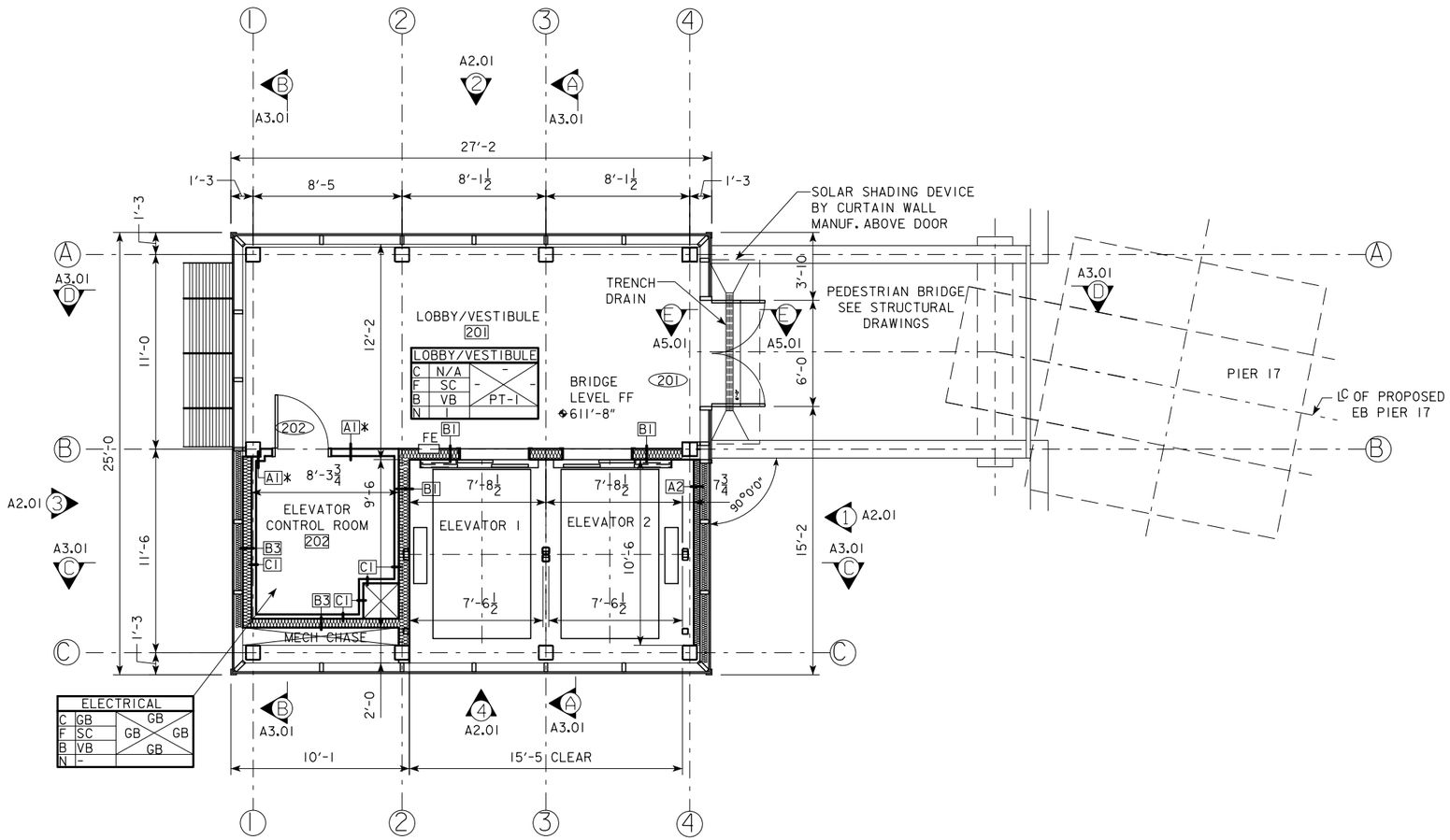
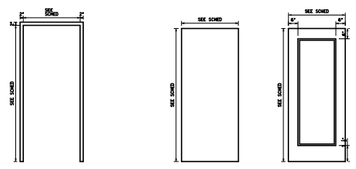


BRIDGE LEVEL PLAN

SCALE: 1/4" = 1'-0"

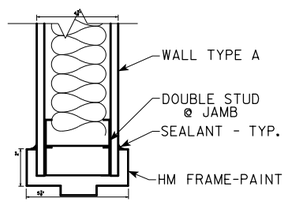
DOOR AND FRAME SCHEDULE

DOOR NO	DOOR SIZE WD	DOOR SIZE HT	DOOR MTRL	DOOR TYPE	DOOR GLAZ	FRAME MTRL	FRAME TYPE	FRAME DTL	RATING	HDWR	REMARKS
101	PR 3'-0"	7'-0"	ALUM	FG	INSUL	ALUM	--	--	--	--	BY CURTAIN WALL MANUF - SEE SPECS
102	3'-0"	7'-0"	HM	F	--	HM	A	2	--	30F	--
103	3'-0"	7'-0"	HM	F	--	HM	A	2	--	30F	--
201	PR 3'-0"	7'-0"	ALUM	FG	INSUL	ALUM	--	--	--	--	BY CURTAIN WALL MANUF - SEE SPECS
202	3'-0"	7'-0"	HM	F	--	HM	A	2	45 MIN	30F	--



DOOR AND FRAME TYPES

SCALE: 1/4" = 1'-0"



2 HEAD/JAMB

SCALE: 3" = 1'-0"

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

BRIDGE LEVEL FLOOR PLAN

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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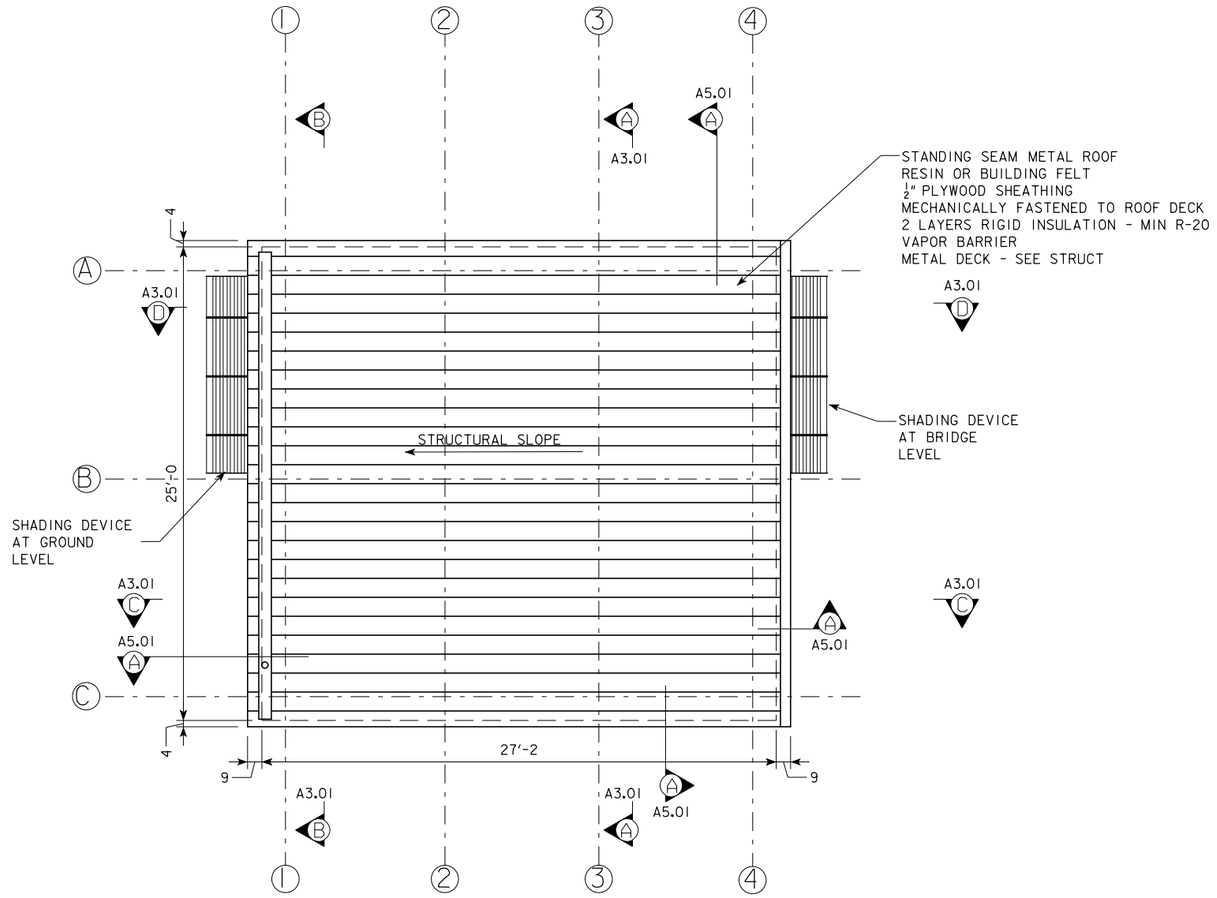

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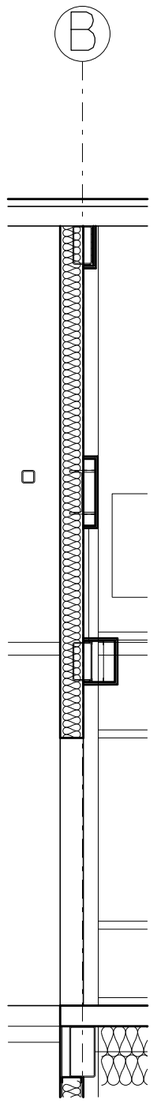
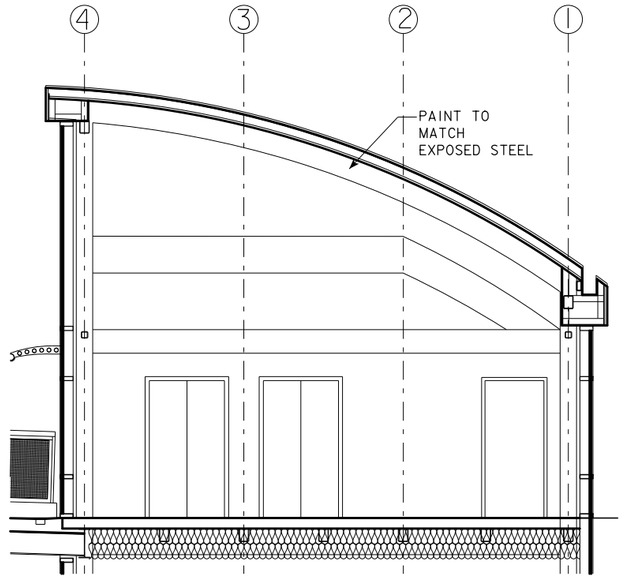
ROOF PLAN

SCALE: 1/4" = 1'-0"



A WALL SECTION DETAIL

SCALE: 1/2" = 1'-0"



A ENLARGED BUILDING SECTION

SCALE: 1/2" = 1'-0"

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DESIGN FOR
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ROOF PLAN

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER A1.03

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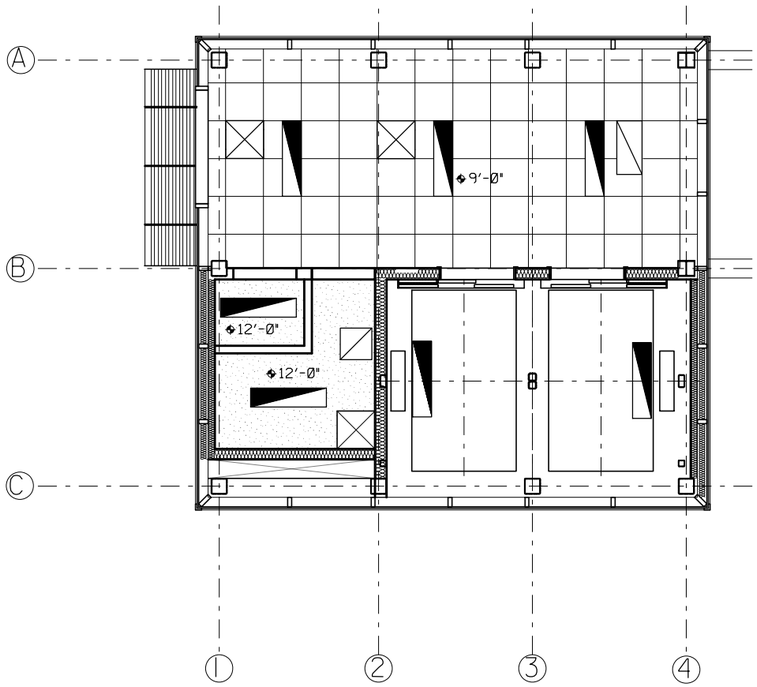

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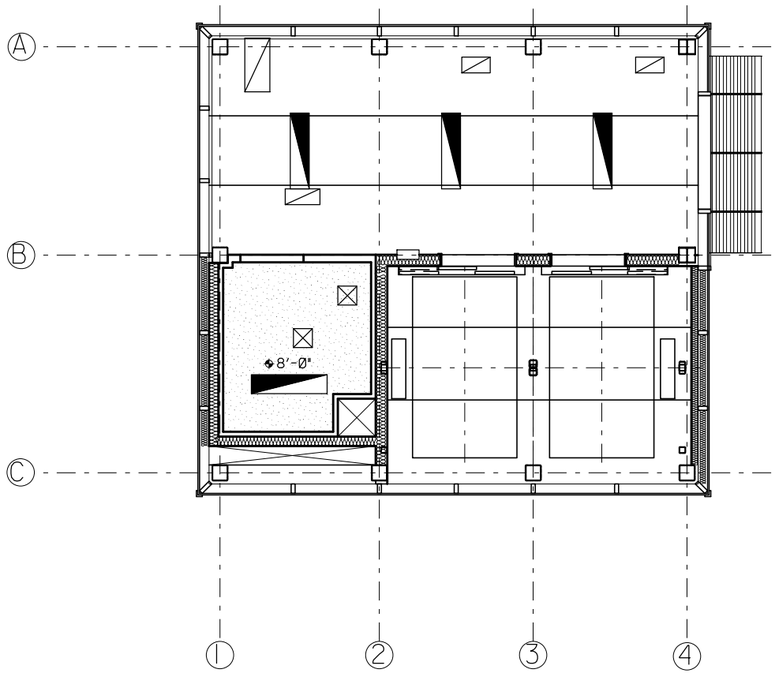
GROUND LEVEL REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"



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BRIDGE LEVEL REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"

REFLECTED CEILING PLAN LEGEND

ACOUSTICAL CEILING TILE

GYPSUM BOARD CEILING

FINISHED CEILING ELEVATION ABOVE FINISHED FLOOR

Ø'-Ø" LIGHT FIXTURE - SEE LIGHTING DWGS

HVAC - SEE MECHANICAL DWGS

HVAC - SEE MECHANICAL DWGS

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GROUND LEVEL FLOOR PLAN

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

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DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JCM/MAR/BLH | SCOTT COUNTY | PROJECT NUMBER IM-074-1(255)5--13-82 | SHEET NUMBER A1.11

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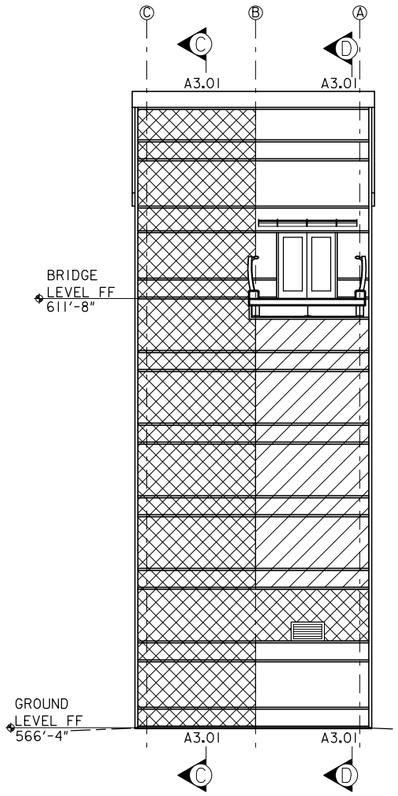
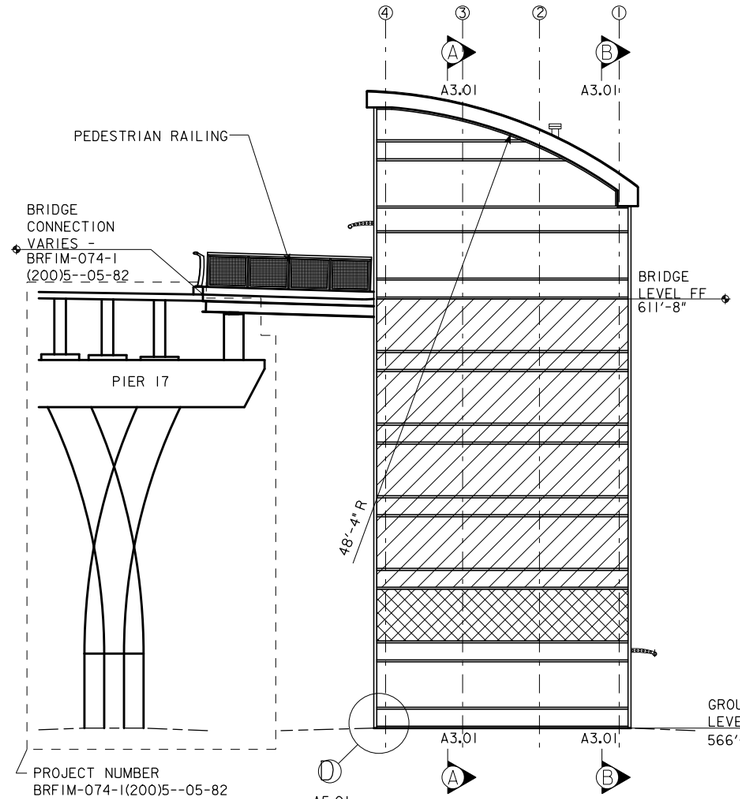


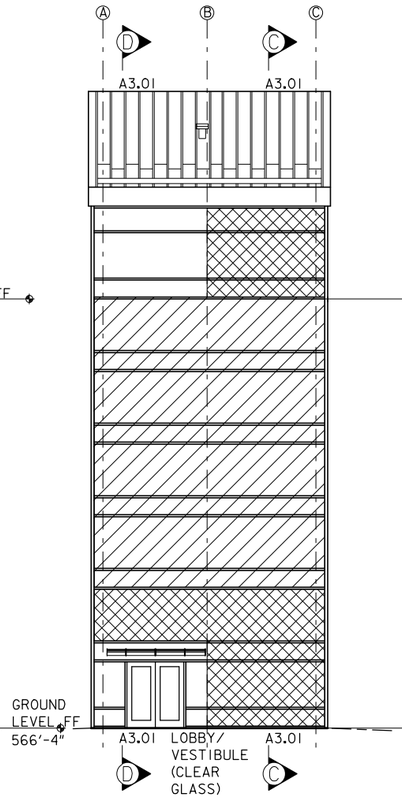
1 EAST ELEVATION

SCALE: 1/8" = 1'-0"



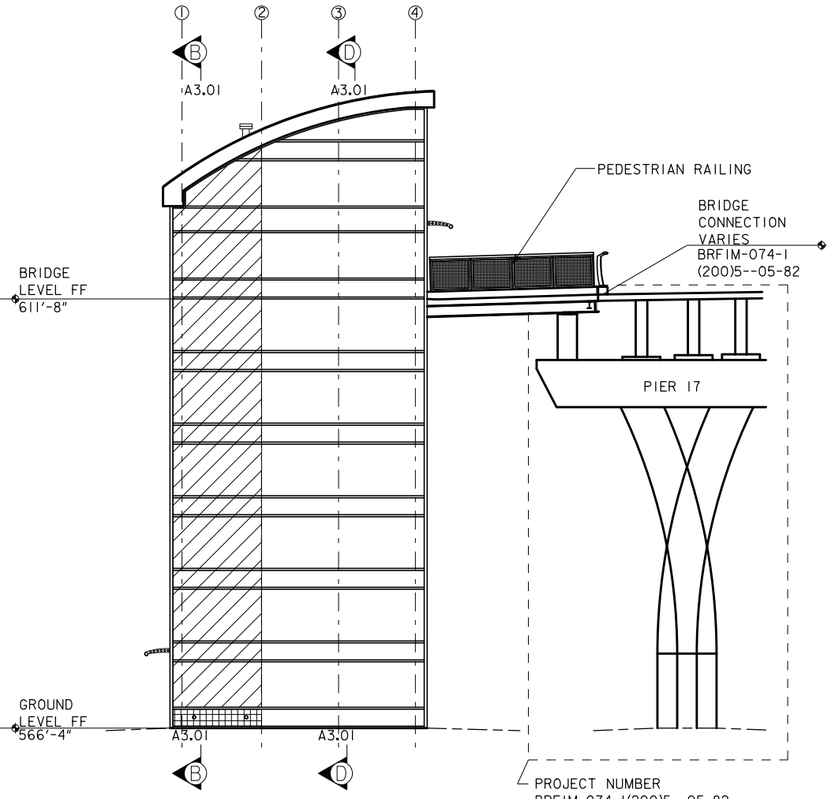
2 NORTH ELEVATION

SCALE: 1/8" = 1'-0"



3 WEST ELEVATION

SCALE: 1/8" = 1'-0"



4 SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

SURVEY DATA REFERENCE FROM BENESCH AND WHKS

CURTAIN WALL LEGEND

- SPANDREL GLASS
- SPANDREL GLASS W/ INSULATION BACKUP
- ACM PANELS
- REMAININ TO BE CLEAR GLASS

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DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

ELEVATIONS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

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DESIGN SHEET NO. ___ OF xx FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER A2.01

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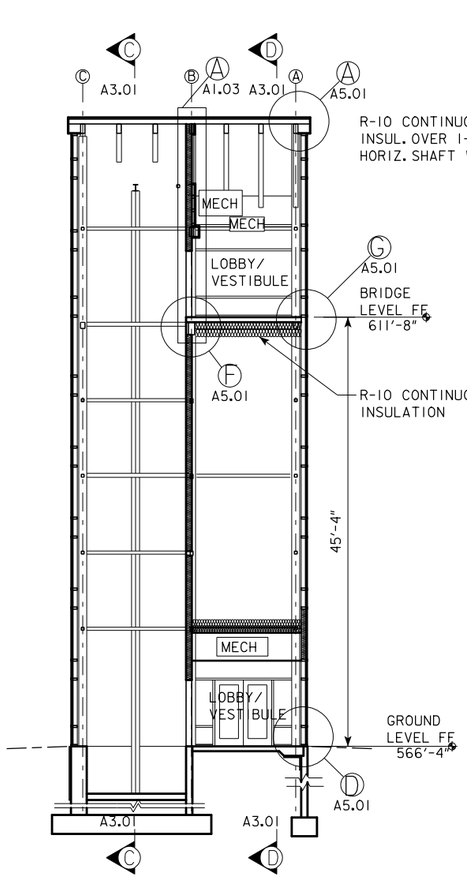
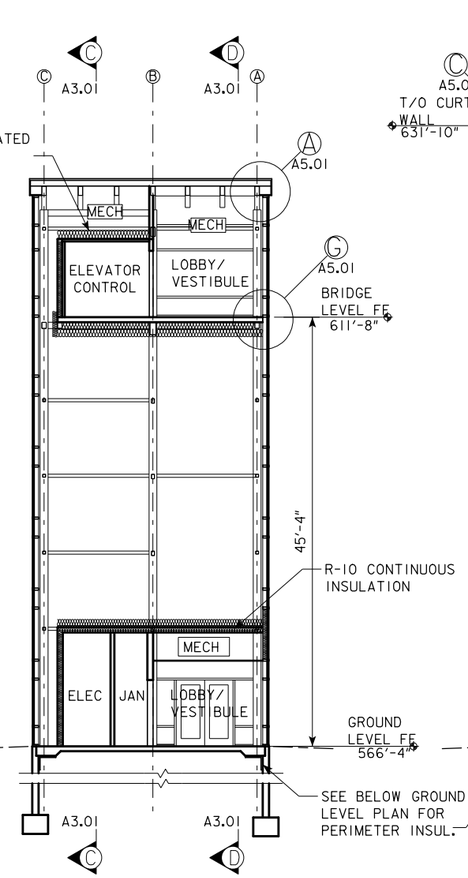


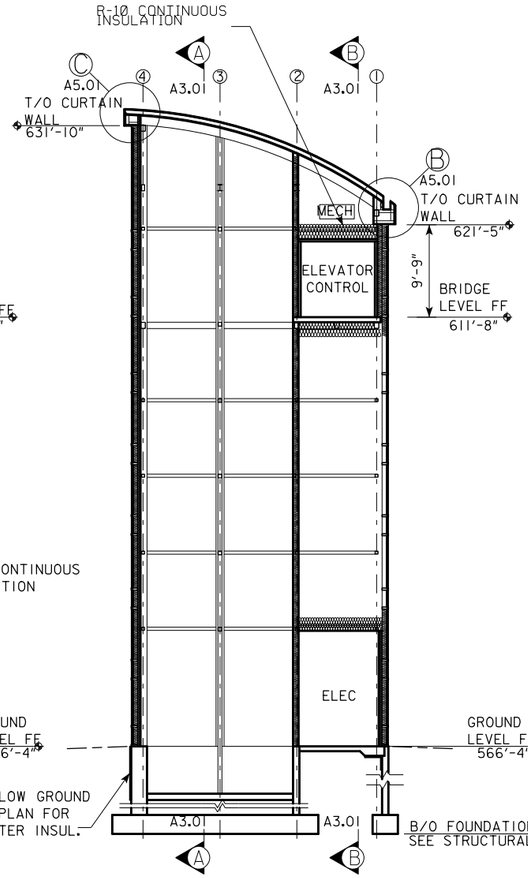
A SECTION A LOOKING WEST

SCALE: 1/8" = 1'-0"



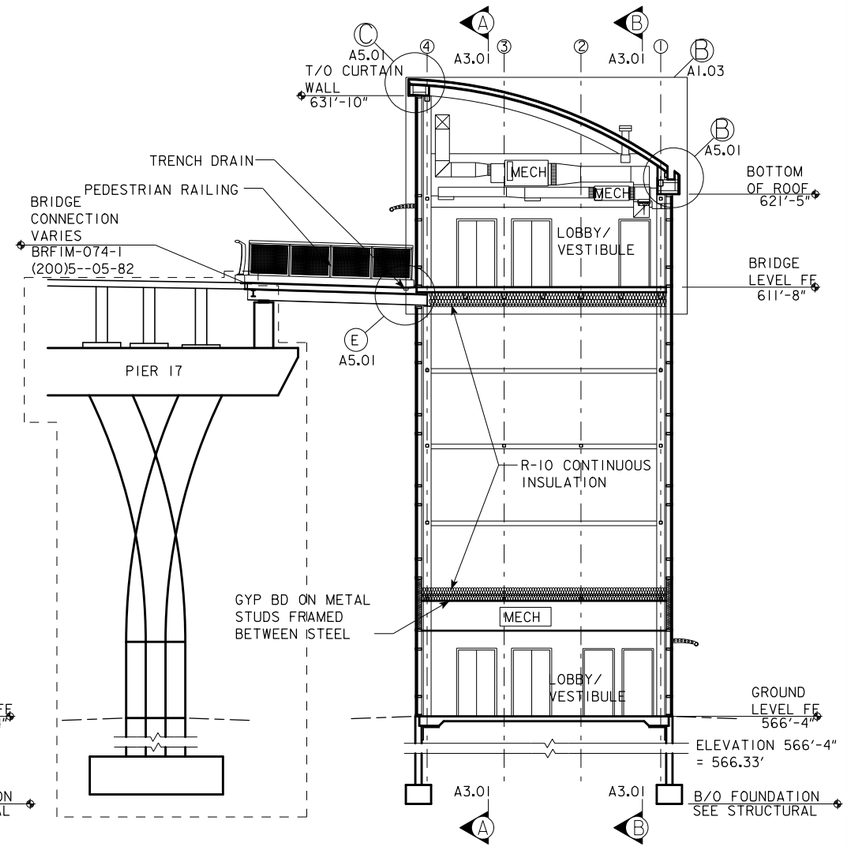
B SECTION B LOOKING WEST

SCALE: 1/8" = 1'-0"



C SECTION C LOOKING SOUTH

SCALE: 1/8" = 1'-0"



D SECTION D LOOKING SOUTH

SCALE: 1/8" = 1'-0"

SURVEY DATA REFERENCE FROM BENESCH AND WHKS

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

BUILDING SECTIONS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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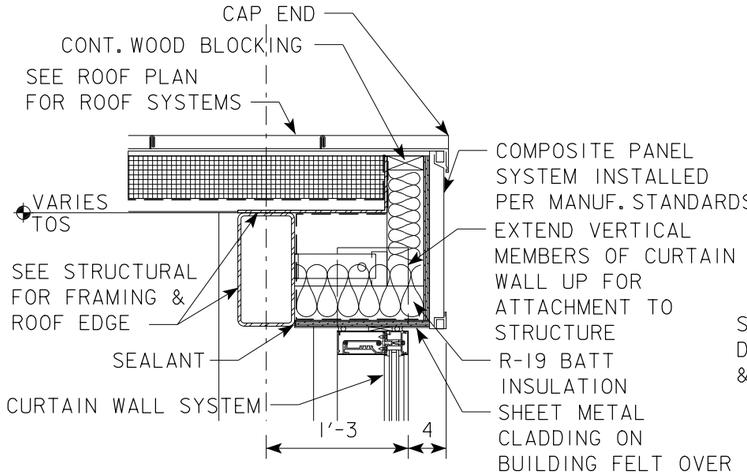
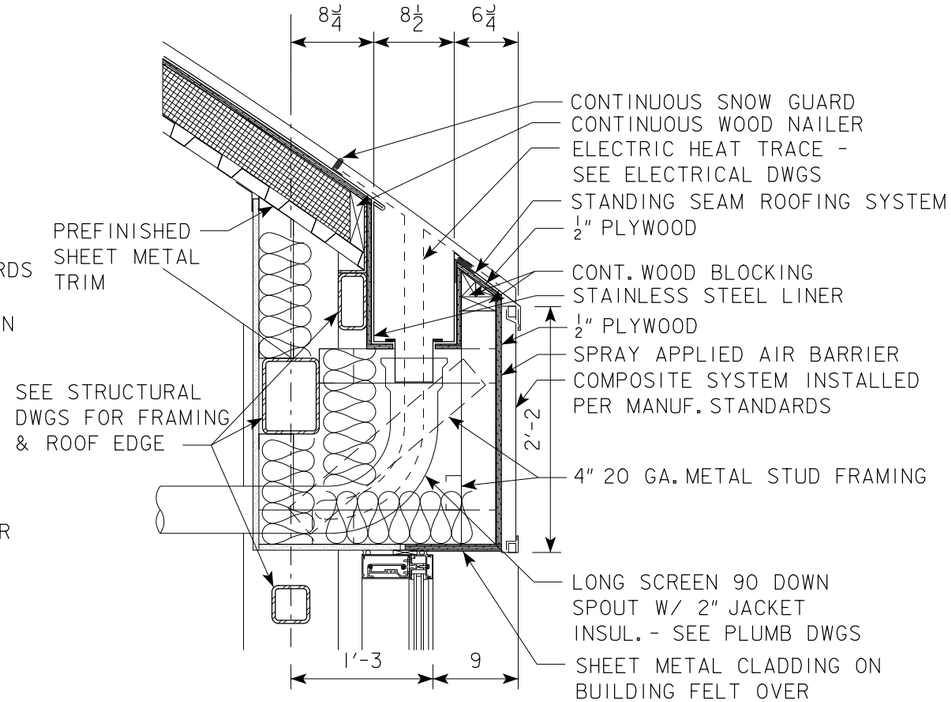


A DETAIL
SCALE: 1 1/2" = 1'-0"



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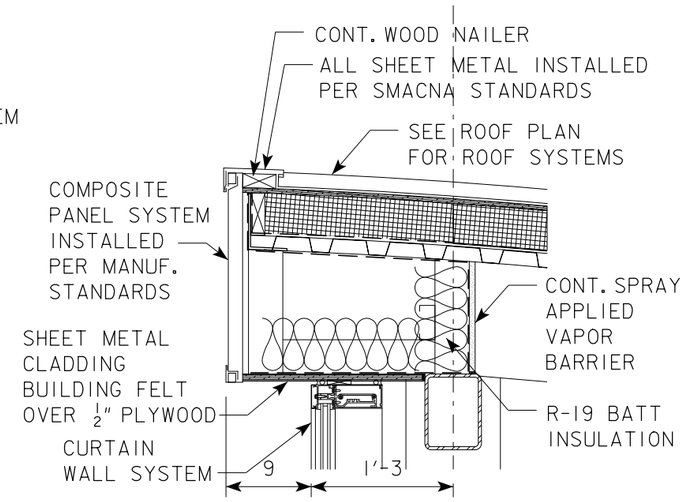
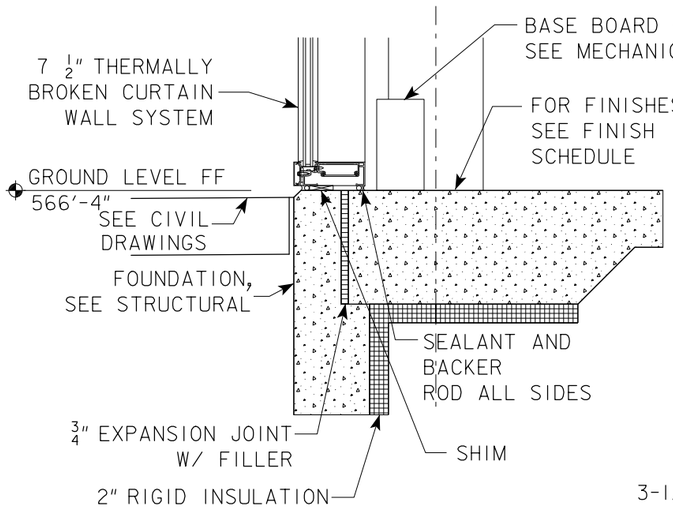


C DETAIL
SCALE: 1 1/2" = 1'-0"



D DETAIL
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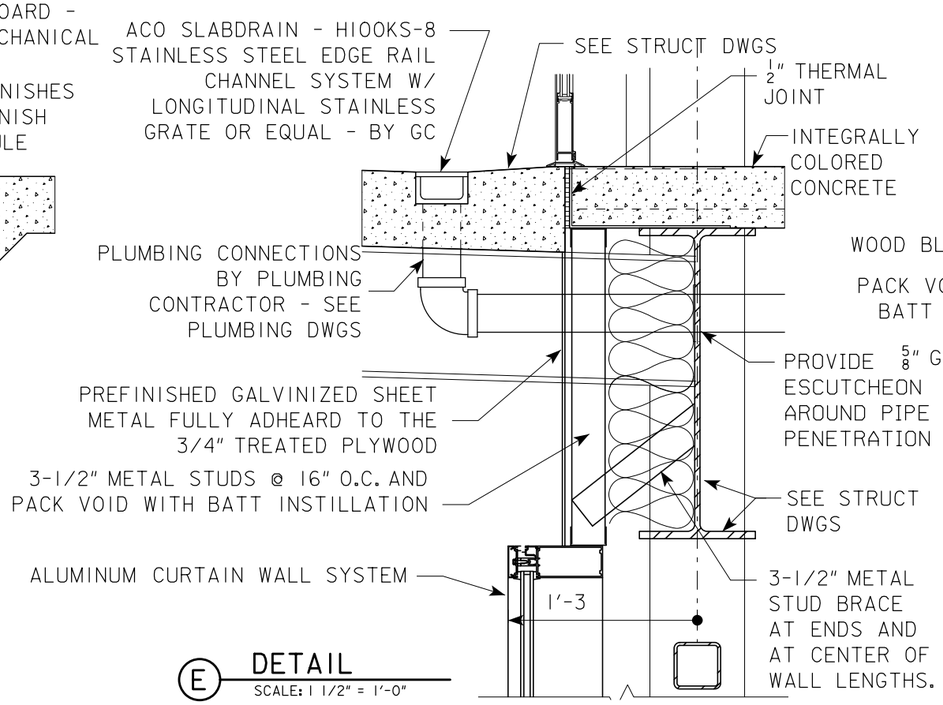

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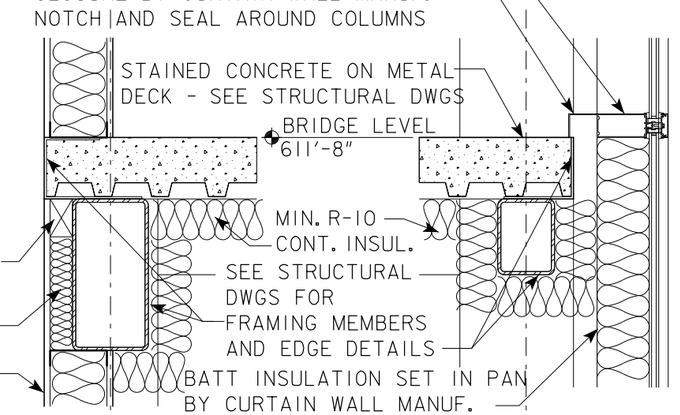

F DETAIL
SCALE: 1 1/2" = 1'-0"

G DETAIL
SCALE: 1 1/2" = 1'-0"

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

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SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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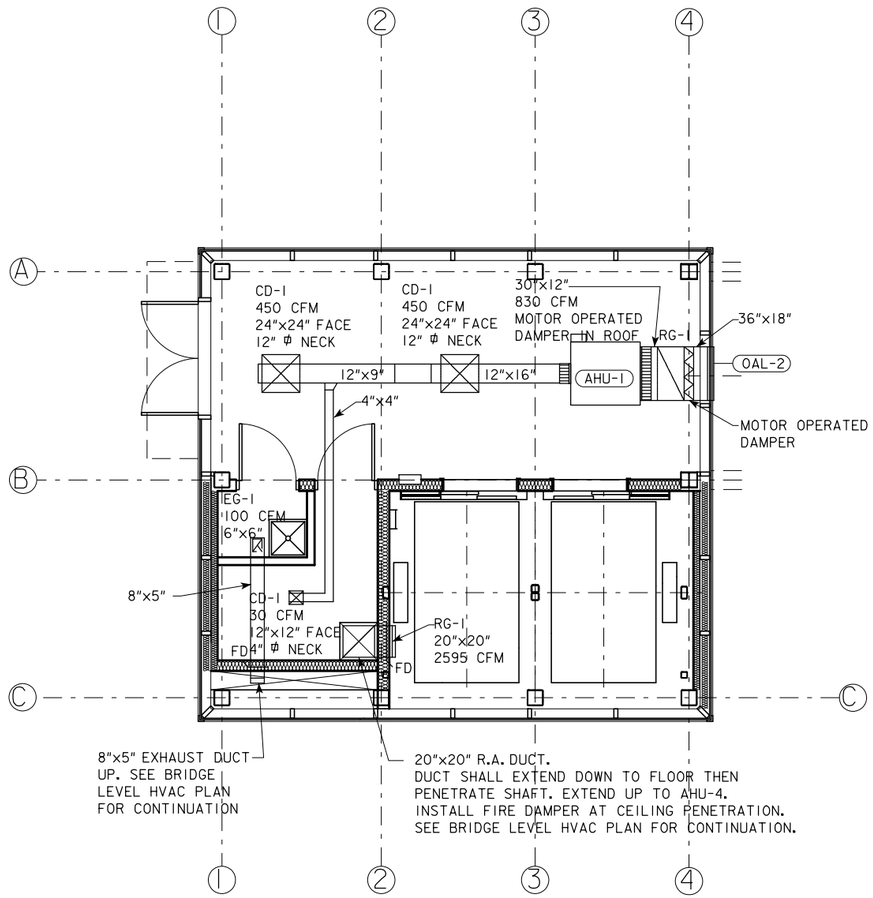
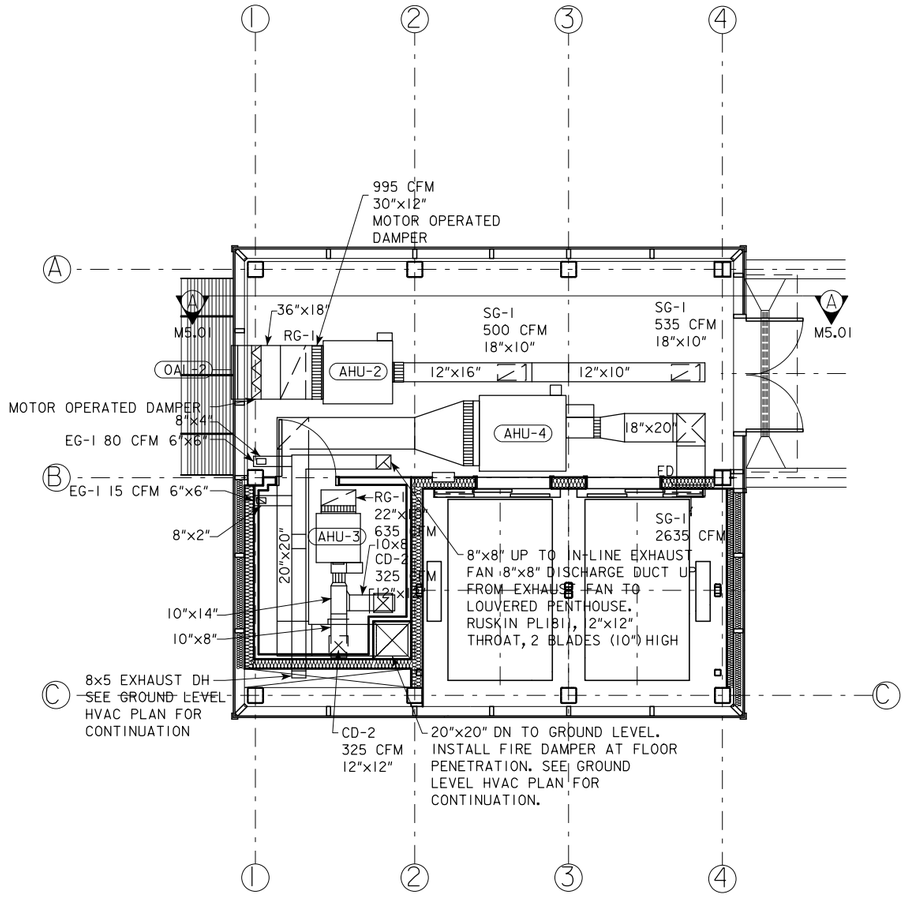


N

GROUND LEVEL HVAC PLAN

SCALE: 1/4" = 1'-0"



N

BRIDGE LEVEL HVAC PLAN

SCALE: 1/4" = 1'-0"

GENERAL MECHANICAL NOTES:

1. DUCTWORK IS SHOWN IN SCHEMATIC FORM. NOT ALL RISERS AND DROPS ARE SHOWN. PROVIDE OFFSETS AS REQUIRED TO MEET SPACE REQUIREMENTS AND AVOID INTERFERENCE WITH OTHER TRADES.
2. COORDINATE EXACT LOCATION OF CEILING MOUNTED DIFFUSERS, GRILLES, REGISTERS AND EQUIPMENT WITH ARCHITECTURAL REFLECTED CEILING PLANS.
3. COORDINATE EXACT LOCATION OF MOUNTED EQUIPMENT, ROOF CURBS, OPENINGS AND ROOF PENETRATIONS WITH GENERAL, STRUCTURAL AND ROOFING CONTRACTORS.

MECHANICAL ENGINEER

LICENSED PROFESSIONAL ENGINEER
DEAN L. HIEBERT
11642
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Signature: Date

Printed or typed name: DEAN L. HIEBERT

License Number: 11642

My License Renewal Date is: DECEMBER 31, 2016

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:

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P0.01–P0.05, P1.01, P1.02, P5.01

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

HVAC

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

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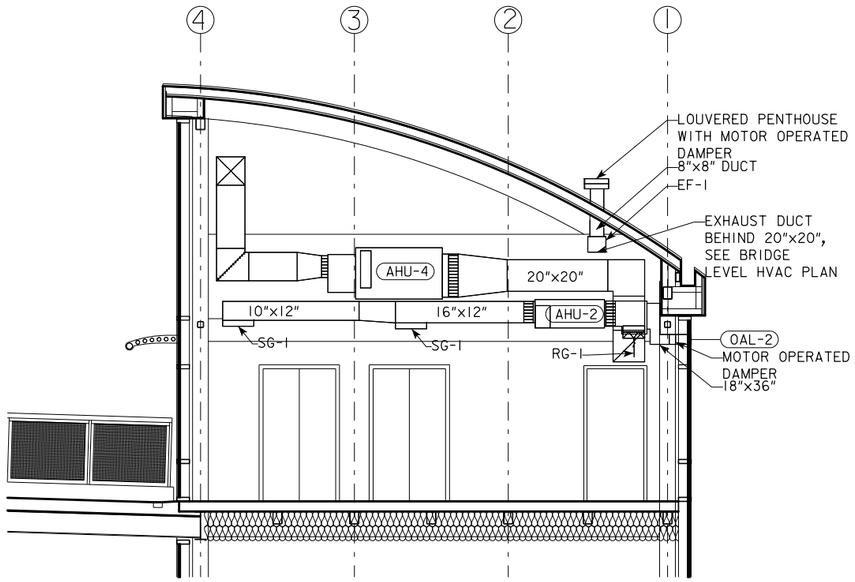

SECTION A-A

SCALE: 1/4" = 1'-0"

AIR HANDLING UNIT SCHEDULE

PLAN MARK	CFM	OA CFM	ESP (IN WC)	MOTOR DATA			COOLING COIL						HEATING COIL			FAN TYPE	DESIGN BASIS
							EAT (F)		LAT (F)		MBH		EAT (F)	LAT (F)	MBH		
				HP	VOLTS	Φ	DB	WB	DB	WB	SENS	TOT					
AHU-1	930	100	0.5	1/2	208	3	82.3	67.2	59.9	58.5	22.0	25.0	43.6	70.4	26.3		TRANE BCHC 036
AHU-2	1035	95	0.5	1/2	208	3	81.5	66.1	59.4	58.0	24.1	25.7	46.9	70.4	26.8		TRANE BCHC 036
AHU-3	650	0	0.5	1/2	115	1	81.8	66.0	59.6	58.1	15.2	15.6	48.4	51.4	2.1		TRANE BCHC 018
AHU-4	2635	0	1.1	1 1/2	208	3	81.5	66.0	60.0	58.5	59.9	60.4	49.0	61.6	35.1		TRANE UCCAA 06

DIFFUSERS, REGISTERS & GRILLES SCHEDULE

IDENT. NO.	MATERIAL OF CONSTRUCTION	DESCRIPTION	FACTORY FINISH	BLOW PATTERN	DESIGN BASIS	REMARKS
CD-1	ALUMINUM	CEILING SUPPLY DIFFUSER	WHITE	4-WAY	TITUS TMS-AA	24x24, FACE AREA, LAY-IN, MOLDED INSULATION BLANKET
SG-1	ALUMINUM	SUPPLY GRILLE	WHITE	DOUBLE DEFLECTION	TITUS 300FS	
RG-1	ALUMINUM	RETURN GRILLE	WHITE		TITUS 300FL	
EG-1	ALUMINUM	EXHAUST GRILLE	WHITE		TITUS 300FL	

LOUVER SCHEDULE

PLAN MARK	CFM	DIMENSIONS			FREE AREA VELOCITY (FPM)	MAX PD (IN WC)	SERVICE	DESIGN BASIS
		WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)				
OAL-1	930	36	18	4	440	0.04	AHU-1	RUSKIN ELF375X
OAL-2	1035	36	18	4	440	0.04	AHU-1	RUSKIN ELF375X

EXHAUST FAN SCHEDULE

PLAN MARK	CFM	ESP	MOUNTING	DIMENSIONS				DESIGN BASIS	DESIGN BASIS
				HP	VOLTS	Φ	DRIVE		
EF-1	195	0	18	1/12	115	1	DIRECT	GREENHECK SQ-80-D	PROVIDE SPEED CONTROLLER

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HVAC

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

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DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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SPECIFICATIONS

BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. THE WORK SHALL INCLUDE THE FURNISHINGS OF SYSTEMS, EQUIPMENT AND MATERIALS AS SPECIFIED AND CALLED FOR ON THE PLUMBING DRAWINGS TO INCLUDE SUPERVISION, QUALITY CONTROL, OPERATION, METHODS AND LABOR FOR THE FABRICATION, INSTALLATION, START-UP AND TESTS FOR THE COMPLETE PLUMBING INSTALLATION. THE WORK SHALL ALSO INCLUDE THE FURNISHING OF NECESSARY HOISTING FACILITIES TO SET MATERIALS AND EQUIPMENT IN PLACE AND THE FURNISHING OF ANY SCAFFOLDING AND TRANSPORTATION ASSOCIATED WITH THIS WORK.

B. EXAMINE THE PROJECT SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS WHICH WILL AFFECT THE WORK. REVIEW THE DRAWINGS AND SPECIFICATIONS OF OTHER TRADES AND TAKE NOTE OF CONDITIONS TO BE CREATED WHICH WILL AFFECT THE WORK. ALL CONDITIONS SHALL BE CONSIDERED IN THE PREPARATION OF BIDS; NO ADDITIONAL COMPENSATION WILL BE MADE ON THE BEHALF OF THIS CONTRACTOR.

1.02 DAMAGE

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE WORK OF OTHER TRADES, OR TO THE BUILDING AND IT CONTENTS, CAUSED BY EQUIPMENT INSTALLATION.

1.03 PERMITS AND INSPECTIONS

A. OBTAIN AND FURNISH NECESSARY PERMITS AND INSPECTION CERTIFICATES FOR MATERIAL AND LABOR FURNISHED. PERMITS AND CERTIFICATES SHALL BE OBTAINED FROM THE PROPER INSPECTION AUTHORITIES. THE COST OF PERMITS, CERTIFICATES AND FEES REQUIRED IN CONNECTION WITH THE INSTALLATION SHALL BE BORNE BY THE CONTRACTOR, UNLESS OTHERWISE NOTED IN THE DETAILED CONTRACTUAL DESCRIPTION PRECEDING THESE SPECIFICATIONS. WHERE APPLICATIONS ARE REQUIRED FOR THE PROCURING OF UTILITY SERVICES TO THE BUILDING, SEE THAT SUCH APPLICATION IS PROPERLY FILED WITH THE UTILITY, AND THAT INFORMATION REQUIRED FOR SUCH AN APPLICATION IS PRESENTED TO THE EXTENT AND IN THE FORM REQUIRED BY THE UTILITY COMPANY.

1.04 CODES AND STANDARDS

A. APPLICABLE PROVISIONS OF THE FOLLOWING CODES AND STANDARDS ARE HEREBY IMPOSED ON A GENERAL BASIS FOR THE PLUMBING WORK:
AWWA STANDARDS
LOCAL AND/OR STATE PLUMBING CODES
OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
UNIFORM PLUMBING CODE

B. INSTALLATIONS MUST BE SAFE IN EVERY RESPECT, AND MUST NOT CREATE A CONDITION WHICH WILL BE HARMFUL TO BUILDING OCCUPANTS; TO OPERATING, INSTALLING OR TESTING PERSONNEL; TO WORKMEN; OR TO THE PUBLIC. THE CONTRACTOR FOR EACH INSTALLATION SHALL BE SOLELY RESPONSIBLE FOR PROVIDING INSTALLATIONS WHICH WILL MEET THESE CONDITIONS.

1.05 DRAWINGS

A. A COMPLETE SET OF DRAWINGS SHALL BE ON THE SITE AT ALL TIMES. PRIOR TO INSTALLING ANY OF THE WORK, CHECK THE DRAWINGS FOR DIMENSIONS AND SEE THAT THE WORK DOES NOT INTERFERE WITH CLEARANCE REQUIRED FOR CEILINGS, BEAMS, FOUNDATIONS, FINISHED COLUMNS, PILASTERS, PARTITIONS AND ELECTRICAL EQUIPMENT AS SHOWN ON THE DRAWINGS AND DETAILS. AFTER WORK IS INSTALLED AND IT DEVELOPS THAT INTERFERENCES OCCUR WHICH HAVE NOT BEEN CALLED TO THE ARCHITECT/ENGINEER'S ATTENTION BEFORE THE INSTALLATION, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, MAKE SUCH CHANGES IN HIS WORK AS DIRECTED BY THE ARCHITECT/ENGINEER.

B. THE CONTRACT DRAWINGS FOR PLUMBING WORK ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT AND APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND MATERIALS. WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN INDICATED LOCATIONS AND ARRANGEMENT, THE CONTRACTOR SHALL MAKE SUCH CHANGES AS DIRECTED BY THE ARCHITECT/ENGINEER, WITHOUT ADDITIONAL COST TO THE OWNER.

C. BECAUSE OF THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS PIPE FITTINGS, ACCESS PANELS, AND SLEEVES MAY NOT BE SHOWN; BUT WHERE SUCH ITEMS ARE REQUIRED BY OTHER SECTIONS OF THESE SPECIFICATIONS OR WHERE THEY ARE REQUIRED BY THE NATURE OF THE WORK, THEY SHALL BE FURNISHED AND INSTALLED.

D. EQUIPMENT SPECIFICATION MAY NOT DEAL INDIVIDUALLY WITH MINUTE ITEMS REQUIRED SUCH AS COMPONENTS, PARTS, CONTROLS AND DEVICES WHICH MAY BE REQUIRED TO PRODUCE THE EQUIPMENT PERFORMANCE SPECIFIED, OR AS REQUIRED TO MEET THE EQUIPMENT WARRANTIES. WHERE SUCH ITEMS ARE REQUIRED, THEY SHALL BE INCLUDED BY THE SUPPLIER OF THE EQUIPMENT, WHETHER OR NOT SPECIFICALLY CALLED FOR.

E. LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED OR MAINTAINED IN FULLY ACCESSIBLE POSITIONS. MINOR DEVIATIONS FROM THE CONTRACT DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY, BUT CHANGES OF MAGNITUDE, OR WHICH INVOLVE EXTRA COST, SHALL NOT BE MADE WITHOUT PRIOR APPROVAL. AMPLE SPACE SHALL BE ALLOWED FOR REMOVAL OF PARTS THAT MAY REQUIRE REPLACEMENT OR SERVICE IN THE FUTURE.

F. ALL VALVES AND EQUIPMENT SHALL BE ACCESSIBLE FOR MAINTENANCE PURPOSES. LOCATE ITEMS CAREFULLY AND COORDINATE WITH OTHER TRADES SO THAT EACH PIECE OF EQUIPMENT IS ACCESSIBLE AND FUNCTIONAL. ITEMS LOCATED ABOVE A NON-ACCESSIBLE CEILING, CHASE, OR SOFFIT SHALL BE ACCESSIBLE THROUGH AN ACCESS DOOR. COORDINATE LOCATION OF ACCESS DOORS WITH THE GENERAL CONTRACTOR.

1.06 RESPONSIBILITY

A. THE CONTRACTOR'S RESPONSIBILITY SHALL NOT END WITH THE INSTALLATION AND CONNECTING OF THE VARIOUS APPARATUS. IT SHALL INCLUDE THE SERVICES OF AN EXPERIENCED SUPERINTENDENT, WHO SHALL BE CONSTANTLY IN CHARGE OF THE WORK, TOGETHER WITH THE QUALIFIED JOURNEYMEN, HELPERS AND LABORERS REQUIRED TO PROPERLY UNLOAD, INSTALL, CONNECT, ADJUST, START, OPERATE AND TEST THE WORK INVOLVED, INCLUDING EQUIPMENT AND MATERIALS FURNISHED BY OTHER TRADES OR BY THE OWNER, UNTIL SUCH TIME AS THE ENTIRE MECHANICAL INSTALLATION FUNCTIONS PROPERLY IN EVERY DETAIL.

1.07 COORDINATION

A. COORDINATE THE WORK WITH OTHER TRADES PRIOR TO INSTALLATION.

B. NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE RUN OVER THE TOP OF ANY ELECTRICAL PANELS OR ELECTRICAL EQUIPMENT, IN ACCORDANCE WITH NEC 110-16 AND 384-4.

C. THE DETERMINATION OF QUANTITIES OF MATERIAL AND EQUIPMENT REQUIRED SHALL BE MADE FROM THE DRAWINGS. SCHEDULES ON THE DRAWINGS AND IN THE SPECIFICATIONS ARE COMPLETED AS AN AID, BUT WHERE DISCREPANCIES ARISE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE REQUIRED QUANTITY.

D. WHERE THE SPECIFICATIONS STATE THAT EQUIPMENT SHALL BE FURNISHED, INSTALLED OR PROVIDED, IT SHALL BE UNDERSTOOD TO MEAN THIS CONTRACTOR SHALL FURNISH AND INSTALL COMPLETELY, UNLESS IT IS SPECIFICALLY STATED THAT THE EQUIPMENT IS TO BE FURNISHED AND INSTALLED BY OTHERS.

E. THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO DETERMINE SPACE PRIORITY OF THE CONTRACTORS IN THE EVENT OF INTERFERENCE BETWEEN THE PIPING AND EQUIPMENT OF THE VARIOUS CONTRACTORS. CONFLICTS BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR BETWEEN REQUIREMENTS SET FORTH FOR THE VARIOUS TRADES, SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT/ENGINEER. IF CLARIFICATION IS NOT ASKED FOR PRIOR TO THE TAKING OF BIDS, IT WILL BE ASSUMED THAT NONE IS REQUIRED, AND THAT THE CONTRACTOR HAS SUBMITTED HIS BID IN CONFORMANCE WITH PLANS AND SPECIFICATIONS AS ISSUED AND THAT NO INTERFERENCE EXISTS.

F. NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO AN ELEVATOR HOISTWAY AND MACHINE ROOM SHALL BE RUN INSIDE THE HOISTWAY AND MACHINE ROOM IN ACCORDANCE WITH NEC 620-37 AND ASME A17.1, 102.2.

1.02 GUARANTEE AND MAINTENANCE

A. MATERIALS AND EQUIPMENT SHALL BE GUARANTEED TO BE FREE FROM DEFECTS AND TO BE NEW EQUIPMENT; NO SECONDHAND, USED OR SALVAGED EQUIPMENT WILL BE ALLOWED.

B. KEEP THE ENTIRE PORTION OF THE WORK IN REPAIR, WITHOUT ADDITIONAL COST TO THE OWNER, SO FAR AS DEFECTS IN WORKMANSHIP, APPARATUS, MATERIAL OR CONSTRUCTION ARE CONCERNED FOR ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE, EXCEPT AS OTHERWISE SPECIFIED HEREIN.

C. EQUIPMENT WHICH FAILS TO MEET PERFORMANCE RATINGS AS SPECIFIED AND SHOWN ON THE DRAWINGS SHALL BE REMOVED AND REPLACED BY NEW EQUIPMENT THAT MEETS THE SPECIFIED REQUIREMENTS, WITHOUT ADDITIONAL COST TO THE OWNER.

D. MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO THE REVIEW OF THE ARCHITECT/ENGINEER, IN WHOSE PRESENCE VARIOUS TESTS SHALL BE MADE AS REQUIRED BY THESE SPECIFICATIONS.

PART 2 PRODUCTS

2.01 SUBMITTALS

A. SUBMIT SHOP DRAWINGS AND CATALOG DATA FOR PLUMBING MATERIALS AND EQUIPMENT.

B. SUBMITTAL DATA SHALL CONSIST OF SHOP DRAWINGS AND/OR CATALOG CUTS SHOWING TECHNICAL DATA NECESSARY TO EVALUATE THE MATERIAL OR EQUIPMENT TO INCLUDE DIMENSIONS, WIRING DIAGRAMS, PERFORMANCE CURVES, RATING, CONTROL SEQUENCE, AND OTHER DESCRIPTIVE DATA NECESSARY TO DESCRIBE FULLY THE ITEM PROPOSED AND ITS OPERATING CHARACTERISTICS.

C. APPROVAL OF MATERIALS, INCLUDING ALTERNATE OR SUBSTITUTE ITEMS, SHALL BE OBTAINED IN WRITING FROM THE ARCHITECT/ENGINEER, VERBAL APPROVAL WILL NOT BE CONSIDERED BINDING.

D. SHOP DRAWINGS SHALL BE SUBMITTED AND SHALL HAVE BEEN SIGNED, CHECKED, APPROVED, AND INITIALED BY THE CONTRACTOR PRIOR TO SUBMITTAL TO THE ARCHITECT/ENGINEER. THE ARCHITECT/ENGINEER WILL REVIEW SHOP DRAWINGS TO AID IN INTERPRETING THE PLANS AND SPECIFICATIONS, AND WILL IN SO DOING ASSUME THAT THE SHOP DRAWINGS CONFORM TO SPECIFIED REQUIREMENTS SET FORTH IN THIS SPECIFICATION. THE APPROVAL OF THE SHOP DRAWING BY THE ARCHITECT/ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF COMPLYING WITH ELEMENTS OF THE SPECIFICATION. THE NAME OF THE JOB, ARCHITECT/ENGINEER, LOCATION, AND SPECIFICATION SECTION SHALL APPEAR ON ALL PAGES OF SHOP DRAWINGS. EQUIPMENT MARKS (SUCH AS SP-1) SHALL BE INDICATED FOR EACH ITEM.

E. AT THE COMPLETION OF THE JOB, FURNISH THREE (3) COPIES OF PARTS LISTS, OPERATING AND MAINTENANCE INSTRUCTIONS, AND MANUALS ORGANIZED AND BOUND, IN THREE BOOKS.

F. AT THE COMPLETION OF THE PROJECT, PREPARE AND SUBMIT TO THE OWNER RECORD DRAWINGS SHOWING THE LOCATION OF PIPING. DRAWING SHALL GIVE ACCURATE DIMENSIONS OF SUCH EQUIPMENT FOR FUTURE USE BY THE OWNER. THIS DRAWING SHALL BE SUBMITTED AS SOON AS WORK IS COMPLETED AND BEFORE AUTHORIZATION OF FINAL PAYMENT.

2.02 STANDARDS OF MATERIALS AND WORKMANSHIP

A. MATERIALS SHALL BE NEW, COMPLETE WITH MANUFACTURER'S GUARANTEE OR WARRANTY.

B. MATERIALS SHALL ALSO COMPLY WITH APPLICABLE STANDARDS OF THE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION, NATIONAL BOARD OF FIRE UNDERWRITERS, NATIONAL FIRE PROTECTION ASSOCIATION, NATIONAL SAFETY COUNCIL, NATIONAL BUREAU OF STANDARDS, THE NATIONAL ELECTRICAL CODE AND THE WILLIAMS-STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970. SUCH STANDARDS ARE HEREBY MADE A PART OF THESE SPECIFICATIONS.

C. WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE PARTICULAR CRAFT, SHALL BE EXECUTED IN A WORKMANLIKE MANNER, AND SHALL PRESENT A NEAT APPEARANCE WHEN COMPLETED. ALIGN, LEVEL AND ADJUST EQUIPMENT FOR SATISFACTORY OPERATION, AND INSTALL SO THAT CONNECTING AND DISCONNECTING OF PIPING AND ACCESSORIES CAN BE MADE READILY AND SO THAT PARTS ARE EASILY ACCESSIBLE FOR INSPECTION, OPERATION AND MAINTENANCE.

D. MATERIALS SHALL BE THE STANDARD PRODUCT OF A REPUTABLE MANUFACTURER REGULARLY ENGAGED IN THE MANUFACTURE OF THE SPECIFIC PRODUCT.

E. MATERIALS SHALL BE PROTECTED FROM DAMAGE, AND STORED INDOORS OR PROTECTED FROM THE WEATHER AT ALL TIMES, UNLESS OTHER STORAGE ARRANGEMENTS ARE APPROVED BY THE ARCHITECT/ENGINEER.

F. MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

2.03 MATERIAL SUBSTITUTIONS

A. PROPOSALS AS SUBMITTED SHALL BE BASED ON THE PRODUCTS SPECIFICALLY NAMED IN THE SPECIFICATION OR ON THE DRAWINGS. MATERIAL OR EQUIPMENT BY MANUFACTURERS OTHER THAN THOSE SPECIFIED MAY BE USED ONLY BY PERMISSION OF THE ARCHITECT/ENGINEER. SUCH PERMISSION FOR SUBSTITUTION MUST BE REQUESTED, IN WRITING, AT LEAST TEN (10) CALENDAR DAYS PRIOR TO BID OPENING.

B. THE ARCHITECT/ENGINEER RESERVES THE SOLE RIGHT FOR THE APPROVAL OF PROPOSED MATERIAL OR EQUIPMENT, AND THE PHRASE, "OR APPROVED EQUIVALENT", USED IN THESE SPECIFICATIONS, OR ON THE DRAWINGS, SHALL BE INTERPRETED TO MEAN AN EQUIVALENT APPROVED BY THE ARCHITECT/ENGINEER.

C. CHANGES REQUIRED BY ALTERNATE EQUIPMENT SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER; AND COSTS INCURRED BY OTHER TRADES, PUBLIC UTILITIES OR THE OWNER, AS A RESULT OF THE USE OF SUCH EQUIPMENT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

D. IDENTIFY THE DIFFERENCES IN ALTERNATE MATERIAL OR EQUIPMENT AS COMPARED TO THAT SPECIFIED, AND INDICATE THE BENEFITS TO THE PROJECT AS A RESULT OF SELECTING THE ALTERNATIVE.

E. THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO REFUSE APPROVAL OF EQUIPMENT WHICH DOES NOT MEET THE SPECIFICATION, IN THEIR OPINION, OR OF EQUIPMENT FOR WHICH NO LOCAL EXPERIENCE OF SATISFACTORY SERVICE IS AVAILABLE. THE ARCHITECT/ENGINEER FURTHER RESERVES THE RIGHT TO REJECT EQUIPMENT FOR WHICH MAINTENANCE SERVICE AND THE AVAILABILITY OF REPLACEMENT PARTS IS QUESTIONABLE.

PART 3 EXECUTION

3.01 OPENINGS, CUTTING, AND PATCHING

A. THE GENERAL CONTRACTOR SHALL COORDINATE THE PLACING OF OPENINGS IN THE NEW STRUCTURE, AS REQUIRED FOR THE INSTALLATION OF THE MECHANICAL WORK.

B. FURNISH TO THE GENERAL CONTRACTOR THE ACCURATE LOCATIONS AND SIZES FOR REQUIRED OPENINGS. THIS SHALL NOT RELIEVE THIS CONTRACTOR OF THE RESPONSIBILITY OF CHECKING TO ASSURE THAT PROPER SIZE OPENINGS ARE PROVIDED. WHEN ADDITIONAL PATCHING IS REQUIRED DUE TO THIS CONTRACTOR'S FAILURE TO INSPECT THIS WORK, THIS CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE PATCHING REQUIRED TO PROPERLY CLOSE THE OPENING, TO INCLUDE PATCH PAINTING. THIS CONTRACTOR SHALL PAY ANY ADDITIONAL COST INCURRED IN THIS RESPECT.

C. WHEN CUTTING AND PATCHING OF THE STRUCTURE IS MADE NECESSARY DUE TO THIS CONTRACTOR'S FAILURE TO INSTALL PIPING, SLEEVES OR EQUIPMENT ON SCHEDULE, OR DUE TO THIS CONTRACTOR'S FAILURE TO FURNISH, ON SCHEDULE, THE INFORMATION REQUIRED FOR THE LEAVING OF OPENINGS, IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS FOR THIS CUTTING AND PATCHING. THIS CONTRACTOR SHALL PAY ANY ADDITIONAL COST INCURRED IN THIS RESPECT.

3.02 PAINTING

A. THE FINISH OF ANY ITEM THAT HAS BEEN MARRED, SCRATCHED OR DAMAGED IN ANY WAY BY THIS CONTRACTOR SHALL BE REPAINTED AT THE EXPENSE OF THIS CONTRACTOR, AND TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND THE OWNER.

3.03 CLEANING

A. KEEP THE PREMISES CLEAN OF ALL DEBRIS CAUSED BY THE WORK AT ALL TIMES, AND KEEP MATERIALS STORED, IN AREAS DESIGNATED BY THE OWNER, IN SUCH A MANNER AS NOT TO INTERFERE WITH THE PROGRESS OF THE WORK OF OTHER CONTRACTORS OR WITH THE OPERATION OF EXISTING FACILITIES.

B. AT THE CONCLUSION OF THE CONSTRUCTION, THE SITE SHALL BE THOROUGHLY CLEANED OF ALL RUBBLE, DEBRIS AND UNUSED MATERIAL AND SHALL BE LEFT IN GOOD ORDER. CLOSED OFF SPACES SHALL BE CLEANED OF WASTE SUCH AS MATERIAL, CARTONS, AND WOOD FRAME MEMBERS USED IN THE CONSTRUCTION.

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

PLUMBING PLAN

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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ILLINOIS FIRM NUMBER: 184-000214

3.04 WIRING FOR PLUMBING EQUIPMENT

A. THE ELECTRICAL CONTRACTOR WILL PROVIDE POWER TO AND CONNECTION OF MOTORS AND EQUIPMENT FURNISHED BY THIS CONTRACTOR. WHERE DISCONNECT SWITCHES ARE NOT SPECIFIED TO BE FURNISHED WITH THE EQUIPMENT, THE ELECTRICAL CONTRACTOR WILL FURNISH DISCONNECT SWITCHES FOR EQUIPMENT FURNISHED BY THIS CONTRACTOR.

B. PROVIDE INTEGRAL WIRING, ALARM WIRING, CONTROL WIRING, AND INTERLOCK WIRING FOR EQUIPMENT FURNISHED, WHETHER OR NOT SUCH WIRING IS FURNISHED BY THE EQUIPMENT VENDOR.

C. FURNISH TO THE ELECTRICAL CONTRACTOR SHOP DRAWINGS AND A SCHEDULE FOR MOTORS AND OTHER PLUMBING EQUIPMENT FURNISHED WHICH REQUIRE ELECTRICAL SERVICES. THE SCHEDULE SHALL INCLUDE THE LOCATIONS FOR ROUGH-INS, ELECTRICAL LOADS, SIZE, AND ELECTRICAL CHARACTERISTICS FOR SERVICES REQUIRED.

D. ADDITIONAL COSTS INCURRED, WHERE MOTORS OR EQUIPMENT FURNISHED BY THIS CONTRACTOR REQUIRE LARGER SERVICES OR SERVICES OF DIFFERENT ELECTRICAL CHARACTERISTICS THAN THOSE CALLED FOR ON THE ELECTRICAL DRAWINGS, DUE TO THE CONTRACTOR FURNISHING SUBSTITUTE EQUIPMENT, SHALL BE PAID FOR BY THIS CONTRACTOR.

E. REVIEW THE ELECTRICAL DRAWINGS AND CALL TO THE ATTENTION OF THE ARCHITECT/ENGINEER, PRIOR TO BIDDING, OMISSIONS OF ELECTRICAL SERVICES REQUIRED FOR EQUIPMENT.

F. PLUMBING EQUIPMENT WHICH REQUIRES FUSE PROTECTION TO MAINTAIN UL LISTING SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR TO PROVIDE SUCH PROTECTION.

3.05 MOTORS

A. TEFC AND ODP MOTORS FOR EQUIPMENT SUPPLIED BY THIS CONTRACTOR SHALL MEET OR EXCEED THE ENERGY POLICY ACT OF 1992 (EPACT-92).

3.06 PROTECTION

A. SPECIAL CARE SHALL BE TAKEN FOR THE PROTECTION OF EQUIPMENT FURNISHED BY THIS CONTRACTOR. EQUIPMENT AND MATERIAL SHALL BE PROTECTED FROM ELEMENTS SUCH AS WEATHER, PAINTING AND PLASTERING UNTIL THE PROJECT IS COMPLETED. DAMAGE FROM RUST, PAINT OR SCRATCHES SHALL BE REPAIRED AS REQUIRED TO RESTORE EQUIPMENT TO ORIGINAL CONDITION.

B. PROTECTION OF EQUIPMENT DURING THE PLASTERING AND PAINTING OF THE BUILDING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR PERFORMING THAT WORK, BUT THIS SHALL NOT RELIEVE THIS CONTRACTOR OF THE RESPONSIBILITY OF CHECKING TO ASSURE THAT ADEQUATE PROTECTION IS BEING PROVIDED.

C. WHERE THE INSTALLATION OR CONNECTION OF EQUIPMENT REQUIRES THIS CONTRACTOR TO WORK IN AREAS PREVIOUSLY FINISHED BY OTHER CONTRACTORS, THIS CONTRACTOR SHALL BE RESPONSIBLE THAT SUCH AREAS ARE PROTECTED AND ARE NOT MARRED, SOILED OR OTHERWISE DAMAGED DURING THE COURSE OF SUCH WORK. THIS CONTRACTOR SHALL ARRANGE WITH THE OTHER CONTRACTORS FOR REPAIRING AND REFINISHING OF SUCH AREAS WHICH MAY BE DAMAGED.

D. WHEN HEAVY MATERIALS MUST BE PLACED UPON OR TRANSPORTED OVER THE ROOF DECK, SHEETING SHALL BE PLACED TO DISTRIBUTE THE WEIGHT AND SUPPORT SUCH MATERIALS. ANY DAMAGE SHALL BE IMMEDIATELY CORRECTED AT NO COST TO THE OWNER.

3.07 NOISE AND VIBRATION

A. BE RESPONSIBLE FOR THE INSTALLATION OF ALL EQUIPMENT IN SUCH A MANNER AS TO CONTROL THE TRANSMISSION OF NOISE AND VIBRATION FROM ANY INSTALLED EQUIPMENT OR SYSTEM, SO THAT THE SOUND LEVEL DOES NOT EXCEED NC35 IN ANY OCCUPIED SPACE. BE RESPONSIBLE FOR THE CORRECTION OF ANY OBJECTIONABLE NOISE IN ANY OCCUPIED AREA DUE TO IMPROPERLY INSTALLED EQUIPMENT.

3.08 IDENTIFICATION

A. IDENTIFY VALVES WITH STAMPED METAL TAGS.

B. PROVIDE TO THE OWNER A SCHEDULE LISTING VALVE NUMBERS AND THEIR LOCATION, INSTALLED IN A METAL FRAME WITH GLASS OR LUCITE COVER, LOCATED AS DIRECTED BY THE ARCHITECT/ENGINEER.

C. IDENTIFY PIPING SYSTEMS WITH BRADY (OR EQUIVALENT) COLOR-CODED MARKERS IDENTIFYING PIPE CONTENTS AND DIRECTION OF FLOW. MARKERS SHALL BE BLACK LETTERS ON YELLOW BACKGROUND EXCEPT FIRE PROTECTION MARKERS, WHICH SHALL BE WHITE LETTERS ON RED BACKGROUND. LABEL SIZE SHALL BE AS FOLLOWS:

OUTSIDE DIAMETER OF PIPE OR COVERING	LENGTH OF COLOR FIELD OR LABEL	SIZE OF LETTERS
1 ¼ INCHES OR LESS	8 INCHES	½ INCH
1 ½" TO 2 INCHES	8 INCHES	¾ INCH
2 ½ TO 6 INCHES	12 INCHES	1 ¼ INCHES
8 TO 10 INCHES	24 INCHES	2 ½ INCHES

D. INSTALLATION OF LABELS SHALL CONFORM TO THE FOLLOWING:

1. LABELS SHALL BE VISIBLE TO A PERSON STANDING ON THE FLOOR OR A SERVICE PLATFORM ADJACENT TO THE PIPING.
2. ON LONG, STRAIGHT RUNS OF PIPING THAT ARE NOT OBSCURED BY WALLS OR EQUIPMENT, LABELS SHALL BE PLACED A MAXIMUM OF 30 FEET APART.
3. WHERE PIPING PASSES THROUGH WALLS AND FLOORS, THERE SHALL BE A LABEL ON THE PIPE ON BOTH SIDES OF THE WALL OR FLOOR, ADJACENT TO THE WALL OR FLOOR.
4. DOUBLE ARROWS POINTING IN BOTH DIRECTIONS SHALL BE USED IF FLOW CAN BE IN BOTH DIRECTIONS.
5. A LABEL SHALL ALWAYS BE PLACED NEAR VALVES.
6. IF PIPING SYSTEMS BRANCH, TURN OR TEE, THE LABELS SHALL BE PLACED NEAR THE BRANCH, ELBOW OR TEE.
7. IF SELF-STICKING LABELS ARE USED, THE PIPE OR ITS COVERING SURFACE SHALL BE PROPERLY PREPARED. THIS CONSISTS OF REMOVAL OF LOOSE DIRT, OIL AND GREASE, LOOSE PAINT OR PEELING INSULATION COVERING. USE SOLVENT FOR REMOVAL OF OIL OR GREASE.
8. BANDING TAPE MUST BE USED ON BOTH ENDS OF LABELS. THE TAPE SHALL ENCIRCLE THE PIPE COMPLETELY AND OVERLAP ITSELF SO THE BANDING TAPE CAN ADHERE TO ITSELF.

3.09 TESTS AND DEMONSTRATIONS

A. SYSTEMS SHALL BE TESTED AND PLACED IN PROPER WORKING ORDER PRIOR TO DEMONSTRATING SYSTEMS TO THE OWNER.

B. PRIOR TO ACCEPTANCE OF THE PLUMBING INSTALLATION, DEMONSTRATE TO THE OWNER OR HIS DESIGNATED REPRESENTATIVES ESSENTIAL FEATURES AND FUNCTIONS OF ALL SYSTEMS INSTALLED, AND INSTRUCT THE OWNER IN THE PROPER OPERATION AND MAINTENANCE OF SUCH SYSTEMS.

C. FURNISH THE NECESSARY TRAINED PERSONNEL TO PERFORM THE DEMONSTRATIONS AND INSTRUCTIONS, AND ARRANGE TO HAVE THE MANUFACTURER'S REPRESENTATIVES FOR THE SYSTEM PRESENT TO ASSIST WITH THE DEMONSTRATIONS. THE OWNER AND CONTRACTOR SHALL EACH SIGN A CERTIFICATION STATING THAT THE TRAINING HAS BEEN PERFORMED AND THE OWNER ACCEPTS SAME.

3.10 UTILITY REBATE APPLICATIONS

A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR GATHERING INFORMATION NECESSARY FOR COMPLETING LOCAL UTILITY REBATE APPLICATIONS, AND SUBMITTING TO THE PROPER UTILITY COMPANIES FOR GAS AND ELECTRIC REBATES.

PLUMBING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. PROVIDE EQUIPMENT, MATERIALS, LABOR AND SUPERVISION NECESSARY TO INSTALL INSULATION TO HOT AND COLD SURFACES OF PIPING, FITTINGS, DRAINS, AND OTHER SURFACES.

B. INSULATION SHALL INCLUDE INSULATING MATERIALS, JACKETS, ADHESIVE, MASTIC COATINGS, TIE WIRE AND OTHER MATERIALS AS REQUIRED TO COMPLETE THE INSULATING WORK.

1.02 CODES AND STANDARDS

A. INSULATING MATERIALS, JACKETS AND MASTICS SHALL MEET FLAME SPREAD, FUEL CONTRIBUTION AND SMOKE DEVELOPED RATINGS IN ACCORDANCE WITH NFPA-90A. FLAME SPREAD RATING IN ACCORDANCE WITH NFPA 255, ASTM E-84 OR UL 723 OF NOT MORE THAN 25; SMOKE DEVELOPED RATING OF NOT MORE THAN 50, UNLESS OTHERWISE NOTED IN THIS SECTION.

B. INSULATION THAT HAS BEEN TREATED WITH A FLAME-RETARDANT ADDITIVE TO MEET THE FLAME SPREAD AND SMOKE DEVELOPED RATINGS SHOWN ABOVE IS NOT PERMITTED.

C. INSULATION MATERIALS SHALL BE NONCORROSIVE TO THE MATERIALS THEY ARE APPLIED TO, INCLUDING STRESS CORROSION CRACKING OF STAINLESS STEEL, AND SHALL NOT BREED OR PROMOTE FUNGUS AND BACTERIA.

D. INSULATION SHALL MEET OR EXCEED ALL REQUIREMENTS OF ASHRAE/IES 90.1.

1.03 QUALIFICATION

A. INSULATING MATERIALS BY OWENS-CORNING, PITTSBURGH-CORNING, KNAUF, SCHULLER, OR ENGINEER-APPROVED EQUIVALENT.

B. MASTICS AND ADHESIVES AS RECOMMENDED BY INSULATION MANUFACTURER.

1.04 SUBMITTALS

A. PRODUCT DATA: SUBMIT MANUFACTURER'S TECHNICAL PRODUCT DATA AND INSTALLATION INSTRUCTIONS FOR EACH TYPE OF MECHANICAL INSULATION. SUBMIT SCHEDULE SHOWING MANUFACTURER'S PRODUCT NUMBER, FLAME SPREAD AND SMOKE DEVELOPMENT RATING, K-VALUE, DENSITY, TEMPERATURE LIMITATIONS, SOUND ABSORPTION COEFFICIENTS, THICKNESS, AND FURNISHED ACCESSORIES FOR EACH MECHANICAL SYSTEM REQUIRING INSULATION.

PART 2 PRODUCTS

2.01 INSULATION

A. DESCRIPTION

1. TYPE A: PREFORMED, SECTIONAL, HEAVY DENSITY FIBERGLASS INSULATION, SUITABLE FOR OPERATING TEMPERATURES FORM 20 F TO +850 F. EQUIPPED WITH FACTORY-APPLIED, ALL-SERVICE VAPOR BARRIER JACKET CONSTRUCTED OF WHITE KRAFT PAPER BONDED TO ALUMINUM FOIL REINFORCED WITH FIBERGLASS YARN, WITH PRESSURE-SENSITIVE, SELF-SEALING LONGITUDINAL LAPS AND BUTT STRIPS. THERMAL CONDUCTIVITY OF 0.23 BTU-IN/HR-FT²-F @ 75 F MEAN TEMPERATURE. WATER VAPOR PERMEANCE OF 0.02 PERMS. SCHULLER "MICRO-LOK AP-T" OR APPROVED EQUIVALENT.

2.02 INSULATION JACKETS

A. 20-MIL HIGH IMPACT PVC SECURED WITH SPRAY CONTACT ADHESIVE. ALL PVC JACKETING SHALL MEET THE 25/50 SDR. MANVILLE "ZESTON 2000" OR EQUIVALENT.

B. FITTING AND VALVE JACKETS SHALL BE PREMOLDED PVC WITH JOINTS AND SEAMS SEALED WITH A SPRAY CONTACT ADHESIVE OR VAPOR BARRIER MASTIC. PREMOLDED JACKETS SHALL BE MANVILLE "ZESTON 2000" OR APPROVED EQUIVALENT.

C. AT WALL PENETRATIONS AND ON EXTERIOR PIPE, PROVIDE AN ADDITIONAL JACKET OF 0.020 INCH THICK CORRUGATED ALUMINUM WITH 0.015 INCH THICK, 3/8" WIDE ALUMINUM BANDS. METAL JACKET SHALL HAVE FACTORY APPLIED MOISTURE BARRIER. FITTING COVERS TO BE PREFORMED OF SAME MATERIAL AS ADJACENT METAL JACKET.

PART 2 EXECUTION

2.03 INSTALLATION, GENERAL

A. USE ONLY EXPERIENCED APPLICATORS REGULARLY ENGAGED IN THE TRADE. ROUGH WORK WILL BE REJECTED. APPLICATION DETAILS SHALL BE IN ACCORDANCE WITH THE INSULATION MATERIALS SUPPLIER'S RECOMMENDATIONS, EXCEPT WHERE A HIGHER STANDARD IS SPECIFIED.

B. INSTALL MATERIALS AFTER SYSTEMS HAVE BEEN TESTED AND APPROVED. MATERIAL SUCH AS RUST, SCALE, DIRT AND MOISTURE SHALL BE REMOVED FORM SURFACES TO BE INSULATED.

C. INSULATION SHALL BE KEPT CLEAN AND DRY AT ALL TIMES.

D. WHERE PIPES AND DUCTS PASS THROUGH FIRE RATED WALLS, FLOORS AND PARTITIONS, A FIRE SEAL SHALL BE PROVIDED.

2.04 PIPE INSULATION INSTALLATION

A. INSULATE FITTINGS, VALVES, UNIONS, FLANGES, STRAINERS, FLEXIBLE CONNECTIONS AND EXPANSION JOINTS WITH PREMOLDED OR MITERED SEGMENTS OF SAME INSULATING MATERIAL AS FOR ADJACENT PIPE COVERING.

B. PIPE INSULATION SHALL CONTINUE THROUGH SLEEVES AND HANGARS WITH VAPOR BARRIER AND/OR JACKET INTACT.

C. PROVIDE AN INSERT AT HANGERS NOT LESS THAN 6 INCHES LONG, OF SAME THICKNESS AND CONTOUR AS ADJOINING INSULATION, TO PREVENT INSULATION FROM SAGGING AT SUPPORT POINTS. INSERTS SHALL BE CORK OR OTHER HEAVY DENSITY INSULATING MATERIAL SUITABLE FOR THE PLANNED TEMPERATURE RANGE. FACTORY FABRICATED INSERTS MAY BE USED.

D. NEATLY FINISH INSULATION AT SUPPORTS, PROTRUSIONS AND INTERRUPTIONS.

E. FOR OUTDOOR PIPE INSULATION, INCREASE PIPE INSULATION THICKNESS BY ϕ" FROM THICKNESS LISTED IN SCHEDULE.

F. EXTERIOR METAL JACKETS SHALL OVERLAP AT LONGITUDINAL AND CIRCUMFERENTIAL JOINTS NOT LESS THAN 2", AND SHALL BE SECURED WITH BANDS AT NOT MORE THAN 12" CENTERS. LONGITUDINAL JOINTS SHALL BE OVERLAPPED DOWN TO SHED WATER AND SHALL BE LOCATED AT 4 OR 8 O'CLOCK POSITIONS. JOINTS SHALL BE SEALED WITH A MOISTURE BARRIER. INSTALLATION SHALL INCLUDE PROVISION FOR THERMAL EXPANSION.

SERVICE	TYPE	INSULATION THICKNESS	PIPE SIZES
DOMESTIC COLD WATER, DOMESTIC HOT WATER, UNDERSTIDE OF FLOOR DRAINS, WASTE AND STORM DRAIN PIPING ABOVE GRADE	A	1"	ALL PIPE SIZES

PIPE AND PIPE FITTINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. PROVIDE EQUIPMENT, MATERIALS, TOOLS, LABOR, AND SUPERVISION NECESSARY TO FURNISH, FABRICATE, AND INSTALL COMPLETE PIPING SYSTEM.

1.02 PRODUCT HANDLING

A. PROVIDE FACTORY-APPLIED PLASTIC END-CAPS ON EACH LENGTH OF PIPE AND TUBE. MAINTAIN END-CAPS THROUGH SHIPPING, STORAGE, AND HANDLING AS REQUIRED TO PREVENT PIPE-END DAMAGE AND ELIMINATE DIRT AND MOISTURE FROM INSIDE OF PIPE AND TUBE.

B. WHERE POSSIBLE, STORE PIPE AND TUBE INSIDE AND PROTECTED FROM WEATHER. WHERE NECESSARY TO STORE OUTSIDE, ELEVATE WELL ABOVE GRADE AND ENCLOSE WITH DURABLE, WATERPROOF WRAPPING.

C. PROTECT FLANGES AND FITTINGS FROM MOISTURE AND DIRT BY INSIDE STORAGE AND ENCLOSURE, OR BY PACKAGING WITH DURABLE, WATERPROOF WRAPPING.

1.03 SUBMITTALS

A. SUBMIT PIPING SCHEDULE LISTING EACH PIPE MATERIAL USED AND SYSTEMS SERVED.

B. SUBMIT SHOP DRAWINGS AT 1/4" PER FOOT SCALE INDICATING EXACT ROUTING AND ELEVATIONS FOR ALL PIPING SYSTEMS.

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

PLUMBING PLAN

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MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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PART 2 PRODUCTS

2.01 MATERIAL

A.	MATERIAL	SERVICE
1.	CAST IRON SOIL PIPE, SERVICE WEIGHT AND SPIGOT, ASTM A74.	
	a. ASPHALT COATED	SANITARY AND STORM SEWERS
	b. UNCOATED	ABOVE GROUND SOIL, WASTE, VENT, AND DOWNSPOUTS 3" DIAMETER AND OVER
2.	CAST IRON SOIL PIPE, SERVICE WEIGHT, NO HUB, CISPI 301.	ABOVE GROUND SANITARY AND STORM STORM SEWERS. SOIL, WASTE, VENT, AND DOWNSPOUTS AS PERMITTED BY CODE.
3.	COPPER WATER TUBE, HARD TEMPER, ASTM B88.	
	a. TYPE K	DOMESTIC WATER LINES UNDER BUILDING, CONCEALED IN SOLID CONCRETE OR MASONRY WALLS OR CONSTRUCTION, UNDERGROUND WATER SERVICE.
	b. TYPE L	ABOVE GROUND DOMESTIC WATER LINES.

B. FITTINGS

1. MATERIAL AND STRENGTH OF FITTINGS FOR CAST SEWER PIPES SHALL CONFORM TO PIPE AS PER ASTM STANDARDS.
2. COPPER WATER TUBE, CAST BRONZE OR WROUGHT COPPER, SOLDER JOINT TYPE. ANSI B16.18 AND B16.22.

B. JOINTS

1. CAST IRON BELL AND SPIGOT SOIL PIPE - PIPE MANUFACTURER'S STANDARD PREFORMED, PRESET PLASTIC OR RUBBER JOINT, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. CAST IRON NO-HUB PIPE - COUPLING ASSEMBLY TIGHTENED BY TORQUE WRENCH.
a. ASTM C-564, ONE PIECE NEOPRENE COMPRESSION GASKET, CISPI 310, TYPE 304, 18-8 CHROMIUM NICKEL STAINLESS STEEL SHIELD SECURED BY TWO OR MORE STAINLESS STEEL WORM DRIVE CLAMPS, FM APPROVED, OR ASTM C-564, ONE PIECE NEOPRENE COMPRESSION GASKET, COVERED BY ASTM-48 CAST IRON COUPLING AND SECURED BY 18-8 STAINLESS STEEL BOLTS AND NUTS.
b. MANUFACTURERS:
1) CLAMP ALL: HI-TORQ 80
2) MG COUPLING
3) ENGINEER APPROVED
EQUIVALENT

3. COPPER WATER TUBE - USE 95-5 TIN ANTIMONY OR SILVER SOLDER, CUT PIPE SQUARE, CLEAN AND POLISH TUBE ENDS AND INNER SURFACE OF FITTINGS, APPLY FLUX AND SOLDER JOINT AS RECOMMENDED BY MANUFACTURER OF SOLDER TYPE FITTINGS.

PART 3 EXECUTION

3.01 INSTALLATION

A. INSTALL PIPE FOR PLUMBING SYSTEMS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

B. ARRANGE AND INSTALL PIPING APPROXIMATELY AS INDICATED, STRAIGHT, PLUMB, AND AS DIRECT AS POSSIBLE, FORM RIGHT ANGLES ON PARALLEL LINES WITH BUILDING WALLS. KEEP PIPES CLOSE TO WALLS, PARTITIONS, AND CEILINGS, OFFSETTING ONLY WHERE NECESSARY TO FOLLOW WALLS AND AVOID INTERFERENCE WITH OTHER MECHANICAL ITEMS. LOCATE GROUPS OF PIPES PARALLEL TO EACH OTHER; SPACE AT A DISTANCE TO PERMIT APPLYING FULL INSULATION AND TO PERMIT ACCESS FOR SERVICING VALVES. PIPING TO BE RUN IN CONCEALED LOCATIONS UNLESS INDICATED EXPOSED.

C. INSTALL HORIZONTAL PIPING AS HIGH AS POSSIBLE WITHOUT SAGS OR HUMPS SO THAT PROPER GRADES CAN BE MAINTAINED FOR DRAINAGE. BRANCH PIPING SHALL COME OFF THE TOPS OF MAINS UNLESS SHOWN OTHERWISE.

D. LOCATE VALVES WITHIN REACHABLE DISTANCE FROM EQUIPMENT BEING SERVED FOR EASY ACCESS AND OPERATION. DO NOT LOCATE VALVES WITH STEMS BELOW HORIZONTAL.

E. CHECK PIPING FOR INTERFERENCE WITH OTHER TRADES; AVOID PLACING WATER PIPES OVER ELECTRICAL EQUIPMENT.

3.02 PIPING TESTS ALL SEWER, FIRE PROTECTION, AND DOMESTIC WATER SYSTEMS

A. PROVIDE LABOR, MATERIALS, FACILITIES, AND ADMINISTRATION REQUIRED TO TEST ALL PIPING SYSTEMS. TESTS WHICH FAIL TO MEET THE SPECIFIED PERFORMANCE SHALL BE RETESTED AT NO EXPENSE TO THE OWNER. REPAIR ALL DEFECTIVE INSTALLATION.

PIPE HANGERS AND SUPPORTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. PROVIDE EQUIPMENT, MATERIALS, LABOR AND SUPERVISION NECESSARY TO INSTALL PIPE HANGERS AND SUPPORTS.

B. PIPE SUPPORT SYSTEMS SHALL SECURE PIPES IN PLACE, PREVENT PIPE VIBRATION, PROVIDE VERTICAL ADJUSTMENT FOR MAINTAINING REQUIRED GRADES, AND PROVIDE FOR EXPANSION AND CONTRACTION.

C. WHERE SUPPORTS ARE ATTACHED TO CONCRETE OR OTHER STRUCTURAL MEMBERS, CARE SHALL BE TAKEN TO PREVENT DAMAGE OR WEAKENING OF THE STRUCTURAL MEMBERS.

D. WHERE CONCRETE INSERTS ARE TO BE USED, IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO ACCURATELY LOCATE AND ATTACH INSERTS TO CONCRETE FORMS.

1.01 REFERENCES
A. AMERICAN NATIONAL STANDARDS INSTITUTE, ANSI:
1. ANSI B31.1: POWER PIPING.
B. MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, MSS, 1815 NORTH FORT MYER DRIVE, ARLINGTON, VA 22209.
1. MSS-SP-58 MATERIALS STANDARDIZATION SOCIETY: PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN AND MANUFACTURER.
2. MSS SP-69 MATERIALS STANDARDIZATION SOCIETY: PIPE HANGERS AND SUPPORTS - SELECTION AND APPLICATION.

1.03 SUBMITTALS

A. SUBMIT MANUFACTURER'S PRODUCT DATA ON ALL HANGERS AND SUPPORT DEVICES. PRODUCT DATA TO INCLUDE, BUT NOT BE LIMITED TO MATERIALS, FINISHES, APPROVALS, LOAD RATINGS, AND DIMENSIONAL INFORMATION.

PART 2 PRODUCTS

2.01 HANGERS AND SUPPORTS

A. HANGERS AND SUPPORT DEVICES SHALL BE ANVIL INTERNATIONAL INC., TOLCO, FEE AND MASON, MICHIGAN, B-LINE OR APPROVED EQUIVALENT. FIGURE NUMBERS BASED ON ANVIL.

PART 3 EXECUTION

3.01 INSTALLATION - HORIZONTAL PIPE SUPPORTS

A. HANGER RODS FOR STEEL, WROUGHT IRON AND BRASS PIPE SHALL BE INSTALLED IN ACCORDANCE WITH MSS SP-69 TABLES 3 AND 4 AND THE FOLLOWING SCHEDULE:

PIPE SIZE	ROD DIAMETER	MAXIMUM SPACING
UP TO 1/4"	3/8"	7'-0"
1 1/2"	3/8"	9'-0"
2"	3/8"	10'-0"
2 1/2", 3", 3 1/2"	1/2"	10'-0"
4" AND 5"	5/8"	12'-0"

B. HANGER RODS FOR COPPER PIPE AND TUBE SHALL BE INSTALLED IN ACCORDANCE WITH MSS SP-69 TABLES 3 AND 4 AND THE FOLLOWING SCHEDULE:

PIPE SIZE	ROD DIAMETER	MAXIMUM SPACING
1/2" AND 3/4"	3/8"	5'-0"
1"	3/8"	6-0"

C. SUPPORT HORIZONTAL CAST IRON SOIL PIPE WITH TWO HANGERS FOR EACH PIPE LENGTH. LOCATE HANGERS CLOSE TO COUPLINGS.
D. IN ADDITION TO THE ABOVE SPECIFIED SPACINGS, INSTALL ADDITIONAL HANGERS AT CHANGE IN PIPE DIRECTION AND AT CONCENTRATED LOADS.
E. WHERE MORE THAN ONE PIPE IS TO BE RUN PARALLEL TOGETHER, THEY MAY BE SUPPORTED ON TRAPEZE TYPE HANGERS. TRAPEZE BAR ANGLES AND HANGER RODS SHALL BE OF SUFFICIENT SIZE TO SUPPORT THE PARTICULAR GROUP OF PIPES. TRAPEZE HANGER SPACING SHALL BE BASED ON THE SMALLEST PIPE ON THE RACK. WHEN HANGING FROM LIGHT GAUGE METAL TRUSSES, COORDINATE PIPE HANGER SPACING AND HANGER ROD CONNECTION POINTS WITH THE TRUSS MANUFACTURER.
F. FOR SUSPENDING HANGER RODS FROM BRACKETS ATTACHED TO WALLS, USE WELDED STEEL BRACKETS; FIG. 194 FOR LOADS UP TO 750 LBS; FIG. 195 FOR LOADS UP TO 1500 LBS; FIG 199 FOR LOADS UP TO 3000 LBS.
G. ATTACH ALL PIPE HANGERS FROM SUPPORT RODS USING DOUBLE LOCKNUTS TIGHTENED TO PREVENT LOOSENING.

3.02 INSTALLATION - VERTICAL PIPE SUPPORTS

A. SUPPORT VERTICAL PIPE AT EVERY FLOOR LINE.

B. IN ADDITION TO THE ABOVE, SUPPORT VERTICAL PIPES AT BASE OF RISER WITH BASE FITTING SET ON CONCRETE OR BRICK PIER, OR BY HANGER LOCATED ON HORIZONTAL CONNECTION CLOSE TO RISER.

3.03 PIPE ATTACHMENTS

A. FOR HORIZONTAL COPPER PIPE AND TUBE, USE COPPER-PLATED MALLEABLE IRON SPLIT PIPE RING WITH TURN BUCKLE ADJUSTER, FIGS. CT-109 AND 114 COMBINED.

B. WHEN THERMAL EXPANSION FOR HORIZONTAL PIPE IS IN EXCESS OF Φ"AXIALLY, USE ADJUSTABLE SWIVEL PIPE ROLL, FIG. 181, OR PIPE ROLL STAND, FIG. 177.

C. FOR HORIZONTAL CAST IRON SOIL PIPE, USE CLEVIS HANGER, FIG. 260.
D. FOR VERTICAL CAST IRON PIPE, USE EXTENSION PIPE CLAMPS, FIG. 261.

E. FOR VERTICAL COPPER PIPE AND TUBE, USE COPPER-PLATED EXTENSION PIPE CLAMP, FIG. CT-121 OR FIG CT-121C.

3.04 INTERMEDIATE ATTACHMENTS

A. HANGER RODS: USE CARBON STEEL SINGLE OR DOUBLE END THREADED, FIGS. 140 OR 253AS REQUIRED. CONTINUOUS THREADED ROD: FIG. 146 MAY BE USED WHEREVER POSSIBLE.

B. CHAIN WIRE OR PERFORATED STRAP HANGERS WILL NOT BE PERMITTED. ONE PIPE SHALL NOT BE SUSPENDED FROM ANOTHER PIPE.

3.05 STRUCTURAL ATTACHMENTS

A. FOR ATTACHING STEEL OR COPPER PLATED HANGER RODS TO REINFORCED CONCRETE, USE GALVANIZED MALLEABLE IRON CONCRETE INSERTS; FIG. 282 FOR LOADS UP TO 1140 LBS.

B. FOR ATTACHING STEEL HANGER RODS TO STRUCTURAL STEEL BEAMS, USE MALLEABLE IRON C-CLAMPS; FIG. 92, FIG. 93 OR FIG. 94 WITH RETAINING CLIP FIG 89 OR FIG. 89X; FIG. 218 WITH EXTENSION PIECE FOR LOADS UP TO 1,365 LBS. FOR COPPER PLATED HANGER RODS, USE COPPER PLATED MALLEABLE IRON C-CLAMPS; FIG. CT-138R FOR LOADS UP TO 180 LBS.

C. VERTICAL EXPANSION SHIELDS OR TOGGLES SHALL NOT BE USED FOR SUSPENDING HANGER RODS, EXCEPT WITH PERMISSION IN CASES WHERE INSERTS HAVE BEEN OMITTED OR CANNOT BE USED. IF PERMITTED, USE EXPANSION SHIELDS FOR ROD SIZES UP TO 1/2", 320 LBS. MAX. LOAD. FOR HANGER RODS LARGER THAN 1/2" USE ATTACHMENT PLATE, FIG. 52, WITH WEDGE ANCHORS.

D. POWDER ACTUATED ANCHORING METHODS SHALL NOT BE USED.

3.06 PIPE COVERING
PROTECTION

A. HANGERS AND SUPPORTS FOR INSULATED PIPING SHALL NOT INJURE OR PIERCE INSULATION. PROVIDE INSULATION PROTECTION SHIELDS IN CONJUNCTION WITH HANGER OR ROLL DEVICE. USE FIG. 160 THROUGH FIG 165, PROTECTION SADDLES.

3.07 SUPPLEMENTAL STEEL

A. PROVIDE SUPPLEMENTAL STEEL REQUIRED TO HANG OR SUPPORT MECHANICAL EQUIPMENT OR PIPING.

PIPE SLEEVES, ESCUTCHEONS, AND FIRE SAFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. PROVIDE MATERIALS, EQUIPMENT, LABOR, AND SUPERVISION NECESSARY TO INSTALL PIPE SLEEVES, ESCUTCHEONS, AND GUARDS AS REQUIRED BY THE DRAWINGS AND THIS SECTION.

1.02 SUBMITTALS

A. SUBMIT MANUFACTURER'S TECHNICAL PRODUCT DATA, ASSEMBLY-TYPE SHOP DRAWINGS, AND MAINTENANCE DATA.

B. SUBMIT FIRE STOP SHOP DRAWINGS SHOWING EACH CONDITION REQUIRING PENETRATION SEALS IN DICTATING PROPOSED UL SYSTEMS MATERIALS, ANCHORAGE, METHODS OF INSTALLATION, AND ACTUAL ADJACENT CONSTRUCTION.

C. SUBMIT A COPY OF UL ILLUSTRATION OF EACH PROPOSED FIRESTOP SYSTEM INDICATING MANUFACTURER APPROVED MODIFICATIONS.

PART 2 PRODUCTS

2.01 SLEEVES

A. SLEEVES PASSING THROUGH NONLOAD BEARING WALLS AND PARTITIONS SHALL BE GALVANIZED SHEET STEEL WITH LOCK SEAM JOINTS OF MINIMUM 20GAUGE.

B. SLEEVES PASSING THROUGH LOAD BEARING WALLS, CONCRETE BEAMS, FIREPROOF WALLS, FOUNDATIONS, FOOTINGS, AND WATERPROOF FLOORS SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE OR CAST IRON PIPE.

C. SLEEVES FOR INSULATED PIPING SHALL BE OF SUFFICIENT INTERNAL DIAMETER TO TAKE PIPE AND INSULATION AND TO ALLOW FOR FREE MOVEMENT OF PIPE.

D. SLEEVES PASSING THROUGH MEMBRANE WATERPROOFING OR ROOFING SHALL BE FLASHED AND SEALED.

2.02 PIPE ESCUTCHEONS

A. PROVIDE SHEET STEEL PIPE ESCUTCHEONS WITH INSIDE DIAMETER CLOSELY FITTING PIPE OUTSIDE DIAMETER, OR OUTSIDE OF PIPE INSULATION WHERE PIPE IS INSULATED. SELECT OUTSIDE DIAMETER OF ESCUTCHEON TO COMPLETELY COVER PIPE PENETRATION HOLE IN FLOORS, WALLS, OR CEILINGS; AND PIPE SLEEVE EXTENSIONS, IF ANY. FURNISH PIPE ESCUTCHEONS WITH CHROME FINISH FOR OCCUPIED AREAS, PRIME PAINT FINISH FOR UNOCCUPIED AREAS.

2.03 FIRE SAFING

A. METAL PIPING AND SLEEVES PASSING THROUGH FLOORS, ROOF, PARTITIONS AND FIRE WALLS, SHALL BE PROVIDED WITH FIRESTOP BY PACKING SPACE BETWEEN PIPE AND SLEEVE WITH UL LISTED NON-SAG AND SELF-LEVELING FIRE SAFING INSULATION PER MANUFACTURER'S INSTRUCTIONS.

B. CRACKS, VOIDS, OR HOLES UP TO 4" DIAMETER: USE NON-SAG OR SELF-LEVELING PUTTY OR CAULKING, ONE-PIECE INTUMESCENT ELASTOMER, NON-CORROSIVE TO METAL, COMPATIBLE WITH SYNTHETIC CABLE JACKETS, AND CAPABLE OF EXPANDING 10 TIMES WHEN EXPOSED TO FLAME OR HEAT, UL LISTED.

C. OPENINGS 4" OR GREATER: USE SEALING SYSTEM CAPABLE OF PASSING 3-HOUR FIRE TEST IN ACCORDANCE WITH ASTM E814, CONSISTING OF WALL WRAP OR LINER, PARTITIONS, AND END CAPS CAPABLE OF EXPANDING WHEN EXPOSED TO TEMPERATURES OF 250 TO 350°F, UL LISTED.

D. SEAL ALL HOLES OR VOIDS MADE BY PENETRATIONS TO ENSURE AN EFFECTIVE BARRIER AGAINST SMOKE, FIRE, TOXIC AND COMBUSTIBLE GASES.

E. MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE NON-SAG AND SELF-LEVELING FIRE BARRIER CAULK, WRAP/STRIP, MOLDABLE PUTTY AND SHEET FORMS OF ONE OF THE FOLLOWING:

1. 3M BRAND.
2. FLAME STOP.
3. DOW CORNING.
4. METACAULK.

PART 2 EXECUTION

2.01 SLEEVES

A. INSTALL SLEEVES FOR PIPING PASSING THROUGH FLOORS, ROOF, WALLS, CONCRETE BEAMS, AND FOUNDATIONS.

B. INSTALL FIREPROOFING PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

2.02 ESCUTCHEONS

A. INSTALL ESCUTCHEONS FOR PIPES ENTERING FINISHED SPACES.

2.03 PIPE PENETRATIONS

A. PENETRATIONS SHALL BE FREE OF DEBRIS AND DIRT. DAM THE PENETRATION (WHEN REQUIRED) WITH AN ACCEPTABLE MATERIAL. APPLY FIRESTOP MATERIAL TO THE PENETRATION PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. USE A CAULKING GUN, PUTTY KNIFE OR OTHER NORMAL TRADE TOOLS. REMOVE DAMMING MATERIALS WHERE NECESSARY AFTER CURE. CLEAN UP WITH XYLENE.

2.04 FIRE SAFING

A. INSTALL FIRE SAFING AT ALL PENETRATIONS THROUGH WALLS, FLOORS, ETC. PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AS REQUIRED TO MEET UL LISTING.

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VALVES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. PROVIDE EQUIPMENT, MATERIALS, LABOR, AND SUPERVISION NECESSARY TO INSTALL VALVES AS INDICATED ON DRAWINGS AND IN SCHEDULES, AND HEREIN SPECIFIED.

B. VALVES OF THE SAME TYPE SHALL BE OF A SINGLE MANUFACTURER. VALVES SHALL CONFORM TO ANSI STANDARD DIMENSIONS.

1.02 SUBMITTALS

A. SUBMIT DETAILED PRODUCT DATA CLEARLY INDICATING MANUFACTURER, MODEL, SIZE, DIMENSIONS AND PRESSURE RATING.

1.03 PACKAGING

A. VALVES SHALL BE FURNISHED OR PROVIDED WITH PROTECTIVE PACKAGING TO PREVENT DAMAGE DURING SHIPPING OR ON THE JOB SITE.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS MANUFACTURED BY ONE OF THE FOLLOWING, AS LISTED FOR EACH VALVE TYPE, OR ENGINEER-APPROVED EQUIVALENT.

VALVE TYPE	APPROVED MANUFACTURERS
BALL VALVES	JAMESBURY, APOLLO, JENKINS, MILWAUKEE, WATTS, WORCHESTER, POWELL, OR NIBCO

2.02 GENERAL

A. MATERIALS: DISCS, GASKETS, PACKINGS, SEATS, DIAPHRAGMS AND LUBRICANTS SHALL CONFORM TO RECOMMENDATIONS OF THE VALVE MANUFACTURER FOR THE INTENDED USE.

B. BODY MATERIALS SHALL BE BRONZE: 125-150 LBS., ASTM B62.

2.03 BALL VALVES

A. ASTM B584 BRONZE BODY, 2-PIECE, FULL PORT STAINLESS STEEL, BRASS, OR CHROME PLATED BRONZE BALL, SCREWED OR SOLDERED ENDS WITH TEFLON SEATS AND SEALS, BLOW OUT PROOF STEM, TEE OR LEVER HANDLE RATED TO 150 SWP/600WOG.

2.04 DRAIN VALVES (HOSE BIBBS)

A. SOLDERED OR THREADED ENDS: BRONZE BODY, SCREWED BONNET, RISING STEM, COMPOSITION DISC, 3/4 IN. THREADED HOSE OUTLET CONNECTION; 125 PSI, MAXIMUM PRESSURE RATING.

2.05 HANDWHEELS, OPERATORS, HANDLES, AND WRENCHES

A. PROVIDE SUITABLE HANDWHEELS FOR DRAIN VALVES.

PART 3 EXECUTION

3.01 VALVE LOCATIONS

GENERAL

A. UNLESS OTHERWISE NOTED, SHUTOFF VALVES SHALL BE PROVIDED AT ALL EQUIPMENT CONNECTIONS.

B. INSTALL ISOLATION VALVES AT EACH BRANCH OFF OF HORIZONTAL MAINS AND VERTICAL RISERS.

3.02 INSTALLATION INSTRUCTIONS

A. FOLLOW THE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS CONCERNING SOLDERING OR SILVER BRAZING VALVES IN ORDER TO PREVENT DAMAGE TO THE VALVE AND ASSURE ITS MAXIMUM EFFICIENCY. ADDITIONAL SPECIFIC INSTALLATION REQUIREMENTS ARE AS FOLLOWS:

1. BLOW OUT OR OTHERWISE THOROUGHLY CLEAN PIPE SECTIONS BEFORE THEY ARE INSTALLED.
2. CLOSE VALVE BEFORE INSTALLATION.
3. SECURE AND ADJUST VALVES FOR NO LEAKS AND FOR EASY OPERATION.
4. INSTALL VALVES WITH STEMS HORIZONTAL OR VERTICAL ABOVE THE PIPE AND SQUARE WITH BUILDING CONSTRUCTION.
5. INSTALL VALVES SO PIPING DOES NOT PLACE A STRESS OR STRAIN ON THE VALVE BODY.
6. INSTALL EXTENDED-STEM VALVES WHERE INSULATION IS INDICATED. STEMS SHALL BE EXTENDED SUCH THAT THE HANDLE MOVES FREELY WITHOUT CONTACT WITH THE INSULATION.
7. INSTALL DRAIN VALVES AT LOW POINTS OF PIPING.
8. LOCATE VALVES, COCK, AND HOSE BIBBS TO ALLOW EASY ACCESSIBILITY FOR OPERATION, MAINTENANCE AND REPAIR.

3.03 VALVE SCHEDULE

VALVE TYPE	APPROVED MANUFACTURERS
BALL - ALL SIZES	WATER FOR DOMESTIC COLD AND HOT WATER SYSTEMS; FOR OPERATION UP TO 200 PSI AT 500° F.
DRAIN	DOMESTIC WATER SYSTEMS

PUMPS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. PROVIDE MATERIALS, EQUIPMENT, LABOR AND SUPERVISION NECESSARY TO INSTALL PUMPS AS REQUIRED BY THE DRAWINGS AND THIS SECTION.

1.02 QUALIFICATIONS

A. SUMP PUMPS SHALL BE BY WEIL PUMP COMPANY, HYDRO-MATIC OR WEIMAN. MODEL NUMBERS AND ELECTRICAL CHARACTERISTICS AS SCHEDULED ON DRAWINGS.

1.03 PERFORMANCE AND TEST

A. PUMP CAPACITIES AND RATINGS SHALL BE AS SCHEDULED ON DRAWINGS.

B. PUMP PERFORMANCE AND MOTOR CHARACTERISTICS SHALL BE SUCH THAT MOTOR WILL NOT BE LOADED BEYOND ITS SERVICE FACTOR IF OPERATING HEAD IS REDUCED TO 40% OF SPECIFIED HEAD.

C. PUMPS SHALL BE FACTORY-TESTED AT SPECIFIED CONDITIONS.

1.04 SUBMITTALS

A. PRODUCT DATA: SUBMIT MANUFACTURER'S PUMP SPECIFICATIONS, INSTALLATION AND START-UP INSTRUCTIONS, AND CURRENT ACCURATE PUMP CHARACTERISTIC PERFORMANCE CURVES WITH SELECTION POINTS CLEARLY INDICATED.

B. SHOP DRAWINGS: SUBMIT MANUFACTURER'S ASSEMBLY-TYPE SHOP DRAWINGS INDICATING DIMENSIONS, WEIGHT LOADINGS, REQUIRED CLEARANCES, AND METHODS OF ASSEMBLY OF COMPONENTS.

C. WIRING DIAGRAMS: SUBMIT MANUFACTURER'S ELECTRICAL REQUIREMENTS FOR POWER SUPPLY WIRING TO HVAC PUMPS. SUBMIT MANUFACTURER'S LADDER-TYPE WIRING DIAGRAMS FOR INTERLOCK AND CONTROL WIRING. CLEARLY DIFFERENTIATE BETWEEN PORTIONS OF WIRING THAT ARE FACTORY-INSTALLED AND PORTIONS TO BE FIELD-INSTALLED.

2.02 PIPING MATERIALS

A. SEE SECTION "PIPES AND PIPE FITTINGS" FOR MATERIALS.

2.03 WATER METERS

A. CONSULT WITH UTILITY AS TO EXTENT OF WORK, COSTS, FEES AND PERMITS INVOLVED. PAY SUCH COSTS AND FEES; OBTAIN PERMITS.

B. INSTALL WATER METERS PER UTILITY REQUIREMENTS WITH SHUT-OFF VALVES UPSTREAM AND DOWNSTREAM OF EACH METER.

2.04 BACKFLOW PREVENTERS

A. BACKFLOW PREVENTION DEVICES SHALL BE DESIGNED AND TESTED FOR COMPLIANCE WITH USCFCC MANUAL FOR CROSS CONNECTION CONTROL, AND ASSE AND AWWA STANDARDS AS APPLICABLE TO BACKFLOW PREVENTION AND CROSS CONNECTION CONTROL.

B. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER

1. REDUCED PRESSURE-TYPE BACKFLOW PREVENTER SHALL CONSIST OF TWO INDEPENDENTLY OPERATING, SPRING LOADED CHECK VALVES SEPARATED BY AN INDEPENDENT DIFFERENTIAL PRESSURE RELIEF VALVE, WITH BALL VALVE TEST COCKS. PROVIDE NON-THREADED DRAIN CONNECTION WITH AIR GAP AND PIPE TO SERVICE SINK.
2. PROVIDE BALL VALVES FOR SHUT-OFF DUTY ON BOTH SIDES OF BACKFLOW PREVENTER, AND IN-LINE STRAINER ON UPSTREAM SIDE OF BACKFLOW PREVENTER.
3. MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTER MANUFACTURED BY ONE OF THE FOLLOWING, OR AN ENGINEER-APPROVED EQUIVALENT:
   a. FEBCO
   b. WATTS
   c. ZURN, WILKINS DIVISION

PART 3 EXECUTION

3.01 INSTALLATION

A. EXTEND COLD WATER AND HOT WATER PIPING TO EACH FIXTURE AND OTHER EQUIPMENT REQUIRING WATER SUPPLIES.

B. GENERALLY FOLLOW INDICATED LINES, EXACT LAYOUT TO BE MADE ON JOB FOR ALIGNMENT WITH SURROUNDING WORK AND SPACE FOR COVERING.

C. PITCH PIPES TO ACCESSIBLE DRAINAGE POINT WHERE UNIONS, PLUGGED TEES OR DRAINAGE VALVES SHALL BE PROVIDED.

D. WATER SUPPLY TO FIXTURES AND CONTAINERS SHALL BE SO INSTALLED AS TO PREVENT BACK SIPHONAGE OF POLLUTED WATER IN TO THE WATER SUPPLY. SUPPLIES SHALL BE EITHER ABOVE THE FLOOD RIM OF THE FIXTURE OR SEPARATED FROM THE DRAINAGE END BY MEANS OF APPROVED VACUUM BREAKERS.

E. PROVIDE VALVES AS SHOWN AND SPECIFIED HEREIN.

F. NO PIPE SHALL BE LOCATED IN AN OUTSIDE WALL OR OTHER LOCATION WHERE FREEZING IS LIKELY TO OCCUR, AND NO PIPE SHALL BE IN CONTACT WITH OR ATTACHED TO A STRUCTURAL MEMBER IN A MANNER THAT CAUSES THE TRANSMISSION OF NOISE TO THE STRUCTURE. BLOCK ENDS OF RUNS TO PREVENT MOVEMENT DUE TO WATER HAMMER.

G. CONSULT WITH UTILITY COMPANY FOR WATER METER REQUIREMENTS. PROVIDE SHUT-OFF VALVES UPSTREAM AND DOWNSTREAM OF METERS.

H. INSTALL APPROVED BACKFLOW PREVENTION DEVICES.

I. EXTEND RELIEF PIPING FROM BACKFLOW PREVENTION DEVICES TO SERVICE SINK.

J. AFTER SYSTEM TEST, FLUSHING, AND CHLORINATING, BACKFLOW PREVENTER SHALL BE DISASSEMBLED BY A CERTIFIED BACKFLOW SPECIALIST AND ALL DEBRIS SHALL BE CLEARED FROM THE VALVE, REASSEMBLED, AND TESTED TO VERIFY PROPER OPERATION. CERTIFICATION OF TESTING SHALL BE PROVIDED TO OWNER IN WRITING.

3.02 TESTING AND CLEANING

A. FLUSH OUT PIPING SYSTEM WITH CLEAN WATER BEFORE PROCEEDING WITH REQUIRED TESTS. INSPECT EACH RUN OF EACH SYSTEM FOR COMPLETION OF JOINTS, SUPPORTS AND ACCESSORY ITEMS.

B. HYDRAULICALLY PRESSURE TEST EACH SECTION OR SEGMENT OF THE SYSTEM PRIOR TO BACKFILLING, ENCASING, ENCLOSING OR OTHERWISE PREVENTING VISUAL OBSERVATION OF THE SECTION OR SEGMENT BEING TESTED. BACKFILL UNDERGROUND SYSTEMS, EXPOSING JOINTS ONLY, IS PERMITTED ON ALL SYSTEMS AND REQUIRED ON SYSTEMS HAVING A PRESSURE TEST EXCEEDING 100 PSIG.

C. WATER TEST POTABLE WATER SYSTEM AT 150% OF DESIGN PRESSURE (150 PSIG MIN) FOR A PERIOD OF 4 HOURS USING A GAUGE WITH A 0 PSI TO 200 PSI RANGE AND A MINIMUM OF 4Φ" DIAL.

D. DISINFECT: POTABLE WATER SYSTEM, OR PART THEREOF, SHALL BE FILLED WITH A SOLUTION CONTAINING 100 PPM OF AVAILABLE CHLORINE AND ALLOWED TO STAND 6 HOURS BEFORE FLUSHING AND RETURNING TO SERVICE.

E. TESTING SHALL BE DONE IN COMPLIANCE WITH THE UNIFORM PLUMBING CODE.

SANITARY WASTE AND VENT PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. PROVIDE EQUIPMENT, MATERIALS, LABOR, AND SUPERVISION NECESSARY TO INSTALL SOIL, WASTE, AND VENT SYSTEM.

1.02 CODES AND STANDARDS

A. CURRENT ISSUE OF BUILDING CODE.

B. CURRENT ISSUE LOCAL AND UNIFORM PLUMBING CODE.

1.03 SUBMITTALS

A. SUBMIT PRODUCT AND PERFORMANCE DATA FOR EQUIPMENT SPECIFIED HEREIN.

PART 2 PRODUCTS

2.01 VENTS

A. VENTS THROUGH THE ROOF SHALL BE CAST IRON AND SHALL EXTEND AT LEAST ABOVE THE HIGHEST POSSIBLE WATER LEVEL ON THE ROOF BUT IN NO CASE LESS THAN 12 INCHES.

B. PROVIDE A FLASHING OF 4 POUND SHEET LEAD FOR EACH VENT THROUGH THE ROOF. THE FLASHING SHALL EXTEND UP AROUND THE PIPE AND TURN DOWN INTO IT AT LEAST 2 IN. AND SHALL EXTEND OVER THE ROOF DECK AT LEAST 1 FT. IN EACH DIRECTION FROM THE BASE.

C. COORDINATE FLASHING OF VENTS THROUGH THE ROOF WITH GENERAL CONTRACTOR.

D. WHERE VENTS THROUGH THE ROOF ARE SUBJECT TO FROST OR SNOW CLOSURE THE VENT TERMINATION SHALL BE INCREASED BEGINNING AT LEAST 12 IN. UNDER THE ROOF WITH A CAST IRON LONG INCREASER. SIZE INCREASERS AS FOLLOWS:

VENT SIZE	INCREASE TO
1 1/4" AND 1 1/2"	3" MINIMUM
2" AND 2 1/2"	4" MINIMUM
3"	5"
4"	6"

2.02 FLOOR DRAINS

A. FLOOR DRAINS SHALL BE BY JOSAM, J.R. SMITH, WADE, ZURN, OR AS SCHEDULED ON THE DRAWINGS.

B. DRAINS WITHOUT INTEGRAL TRAPS SHALL HAVE SERVICE WEIGHT CAST IRON P TRAPS.

C. PROVIDE SEEPAGE PANS OF FOUR POUND SHEET LEAD OR CHLORALOY 240 PLASTIC AT LEAST 3'-0" SQUARE FOR ALL FLOOR DRAINS OVER OPEN SPACE. LEAD, IF USED, SHALL BE THOROUGHLY COATED WITH ASPHALTUM BEFORE IT IS PLACED IN CONTACT WITH CONCRETE OR CONCRETE FILL IS POURED OVER IT.

D. FLASHING CLAMPS AND AUXILIARY DRAINAGE RIMS SHALL BE PROVIDED FOR ALL DRAINS THAT ARE TO RECEIVE SEEPAGE PANS.

E. PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS AND ON OTHER DRAINS AS SHOWN ON DRAWINGS.

2.03 CLEANOUTS

A. IN FLOORS - CAST IRON CAULKING FERRULE FOR SOIL PIPE HUB WITH BRASS COUNTERSUNK PLUG AND CAST BRASS ROUND FLUSH ACCESS COVER WITH POLISHED TOP.

B. IN WALLS - CAST BRASS RAISED HEAD PLUG AND CAST BRASS ROUND COVER PLATE WITH POLISHED TOP AND COUNTERSUNK BRASS COVER SCREW. PROVIDE WITH CAULKING FERRULE WHERE INSTALLED IN CAST IRON SOIL PIPE.

PART 3 EXECUTION

3.01 INSTALLATION

A. INSTALL UNDERGROUND BUILDING DRAINS AS SHOWN AND IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE. LAY UNDERGROUND BUILDING DRAINS BEGINNING AT LOW POINT OF SYSTEMS, TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. PLACE BELL ENDS OF PIPING FACING UPSTREAM. INSTALL REQUIRED GASKETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR USE OF LUBRICANTS, CEMENTS, AND OTHER SPECIAL INSTALLATION REQUIREMENTS. CLEAN INTERIOR OF PIPING OF DIRT AND OTHER SUPERFLUOUS MATERIAL AS WORK PROGRESSES. MAINTAIN SWAB OR DRAG IN LINE AND PULL PAST EACH JOINT AS IT IS COMPLETED. PLACE PLUGS IN ENDS OF UNCOMPLETED PIPING AT END OF DAY OR WHENEVER WORK STOPS.

B. FOLLOW INDICATED LINES GENERALLY, BUT MAKE EXACT LAYOUT ON THE JOB TO WORK ACTUAL FITTING DIMENSIONS, ALIGN PIPING, AND AVOID INTERFERENCE. PROVIDE PROPER SUPPORT TO MAINTAIN UNIFORM FALL OF 1/4 IN. PER FT. FOR LINES 3 IN. AND SMALLER AND 1/8 IN. PER FT. FOR LINES LARGER THAN 3 INCHES. PROTECT OPENINGS AGAINST THE ENTRANCE OF DIRT.

C. NO SOIL OR WASTE PIPE SHALL BE COVERED BY EARTH OR CONSTRUCTION WITHOUT FIRST BEING PROVED FREE OF LEAKS BY A HYDROSTATIC TEST OF AT LEAST 15-FT. HEAD, WITNESSED BY OWNER*S REPRESENTATIVE.

D. PROVIDE A CLEANOUT AT THE BASE OF EACH STACK, NEAR THE END OF EACH BRANCH 10'-0" OR MORE IN LENGTH, WHERE THE SEWER LEAVES THE BUILDING AND AT OTHER POINTS WHERE REQUIRED BY CODE AND GOOD PRACTICE. CLEANOUT SPACING SHALL NOT EXCEED 50'-0" ON LONG RUNS. CLEANOUTS SHALL BE SAME SIZE AS PIPE. CLEANOUTS FOR CONCEALED PIPES SHALL BE SET FLUSH WITH FLOOR AND WALL SURFACES.

E. INSTALL VENTS IN PRACTICAL ALIGNMENT AND SUPPORTED WITH CONSTANT PITCH BACK TO THE DRAINAGE SYSTEM, CONCEALED FROM FINISHED SPACES, UNLESS SHOWN OR DIRECTED OTHERWISE.

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

PLUMBING PLAN

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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F. VERIFY EXACT FINISH FLOOR LEVELS AND SET FLOOR DRAIN TOP RIMS AND CLEANOUT COVERS ACCURATELY TO PROPER LEVEL. ALLOW FOR PROPER SLOPE TOWARD DRAINS.

3.02 TESTING AND CLEANING

A. FLUSH OUT PIPING SYSTEM WITH CLEAN WATER BEFORE PROCEEDING WITH REQUIRED TESTS. INSPECT EACH RUN OF EACH SYSTEM FOR COMPLETION OF JOINTS, SUPPORTS AND ACCESSORY ITEMS.

B. HYDRAULICALLY PRESSURE TEST EACH SECTION OR SEGMENT OF THE SYSTEM PRIOR TO BACKFILLING, ENCASING, ENCLOSING OR OTHERWISE PREVENTING VISUAL OBSERVATION OF THE SECTION OR SEGMENT BEING TESTED.

C. WATER TEST SOIL, WASTE AND VENT SYSTEM AT 10 FEET OF HEAD FOR 4 HOURS. TEST STANDPIPE TO BE A MINIMUM OF 10 FEET ABOVE THE HIGHEST POINT OF SECTION BEING TESTED.

D. TESTING SHALL BE DONE IN COMPLIANCE WITH THE UNIFORM PLUMBING CODE.

STORM DRAINAGE PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. PROVIDE MATERIALS, EQUIPMENT, LABOR, AND SUPERVISION NECESSARY TO INSTALL STORM SYSTEM AS REQUIRED BY THE DRAWINGS AND THIS SECTION.

1.02 SUBMITTALS

A. SUBMIT PRODUCT AND PERFORMANCE DATA FOR EQUIPMENT SPECIFIED HERE IN.

PART 2 PRODUCTS

2.01 DOWNSPOUT NOZZLES

A. DOWNSPOUT NOZZLES SHALL BE TYPE AND MODEL NUMBER AS SCHEDULED ON DRAWINGS AND FURNISHED BY THIS CONTRACTOR. ACCEPTABLE MANUFACTURERS, JOSAM, WADE, SMITH OR ZURN.

B. INTERIOR DOWNSPOUTS SHALL BE LOCATED AS INDICATED ON THE PLANS, CONCEALED.

C. TEST ALL DOWNSPOUTS AS OUTLINED IN THE UNIFORM PLUMBING CODE, LATEST EDITION, OR THE EDITION ADOPTED BY THE LOCAL CODE AUTHORITIES.

PART 3 EXECUTION

3.01 INSTALLATION OF STORM WATER PIPING

A. INSTALL STORM BUILDING DRAINS AS INDICATED AND IN ACCORDANCE WITH UNIFORM PLUMBING CODE.

B. INSTALL HORIZONTAL PIPING AS HIGH AS POSSIBLE WITHOUT SAGS OR HUMPS. GRADE DRAINAGE AT UNIFORM SLOPES OF 1/4 IN. PER FT.

3.02 TESTING AND CLEANING

A. FLUSH OUT PIPING SYSTEM
WITH CLEAN WATER BEFORE PROCEEDING WITH REQUIRED TESTS. INSPECT EACH RUN OF EACH SYSTEM FOR COMPLETION OF JOINTS, SUPPORTS AND ACCESSORY ITEMS.

B. HYDRAULICALLY PRESSURE TEST EACH SECTION OR SEGMENT OF THE SYSTEM PRIOR TO ENCASING, ENCLOSING, OR OTHERWISE PREVENTING VISUAL OBSERVATION OF THE SECTION OR SEGMENT BEING TESTED.

C. WATER TEST STORM WATER SYSTEM AT 10 FT. OF HEAD FOR 4 HOURS. TEST STANDPIPE TO BE A MINIMUM OF 10 FEET ABOVE THE HIGHEST POINT OF SECTION BEING TESTED.

D. TESTING SHALL BE DONE IN COMPLIANCE WITH THE UNIFORM PLUMBING CODE.

PLUMBING FIXTURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. PROVIDE FIXTURES, TRIM, ACCESSORIES, LABOR, AND SUPERVISION NECESSARY TO FURNISH AND INSTALL PLUMBING FIXTURES AS REQUIRED BY THE DRAWINGS AND THIS SECTION.

1.02 FIXTURE SCHEDULE

A. FIXTURES, TRIM, AND ACCESSORIES SHALL BE OF TYPE AND MODEL NUMBERS AS SCHEDULED ON THE DRAWINGS.

1.03 SUBMITTALS

A. SUBMIT PRODUCT DATA WHICH SHALL INCLUDE PRODUCT DESCRIPTION, MANUFACTURER, MODEL, DIMENSIONS, SIZE, ROUGH-IN REQUIREMENTS, CONNECTIONS TO OTHER EQUIPMENT, CONSTRUCTION MATERIALS AND FINISHES, TRIM, ACCESSORY SCHEDULE, AND PERFORMANCE DATA FOR EACH TYPE OF FIXTURE.

1.04 QUALITY ASSURANCE

A. CODES AND STANDARDS:

1. PLUMBING FIXTURE STANDARDS: COMPLY WITH APPLICABLE PORTIONS OF THE UNIFORM PLUMBING CODE PERTAINING TO MATERIALS AND INSTALLATION OF PLUMBING FIXTURES.

PART 2 PRODUCTS AND QUALIFICATIONS

2.01 MANUFACTURERS

A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS MANUFACTURED BY ONE OF THE FOLLOWING, AS LISTED FOR EACH TYPE OF FIXTURE, OR AN ENGINEER-APPROVED EQUIVALENT:

1. TRIM
   a. CHICAGO FAUCET
   b. T & S BRASS WORKS

2. JANITOR SINKS
   a. STERN-WILLIAMS
   b. POWERS-FIAT
   c. SWAN

2.02 TRIM

A. TRIM SHALL INCLUDE: SUPPLY PIPES, STOP VALVES, FAUCETS, TAIL PIECES, STRAINERS, WASTES, TRAPS, AND FLOOR AND WALL ESCUTCHEON PLATES WHICH SHALL BE BRASS. EXPOSED TRIM SHALL BE CHROME-PLATED.

B. STOP VALVES SHALL BE COMPRESSION TYPE WITH WHEEL HANDLE CONTROL.

PART 3 EXECUTION

3.01 INSPECTION

A. EXAMINE ROUGHING-IN WORK OF POTABLE WATER AND WASTE PIPING SYSTEMS TO VERIFY ACTUAL LOCATIONS OF PIPING CONNECTIONS PRIOR TO INSTALLING FIXTURES. ALSO EXAMINE FLOORS AND SUBSTRATES, AND CONDITIONS UNDER WHICH FIXTURE WORK IS TO BE ACCOMPLISHED. CORRECT ANY INCORRECT LOCATIONS OF PIPING, AND OTHER UNSATISFACTORY CONDITIONS FOR INSTALLATION OF PLUMBING FIXTURES. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN MANNER ACCEPTABLE TO INSTALLER.

3.02 INSTALLATION

A. GENERAL: INSTALL PLUMBING FIXTURES OF TYPES INDICATED WHERE SHOWN AND AT INDICATED HEIGHTS; IN ACCORDANCE WITH FIXTURE MANUFACTURER'S WRITTEN INSTRUCTIONS, ROUGHING-IN DRAWINGS, AND WITH RECOGNIZED INDUSTRY PRACTICES. ENSURE THAT PLUMBING FIXTURES COMPLY WITH REQUIREMENTS OF THE UNIFORM PLUMBING CODE PERTAINING TO INSTALLATION OF PLUMBING FIXTURES.

B. INSTALL FIXTURES AND MAKE WATER SUPPLY, WASTE, AND VENT CONNECTIONS AS INDICATED ON DRAWINGS.

C. SETTING SHALL BE ABSOLUTELY TIGHT AND RIGID ON PROPER GROUND. ALL FIXTURES SHALL BE SEALED TO STRUCTURES (WALLS, FLOORS, ETC.) WITH NON-MILDEW SILICONE CAULK.

D. FIXTURES SHALL BE COVERED WITH PAPER GLUED IN PLACE AFTER THEY ARE SET TO PREVENT DAMAGE DURING THE BALANCE OF CONSTRUCTION, AT THE CONCLUSION OF WORK THE PAPER SHALL BE REMOVED AND THE FIXTURES PROPERLY CLEANED.

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE FIXTURES UNTIL ACCEPTANCE BY THE OWNER. DAMAGED FIXTURES SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

3.03 FIELD QUALITY CONTROL

A. UPON COMPLETION OF INSTALLATION OF PLUMBING FIXTURES AND AFTER UNITS ARE WATER PRESSURIZED, TEST FIXTURES TO DEMONSTRATE CAPABILITY AND COMPLIANCE WITH REQUIREMENTS. WHEN POSSIBLE, CORRECT MALFUNCTIONING UNITS AT THE SITE, THEN RETEST TO DEMONSTRATE COMPLIANCE; OTHERWISE, REMOVE AND REPLACE WITH NEW UNITS AND PROCEED WITH RETESTING.

B. INSPECT EACH INSTALLED UNIT FOR DAMAGE TO FINISH. IF FEASIBLE, RESTORE AND MATCH FINISH TO ORIGINAL AT SITE; OTHERWISE, REMOVE FIXTURE AND REPLACE WITH NEW UNIT. FEASIBILITY AND MATCH TO BE JUDGED BY OWNER*S REPRESENTATIVE. REMOVE CRACKED OR DENTED UNITS AND REPLACE WITH NEW UNITS.

3.04ADJUSTING AND CLEANING

A.CLEAN PLUMBING FIXTURES, TRIM, AND STRAINERS OF DIRT AND DEBRIS UPON COMPLETION OF INSTALLATION.

B.ADJUST WATER PRESSURE AT FAUCETS TO PROVIDE PROPER FLOW STREAM AND SPECIFIED GPM.

C.ADJUST OR REPLACE WASHERS TO PREVENT LEAKS AT FAUCETS AND STOPS.
DOMESTIC WATER HEATERS

PART 1GENERAL

1.01SECTION INCLUDES

A.FURNISH EQUIPMENT, MATERIALS, TOOLS, LABOR, AND SUPERVISION NECESSARY TO INSTALL DOMESTIC WATER HEATERS AS REQUIRED BY THE DRAWINGS AND THIS SECTION.

1.02QUALIFICATIONS

A.UNITS SHALL BE BY STEIBEL ELTRON OR ENGINEER-APPROVED EQUIVALENT.

1.03SUBMITTALS

A.SUBMIT PRODUCT AND PERFORMANCE DATA.

PART 2PRODUCTS

2.01POINT OF USE WATER HEATERS

A.WATER HEATERS SHALL BE AS SCHEDULED ON DRAWINGS.

PART 3EXECUTION

3.01INSTALLATION

A.INSTALL HEATER AND MAKE HOT AND COLD WATER CONNECTIONS.

END OF PLUMBING SPECIFICATIONS

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DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

PLUMBING PLAN

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF xx FILE NO. 31152 DESIGN NO. 120

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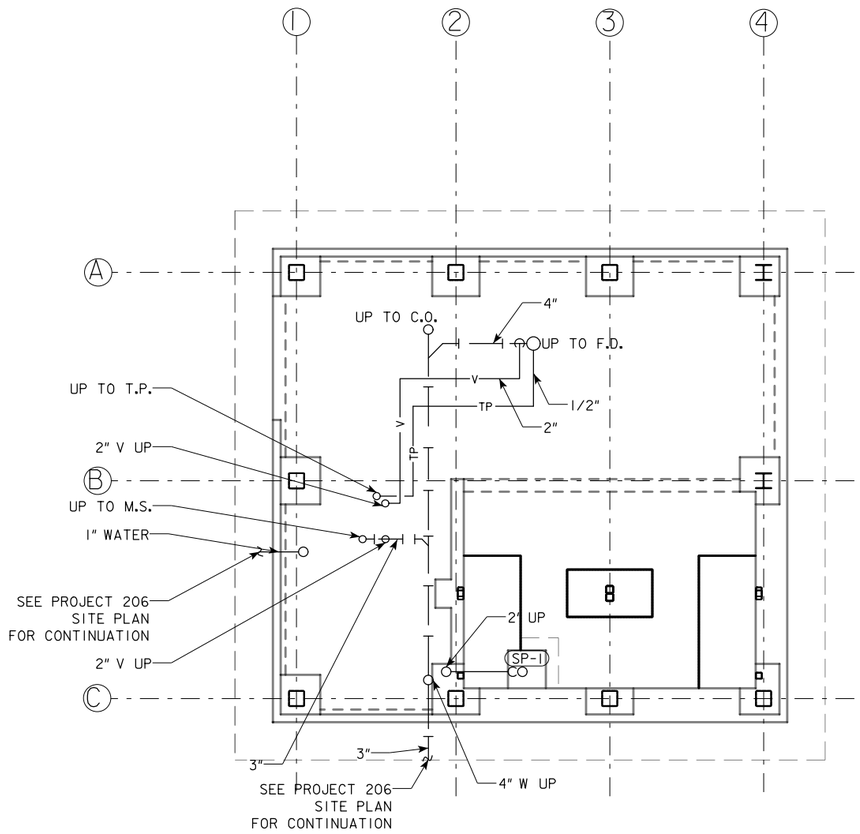

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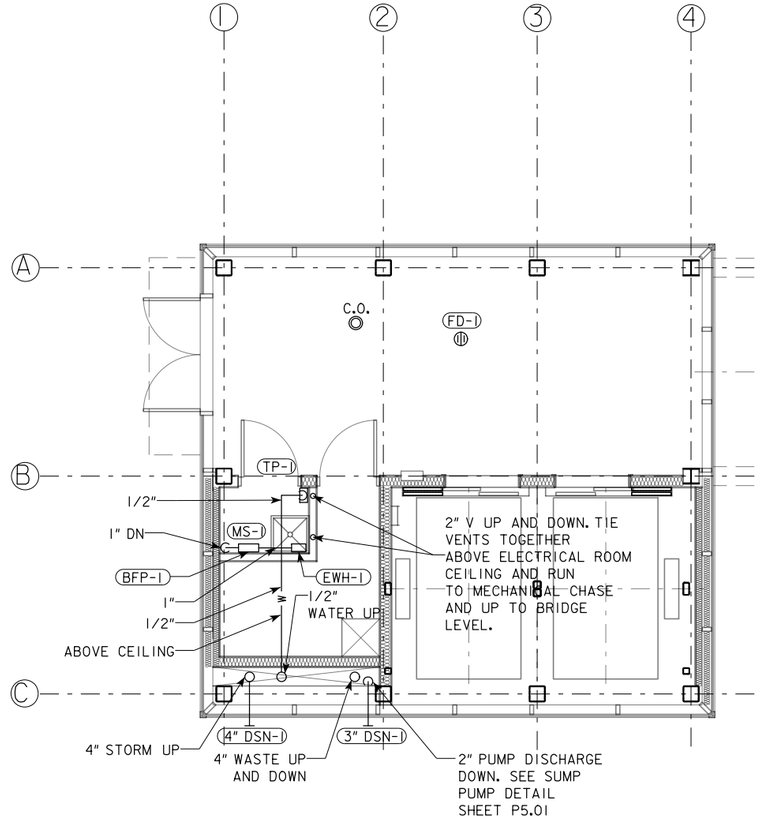
BELOW GRADE PLUMBING PLAN

SCALE: 1/4" = 1'-0"



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GROUND LEVEL PLUMBING PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTE

1. PIPING IS SHOWN IN SCHEMATIC FORM. NOT ALL RISERS, DROPS, OFFSETS, ETC., ARE SHOWN. PROVIDE RISERS, DROPS, OFFSETS, ETC., AND MAKE FINAL CONNECTIONS AS REQUIRED TO MEET SPACE REQUIREMENTS AND TO AVOID INTERFERENCE WITH OTHER TRADES. COORDINATE WITH GENERAL CONTRACTORS AND OTHER TRADES.

2. ALL ABOVE GRADE WATER, STORM WASTE PIPING, FLOOR DRAIN BODIES, AND TRAPS SHALL BE HEAT-TRACED AND INSULATED.

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DESIGN SHEET NO. ____ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER P1.01

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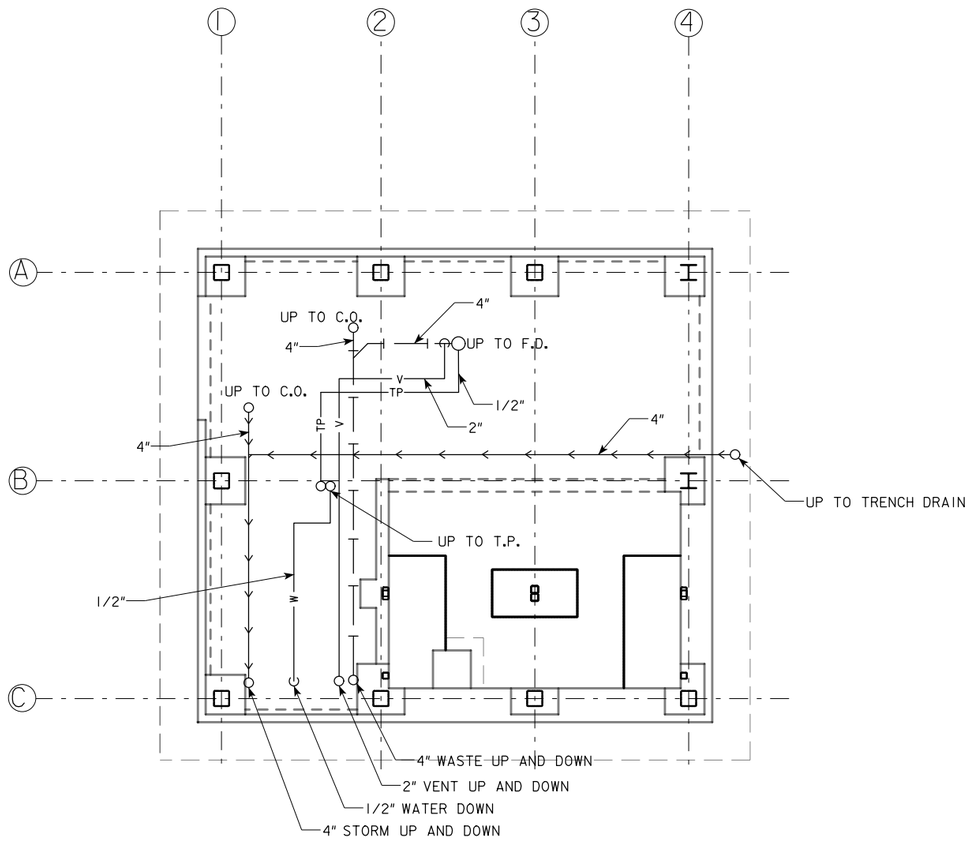
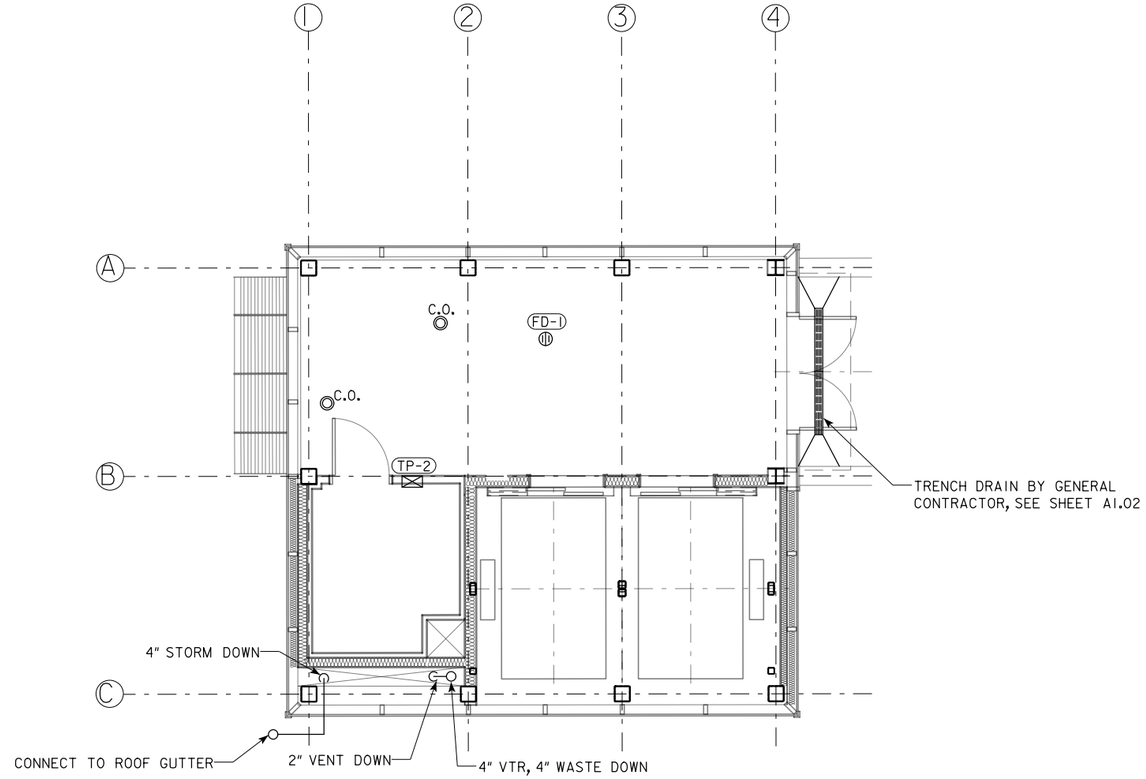


BELOW BRIDGE LEVEL PLUMBING PLAN

SCALE: 1/4" = 1'-0"



BRIDGE LEVEL PLUMBING PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTE

1. PIPING IS SHOWN IN SCHEMATIC FORM. NOT ALL RISERS, DROPS, OFFSETS, ETC., ARE SHOWN. PROVIDE RISERS, DROPS, OFFSETS, ETC., AND MAKE FINAL CONNECTIONS AS REQUIRED TO MEET SPACE REQUIREMENTS AND TO AVOID INTERFERENCE WITH OTHER TRADES. COORDINATE WITH GENERAL CONTRACTORS AND OTHER TRADES.

2. ALL ABOVE GRADE WATER, WASTE PIPING, FLOOR DRAIN BODIES, AND TRAPS SHALL BE HEAT-TRACED AND INSULATED.

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DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER P1.02

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PLUMBING FIXTURE SCHEDULE

MOP SINK

MS-1 — STERN-WILLIAMS "SERVICEPTOR", SB-900, 24"x24"x12", WITH STAINLESS STEEL CAP AND SPLASH PANELS AS DICTATED BY WALLS, INTEGRAL CAST BRASS DRAIN WITH STAINLESS STEEL STRAINER, T-35 HOSE AND BRACKET, T-40 MOP HANGER. CHICAGO FAUCETS 835-RCF WALL MOUNTED FAUCET WITH 3" CRDSS 369 INDEXED LEVER HANDLES AND VACUUM BREAKER. DEEP SEAL CAST IRON TRAP.

FLOOR DRAINS

FD-1 — ZURN Z415C-P-UP 6" DIAMETER,VANDAL PROOF NICKEL BRONZE TOP, CAST IRON BODY WITH BOTTOM OUTLET. LIGHT DUTY STRAINER, TRAP PRIMER CONNECTION. ADJUSTABLE COLLAR WITH SEEPAGE SLOTS. SEE PLANS FOR SIZES. INSTALL P-TRAP.

ELECTRIC WATER HEATER

EWH-1 — STEIBEL ELTRON DHC-E 12, 208 V, 9.0 KW, 61°F TEMPERATURE RISE AT 1.0 GPM FLOW RATE. THREE COPPER SHEATHED HEATING ELEMENTS, FLOW SENSOR, TEMPERATURE ADJUSTMENT KNOB TO ADJUST OUTPUT TEMPERATURE BETWEEN 86°F AND 140°F.

BACK FLOW PREVENTER

BFP-1 — WATTS 909QT-S WITH AIR GAP FITTING. REDUCED PRESSURE BONE ASSEMBLY WITH QUARTER TURN VALVES ON INLET AND OUTLET AND STRAINER ON UPSTREAM OF INLET VALVE. PIPE AIR GAP FITTING TO DRAIN INTO CORNER OF MOP SINK.

TRAP PRIMER

TP-1 — PRECISION PLUMBING PRODUCTS PPP MPB-500-115 V WITH NEMA 1 BOX. ELECTRONIC FLOOR DRAIN MINI TRAP PRIMER WITH SUBMINIATURE SOLENOID VALVE, AIR GAP, AND ELECTRICAL CONTROLLER. SURFACE MOUNT.

TP-2 — SAME AS TP-1, PLUS PROVIDE LOCKABLE FRONT BOX FOR RECESSED MOUNTING. BOX SHALL HAVE CONTINUOUS PIANO HINGE ON ONE SIDE, AND KEYED LOCK WITH TWO SETS OF KEYS.

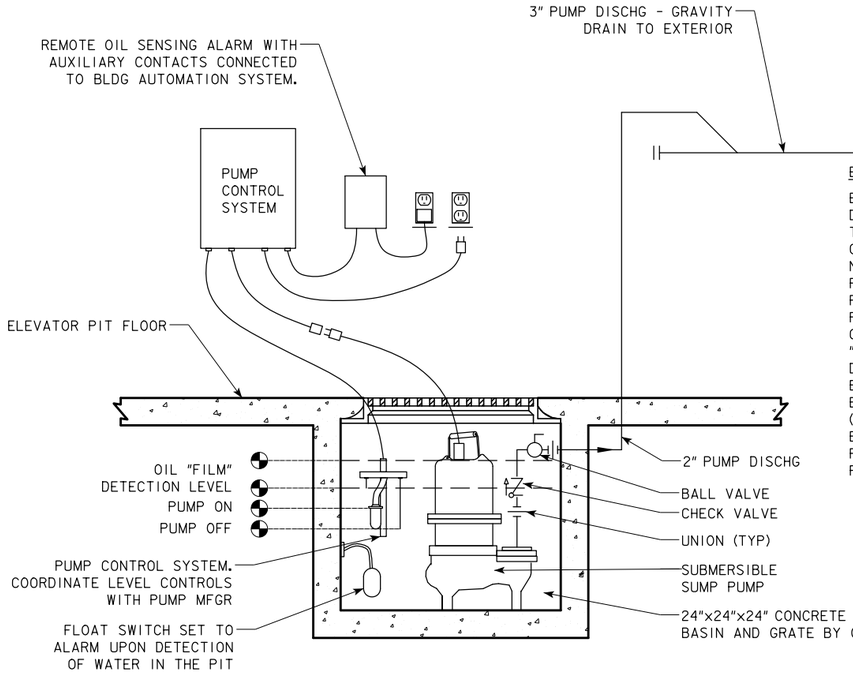
DOWN SPOUT NOZZLE

DSN-1 — ZURN Z199, ALL NICKEL BRONZE BODY. PROVIDE REMOVABLE STAINLESS SCREEN FOR ELEVATOR SUMP SERVICE. SEE PLAN FOR SIZES

GENERAL NOTE:
1. MANUFACTURERS AND MODEL NUMBERS LISTED ARE BASIS OF DESIGN. OTHERS MAY BE SUBMITTED PRIOR TO BID OPENING FOR A/E APPROVAL.

SUMP PUMP SCHEDULE

PLAN MARK	AREA SERVED	CAPACITY (GPM)	HEAD (FT H_2O)	MOTOR DATA				BASIN	DESIGN BASIS	REMARKS
				HP	VOLTS	ϕ	RPM			
SP-1	ELEVATOR	50	22	1/2	120	1	.	BY GC	HYDROMATIC MODEL SHEF45	PROVIDE HYDROMATIC ODS SERIES ELEVATOR PUMP CONTROL SYSTEM



ELEVATOR SUMP PUMP

EXTEND 3" SUMP PUMP DISCHARGE TO EXTERIOR. TERMINATE AT +16" ABOVE GRADE WITH 3" DOWNSPOUT NOZZLE (ZURN Z199 OR EQUAL). PROVIDE RODENT SCREEN @ PIPING OPENING. PROVIDE PLACARD AT DISCHARGE CONNECTION INDICATING "ELEVATOR SUMP PUMP DISCHARGE". PROVIDE SPLASH BLOCK AT DISCHARGE. SPLASH BLOCK: MODERN PRECAST INC. (866)466-1374, 30"X12", COLOR TO BE SELECTED BY ARCHITECT FROM MANUFACTURERS FULL RANGE.

ELEVATOR SIMPLEX SUMP PUMP DETAIL

SHIVEHATTERY
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Iowa | Illinois | Indiana | Missouri
http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

PLUMBING

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF xx FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM DLH/MAR/DLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER P5.01

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GENERAL ELECTRICAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC. ALL DIMENSIONS SHOWN ARE APPROXIMATE. ALL LOCATIONS SHALL BE FIELD VERIFIED.

2. ALL WORK SHALL BE IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE - LATEST EDITION ADOPTED BY IOWA, THE IOWA AMENDMENTS, LOCAL/MUNICIPAL CODES, AND THE AUTHORITY HAVING JURISDICTION.

3. IT IS THE INTENT OF THESE DOCUMENTS TO COMPLY WITH THE APPLICABLE CODES. WHERE DISCREPANCIES OCCUR, NOTIFY THE ENGINEER IN WRITING FOR INTERPRETATION. CORRECT ANY INSTALLATION THAT FAILS TO COMPLY WITH THE CODES AND STANDARDS AT NO ADDITIONAL COST TO THE OWNER.

4. CONTRACTOR SHALL PROVIDE ALL WORK NECESSARY INCLUDING ALL LABOR, MATERIALS, PERMITS, TAXES, FEES, INSPECTIONS, HARDWARE, AND COST FOR INSTALLATION FOR A COMPLETE AND OPERATIONAL SYSTEM. ALL WORK SHALL BE IN COMPLIANCE WITH LOCAL CODES, ORDINANCES RULES, AND PUBLIC AUTHORITIES WHICH HAVE JURISDICTION OF THE PERFORMANCE OF THIS WORK.

5. COORDINATE ELECTRICAL INSTALLATION WITH ALL TRADES PRIOR TO INSTALLATION. IF ELECTRICAL WORK INSTALLED INTERFERES WITH OTHER TRADES AFTER INSTALLATION, THE CONTRACTOR SHALL MAKE ALL NECESSARY CHANGES TO CORRECT THE CONDITION AT NO ADDITIONAL COST TO THE OWNER.

6. FURNISH AND INSTALL METERING PER THE LOCAL UTILITY REQUIREMENTS. CONTRACTOR SHALL INCLUDE IN THEIR BID, ALL COST ASSOCIATED WITH PROVIDING UTILITY SERVICE. PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.

7. DATA AND TELEPHONE JUNCTION BOXES SHOWN ON DRAWINGS ARE DIAGRAMMATIC. COORDINATE EXACT PLACEMENT OF ALL DEVICES WITH ENGINEER PRIOR TO INSTALLATION. ANY EXPOSED DATA WIRES SHALL BE RUN WITH PLENUM RATED CABLES ONLY.

8. COORDINATE THE FINAL HEIGHT OF ALL EQUIPMENT WITH THE ENGINEER PRIOR TO INSTALLATION. VERIFY DOOR SWING PRIOR TO INSTALLATION OF ALL SWITCH BOXES. RELOCATION OF ANY JUNCTION BOX TO AN ADJACENT LOCATION PRIOR TO INSTALLATION, SHALL BE DONE WITH NO ADDITIONAL COST TO THE OWNER.

9. ALL CONNECTIONS TO EQUIPMENT SUBJECT TO MOVEMENT OR VIBRATION SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT, NOT LESS THAN 12" IN LENGTH, NOR GRATER THAN 36" IN LENGTH.

10. ALL CONDUIT PENETRATIONS SHALL BE SEALED WITH APPROPRIATE CONDUIT SEALING MATERIAL.

11. ALL CABLE SHALL UTILIZE COPPER CONDUCTORS, THHN/THWN-2 INSULATION.

12. EACH SINGLE PHASE BRANCH CIRCUIT CONDUCTOR SHALL HAVE A DEDICATED NEUTRAL BACK TO THE PANELBOARD.

13. DISCONNECT SWITCH RATINGS SHALL BE AS INDICATED ON THE DRAWINGS.

14. PROVIDE ALL FUSES. PROVIDE A TYPED LABEL INSIDE FUSED DISCONNECTS PROVIDING ALL REPLACEMENT FUSE INFORMATION.

15. MAJOR FEEDERS FROM THE SWITCHBOARD TO PANELBOARDS, TRANSFORMERS, MOTORS AND OTHER LARGE EQUIPMENT ARE NOT SHOWN ON THE PLAN DRAWINGS. THESE FEEDERS ARE INCLUDED WITHIN THE SCOPE OF THE ELECTRICAL WORK, AND SHALL BE INSTALLED AS INDICATED ON THE ONE-LINE DIAGRAM DRAWINGS.

16. ALL POWER AND LIGHTING CIRCUITS SHALL BE A MINIMUM (2)#12, AND (1)#12 GROUND, IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED.

17. ALL CONTROL WIRING SHALL BE NOT LESS THAN (2)#14, (1)#14 GROUND, IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED.

18. ALL CABLES INSTALLED IN AIR HANDLING PLENUMS SHALL BE PLENUM RATED CABLES.

19. HOME RUNS SHALL NOT BE COMBINED IN A RACEWAY UNLESS SHOWN ON THE CONTRACT DRAWINGS. SINGLE PHASE BRANCH CIRCUIT HOME RUNS MAY BE COMBINED AT THE CONTRACTOR'S DISCRETION. NOT GREATER THAN (3) PHASE CONDUCTORS, (3) NEUTRAL CONDUCTORS, AND GROUNDING CONDUCTOR.

20. SUPPORTING WIRE FOR THE SUSPENDED CEILING GRID SHALL NOT BE USED AS RACEWAY SUPPORT.

21. REFER TO THE ARCHITECTURAL DRAWINGS FOR LOCATIONS BUILDING EXPANSION JOINTS. ALL CONDUITS CROSSING EXPANSION JOINTS SHALL BE INSTALLED WITH EXPANSION FITTINGS, UNLESS THE CONDUIT IS BELOW SLAB IN THE COMPACTED GRANULAR FILL. EXPANSION FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE N.E.C., AND MANUFACTURE'S WRITTEN RECOMMENDATIONS.

22. REFER TO THE ELECTRICAL SITE PLAN FOR ADDITIONAL INFORMATION REGARDING ELECTRICAL WORK TO BE PROVIDED OUTSIDE THE BUILDING ENVELOPE.

23. HVAC CONTROL WIRING FURNISHED AND INSTALLED BY DIVISION 23. WIRING AND RACEWAY SHALL BE INSTALLED PER DIVISION 26 SPECIFICATIONS. RACEWAY AND BOXES FOR HVAC CONTROL SHALL BE PROVIDED BY DIV 26.

24. SEE MECHANICAL DRAWINGS FOR EQUIPMENT RATINGS AND SIZES.

25. INDOOR CONTROL EQUIPMENT ENCLOSURES SHALL BE NEMA 1 RATED, UNLESS OTHERWISE NOTED. ALL EXTERIOR ENCLOSURES SHALL BE NEMA 3R, UNLESS OTHERWISE NOTED.

26. ALL VOICE/DATA CABLING, SECURITY CONTROL SYSTEM AND ALL OTHER LOW-VOLTAGE SIGNAL CABLING SHALL BE INSTALLED IN A COMPLETE RACEWAY SYSTEM.

27. PENETRATIONS THROUGH FIRE RATED WALLS BY DIVISION 16 CONTRACTOR SHALL BE SEALED WITH APPROPRIATE FIRE PROOFING MATERIAL TO RESTORE FIRE RATING. SEE ARCHITECTURAL DRAWINGS FOR FIRE RATED WALLS.

28. THESE DRAWINGS SHALL NOT BE SCALED TO OBTAIN DIMENSIONS. IF THE DIMENSIONS CANNOT BE DETERMINED BY THE INFORMATION GIVEN, CONTRACTOR SHALL CONTACT THE ENGINEER FOR REQUIRED INFORMATION

29. PERIODIC SITE OBSERVATION BY THE ENGINEER IS SOLELY FOR THE PURPOSE OF DETERMINING IF THE WORK OF THE CONTRACTOR IS PROCEEDING IN ACCORDANCE WITH THE ELECTRICAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.

30. THE INFORMATION CONTAINED ON THE ELECTRICAL DRAWINGS IS IN ITSELF INCOMPLETE AND VOID UNLESS USED IN CONJUCTION WITH ALL OTHER DISCIPLINE DRAWINGS, THE SPECIFICATIONS, TRADE PRACTICES, OR APPLICABLE STANDARDS, CODES, ETC., AND SHALL BE CONSIDERED THE CONTRACT DOCUMENTS AND WITH ALL THE IN BY REFERENCE, WHICH THE CONTRACTOR CERTIFIES KNOWLEDGE OF BY SIGNING THE CONTRACT.

31. CONTRACTOR IS TO ASSUME FULL RESPONSIBILITY, UNRELIEVED BY REVIEW OF SHOP DRAWINGS OR PERIODIC OBSERVATION OF CONSTRUCTION, FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED NOT THE JOB SITE AND BETWEEN INDIVIDUAL DRAWINGS OR SETS OF DRAWINGS FOR FABRICATION PROCESSES AND CONSTRUCTION TECHNIQUES (INCLUDING EXCAVATION, SHORING, SCAFFOLDING, BRACING, ERECTION, FORM WORK, ETC.), FOR COORDINATION OF THE VARIOUS TRADES, AND FOR SAFE CONDITIONS ON THE JOB SITE. VARIATIONS IN FILED CONDITIONS RELATIVE TO THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE ENGINEER AS SOON AS THEY ARE FOUND. WORK SHALL NOT PROGRESS UNTIL WRITTEN PERMISSION FROM THE ENGINEER IS OBTAINED.

32. CONDUIT/RACEWAY SHALL BE PVC SCHEDULE 40 FOR UNDERGROUND AND EMT FOR CONCEILED IN WALL EXCEPT SERVICE FEEDER AND ELEVATOR FEEDER SHALL BE RIGID GALVANIZED STEEL. EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL. PVC SHALL BE CHANGE TO RIGID GALVANIZED STEEL BEFORE COMMING THRU SLAB USING FACTORY LONG SWEEPS.

33. FIRE ALARM SHALL BE ADDRESSABLE SYSTEM INSTALLED PER NFPA 72 REQUIREMENTS.

34. PANELBOARD, CABLE CONDUIT, HEAT TRACE, LIGHT FIXTURES, WIRING DEVICES

ELECTRICAL ENGINEER

LICENSED PROFESSIONAL ENGINEER
DAVID M. TEPEN 18737
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Signature: Date

Printed or typed name: DAVID M. TEPEN

License Number: 18737

My License Renewal Date is: DECEMBER 31, 2017

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:

E0.01, E0.02, E1.01, E1.02, E6.01

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

GENERAL NOTES

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

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DESIGN TEAM DMT/MAR/DMT | SCOTT COUNTY | PROJECT NUMBER IM-074-1(255)5--13-82 | SHEET NUMBER E0.01

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ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
	CROSS HATCH INDICATES FIXTURE IS AN EGRESS LIGHT.
$	SWITCH, SINGLE POLE +48" UNO
$OS	SWITCH, OCCUPANCY SENSOR +48" UNO
○	EQUIPMENT CONNECTION POINT
⇜	DUPLEX RECEPTACLE WITH GROUND 3 WIRE, 120V, +18" UNO GFI = GROUND FAULT CURRENT INTERRUPTER WP = WEATHER PROOF IG = ISOLATED GROUND RECEPTACLE, SEE NOTE 5.
▭	FIRE ALARM CONTROL PANEL
□	FIRE ALARM MANUAL STATION +48" UNO
◁	FIRE ALARM HORN AND LIGHT +80" UNO F = HORN/STROBE LIGHT COMBINATION, WP= WEATHER PROOF
▷□	FIRE ALARM MANUAL STATION WITH HORN AND LIGHT ABOVE
◇	FIRE ALARM SMOKE DETECTOR SUBSCRIPT A = AUXILIARY CONTACTS
◇	FIRE ALARM DUCT TYPE SMOKE DETECTOR
◇	FIRE ALARM HEAT DETECTOR
OS	MOTION SENSOR IN CEILING
LS	LEVEL SENSOR
CCTV◁	SECURITY CAMERA BY SECURITY INSTALLATION CONTRACTOR CONDUIT BY ELEC PTZ = DENOTES PAN TILT ZOOM
FS	FIRE/ SMOKE DAMPER
SD	SMOKE DAMPER
FA▷	FIRE ALARM PAGING JACK
⌒	POWER OR LIGHTING HOME RUN #12 AWG - MINIMUM #10 AWG - CIRCUITS OVER 75' ┐ #8 AWG - CIRCUITS OVER 125' TO 175' ┘ 20A, 120V #12 AWG - MINIMUM #10 AWG - CIRCUITS OVER 125' ┐ #8 AWG - CIRCUITS OVER 225' TO 350' ┘ 20A, 277V NOTES: 1. CIRCUITS SHALL MEET THE ABOVE REQUIREMENTS UNLESS SHOWN OTHERWISE, OR AS REQUIRED BY AMPERE RATING AND VOLTAGE DROP. 2. COMMON NEUTRAL MAY NOT BE USED ON LIGHTING CIRCUITS UNLESS OTHERWISE NOTED. 3. COMMON NEUTRAL MAY NOT BE USED ON RECEPTACLE POWER CIRCUITS CIRCUITS UNLESS SHOWN OTHERWISE.

PANEL SCHEDULE — **PROJECT:** I-74 LIFT STRUCTURE

PANEL ID : PP1 — **VOLTAGE:** 208 Y/120
PHASE, WIRES : 3 PH, 4 WIRE
LOCATION : ELECTRICAL ROOM — **CONNECTION: 100A MCB**
MOUNTING : SURFACE — **AIC RATINGS: 35 KAIC**

CK	P	AMP	DESCRIPTION	L	A	B	C	L	DESCRIPTION	AMP	P	CK
1	1	20	ELEV 1 PIT RECPT	R	180				ELEV 2 PIT RECPT			
					180			R		20	1	2
3	1	20	JANITOR CLOSET RECPET	R		180			ELECTRICAL ROOM RECPT			
						180		R		20	1	4
5	1	20	LOWER LEVEL LIGHTING	L			420		LOWER LEVEL EXT			
							60	L	LIGHTING	20	1	6
7	1	20	ELEVATOR PIT LIGHTS	R	120				ELEVATOR CONTROL ROOM			
					180			R	RECPT	20	1	8
9	1	20	UPPER LEVEL LIGHTING	L		420			UPPER LEVEL EXT			
						60		L	LIGHTING	20	1	10
11	1	20	ELEVATOR CAB LIGHTS	L			100		ELEVATOR CAB LIGHTS			
							100	L		20	1	12
13	1	20	EXT SITE LIGHTING FUTURE	R	1200				EXT SITE LIGHTING FUTURE			
					1200			R		20	1	14
15	1	20	EXT SITE LIGHTING FUTURE	R		1200			EXT SITE LIGHTING FUTURE			
						1200		R		20	1	16
17	1	20	EXT SITE LIGHTING FUTURE	R			1200		EXT SITE LIGHTING FUTURE			
							1200	R		20	1	18
19	1	20	ELEV SP-1	R	500				FIRE ALARM PANEL			
					500			R		20	1	20
21	1	20	SP-1 CONTROL	R		500			SECURITY PANEL			
						500		R		20	1	22
23	2		EWH-1	H			3000		SPARE			
							0	R		20	1	24
25		60	"	H	3000				SPARE			
					0					20	1	26
27	1	20	SPARE			0			SPARE			
						0				20	1	28
29	1	20	SPARE				0		SPARE			
							0			20	1	30
31	1	20	SPARE		0				SPARE			
					0					20	1	32
33	1	20	SPARE			0			SPARE			
						0				30	1	34
35	1	20	SPARE				0		SPARE			
							0			20	1	36
37	1	20	SPARE		0				SPARE			
					0					20	1	38
39	1	20	SPARE			0			SPARE			
						0				20	1	40
41	1	20	SPARE				0		SPARE			
							0			20	1	42

PANEL SCHEDULE — **PROJECT:** I-74 LIFT STRUCTURE

PANEL ID : HEAT TRACE — **VOLTAGE:** 208 Y/120
PHASE, WIRES : 3 PH, 4 WIRE
LOCATION : ELECTRICAL ROOM — **CONNECTION: 100A MCB**
MOUNTING : SURFACE — **AIC RATINGS: 35 KAIC**

CK	P	AMP	DESCRIPTION	L	A	B	C	L	DESCRIPTION	AMP	P	CK
1	1	20	ROOF GUTTER CKT	H	1200				ROOF GUTTER ICE DAM CKT			
					1200			H		20	1	2
3	1	20	UPPER CANOPY ICE DAM	H		1200			LOWER CANOPY ICE DAM			
			CKT			1200		H	SKT	20	1	4
5	1	20	ROOF DRAIN CKT 1	H			1200		ROOF DRAIN CKT 2			
							1200	H		20	1	6
7	1	20	ROOF DRAIN CKT 3	H	1200				ROOF DRAIN CKT 4			
					1200			H		20	1	8
9	1	20	TRENCH DRAIN CKT 1	H		1200			TRENCH DRAIN CKT 2			
						1200		H		20	1	10
11	1	20	TRENCH DRAIN CKT 3	H			1200		TRENCH DRAIN CKT 4			
							1200	H		20	1	12
13	1	20	ELEV GLASS HEAT CKT 1	H	1500				ELEV GLASS HEAT CKT 2			
					1500			H		20	1	14
15	1	20	ELEV GLASS HEAT CKT 3	H		1500			ELEV GLASS HEAT CKT 4			
						1500		H		20	1	16
17	1	20	ELEV GLASS HEAT CKT 5	H			1500		ELEV GLASS HEAT CKT 6			
							1500	H		20	1	18
19	1	20	SPARE	H					SPARE			
								H		20	1	20
21	1	20	SPARE	H					SPARE			
								H		20	1	22
23	1	20	SPARE	H					SPARE			
								R		20	1	24
25	1	20	SPARE						SPARE			
										20	1	26
27	1	20	SPARE						SPARE			
										20	1	28
29	1	20	SPARE						SPARE			
										20	1	30
31	1	20	SPARE						SPARE			
										20	1	32
33	1	20	SPARE	R					SPARE			
								R		30	1	34
35	1	20	SPARE	R					SPARE			
								R		20	1	36
37	1	20	SPARE	R					SPARE			
								R		20	1	38
39	1	20	SPARE	R					SPARE			
								R		20	1	40
41	1	20	SPARE	R					SPARE			
								R		20	1	42

ELECTRICAL NOTES

1. CONDUIT AND CONDUCTORS ARE SHOWN TO INDICATE CIRCUITING AND SWITCHING. THE EXACT ROUTING OF CONDUIT AND THE EXACT QUANTITIES OF CONDUCTORS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

2. WHERE USED, LOWER CASE LETTERS AT FIXTURE AND SWITCHES INDICATE ASSOCIATED UNITS FOR SWITCHING. UPPER CASE LETTERS AT FIXTURES INDICATE THE TYPE OF FIXTURES. NUMBERS AT AT FIXTURES INDICATE PANELBOARD CIRCUIT. FIXTURE TYPE SHOWN IN ROOMS SHALL APPLY TO ALL FIXTURES WITHIN THAT ROOM EXCEPT AS SPECIFICALLY NOTED.

3. DIMENSIONS SHALL BE FROM FINISHED FLOOR TO BOTTOM OF OUTLET BOX.

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

GENERAL NOTES

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

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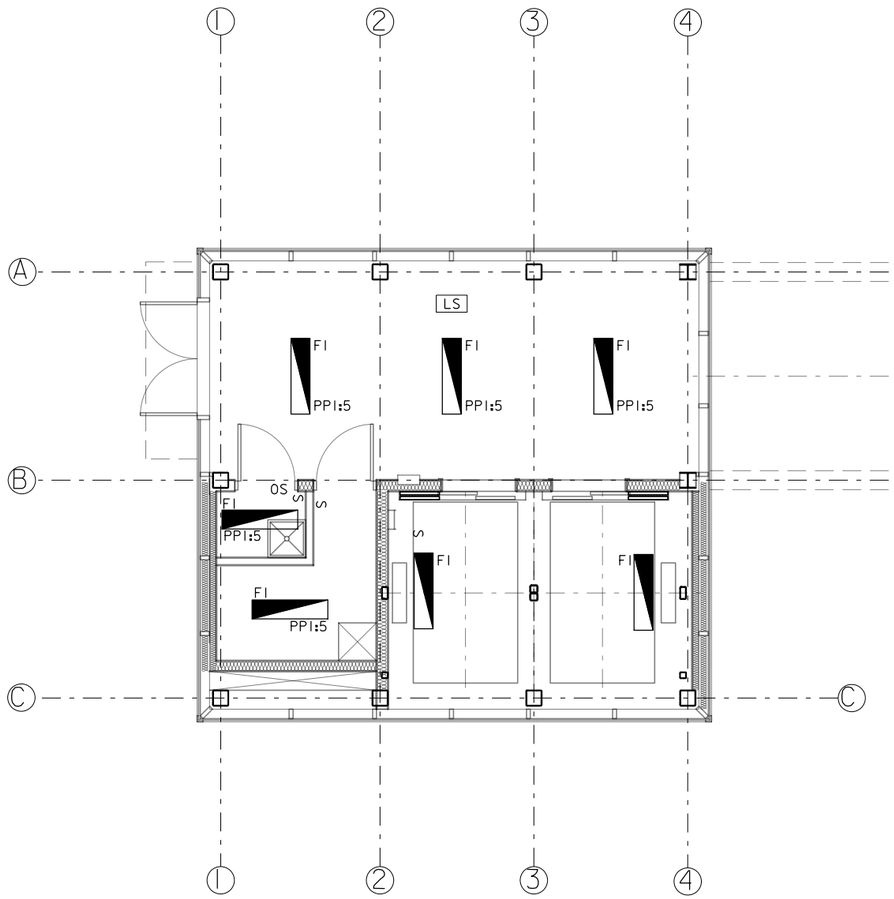

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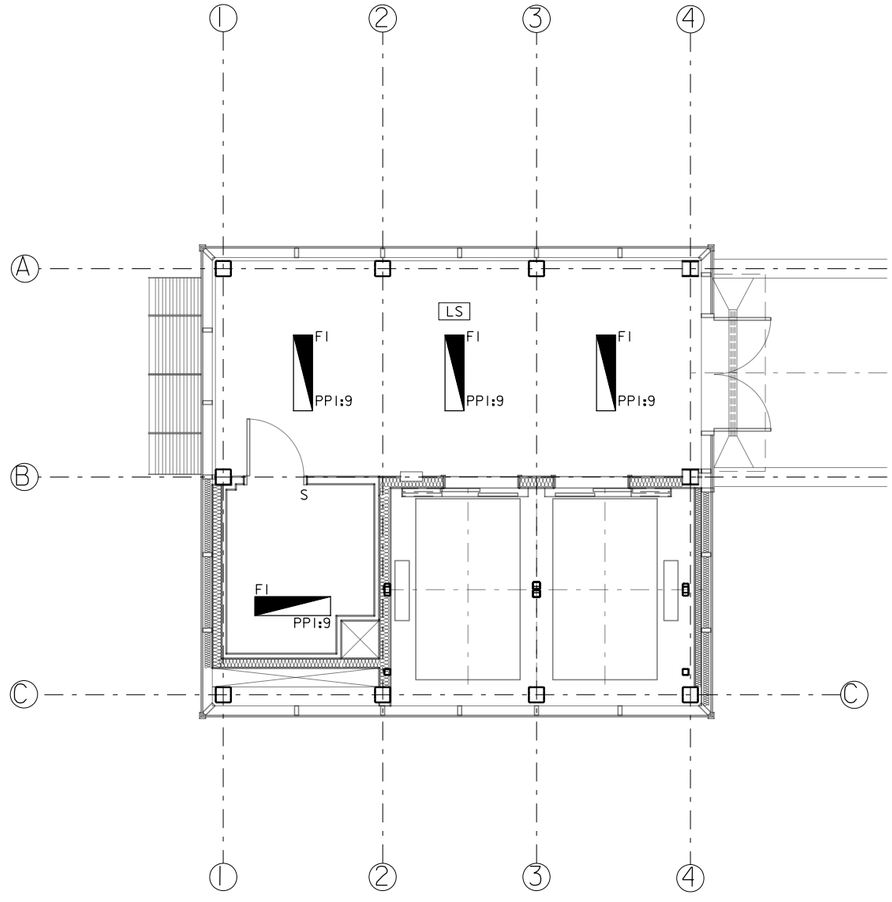
GROUND LEVEL PLAN

SCALE: 1/4" = 1'-0"



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BRIDGE LEVEL PLAN

SCALE: 1/4" = 1'-0"

F1 - KENALL - MLHA 1-48R-LG-CP-50L40K-DCC-1-120-LEL OR EQUIVALENT FAILSAFE HVL12 SERIES OR LUMINAIRE VPF12 HP SERIES.

LS - SENSORSWITCH CMRB-PC-ADC SET TO MAINTIAIN 10 FC IN SPACE. TURN OFF FIXTURE WHEN ENOUGH DAYLITE IS PRESENT.

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

LIGHTING PLAN

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

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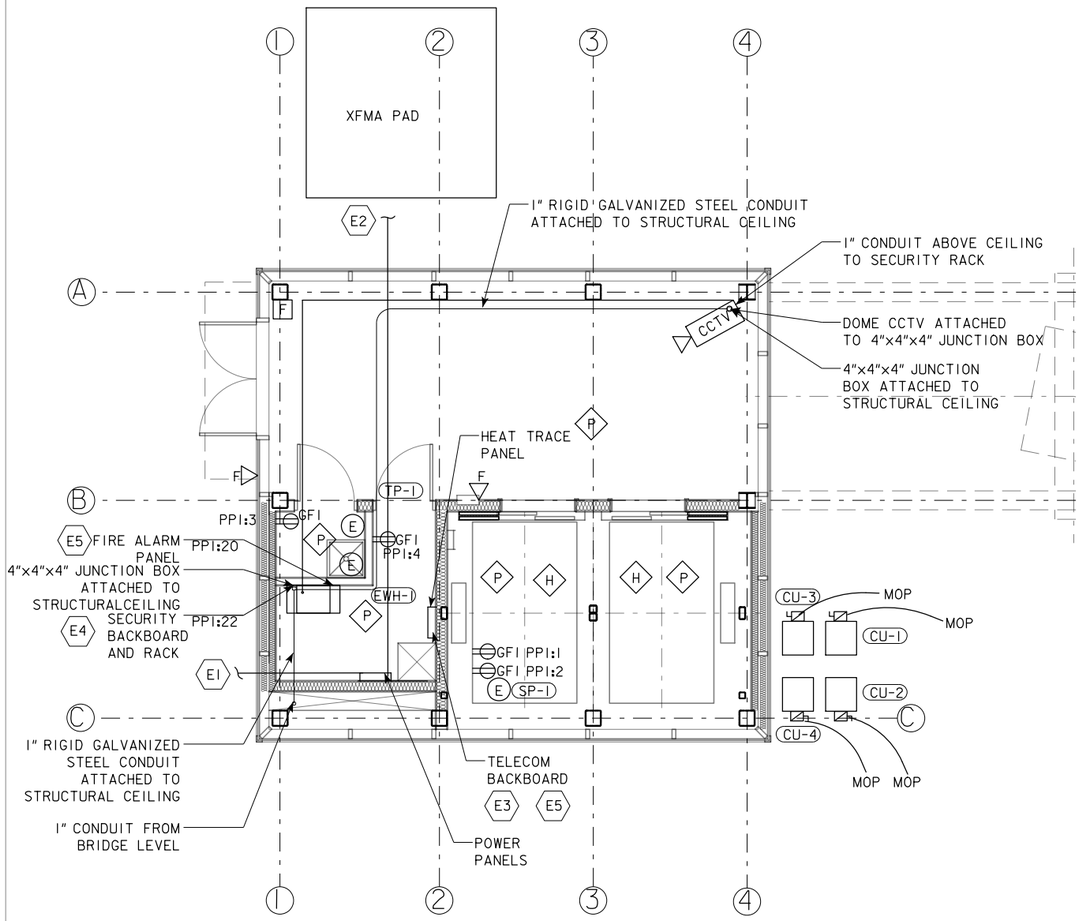
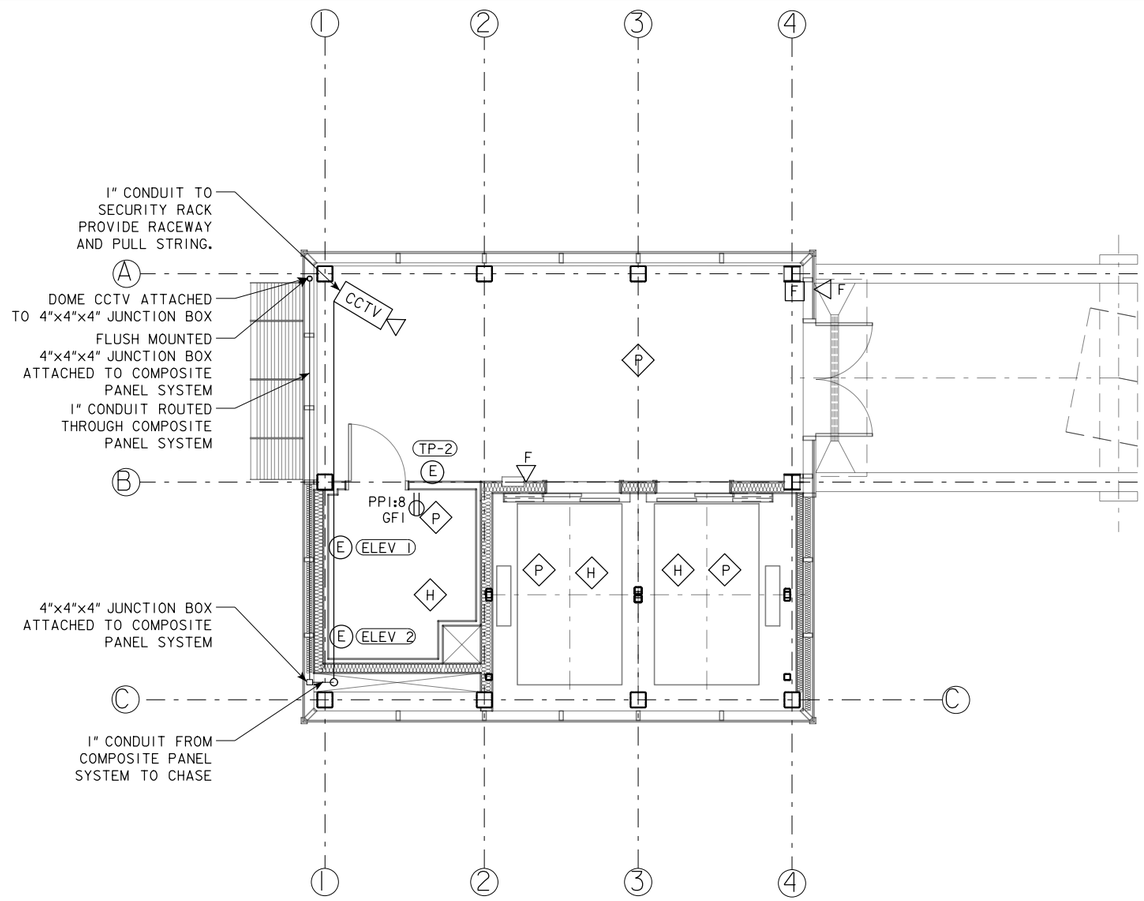


GROUND LEVEL PLAN

SCALE: 1/4" = 1'-0"



BRIDGE LEVEL PLAN

SCALE: 1/4" = 1'-0"

E1 INCOMMING SERVICE FROM UTILITY, 400A, 208/120V, 3PH, 4 WIRE, 2 SETS- (4) 4/0, 1/0 GND, 2"C.

E2 PROVIDE 6-1" CONDUIT STUBBED OUT 5' FROM STRUCTURE. CONDUIT SHALL BE CAPPED AND PROVIDED WITH NYLON PULL STRING. PROVIDE DETECTABLE WARNING TAPE TYPE III OVER CONDUITS.

E3 PROVIDE 2-2" CONDUITS FROM TELECOM SERVICE PROVIDER TO BACKBOARD IN ELECTRICAL ROOM.

E4 PROVIDE 2-2" CONDUITS FROM SECURITY BACKBOARD IN ELECTRICAL ROOM FOR CONNECTION TO SITE SECURITY SYSTEM PROVIDER.

E5 PROVIDE TELECOM SERVICE FOR TWO PHONE LINES CONNECTIONS FOR ELEVATOR CONTROL. PROVIDE ALL DEVICE AND TERMINATIONS REQUIRED FOR DEMARC. PROVIDE TWO PHONE LINES FOR CONNECTION TO FIRE ALARM AND SECURITY PANELS. SEE PANEL SCHEDULE FOR FIRE ALARM PANEL CIRCUIT. SEE PANEL SCHEDULE FOR SECURITY CIRCUIT.

BACKBOARD - 4'X8' SHEET 3/4" CD FIRE RATED PLYWOOD PAINTED ALL SIDES WITH WHITE FIRE RETARDANT PAINT.

HEAT TRACE - ROOF GUTTERS, ROOF PANEL BY GUTTERS, ROOF DRAINS, AND TRENCH DRAIN PIPING, TRENCH DRAIN AND ROOF DRAIN PIPING.

ELEVATOR 1 - 15 HP, 208V, 3 PH, MDP, FEEDER 3, 100A DISCONNECT- FUSED SHUNT (BUSSMAN PSI T20 RIK G NI B FI Z). LIGHT CAB PP1:11 AND DISCONNECT.

ELEVATOR 2 - 15 HP, 208V, 3 PH, MDP, FEEDER 3, 100A DISCONNECT- FUSED SHUNT (BUSSMAN PSI T20 RIK G NI B FI Z). LIGHT CAB PP1:12 AND DISCONNECT.

EWH-1, 9KW, 208V, 1 PH, 44A, 60A CIRCUIT BREAKER, 2-6 AWG, 10 GND, 3/4" C.

TP-1 AND TP-2, 120V, 1 PH, 20A CIRCUIT.

SP-1 AND CONTROL PANEL, (2) 120V, 20A CIRCUITS AND RECEPTACLES, 1/2 HP, 9.5 FLA.

HEAT TRACE LAYOUT

GENERAL:
INSTALL PER MANUFACTURER'S INSTRUCTIONS. PROVIDE CIRCUITING AND CONTROL. PROVIDE AUTOMATIC MOISTURE/TEMPERATURE CONTROLLER SYSTEM.

STANDING SEAM ROOF AND GUTTERS:
RUN HEATING CABLE UP THE ROOF UNTIL 12" PAST EXTERIOR WALL. RUN HEATING CABLE UP ONE SIDE OF SEAM, LOOP OVER TO THE OTHER SIDE AND RETURN TO THE BOTTOM OF THE GUTTER. CONTINUE ALONG BOTTOM OF THE GUTTER TO THE THIRD SEAM AND REPEAT PROCESS (EVERY OTHER SEAM).

WATER AND WASTE PIPING, FLOOR DRAIN BODIER AND TRAPS:
HEAT TRACE POWER CONNECTIONS MUST BE ACCESSIBLE. USE TWO HEATING CABLES FOR ALL PIPES LARGER THAN 3".

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
Iowa | Illinois | Indiana | Missouri http://www.shive-hattery.com
ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR
BETTENDORF LETDOWN STRUCTURE

POWER AND SYSTEMS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF XX FILE NO. 31152 DESIGN NO. 120

DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER E1.02

1:07:54 PM jwwinte P:\Projects\DM\3081725\Deliverables\Drawings\1_Civil\Bettendorf_Ia\Dgn\Sheet\2017-09-11LetDnPedBrg\82074255.brg.dgn

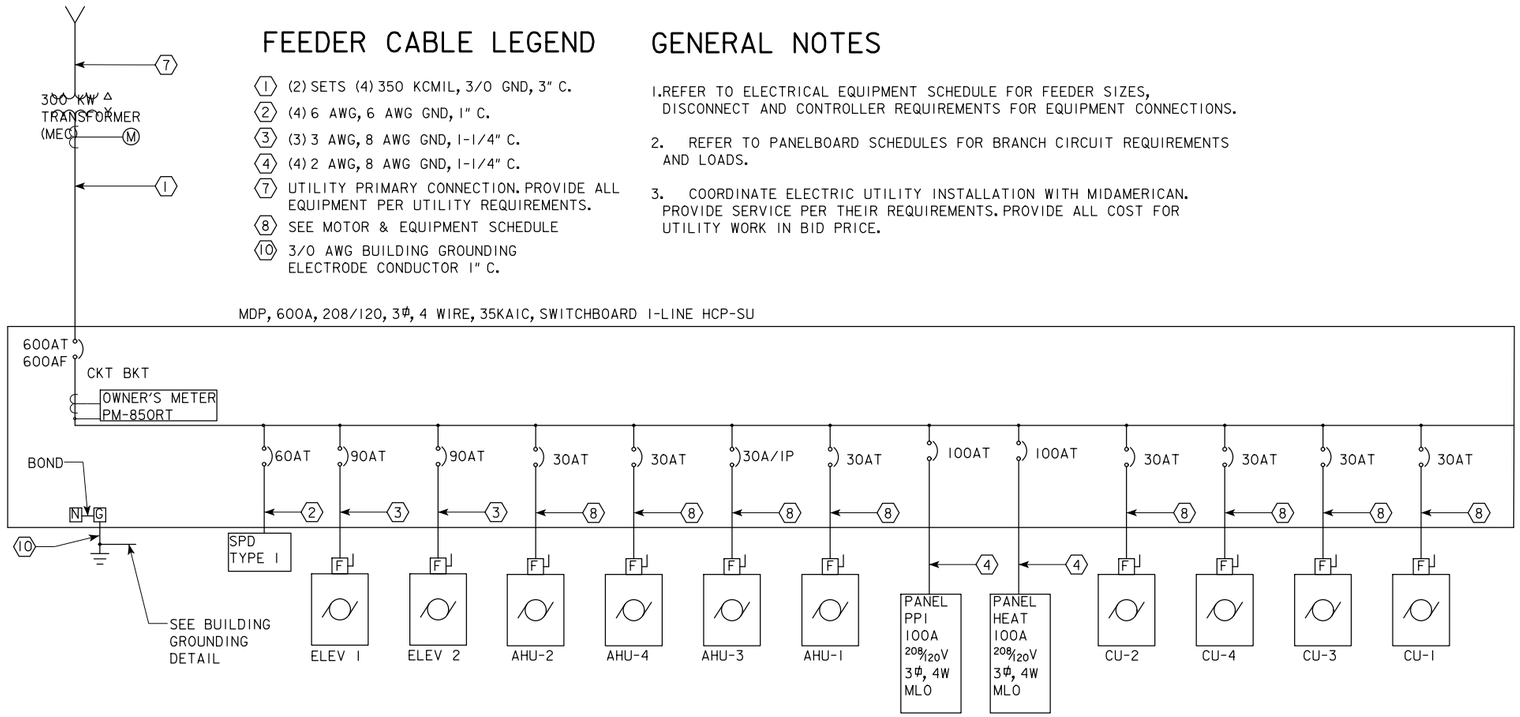
MODEL: $MODEL

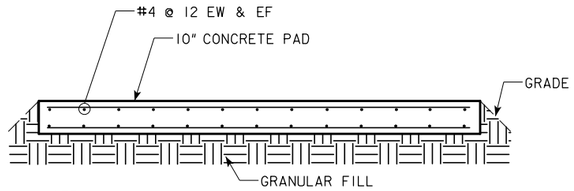
FEEDER CABLE LEGEND

1. (2) SETS (4) 350 KCMIL, 3/0 GND, 3" C.
2. (4) 6 AWG, 6 AWG GND, 1" C.
3. (3) 3 AWG, 8 AWG GND, 1-1/4" C.
4. (4) 2 AWG, 8 AWG GND, 1-1/4" C.
7. UTILITY PRIMARY CONNECTION. PROVIDE ALL EQUIPMENT PER UTILITY REQUIREMENTS.
8. SEE MOTOR & EQUIPMENT SCHEDULE
10. 3/0 AWG BUILDING GROUNDING ELECTRODE CONDUCTOR 1" C.

GENERAL NOTES

1. REFER TO ELECTRICAL EQUIPMENT SCHEDULE FOR FEEDER SIZES, DISCONNECT AND CONTROLLER REQUIREMENTS FOR EQUIPMENT CONNECTIONS.
2. REFER TO PANELBOARD SCHEDULES FOR BRANCH CIRCUIT REQUIREMENTS AND LOADS.
3. COORDINATE ELECTRIC UTILITY INSTALLATION WITH MIDAMERICAN. PROVIDE SERVICE PER THEIR REQUIREMENTS. PROVIDE ALL COST FOR UTILITY WORK IN BID PRICE.

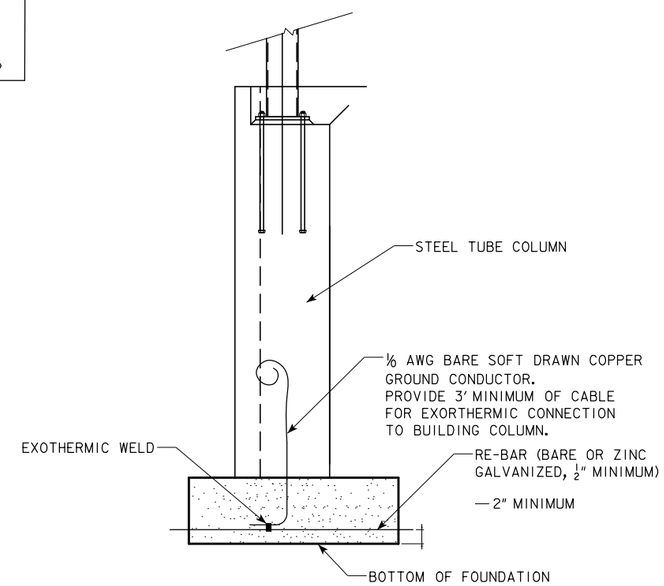




NOTE:
COORDINATE LOCATION OF PAD AND SIZE WITH EQUIPMENT MANUFACTURER AND MECH PLANS.

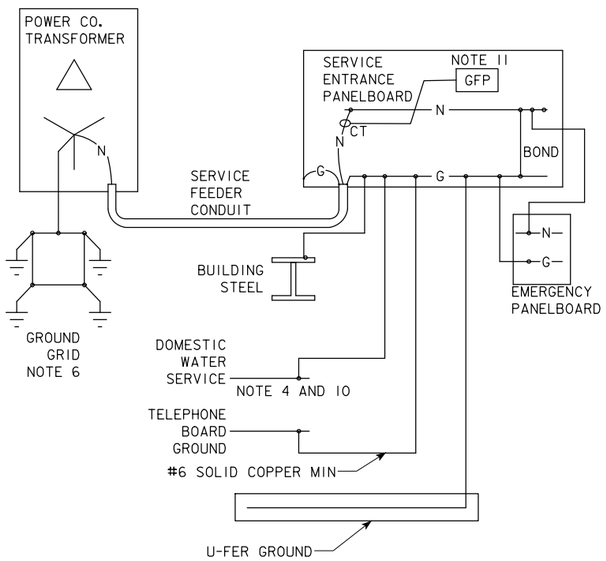
EQUIPMENT PAD DETAIL

NOT TO SCALE



COLUMN GROUNDING DETAIL

NOT TO SCALE



NOTES:

1. CONDUITS SHALL BE SECURED TO PANEL BOARDS AND JUNCTION BOXES WITH LOCKING WEDGES OR LOCK NUTS.
2. BURIED OR INACCESSIBLE GROUND CONNECTIONS MAY BE EXOTHERMIC WELD OR COMPRESSION.
3. SERVICE FEEDER SHALL CONTAIN 3 (THREE) PHASE CONDUCTORS AND 1 (ONE) NEUTRAL CONDUCTOR.
4. GROUND CONNECTION SHALL BE MADE AHEAD OF WATER METER OR ANY OTHER FITTINGS.
5. GROUND RODS SHALL BE ¾" X 10' UNLESS NOTED OTHERWISE.
6. POWER CO. TRANSFORMER GROUND RODS ARE BY POWER CO. UNLESS SHOWN OTHERWISE. COORDINATE WITH POWER CO.
7. SIZE GROUNDING ELECTRODE AND EQUIPMENT GROUNDING CONDUCTORS PER NEC ARTICLE 250.
8. WATER LINE GROUND CLAMP SHALL BE A BURNDY GCXXA CLAMP OR APPROVED EQUIVALENT. PROVIDE JUMPER ACROSS METER.
9. NEC 215-10. PROVIDE GROUND FAULT PROTECTION (GFP) FOR SERVICES RATED 1000 AMPERES OR MORE, ON SOLID GROUNDED WIRE SYSTEMS OF MORE THAN 150 VOLTS TO GROUND.
10. PROVIDE 20FT 4 AWG BARE COPPER FOR U-FER GROUND PER NEC ARTICLE 250. LOCATE AT BUILDING FOOTNG.
11. GROUND BUIDLING STEEL PER NEC ARTICLE 250. GROUND COLUMNS AT EACH CORNER OF THE STRUCTURE.

DESIGN FOR

BETTENDORF LETDOWN STRUCTURE

ONE LINE DIAGRAM

STA. 6782+79.40 - 130.78' LEFT ℄ I-74

MAY 2016

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF XX FILE NO. 31152 DESIGN NO. 120

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ILLINOIS FIRM NUMBER: 184-000214

ESTIMATED BRIDGE QUANTITIES

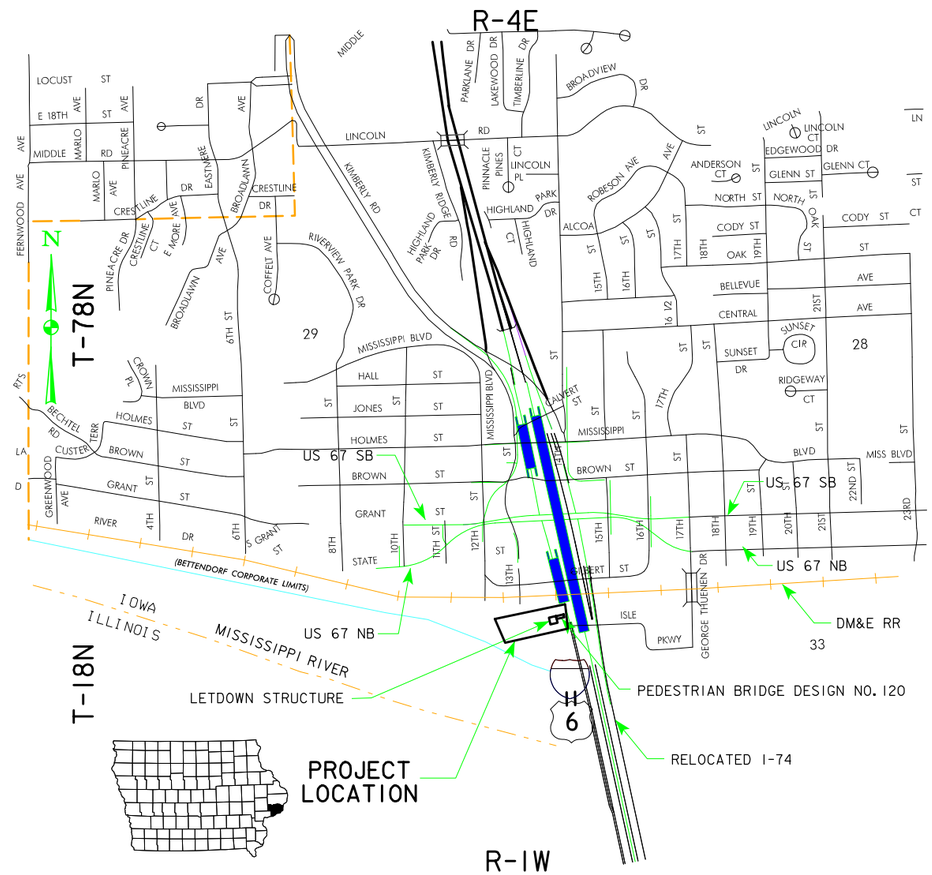
ITEM NO.	ITEM CODE	ITEM	UNIT	DIVISION II TOTAL	AS BUILT QUANTITY
1	2403-7000210	HIGH PERFORMANCE STRUCTURAL CONCRETE	CY	6.5	
2	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	1701	
3	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	346	
4	2408-7800000	STRUCTURAL STEEL	LB	4630	
5	2499-2300002	BRIDGE DRAINAGE SYSTEM	LS	1	
6	2599-9999009	FENCE, PERFORATED ALUMINUM	LF	36	
7	2599-9999010	EXPANSION JOINT (AT I-74 BRIDGE INTERFACE)	LS	1	

ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
1	INCLUDES CONCRETE FOR THE DECK SLAB AND CURB
4	INCLUDES ALL COSTS ASSOCIATED WITH FLUOROPOLYMER PAINT SYSTEM IN ACCORDANCE WITH THE PLAN NOTES FOR "FLUOROPOLYMER PAINT FOR STRUCTURAL STEEL". INCLUDES ALL COSTS FOR BEAM BEARINGS AND CONNECTIONS.
5	INCLUDES ALL COSTS FOR TRENCH DRAIN IN DECK SLAB.
6	INCLUDES ALL COSTS WITH FENCE EXPANSION JOINT DETAILS AND MATERIALS SHOWN IN PLANS.

NOTES:

1. SLAB SHALL BE PLACED IN ONE POUR SEQUENCE.
2. WEIGHT OF STRUCTURAL STEEL SHOWN ON THIS SHEET INCLUDES: BEAMS, DIAPHRAGMS, SHEAR STUDS, BEARINGS, WELDS AND BOLT HARDWARE.
3. QUANTITY OF STRUCTURAL STEEL SHOWN ON THIS SHEET IS BASED ON THE USE OF 5" HIGH SHEAR STUDS. CONTRACTOR WILL BE PAID ON AMOUNT SHOWN, BUT IS REQUIRED TO ADJUST HEIGHT OF STUDS AS REQUIRED PER "BEAM PLAN AND ELEVATION" SHEET.



LOCATION MAP - PART OF CITY OF BETTENDORF

SHIVEHATTERY
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Iowa | Illinois | Indiana | Missouri
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ILLINOIS FIRM NUMBER: 184-000214

LICENSED PROFESSIONAL ENGINEER
JOSEPH D. APPEL
19355
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Signature: Date

Printed or typed name: JOSEPH D. APPEL

License Number: 19355

My License Renewal Date is: DECEMBER 31, 2018

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:

V.1 – V.15

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

ESTIMATED QUANTITIES

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 **JULY, 2019**

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 15 FILE NO. 30253 DESIGN NO. 120

DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.1

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MODEL: $MODEL

GENERAL NOTES

THIS DESIGN IS FOR A NEW 17'-3 x 10' STRAIGHT STEEL BEAM PEDESTRIAN BRIDGE TO CONNECT THE ELEVATED I-74 BIKE TRAIL TO AN ELEVATOR STRUCTURE. THE ELEVATOR STRUCTURE INCLUDES ELEVATORS FOR ACCESS FROM THE BIKE TRAIL TO THE GROUND.

BRIDGE LIVE LOAD = 85 psf PEDESTRIAN, AASHTO HIO TRUCK (NOT SIMULTANEOUSLY)
FUTURE WEARING SURFACE DEAD LOAD: 20 psf

MECHANICAL FRAMING LOADS, OPENINGS, AND STRUCTURE IN ANY WAY RELATED TO MECHANICAL REQUIREMENTS ARE SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL OBTAIN APPROVAL OF MECHANICAL AND OTHER TRADES BEFORE PROCEEDING WITH SUCH PORTION OF THE WORK. EXCESS COST RELATED TO VARIATION IN MECHANICAL REQUIREMENTS TO BE BORNE BY MECHANICAL CONTRACTOR.

THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF OPENINGS, HOLES AND SLEEVES THROUGH ALL STRUCTURAL ELEMENTS WITH MECHANICAL, ELECTRICAL AND PLUMBING CONTRACTORS. NO OPENINGS SHALL PASS THRU STRUCTURAL MEMBERS UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

THIS STRUCTURE SHALL BE BUILT WITH WEATHERING STEEL, EXCEPT AS NOTED. ALL STRUCTURAL STEEL, EXCEPT AS NOTED, SHALL CONFORM TO ASTM A709 GRADE 50W. THE MINIMUM YIELD POINT FOR GRADE 50W STRUCTURAL STEEL IS 50 KSI FOR PLATES 4 INCHES AND UNDER IN THICKNESS, AND ALL STRUCTURAL SHAPES. SHEAR STUDS ARE TO BE OF AN APPROVED TYPE LISTED IN MATERIALS I.M. 453.10, APPENDIX A. PAINTING REQUIREMENTS FOR THIS STRUCTURE SHALL BE IN ACCORDANCE WITH "FLUOROPOLYMER PAINT FOR STRUCTURAL STEEL NOTES IN THESE PLANS. SEE STEEL PAINTING NOTES ON THIS SHEET. BOLTS FOR USE WITH WEATHERING STEEL SHALL BE A325 TYPE III WITH A563 GRADE DH3 NUTS AND F436 TYPE III WASHERS.

ALL WORKING DRAWINGS INCLUDING SHOP DRAWINGS AND FRAMEWORK DRAWINGS SHALL BE SUBMITTED ELECTRONICALLY ACCORDING TO ARTICLE 1105.03 OF THE STANDARD SPECIFICATIONS. THESE DRAWINGS SHALL BE SUBMITTED TO AND CHECKED BY:
SHIVE-HATTERY, INC
1701 RIVER DRIVE, SUITE 200
MOLINE, ILLINOIS, 61265
309.764.7650
jradloff@shive-hattery.com

SHOP DRAWING SUBMITTALS
SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS SHOWN IN THE TABLE BELOW. (NOTE ADDITIONAL SHOP DRAWINGS MAY BE REQUIRED IN ACCORDANCE WITH ARTICLE 1105.03 OF THE STANDARD SPECIFICATIONS.)

SUBMITTAL REQUIREMENTS FOR SHOP DRAWINGS SHOULD BE IN ACCORDANCE WITH 1105.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION OF THE IOWA DEPARTMENT OF TRANSPORTATION.

SHOP DRAWINGS SHALL BE SUBMITTED WITH THE FOLLOWING NAMING CONVENTION:
(Paren)_County_DesignNumber_SubmittalDescription.pdf
Example: (090)_Blackhawk_Design915_DeckDrains.pdf

1	STRUCTURAL STEEL
2	REINFORCED CONCRETE

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a) is 5/8 inch diameter bar). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE:	3	4	5	6	7	8	9	10	11
BAR DESIGNATION:	10	13	16	19	22	25	29	32	36

WELDING OF ANCHOR BOLTS SHALL NOT BE ALLOWED. THE CONTRACTOR SHALL OBTAIN A TEMPLATE FROM THE MANUFACTURER / FABRICATOR FOR PROPER PLACEMENT OF THE ANCHOR BOLTS.

ALL REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.

STRUCTURAL STEEL:

1. "SEE IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION SECTION 2408 STEEL STRUCTURES AND SPECIFICATIONS ON PLANS AND FOR FLUOROPOLYMER PAINT FOR STRUCTURAL STEEL FRAMING FOR THE PEDESTRIAN BRIDGE".
2. SHEAR STUD HEIGHTS SHALL BE FIELD VERIFIED BY THE CONTRACTOR, BASED ON THE SITE SPECIFIC GRADE AND THE THEORETICAL CONCRETE HAUNCH DIAGRAM. STRUCTURAL STEEL QUANTITIES SHOWN ARE BASED ON ALL SHEAR STUDS BEING 5" LONG AND ±" DIAMETER, AND CONTRACTOR WILL BE PAID ON THAT QUANTITY.
3. MAGNETIC PARTICLE INSPECTION OF WELDS SHALL BE DONE PER AWS D1.5 SPECIFICATIONS.
4. FASTENERS FOR PEDESTRIAN BRIDGE STEEL SHALL BE GALVANIZED PER IOWA DOT STANDARD SPECIFICATIONS.

STEEL PAINTING NOTES:

ALL EXPOSED SURFACES OF THE GIRDERS SHALL BE PAINTED IN ACCORDANCE WITH PLAN NOTES FOR "FLUOROPOLYMER PAINT FOR STRUCTURAL STEEL".

PROTECTION OF PAINTED SURFACES:
PAINTED SURFACES SHALL BE PROTECTED FROM DAMAGE DURING SHIPMENT AND DURING ERECTION. PADDING OR OTHER MATERIAL APPROPRIATE FOR PROTECTING PAINTED SURFACES SHALL BE PLACED BETWEEN THE DECK FORM WORK BRACING AND THE EXTERIOR GIRDER FACE DURING CONSTRUCTION OF THE DECK. AFTER ERECTION OF THE BRIDGE, PAINTING OF EXTERIOR FASTENERS AND TOUCH UP OF PAINTED SURFACES SHALL BE IN ACCORDANCE WITH THE PLAN NOTES FOR "FLOUROPOLYMER PAINTS FOR STRUCTURAL STEEL".

REINFORCED CONCRETE

CONCRETE AND ACCESSORIES:

1. SEE IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION SECTION 2412 CONCRETE BRIDGE DECKS AND SECTION 2404 REINFORCEMENT.
2. 28-DAY CONCRETE COMPRESSIVE STRENGTH (f'c) = 4000 PSI
3. REINFORCING STEEL: ASTM A615 - GRADE 60 FOR EPOXY COATED AND GRADE 75 FOR STAINLESS.

SPECIFICATIONS:

DESIGN: AASHTO LRFD 5TH EDITION, SERIES OF 2010 EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT SERIES, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

THE DEVELOPMENTAL SPECIFICATION, DS-15044, FOR HIGH PERFORMANCE CONCRETE FOR STRUCTURES SHALL APPLY TO WORK ON THIS PROJECT

WELDING: AASHTO/AWS D1.5 AS SPECIFIED AND MODIFIED BY THE STANDARD SPECIFICATIONS AND CURRENT SUPPLEMENTAL SPECIFICATIONS.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD 5TH EDITION, SERIES OF 2010, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.

REINFORCING STEEL IN ACCORDANCE WITH LRFD SECTION 5, GRADE 60 FOR EPOXY COATED AND GRADE 75 FOR STAINLESS.

DECK CONCRETE IN ACCORDANCE WITH SECTION 5, f'c = 4000 psi.

STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 6, ASTM A709, GRADE 50W AND GRADE 36.

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

GENERAL NOTES

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 **JULY, 2019**

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 15 FILE NO. 30253 DESIGN NO. 120

SHIVEHATTERY
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ILLINOIS FIRM NUMBER: 184-000214

FLUOROPOLYMER PAINT FOR STRUCTURAL STEEL

THE IOWA DOT STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE SPECIFICATIONS SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

DESCRIPTION

THESE SPECIFICATIONS DESCRIBE SURFACE PREPARATION AND SHOP PAINTING OF STRUCTURAL STEEL AND INCIDENTAL PARTS FOR THE LETDOWN STRUCTURE PEDESTRIAN BRIDGE ADJACENT TO THE BIKE PATH OF THE I-74 MISSISSIPPI RIVER CROSSING MAIN BRIDGE USING A 3-COAT FLUOROPOLYMER PAINT SYSTEM. APPROVED FLUOROPOLYMER PAINT SYSTEMS FOR THIS PROJECT ARE LISTED IN MATERIALS I.M. 482.09. THE WORK INCLUDES THE FOLLOWING ITEMS: PREPARATION OF ALL SURFACES TO BE PAINTED, APPLICATION OF PAINT, PROTECTION, DRYING OF PAINT COATINGS, AND REPAIRING AND REPAINTING OF COATING DAMAGED IN THE SHOP OR AFTER ERECTION, OR BOTH.

1. SURFACE PREPARATION.

a. GENERAL.

1) REMOVE OILY OR GREASY RESIDUES WITH SOLVENT ACCORDING TO SSPC-SP1, SOLVENT CLEANING.

2) PROVIDE A NEAR WHITE METAL BLAST CLEANING TO STEEL SURFACES TO BE PAINTED ACCORDING TO SSPC-SP10. IF BEARING ASSEMBLIES ARE SPECIFIED TO BE PAINTED, FIRST CLEAN BEARING ASSEMBLIES OF ANY SURFACE CONTAMINATION USING SUITABLE SOLVENTS ACCORDING TO SSPC-SP1, AND THEN PROVIDE A NEAR WHITE METAL BLAST CLEANING ACCORDING TO SSPC-SP10. THE STANDARD USED FOR ACCEPTANCE OF THE SURFACE PREPARATION WILL BE SSPC-VIS 1, VISUAL STANDARD FOR ABRASIVE BLAST CLEANED STEEL.

3) DO NOT BLAST CLEAN MACHINED SURFACES DESIGNATED IN THE CONTRACT DOCUMENTS TO HAVE A SURFACE ROUGHNESS OF ANSI 125 (3.125 M) OR LESS. MASKING OR OTHER PROTECTION IS REQUIRED IF THESE PARTS ARE SUBJECTED TO THE BLAST CLEANING PROCESS.

4) USE A CLEAN, DRY ABRASIVE FREE FROM ORGANIC CONTAMINATION. AFTER BLASTING, THOROUGHLY CLEAN THE SURFACE TO BE PAINTED WITH DRY, OIL FREE, COMPRESSED AIR TO REMOVE ALL BLAST RESIDUE.

5) ACHIEVE A SHARP, ANGULAR BLAST PROFILE OF A MINIMUM 1.5 MILS (40 M) AND MAXIMUM 3 MILS (75 M) ON ALL SURFACES, INCLUDING THERMAL CUT EDGES. PRIOR TO BLASTING, GRIND THERMAL CUT EDGES TO A SMOOTH FINISH THAT WILL ALLOW THE SPECIFIED ANGULAR BLAST PROFILE TO BE ACHIEVED. IF THE PAINT MANUFACTURER'S RECOMMENDED BLAST PROFILE IS MORE RESTRICTIVE, SUBMIT RECOMMENDATIONS TO THE ENGINEER FOR APPROVAL.

6) ENSURE SURFACES TO BE PAINTED COMPLY WITH THESE SPECIAL PROVISIONS AND ARE DRY.

2. PAINTING.

a. GENERAL.

1) PERFORM SHOP PAINTING ONLY IN A FACILITY APPROVED BY AISC, SSPC, AND THE ENGINEER. ALLOW ONLY PAINTERS WHO ARE TRAINED AND CERTIFIED BY THE PAINT MANUFACTURER FOR THE TYPE OF WORK PERFORMED TO APPLY THE PAINT.

2) PRIOR TO PAINTING, ENSURE ALL SURFACES ARE FREE OF ALL MOISTURE, DIRT, OXIDATION PRODUCTS, OIL, AND OTHER DETRIMENTAL MATERIAL, AND IS OF A SUITABLE TEMPERATURE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. FOLLOW THE PAINT MANUFACTURER'S APPLICATION RECOMMENDATIONS REGARDING MIXING, THINNING, APPLICATION, POT LIFE, STEEL TEMPERATURE, AND WEATHER CONDITIONS. APPLY PAINT SO THE PAINTED AREAS HAVE A SMOOTH, UNIFORM, ADHERING COAT THAT IS FREE OF OVER-SPRAY, DRY SPRAY, MUD CRACKING, RUNS, SAGS, CRACKS, HOLIDAYS, OR OTHER DEFECTS.

3) DO NOT PAINT MACHINED SURFACES WITH SMALL CLEARANCES BETWEEN MOVING COMPONENTS, SUCH AS FULL CIRCLE PINS AND PIN HOLES, PARTIAL CIRCLE PINS AND PIN RECESSES IN CASTINGS, AND SIMILAR SURFACES. INSTEAD, SHOP COAT THESE SURFACES WITH AN APPLICATION OF WATERPROOF MULTIPURPOSE GREASE COMPLYING WITH NATIONAL LUBRICATING GREASE INSTITUTE NO. 3, OR OTHER APPROVED PROTECTIVE COATING. THOROUGHLY CLEAN MACHINED SURFACES BEFORE APPLYING GREASE. APPLY PROTECTIVE COATING AS SOON AS PRACTICAL AFTER COMPONENT PARTS HAVE BEEN MACHINED, WELDED IF REQUIRED, AND BLASTED.

4) BEFORE ERECTION, WIPE MACHINED SURFACES CLEAN AND APPLY A SECOND SHOP COAT OF THE SAME GREASE USED ABOVE.

b. STRUCTURAL STEEL APPLICATIONS.

1) GENERAL.

a) USE PRIME COAT, INTERMEDIATE COAT AND TOPCOAT PAINTS MANUFACTURED BY THE SAME COMPANY. PROTECT PAINTED SURFACES TO PREVENT SOILING DURING PAINTING AND THROUGH THE TACK-FREE STAGE. TAKE CARE NOT TO DAMAGE THE PAINT SYSTEM DURING HANDLING, DELIVERY, STORAGE, AND ERECTION OF THE STRUCTURAL STEEL. REPAIR PRIME COAT DAMAGE ATTRIBUTABLE TO SHOP ACTIVITIES ACCORDING TO THE PAINT MANUFACTURER'S RECOMMENDATIONS BEFORE SHIPMENT TO THE FIELD. REPAIR INTERMEDIATE COAT AND TOPCOAT DAMAGE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

b) SHOP APPLY A PRIME COAT TO STRUCTURAL STEEL SURFACES, INCLUDING FAYING SURFACES OF HIGH STRENGTH BOLT CONNECTIONS. ALSO SHOP APPLY A PRIME COAT TO ALL BEARING ASSEMBLIES, EXCEPT GALVANIZED MASONRY PLATES AND GALVANIZED SWEDGED BOLTS UNLESS SPECIFIED OTHERWISE IN THE PLANS.

2) SHEAR STUDS.

a) AFTER WELDING OF SHEAR STUDS, REPAIR PAINT DAMAGE ON THE UNDERSIDE OF THE TOP FLANGE.

3) PRIME COAT.

a) APPLY A COAT OF THE ORGANIC ZINC RICH PAINT FROM THE APPROVED FLUOROPOLYMER PAINT SYSTEM TO ALL SURFACES AS SOON AS POSSIBLE AFTER BLASTING AND BEFORE FORMATION OF ANY SURFACE RUST, AND NO LATER THAN 16 HOURS AFTER BLASTING THE SURFACE.

b) APPLY THE PRIMER AS RECOMMENDED BY THE MANUFACTURER IN A SINGLE APPLICATION TO OBTAIN A DRY FILM THICKNESS (DFT) AS LISTED IN THE MANUFACTURER'S PRODUCT DATA SHEET FOR THE PRIMER MATERIAL. APPLY THE PRIMER ABOVE THE BLAST PROFILE, SO THAT A UNIFORM APPEARANCE IS OBTAINED AFTER THE COATING IS CURED.

c) APPLY A STRIPE COAT BY BRUSH TO EDGES, WELDS, CREVICES, BOLT HEADS, AND OTHER SURFACE IRREGULARITIES WHEN APPLYING THE PRIMER COAT. THE STRIPE COAT MAY BE APPLIED TO THE SURFACE BY SPRAY AS LONG AS IT IS IMMEDIATELY AND THOROUGHLY WORKED INTO THESE AREAS BY BRUSH.

d) ALLOW THE PRIME COAT TO CURE ACCORDING TO THE COATING MANUFACTURER'S RECOMMENDATIONS BEFORE THE INTERMEDIATE COAT, WHEN DESIGNATED, IS APPLIED.

e) PERFORM REPAIRS OR BUILD-UP OF THE PAINT FILM AS SOON AS POSSIBLE, AND NO LATER THAN 24 HOURS FROM THE INITIAL APPLICATION.

f) COMPLETELY REBLAST AND REPAINT STEEL MEMBERS WITH COATING AREAS MEASURING LESS THAN THE MANUFACTURER'S MINIMUM RECOMMENDED DRY FILM THICKNESS THAT HAVE NOT BEEN CORRECTED WITHIN 24 HOURS.

g) CORRECT, TO THE ENGINEER'S SATISFACTION, ALL DEFECTS IN APPLICATION SUCH AS RUNS, SAGS, MUD CRACKING, OVER-SPRAY, AND DRY SPRAY.

h) EXCESSIVE COATING THICKNESS IS AS EQUALLY UNDESIRABLE AS UNACCEPTABLY THIN COATING THICKNESS, AND BOTH WILL BE SUFFICIENT CAUSE FOR REJECTION. EXCESSIVE THICKNESS WILL BE EVALUATED ON A CASE-BY-CASE BASIS IN CONSULTATION WITH THE COATING MANUFACTURER.

4) INTERMEDIATE COAT.

a) WHEN DESIGNATED BY THE CONTRACT DOCUMENTS, SHOP APPLY THE INTERMEDIATE COAT OF THE APPROVED FLUOROPOLYMER PAINT SYSTEM TO ALL PRIMED SURFACES, EXCEPT FAYING SURFACES, WHICH WILL BE PRIMED ONLY.

b) APPLY THE INTERMEDIATE COAT AS RECOMMENDED BY THE MANUFACTURER IN A SINGLE APPLICATION TO OBTAIN A DRY FILM THICKNESS AS LISTED IN THE MANUFACTURER'S PRODUCT DATA SHEET FOR THE MATERIAL. APPLY THE INTERMEDIATE COAT OVER THE PRIMER, SO THAT A UNIFORM APPEARANCE IS OBTAINED AFTER THE COATING IS CURED. USE A COLOR THAT CONTRASTS WITH THE PRIMER AND TOP COAT.

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

GENERAL NOTES

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 15 FILE NO. 30253 DESIGN NO. 120

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ILLINOIS FIRM NUMBER: 184-000214

DESIGN TEAM	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.3

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c) APPLY A STRIPE COAT BY BRUSH TO EDGES, WELDS, CREVICES, BOLT HEADS, AND OTHER SURFACE IRREGULARITIES WHEN APPLYING THE PRIMER COAT AND INTERMEDIATE SECOND COAT. THE STRIPE COAT MAY BE APPLIED TO THE SURFACE BY SPRAY AS LONG AS IT IS IMMEDIATELY AND THOROUGHLY WORKED INTO THESE AREAS BY BRUSH.

d) ALLOW THE INTERMEDIATE COAT TO CURE ACCORDING TO THE COATING MANUFACTURER'S RECOMMENDATIONS BEFORE THE FINISH COAT, WHEN DESIGNATED, IS APPLIED.

e) WHERE GALVANIZED FASTENERS ARE USED, PAINT ACCORDING TO IOWA DOT STANDARD SPECIFICATIONS ARTICLE 2408.02, Q, 2, B, 5, AFTER BOLTING. IT IS RECOMMENDED THAT APPLICATION BE INITIATED WITH A MIST COAT APPLIED PRIOR TO FULL COAT APPLICATION. TO AVOID MOISTURE CONDENSATION, KEEP THE INTERMEDIATE COAT UNDER A ROOF, PROTECTED FROM DIRT, DUST, AND MOISTURE, IN AN AREA WHERE THE TEMPERATURE IS MAINTAINED ABOVE 40°F (5°C) FOR A MINIMUM 24 HOURS AFTER PAINTING IS COMPLETED.

5) TOP COAT.

a) WHEN DESIGNATED BY THE CONTRACT DOCUMENTS, SHOP APPLY THE FLUOROPOLYMER TOP COAT OF THE APPROVED FLUOROPOLYMER PAINT SYSTEM TO ALL PAINTED SURFACES, EXCEPT FAYING SURFACES.

b) APPLY THE TOP COAT AS RECOMMENDED BY THE MANUFACTURER IN A SINGLE APPLICATION TO OBTAIN A DRY FILM THICKNESS AS LISTED IN THE MANUFACTURER'S PRODUCT DATA SHEET FOR THE MATERIAL. APPLY THE TOP COAT OVER THE INTERMEDIATE COAT, SO THAT A UNIFORM APPEARANCE IS OBTAINED AFTER THE COATING IS CURED.

c) APPLY A STRIPE COAT PRIOR TO FULL TOP COAT APPLICATION BY BRUSH TO EDGES, WELDS, CREVICES, BOLT HEADS, AND OTHER SURFACE IRREGULARITIES WHEN APPLYING THE PRIMER COAT AND INTERMEDIATE SECOND COAT. THE STRIPE COAT MAY BE APPLIED TO THE SURFACE BY SPRAY AS LONG AS IT IS IMMEDIATELY AND THOROUGHLY WORKED INTO THESE AREAS BY BRUSH.

d) WHERE GALVANIZED FASTENERS ARE USED, PAINT ACCORDING TO IOWA DOT STANDARD SPECIFICATIONS ARTICLE 2408.02, Q, 2, B, 5, AFTER BOLTING. IT IS RECOMMENDED THAT APPLICATION BE INITIATED WITH A MIST COAT APPLIED PRIOR TO FULL COAT APPLICATION. TO AVOID MOISTURE CONDENSATION, KEEP THE TOP COAT UNDER A ROOF, PROTECTED FROM DIRT, DUST, AND MOISTURE, IN AN AREA WHERE THE TEMPERATURE IS MAINTAINED ABOVE 40°F (5°C) FOR A MINIMUM 24 HOURS AFTER PAINTING IS COMPLETED.

e) TOP COAT COLOR FOR THE PEDESTRIAN BRIDGE STEEL SHALL BE FEDERAL STANDARD 595C COLOR 16099 WHICH IS A GRAY BLUE COLOR TO MATCH THE MAIN BRIDGE. CONTRACTOR TO VERIFY THAT THIS COLOR WAS USED ON THE MAIN BRIDGE OUTSIDE GIRDERS TO MATCH SINCE PEDESTRIAN BRIDGE WILL BE CONSTRUCTED AT A LATER DATE. SUBMIT TWO (2) PAINTED STEEL PLATES FOR EACH COLOR, MINIMUM SIZE 4 x 6 INCHES, PREPARED AND PAINTED IN ACCORDANCE WITH THESE SPECIAL PROVISIONS, TO THE IOWA DOT OFFICE OF MATERIALS FOR REVIEW AND APPROVAL PRIOR TO PRODUCTION PAINTING.

6) FIELD REPAIR AND PAINTING.

a) APPLY PAINT IN THE FIELD ONLY WHEN ENVIRONMENTAL CONDITIONS CONFORM TO SSPC GUIDELINES AND THE MANUFACTURER'S RECOMMENDATIONS.

b) AFTER ERECTION, REPAIR AND REPAINT DAMAGE TO THE PAINT SYSTEM DUE TO TRANSPORTATION, HANDLING, OR CONSTRUCTION ACTIVITIES.

c) FIELD PAINT ANY EXPOSED PRIMER AT FAYING SURFACES USING THE INTERMEDIATE COAT AND TOP COAT.

d) ALLOW ONLY PAINTERS WHO ARE TRAINED AND CERTIFIED BY THE PAINT MANUFACTURER FOR THE TYPE OF WORK PERFORMED TO APPLY THE PAINT. USE THE PRIMER, INTERMEDIATE COAT AND TOP COAT, AS APPLICABLE, FROM THE APPROVED FLUOROPOLYMER PAINT SYSTEM FOR ALL REPAIRS. THE INTERMEDIATE COAT MUST BE A DIFFERENT COLOR THAN BOTH THE PRIMER AND TOP COAT. USE THE PRIMER FOR PRIMING UN-GALVANIZED FASTENERS, AND ANY COATING DAMAGE TO GALVANIZED FASTENERS.

e) WHEN THE DAMAGE EXTENDS TO BARE STEEL OR BARE STEEL IS EXPOSED, CLEAN THE SURFACE ACCORDING TO SSPC-SP 10 OR SSPC-SP 11 AS APPROVED BY THE ENGINEER. WHEN THE DAMAGE DOES NOT EXPOSE THE UNDERLYING STEEL, CLEAN THE SURFACE ACCORDING TO SSPC-SP 3 TO REMOVE DAMAGED AND LOOSE COATING, AND RE-APPLY THE AFFECTED COATS. IF, IN THE OPINION OF THE ENGINEER, THE DAMAGE IS TOO EXTENSIVE FOR LOCALIZED POWER TOOL CLEANING, CLEAN THE SURFACE ACCORDING TO SSPC-SP 7 TO REMOVE ALL LOOSE AND DAMAGED MATERIAL, AND REAPPLY THE AFFECTED COATS. FOR ALL REPAIRS, ROUGHEN THE COATING IN DAMAGED AREAS TO ENSURE GOOD ADHESION OF THE REPAIR MATERIAL TO THE UNDERLYING COATING. FEATHER THE SURROUNDING COATING TO EXPOSE A MINIMUM OF 1 INCH OF EACH COAT AND TO PROVIDE A SMOOTH TRANSITION INTO INTACT, ADHERENT MATERIAL, FOR ALL COATS.

f) ENSURE AREAS TO BE REPAIRED AND REPAINTED ARE CLEAN, DRY, AND FREE FROM GREASE, OIL, CORROSION PRODUCTS, AND OTHER DETRIMENTAL MATERIALS. DO NOT APPLY PAINT TO SURFACES UNLESS THEY ARE FREE FROM MOISTURE OR FROST. IF THE PAINT MANUFACTURER'S REPAIR PROCEDURES CONFLICT WITH THIS SECTION, OR REQUIRE ADDITIONAL CLEANING, SUBMIT RECOMMENDATIONS TO THE ENGINEER FOR APPROVAL.

g) SHIELD CONCRETE AT ALL JUNCTION POINTS OF CONCRETE AND STEEL SO THAT APPLICATION OF PAINT ON STEEL IS COMPLETE WITHOUT OVERSPRAY ON THE CONCRETE.

7) CLEANING OF PAINT SURFACES.

UPON COMPLETION OF CONCRETE PLACEMENT, CLEAN EXPOSED STRUCTURAL STEEL SURFACES TO REMOVE ALL CONCRETE AND LAITANCE BEFORE THE CONCRETE SETS UP.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

THE WORK DESCRIBED IN THESE SPECIFICATIONS WILL NOT BE MEASURED OR PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM, "STRUCTURAL STEEL" FOR THE PEDESTRIAN BRIDGE.

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ILLINOIS FIRM NUMBER: 184-000214

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

GENERAL NOTES

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 15 FILE NO. 30253 DESIGN NO. 120

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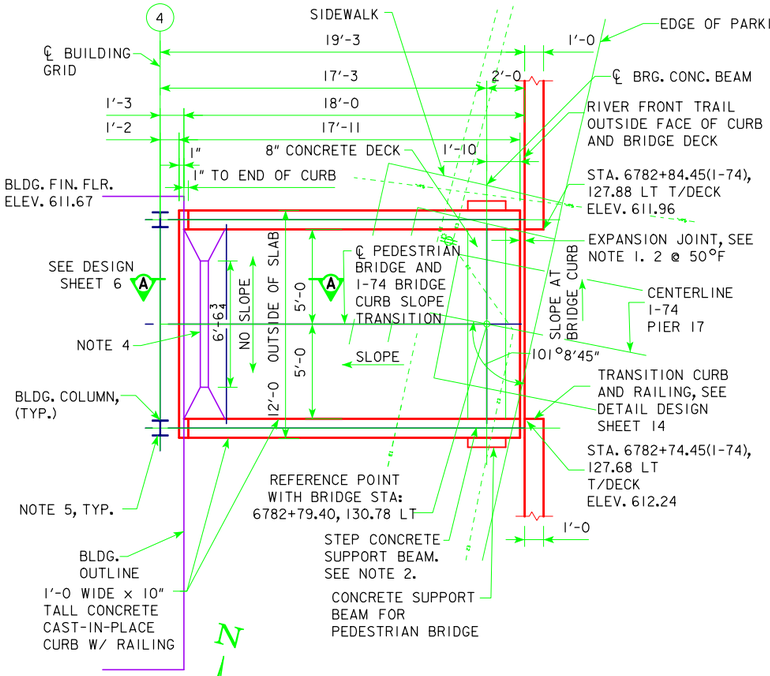
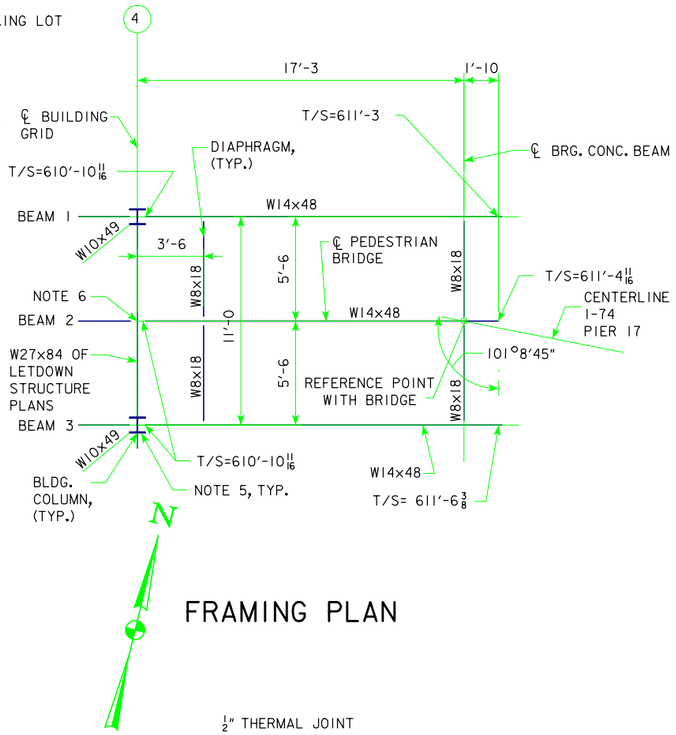
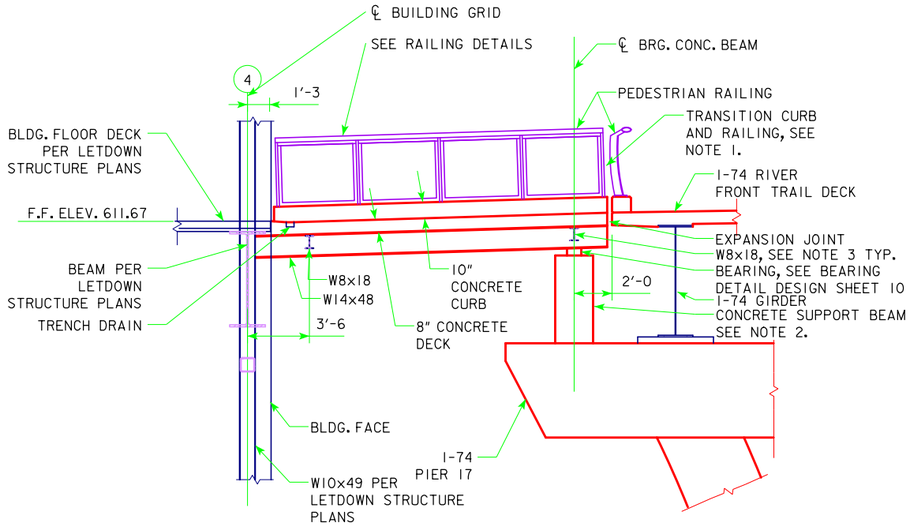


SITUATION PLAN



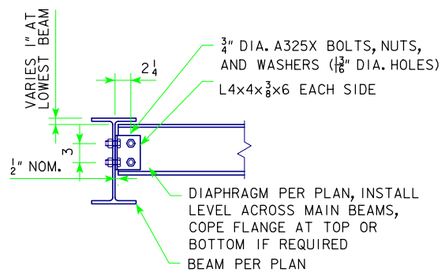
FRAMING PLAN



LONGITUDINAL SECTION

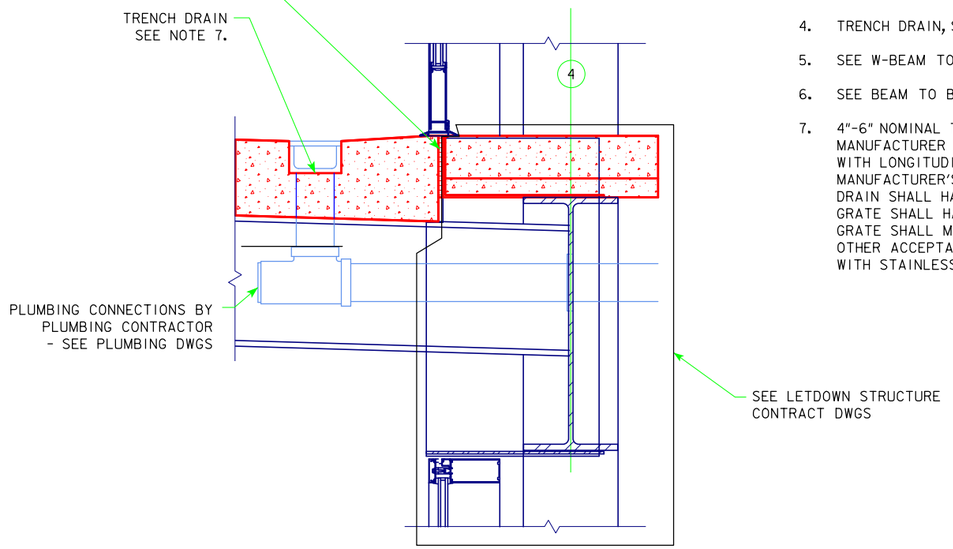
NOTES:

1. SEE CONCRETE DECK EXPANSION JOINT DETAILS AND CURB AND RAILING TRANSITION DETAILS SHEET.
2. CONCRETE SUPPORT BEAM AT PIER 17 IS PART OF PROJECT NUMBER IM-NHS-074-1(200)5--03-82.
3. SEE DIAPHRAGM CONNECTION THIS SHEET.
4. TRENCH DRAIN, SEE BRIDGE TO LETDOWN STRUCTURE DETAIL.
5. SEE W-BEAM TO W-COLUMN DETAIL, DESIGN SHEET 6.
6. SEE BEAM TO BEAM CONNECTION DETAIL, DESIGN SHEET 6.
7. 4"-6" NOMINAL TRENCH DRAIN, ACO SLABDRAIN - HIOOKS-8 OR ACCEPTABLE MANUFACTURER LISTED BELOW. STAINLESS STEEL EDGE RAIL CHANNEL SYSTEM WITH LONGITUDINAL STAINLESS GRATE TYPE 447Q INSTALL PER MANUFACTURER'S INSTRUCTIONS WITH NO SLOPE.
   DRAIN SHALL HAVE MIN. EUROPEAN, EN 1433 LOAD CLASS B RATING AND GRATE SHALL HAVE MIN. EUROPEAN, EN 1433 LOAD CLASS B RATING.
   GRATE SHALL MEET ADA AND BICYCLE REQUIREMENTS.
   OTHER ACCEPTABLE MANUFACTURERS INCLUDE ZURN Z-886 AND MIFAB TI560-3 WITH STAINLESS STEEL RAIL AND GRATING.



NOTES:
1. PROVIDE THE NUMBER OF BOLTS SHOWN BELOW
   W8 - 2 ROWS
2. COPE BEAMS AS REQUIRED FOR CLEARANCE.

DIAPHRAGM CONNECTION



BRIDGE TO LETDOWN STRUCTURE DETAIL

LOCATION

(RELOCATED) I-74 AT MISSISSIPPI RIVER
T-78N R-3E
SCOTT COUNTY
CITY OF BETTENDORF
LATITUDE 41.522759°
LONGITUDE -90.513028°

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

SITUATION PLAN, FRAMING PLAN

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 15 FILE NO. 30253 DESIGN NO. 120

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DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.5

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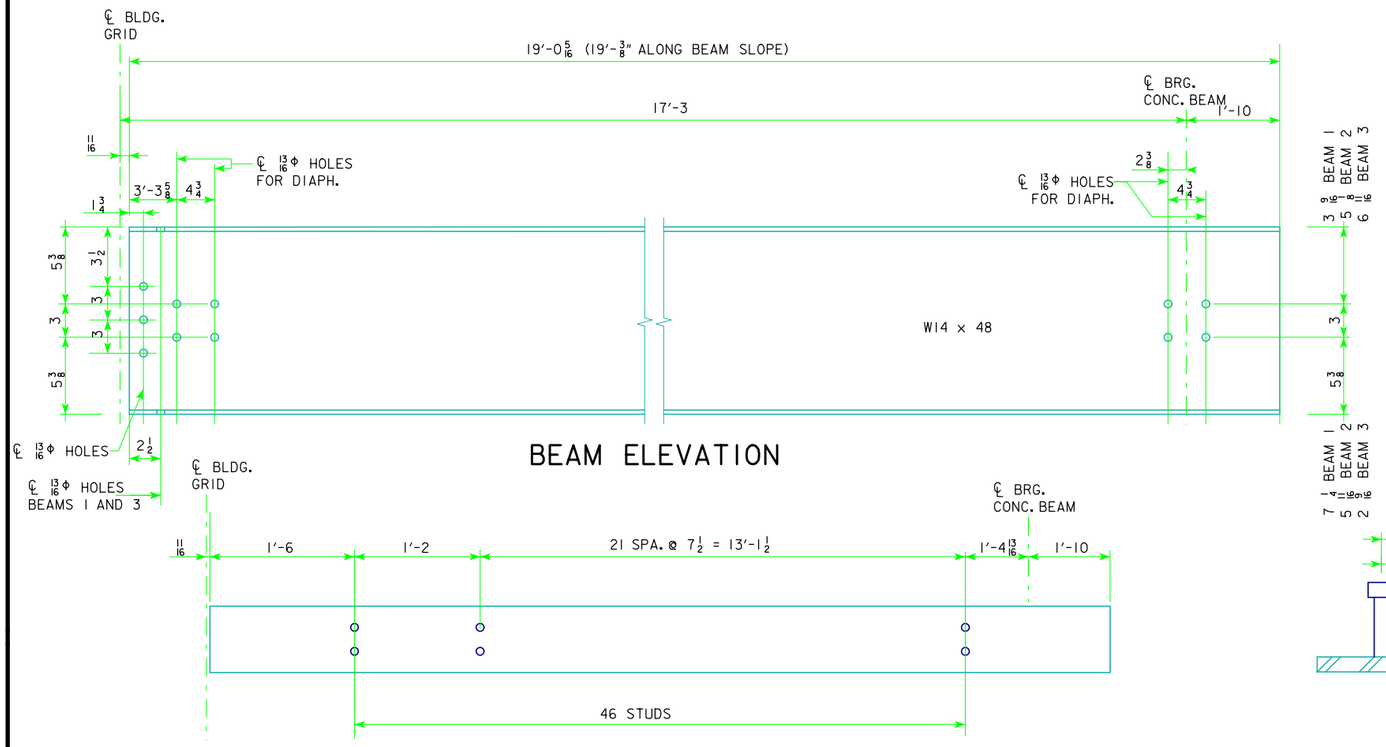

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DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

BEAM DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 6 OF 15 FILE NO. 30253 DESIGN NO. 120

DESIGN TEAM JCM/MAR/BLH	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.6

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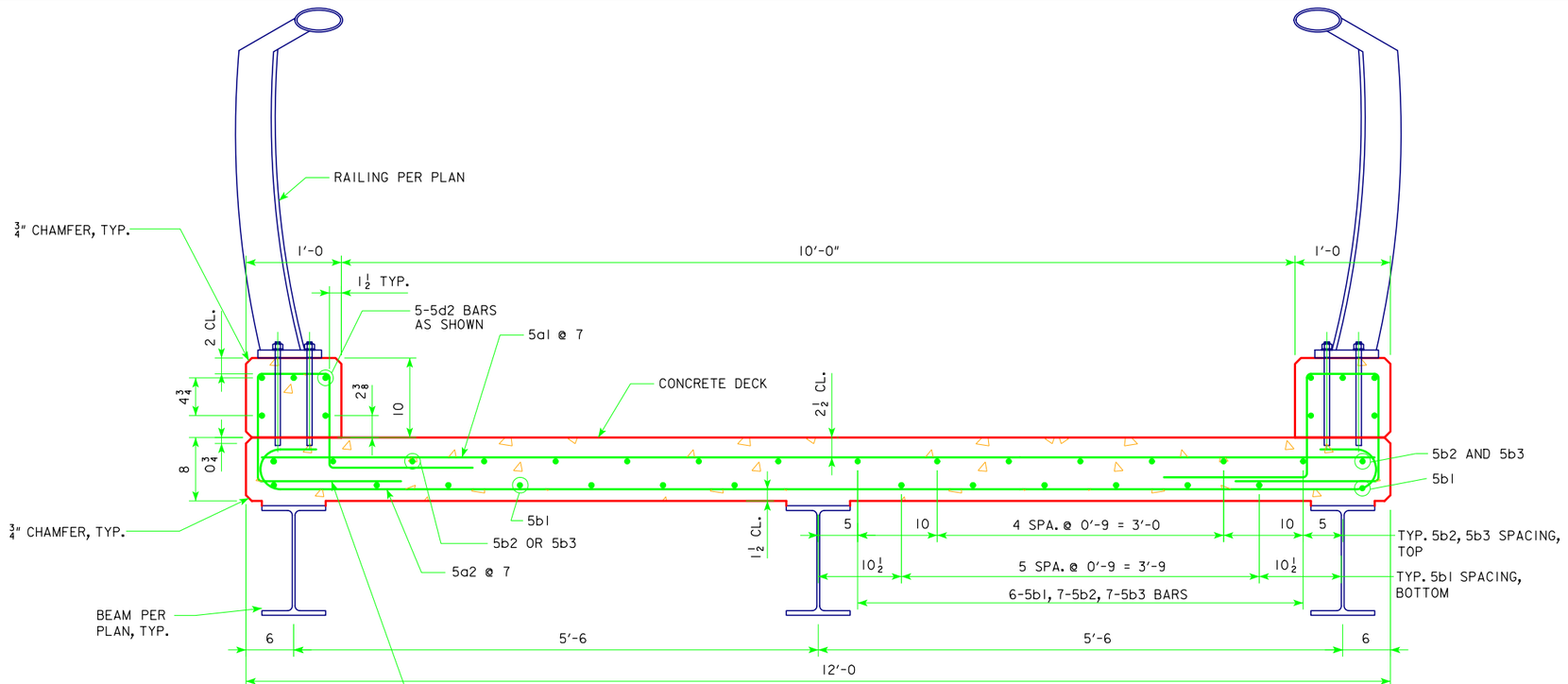
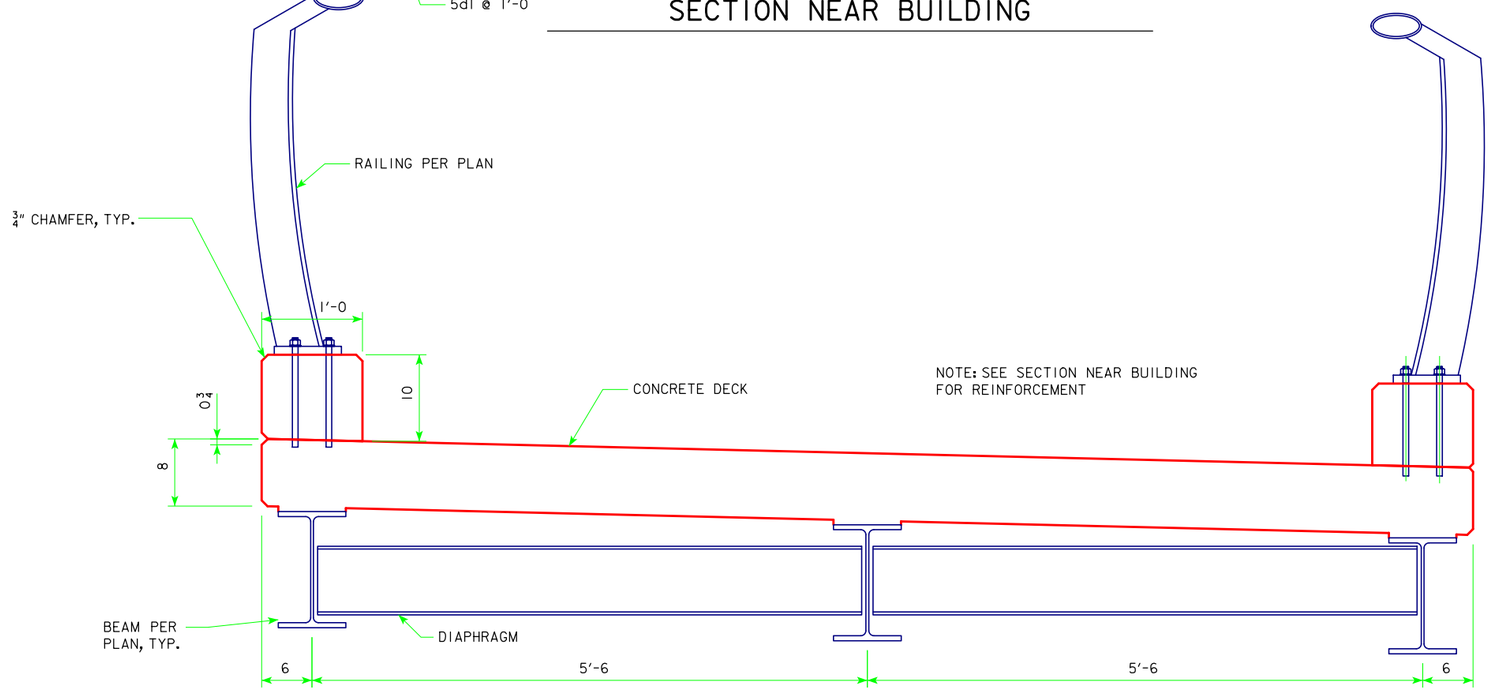


SECTION NEAR BUILDING



SECTION AT CENTERLINE CONC. BEAM

SUPERSTRUCTURE NOTES:

FORMS FOR THE SLAB AND CURB ARE TO BE SUPPORTED BY THE BEAMS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

TOP TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 2½" CLEAR BELOW TOP OF SLAB. BOTTOM TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 1½" CLEAR ABOVE BOTTOM OF SLAB. TOP AND BOTTOM REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS LONGITUDINALLY AND TRANSVERSELY, OR BY CONTINUOUS ROWS OF BAR HIGH CHAIRS OR SLAB BOLSTERS SPACED 4'-0 APART. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS, BAR HIGH CHAIRS, AND SLAB BOLSTERS.

ALL REINFORCEMENT IN PEDESTRIAN BRIDGE SHALL BE EPOXY COATED. EXCEPT FOR BAR 5d1.

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

TRANSVERSE SECTION

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 7 OF 15 FILE NO. 30253 DESIGN NO. 120

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DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.7

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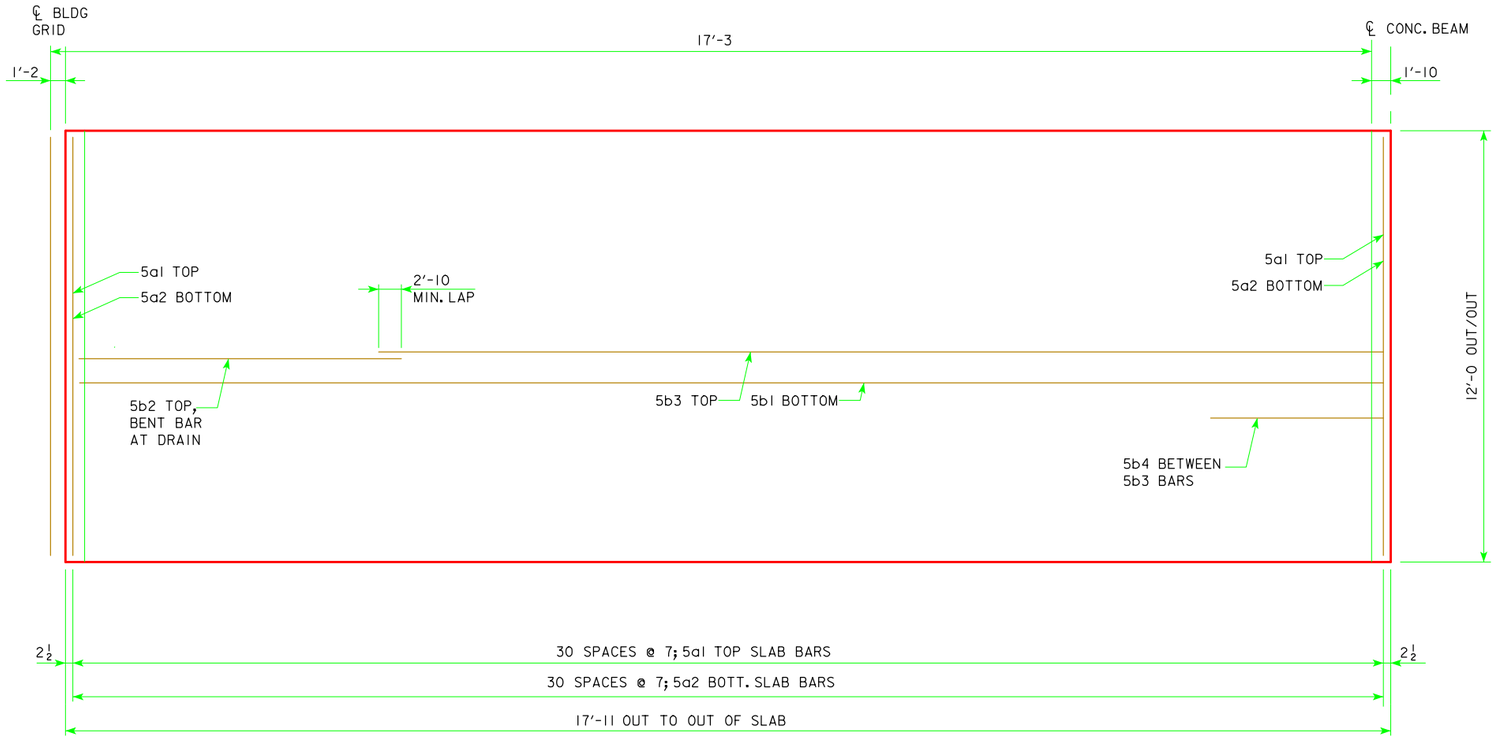


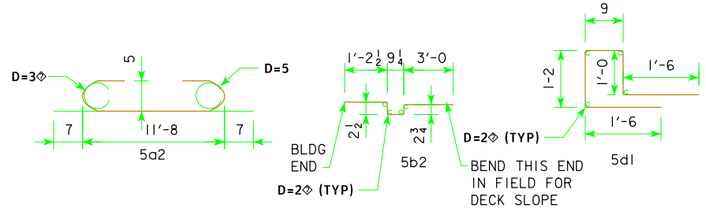
SLAB REINFORCING LAYOUT

STAINLESS STEEL REINFORCING BAR LIST

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5d1	CURB BENT		56	5'11	346
REINFORCING STEEL STAINLESS STEEL (LBS.)			TOTAL (LBS)		346

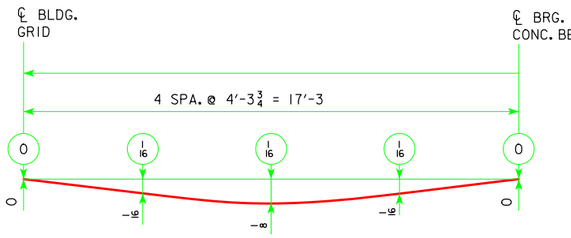
EPOXY COATED REINFORCING BAR LIST

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	SLAB TRANSVERSE, TOP		31	11'8	377
5a2	SLAB TRANSVERSE, BOTTOM		31	12'10	455
5b1	SLAB LONGITUDINAL BOTTOM		14	17'7	257
5b2	SLAB LONGITUDINAL BENT TOP		16	5'5	90
5b3	SLAB LONGITUDINAL TOP		16	16'2	270
5b4	SLAB LONGITUDINAL TOP		15	4'6	70
5d2	CURB LONGITUDINAL		10	17'5	182
REINFORCING EPOXY COATED STEEL (LBS.)			TOTAL (LBS)		1701



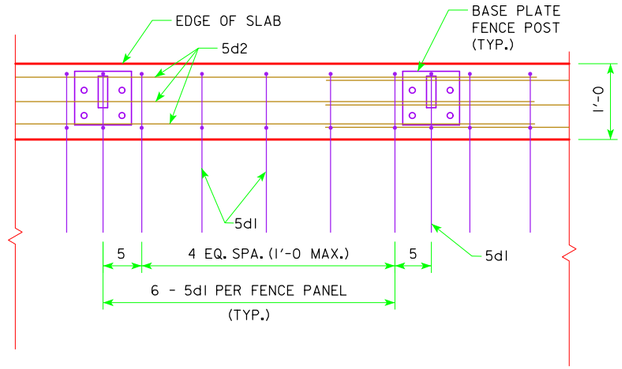
BENT BAR DETAILS

NOTE: ALL DIMENSIONS ARE OUT TO OUT.
D= PIN DIAMETER



DEAD LOAD DEFLECTION DIAGRAM

NOTES:
1. ENCIRCLED NUMBERS INDICATE ANTICIPATED DEFLECTION DUE TO CONCRETE ONLY.
2. DEFLECTIONS ARE IN INCHES.



CONCRETE PARAPET PLAN

(SLAB REINFORCING NOT SHOWN)

MOMENT AND REACTION TABLE

MOMENT - foot-kips — REACTION - kips

LOAD NAME		LOAD - k/ft		POSITIVE MOMENT 0.5 PT. SPAN		REACTION ℄ BLDG. GRID		REACTION ℄ CONC. BEAM	
		INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR
DC1		0.56*	0.33*	22.3	13.8	5.2	3.2	6.4	4.0
DC2		0.097	0.097	3.6	3.6	0.8	0.8	1.0	1.0
DW		0.07	0.07	2.5	2.5	0.6	0.6	0.7	0.7
LIVE LOAD +IMPACT H10	MOMENT DISTRIBUTION FACTOR	MOMENT 0.545	MOMENT 0.400	37.7	27.7	-	-	-	-
	REACTION DISTRIBUTION FACTOR	REACTION 0.545	REACTION 0.400	-	-	9.1	6.7	9.1	6.7
LIVE LOAD UNIFORM		0.28	0.28	6	6	2.4	2.4	3.0	3.0
TOTAL				66.1	47.6	15.7	11.3	17.2	12.4

* LOAD VALUES DO NOT INCLUDE GIRDER WEIGHT. MOMENT AND REACTION VALUES DO INCLUDE GIRDER WEIGHT. MOMENTS AND REACTIONS SHOWN ARE UNFACTORED. IMPACT IS ZERO. LIVE LOADS DO NOT ACT CONCURRENTLY.

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

SLAB REINFORCING LAYOUT

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 — JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 15 FILE NO. 30253 DESIGN NO. 120

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DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.8

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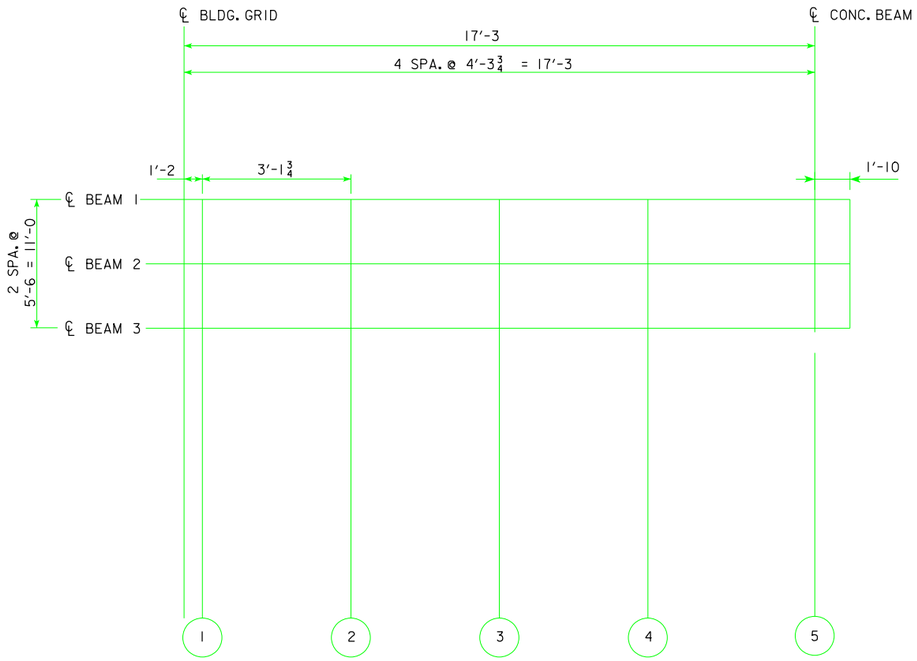
TOP OF SLAB ELEVATIONS

	END AT BLDG.				℄ CONC. BEAM
LOCATION	1	2	3	4	5
BEAM 1	611.67	611.68	611.76	611.84	611.92
BEAM 2	611.67	611.71	611.82	611.93	612.05
BEAM 3	611.67	611.74	611.89	612.03	612.18



LOCATION OF TOP OF SLAB ELEVATIONS

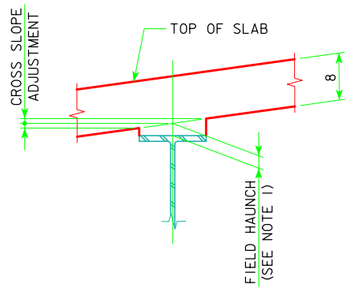
TABLE OF BEAM LINE HAUNCH ELEVATIONS

	END AT BLDG.				℄ CONC. BEAM
LOCATION	1	2	3	4	5
BEAM 1	611.00	611.02	611.10	611.18	611.25
BEAM 2	611.00	611.05	611.16	611.27	611.38
BEAM 3	611.00	611.08	611.23	611.37	611.51

MISCELLANEOUS DATA TABLE

	BEAM LINE		END AT BLDG.				℄ CONC. BEAM
			1	2	3	4	5
ANTICIPATED DEFLECTION DUE TO SLAB (IN.)	ALL		0	1/16	1/16	1/16	0
CROSS SLOPE ADJUSTMENTS (IN.)	ALL (AT ℄ CONC. BEAM)		±1/16				
ALLOWABLE FIELD HAUNCH (IN. & FT.)	MAX.	ALL	2" (0.167)				
	MIN.	ALL	0" (0.000)				

NOTE:
HAUNCH LOCATIONS ARE AT THE SAME LOCATION AS THE ENCIRCLED LETTERS AND NUMBERS SHOWN ON SLAB ELEVATIONS SHEET.



HAUNCH DETAIL

NOTE 1:
TO CALCULATE FIELD HAUNCH REQUIRED AT EACH LOCATION, SURVEY THE BEAM TOPS CONSISTENT WITH THE SPACINGS SHOWN ON THE "TOP OF SLAB ELEVATIONS LAYOUT" ON SLAB ELEVATIONS SHEET. SUBTRACT THE SURVEYED BEAM SHOT FROM THE "BEAM LINE HAUNCH ELEVATION". THIS VALUE WILL BE THE HAUNCH NEEDED (SEE "FIELD HAUNCH" IN HAUNCH DETAIL). THE "BEAM LINE HAUNCH ELEVATION" INCLUDES ADJUSTMENTS FOR SLAB THICKNESSES AND ANTICIPATED DEFLECTIONS. NO ADDITIONAL CALCULATIONS ARE REQUIRED. IF THE FIELD HAUNCH EXCEEDS THE MAXIMUMS AND MINIMUMS, SHOWN IN INCHES AND DECIMALS FEET IN THE MISCELLANEOUS DATA TABLE, ADJUSTMENTS TO THE GRADE OR ADDITIONAL HAUNCH REINFORCEMENT WILL BE REQUIRED.

NOTE:
BRIDGE SEAT ELEVATIONS ARE SET BASED ON THEORETICAL CAMBER AND BEAM DEFLECTIONS. THESE BRIDGE SEATS WILL PROVIDE A THEORETICAL BEAM HAUNCH WITHIN DESIGN PARAMETERS. ACTUAL HAUNCHES ARE DETERMINED USING SURVEYED TOP OF BEAM ELEVATIONS AND "BEAM LINE HAUNCH ELEVATIONS" DATA. ALLOWABLE MAXIMUM AND MINIMUM "FIELD HAUNCH" VALUES SHOWN IN INCHES AND DECIMALS FEET ARE GIVEN IN THE "MISCELLANEOUS DATA" TABLE. "CROSS SLOPE ADJUSTMENT" VALUES WILL AID THE CONTRACTOR IN DETERMINING ACTUAL FORMED HAUNCH DIMENSIONS AT THE EDGES OF THE TOP FLANGE.

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

SLAB ELEVATIONS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 **JULY, 2019**

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 9 OF 15 FILE NO. 30253 DESIGN NO. 120

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ILLINOIS FIRM NUMBER: 184-000214

DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.9

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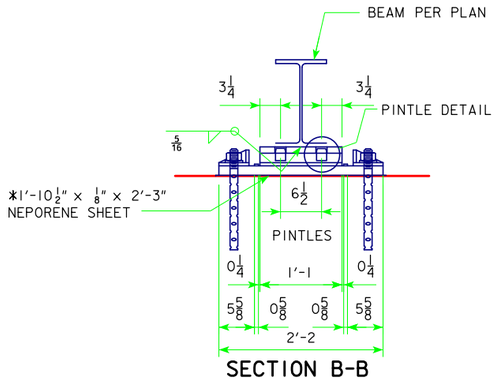

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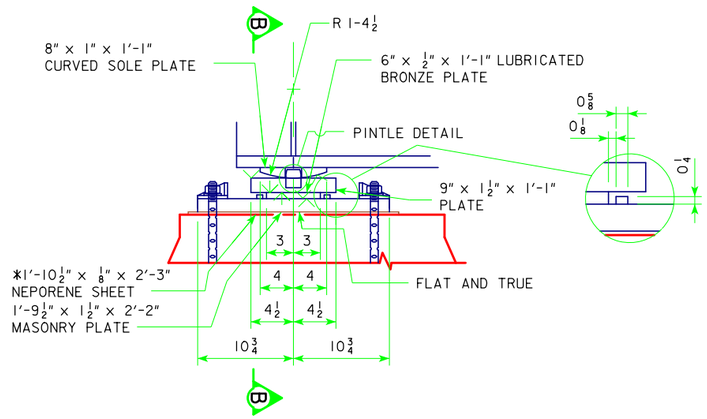
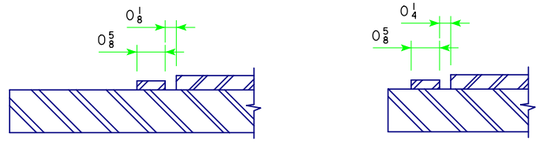
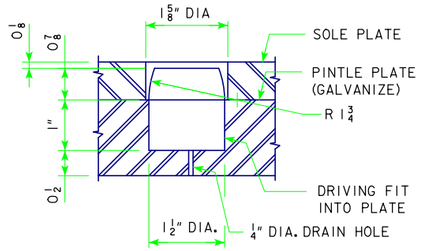


PART ELEVATION

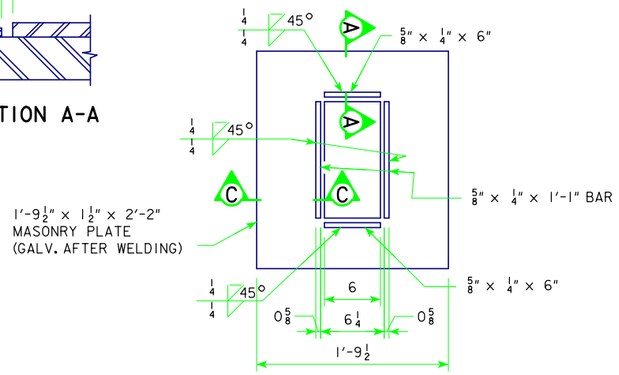


SECTION C-C

SECTION A-A



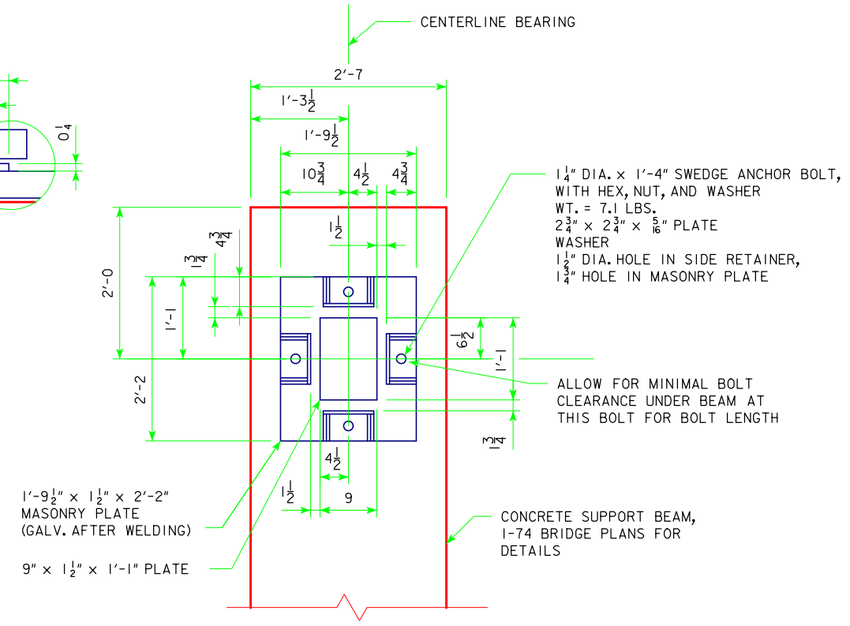
PINTLE DETAIL



PLAN OF MASONRY PLATE
AND BRONZE PLATE

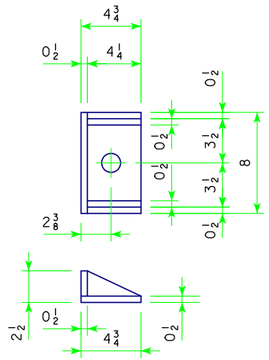
NOTE: SIDE RETAINERS NOT SHOWN

PEDESTRIAN BRIDGE STEEL BEAM BEARING DETAILS

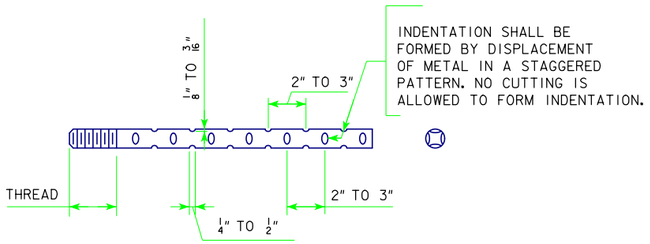


NOTE: BRONZE PLATE AND BARS NOT SHOWN

BEARING PLAN



SIDE RETAINER DETAIL



ANCHOR BOLT SWEDGE DETAIL

BEARING NOTES:

SURFACES MARKED "V" SHALL BE FINISHED ANSI 250 AND SURFACES MARKED "V" SHALL BE FINISHED ANSI 125.
THE SLIDING SURFACE OF THE BRONZE PLATE SHALL BE LUBRICATED IN ACCORDANCE WITH ARTICLE 4190.03, OF THE STANDARD SPECIFICATIONS, AND THE BRONZE METAL SHALL BE CAST BRONZE IN ACCORDANCE WITH ARTICLE 4190.03 OF THE STANDARD SPECIFICATIONS. TOP EDGES OF BRONZE PLATE SHALL BE BEVELED ⅛".
MASONRY PLATES ARE TO BE SET ON A ⅛" NEOPRENE SHEET.
SOLE PLATES, PINTLE PLATES, MASONRY PLATES, AND LUBRICATED BRONZE PLATES ARE PART OF THE SUPERSTRUCTURE STRUCTURAL STEEL QUANTITY. COST OF NEOPRENE SHEETS SHALL BE CONSIDERED INCIDENTAL TO THE STRUCTURAL STEEL BID ITEM. THE UNIT PRICE BID FOR STRUCTURAL STEEL SHALL INCLUDE ALLOWANCE FOR COST OF BRONZE PLATES.
THE PINTLE PLATE, MASONRY PLATE, AND SIDE RETAINERS SHALL BE GALVANIZED.
WELDING SHALL BE DONE BEFORE GALVANIZING.
ANCHOR BOLTS SHALL BE SET IN ACCORDANCE WITH ARTICLE 2405.03, H. OF THE STANDARD SPECIFICATIONS.
SWEDGE ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED. GALVANIZING SHALL BE IN ACCORDANCE WITH ARTICLE 4100.07, OF THE STANDARD SPECIFICATIONS.
PLATE WASHERS SHALL BE ASTM A709 GRADE 36 (AAHSTO M270 GRADE) STEEL.

DESIGN NOTES:

1. TOTAL VERTICAL DESIGN LOAD (DC+LL) AT SERVICE LIMIT STATE = 18k.
2. BEARINGS AS DESIGNED WILL ALLOW UP TO 1.5 INCHES OF MOVEMENT EACH WAY OF CENTERLINE OF BEARING IN EAST-WEST DIRECTION AND 1.75" MOVEMENT EACH WAY IN NORTH-SOUTH DIRECTION.

*THE 1/8 INCH NEOPRENE SHEETS ARE TO BE 50, 60, OR 70 DUROMETER HARDNESS AND SHALL BE 1 INCH GREATER IN LENGTH AND WIDTH THAN THE BOTTOM SURFACE OF THE MASONRY PLATES OR STEEL BEARINGS.

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

BEARING DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 10 OF 15 FILE NO. 30253 DESIGN NO. 120

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DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.10

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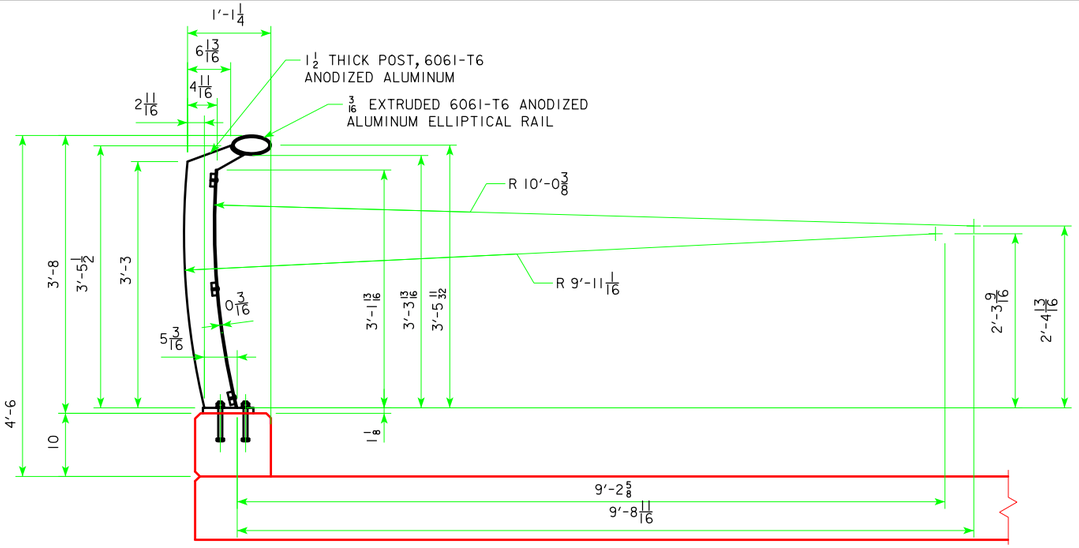
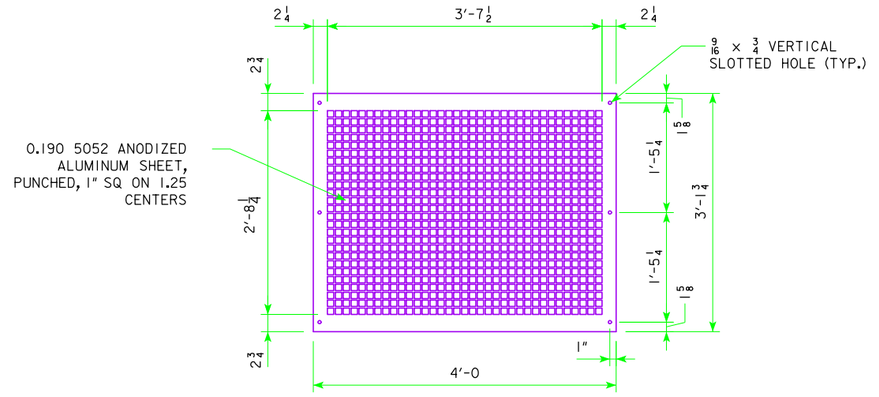
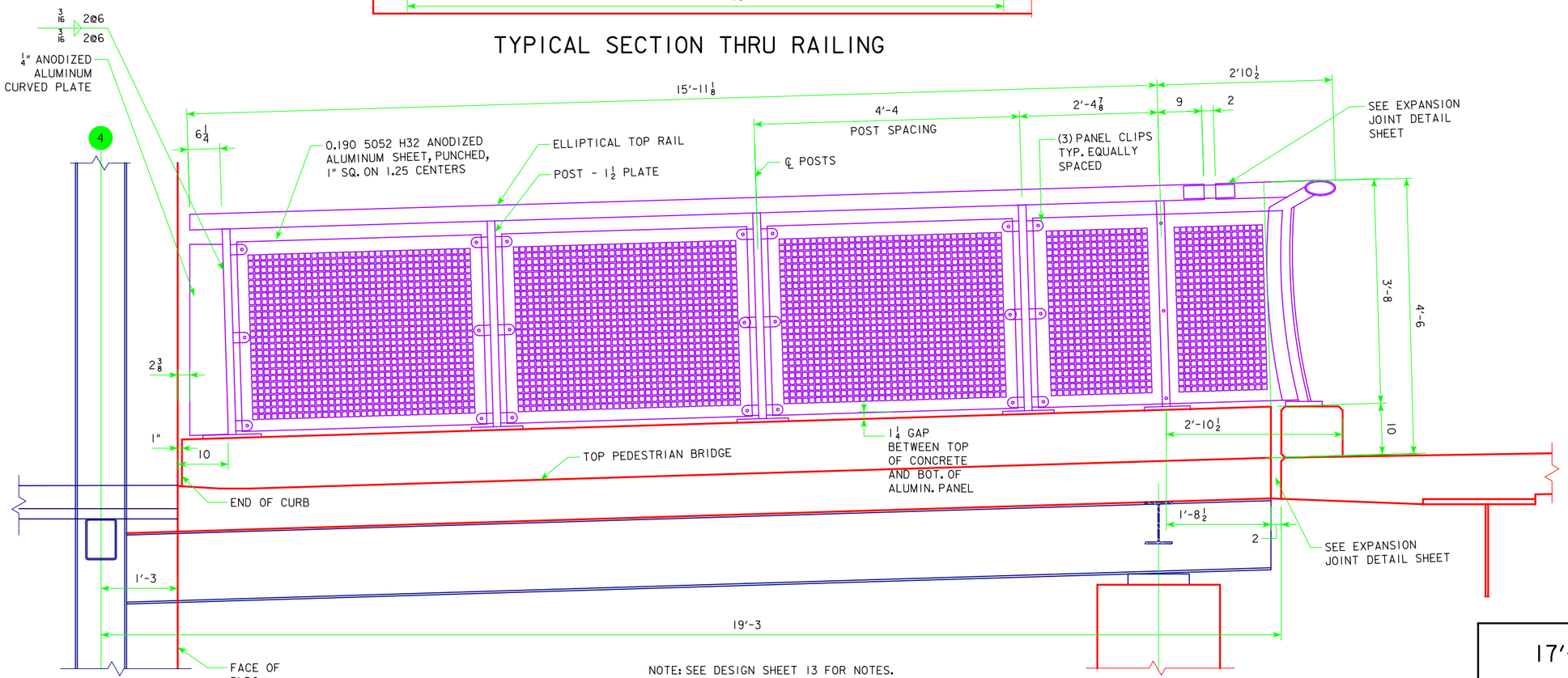


TYPICAL SECTION THRU RAILING



PANEL LAYOUT (FLATTENED)



NOTE: SEE DESIGN SHEET 13 FOR NOTES.

RAILING TYPICAL ELEVATION

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

RAILING DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 15 FILE NO. 30253 DESIGN NO. 120

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DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.11

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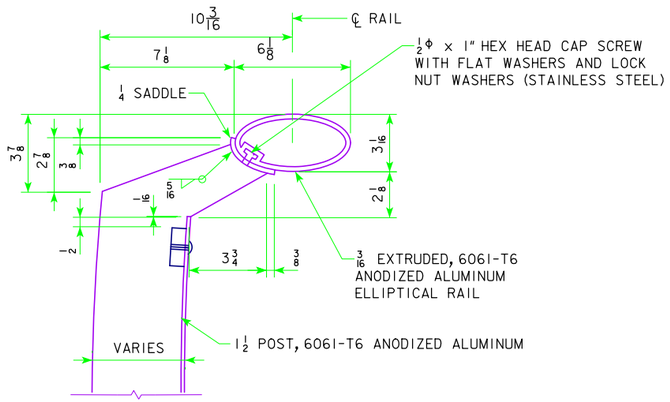
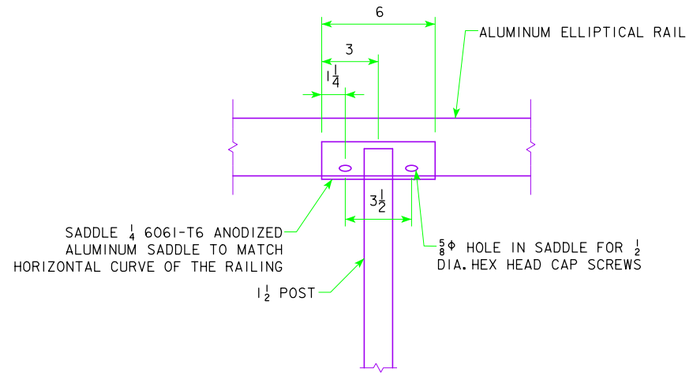
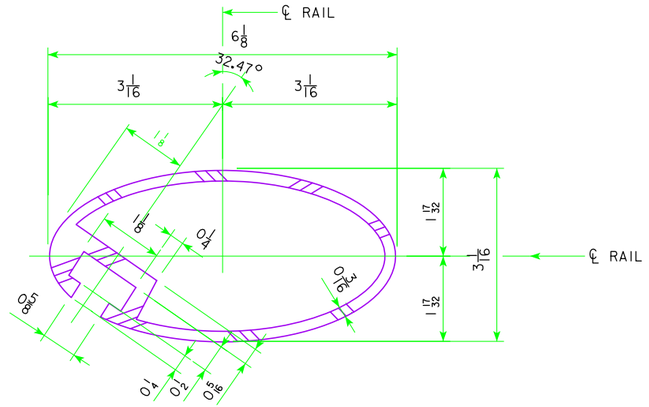


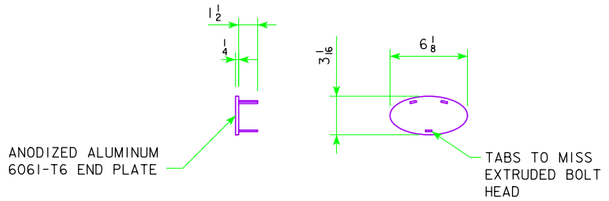
ELLIPTICAL RAILING POST CONNECTION DETAIL



ELLIPTICAL RAILING CONNECTION LOOKING AT BACK FACE

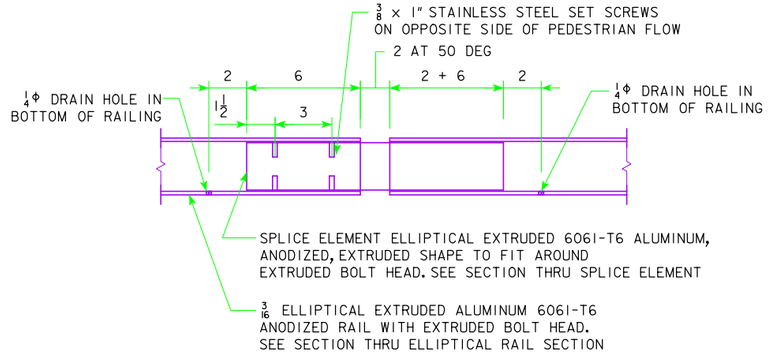


SECTION THRU ELLIPTICAL RAIL SECTION

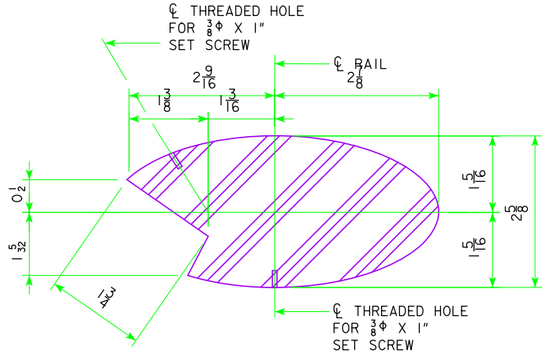


CAST END CAP FOR ELLIPTICAL RAIL

DRIVE FIT TYPE



TYPICAL ELLIPTICAL RAILING EXPANSION JOINT SPLICE DETAIL



SECTION THRU SPLICE ELEMENT

NOTE: SPLICE MUST BE A SLIDING FIT IN RAIL SECTION

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DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

RAILING DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 12 OF 15 FILE NO. 30253 DESIGN NO. 120

DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.12

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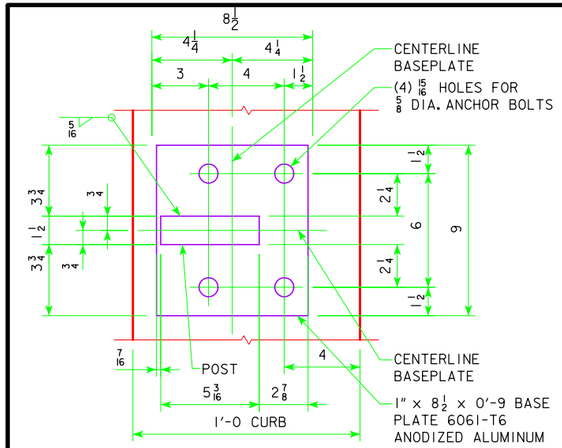
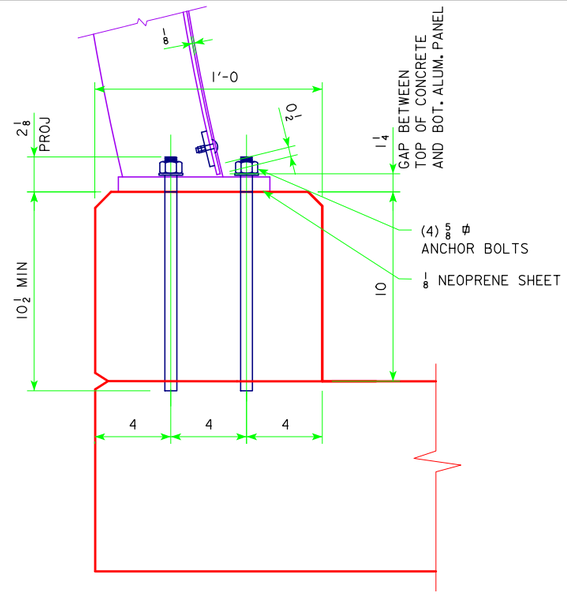
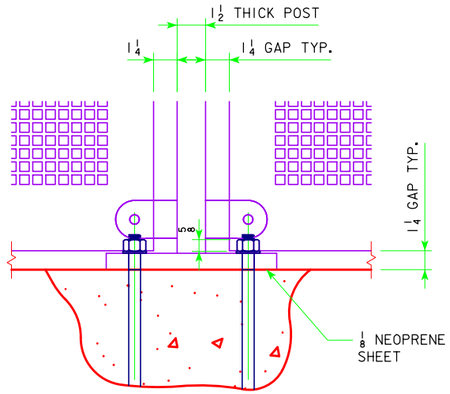


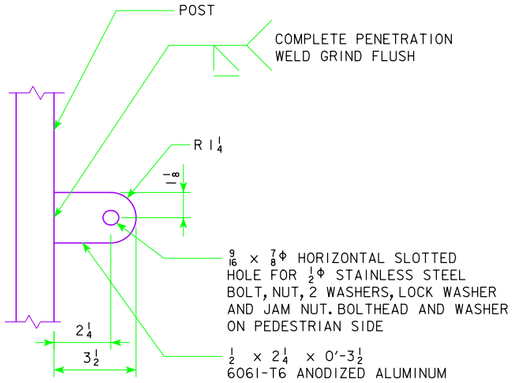
TYPICAL BASE PLATE PLAN DETAIL



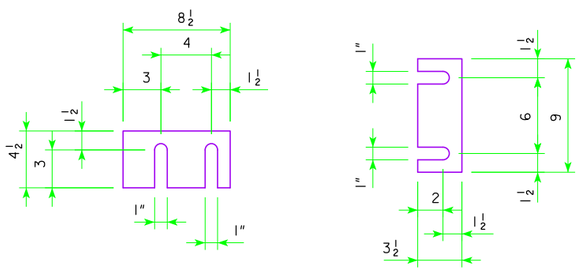
SECTION THRU BASE OF RAILING



TYP. BOTTOM OF PANEL DETAIL



RAILING PANEL CLIP CONNECTION



SHIM DETAILS

PEDESTRIAN RAILING NOTES

THE PEDESTRIAN RAIL IS TO BE BID ON A LINEAL FOOT BASIS FOR EACH TYPE, MEASURED END TO END OF RAIL. THE PRICE BID FOR PEDESTRIAN RAIL OF EACH TYPE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, INCLUDING ANCHOR BOLTS AND SHIMS, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.

ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE IOWA STANDARD SPECIFICATIONS WITH CURRENT GENERAL SUPPLEMENTAL SPECIFICATIONS.

ENDS OF RAIL SECTIONS ARE TO BE SAWED OR MILLED. ALL CUT ENDS ARE TO BE TRUE, SMOOTH, AND FREE OF BURRS OR RAGGED EDGES.

NO PAINTING WILL BE REQUIRED.

STAINLESS STEEL BOLTS SHALL BE ACCORDING TO ASTM A193-12B, CLASS I B8 (30 KSI MINIMUM OR 223 HB MINIMUM) OR CLASS 2 B8 (50 KSI MINIMUM OR 321 HB MINIMUM). STAINLESS STEEL NUTS SHALL BE ACCORDING TO ASTM A194-12 GRADE 8, 8M, OR 8F WITH A UNC SERIES CLASS 2B FIT. STAINLESS STEEL WASHERS SHALL BE PLAIN FLAT, TYPE 304 OR 304L, ACCORDING TO FEDERAL SPECIFICATION FF-W-92. STAINLESS STEEL BOLTS SHALL BE SNUG TIGHTENED IN ACCORDANCE WITH IM 453.07.

ANCHOR BOLTS SHALL BE 5/8" DIA., A193-12B GR. B7, BE FULLY THREADED WITH HEAVY HEX NUTS AND ONE HARDENED WASHER AND ONE 1¾" O.D. WASHER EACH. EMBED THREADED RODS 10½" MIN. INTO CONCRETE PARAPET. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329. ADHESIVE BONDING MATERIAL SYSTEM SHALL BE IN ACCORDANCE WITH MATERIALS I.M. 491.11. INSTALLED ANCHORS SHALL BE CAPABLE OF OBTAINING AN ULTIMATE LOAD PER THREADED ROD OF 8 KIPS IN TENSION FOR THE SPACING AND EDGE DISTANCE SHOWN IN THE PLANS.

ALUMINUM POST AND FRAMING MEMBERS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM B221-12 AND ASTM B429-10 AND BE OF GRADE 6061-T6 AND MEET AMERICAN NATIONAL STANDARD DIMENSIONAL TOLERANCES FOR ALUMINUM MILL PRODUCTS. ALUMINUM 5052 H34 SHEET PANELS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM B209-10.

ANY WELDS WITH BURRS ON THE FRAMING MEMBER SHALL BE GROUND FLUSH. WELDING SHALL COMPLY WITH THE REQUIREMENTS OF AWS D1.2, STRUCTURAL WELDING CODE - ALUMINUM.

ALUMINUM FILLER ALLOY ER5356 OR ER5556 SHALL BE USED (IOWA DOT STANDARD SPECIFICATIONS 4187.01, A, 7). ONLY MICROSCOPICALLY CLEAN WELDING WIRE (THOSE WHICH HAVE BEEN SHAVED AFTER DRAWING) SHOULD BE USED, AND SPOOLS OF WIRE REMAINING AT THE END OF THE DAY'S PRODUCTION SHOULD BE SEALED IN POLYETHYLENE BAGS. WELDING WIRE IN DRIVE ROLLS AND GUN NOT SO PROTECTED SHALL BE DISCARDED.

THE INSTALLED ORIENTATION OF THE PUNCHED PANELS MUST BE PUNCHED TOWARD THE INSIDE, WITH THE BREAKOUT SIDE TOWARD THE OUTSIDE IN CASE OF SHARP EDGES AND FOR CONSISTENT APPEARANCE. PUNCHED PANELS SHALL EXHIBIT NO BURRS. IF RAW ALUMINUM STOCK EXHIBITS DIFFERENT FINISHES ON EACH FACE, THE PUNCHING SHALL BE PREFORMED ON THE BRIGHTEST FACE, WHICH SHALL THEN BE MOUNTED TOWARD THE PEDESTRIAN SIDE.

ALL AREAS TO BE WELDED SHALL BE BRUSHED WITH STAINLESS STEEL BRUSHES IMMEDIATELY PRIOR TO WELDING. ALL ALUMINUM WELDING SHALL BE PERFORMED BY THE GAS METAL ARC WELDING (GMAW) PROCESS. ONLY THE STRINGER BEAD TECHNIQUE SHALL BE USED. INTERPASS TEMPERATURE SHALL NOT EXCEED 200 DEGREES FAHRENHEIT. ALL INITIAL ROOT PASSES SHALL NOT EXCEED 5/16 INCH AND MUST PENETRATE THE ROOT. THE CONVEXITY OF A FILLET WELD SHALL NOT EXCEED 1/16 INCH.

POST AND FRAMING MEMBERS SHALL HAVE A SMOOTH, FLUSH SURFACE.

ANODIZE COATING SHALL BE PER AAMA 611-98 - VOLUNTARY SPECIFICATIONS FOR ANODIZED ARCHITECTURAL ALUMINUM. USE A CLASS I CLEAR ANODIZED FINISH (REQUIRES MINIMUM COATING THICKNESS OF 0.7 MIL). SURFACE PREPARATION SHALL BE IN ACCORDANCE WITH ASTM D 3933-10.

PROVIDE TWO 1/16 INCH ALUMINUM SHIMS OF EACH TYPE FOR EACH RAILING POST, TO BE USED AS REQUIRED.

PROVIDE AN 1/8 INCH THICK NEOPRENE SHEET BETWEEN CONCRETE AND SHIMS UNDER EACH RAIL POST BASE PLATE. THE NEOPRENE SHEET SHALL MATCH THE LENGTH AND WIDTH OF THE MASONRY PLATE.

THE NEOPRENE SHEETS ARE TO BE 50, 60, OR 70 DUROMETER HARDNESS AND SHALL MEET THE REQUIREMENTS OF IOWA DOT STANDARD SPECIFICATIONS SECTION 4195.02.

APPLY A NEAT CAULK BEAD AROUND PLATE EDGES. DO NOT CONTAMINATE SURROUNDING CONCRETE SURFACES WITH CAULK. CAULK SHALL BE LIGHT GREY NON-SLAG LATEX MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

POSTS ARE TO BE SET NORMAL TO GRADE.

PROVIDE A RAILING MOCKUP FOR REVIEW AND APPROVAL. FOR THE PURPOSES OF THE MOCKUP, ONE ASSEMBLY INCLUDING A SINGLE STANDARD RAILING PANEL WITH 2 POSTS AND A TOP RAIL BE WILL BE REQUIRED.

THE ELLIPTICAL RAIL SHALL BE 6061-T6, 3/16 THICK AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM B429-10. THE HEAT TREATMENT SHALL BE IN ACCORDANCE WITH PRACTICE B918-09.

THE 0.190 IN. THICK PUNCHED PLATE SHALL MEET THE REQUIREMENTS OF ASTM B209-10 ALLOY 5052 TEMPER H32 WITH A MINIMUM YIELD STRENGTH OF 23 KSI AND A MINIMUM ELONGATION OF 9% IN 2 INCHES. PUNCHED PLATES SHALL HAVE TWO SIDES STANDARD MILL FINISH.

THE CONTRACTOR SHALL FURNISH A CERTIFICATE STATING THAT EACH LOT HAS BEEN SAMPLED, TESTED BY A CERTIFIED LAB AND INSPECTED IN ACCORDANCE WITH THE SPECIFICATION REQUIREMENT OF THE CORRESPONDING ASTM STANDARD.

IMMEDIATELY FOLLOWING FABRICATION, PROTECT ALL ALUMINUM RAILING AND PANEL SURFACES FROM DAMAGE DURING SHIPPING, HANDLING, STORAGE AND INSTALLATION. PROTECTIVE MEASURES SHALL REMAIN IN PLACE UNTIL FINAL ASSEMBLY AND INSTALLATION. REPAIR OR REPLACEMENT OF DAMAGED COMPONENTS SHALL BE AT THE CONTRACTOR'S COST AND TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE PROJECT.

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

PEDESTRIAN BRIDGE DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 **JULY, 2019**

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 13 OF 15 FILE NO. 30253 DESIGN NO. 120

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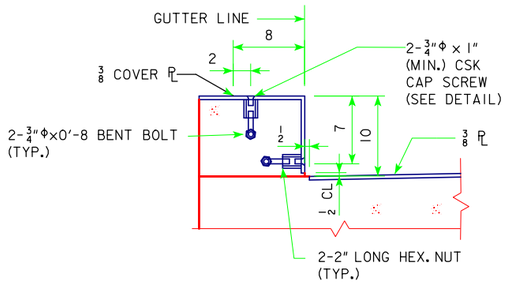
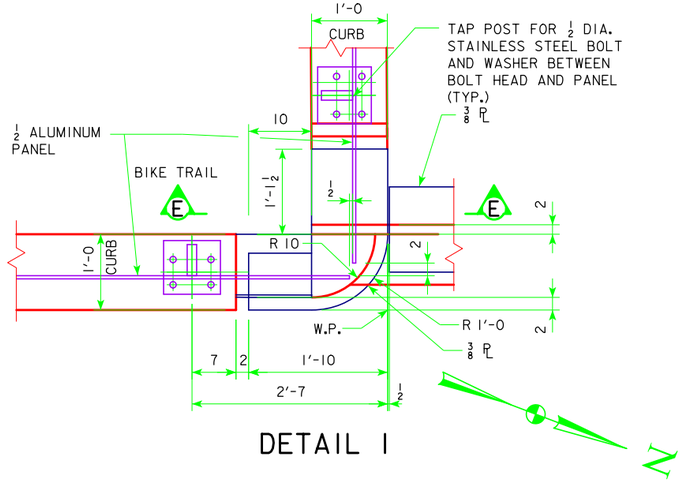
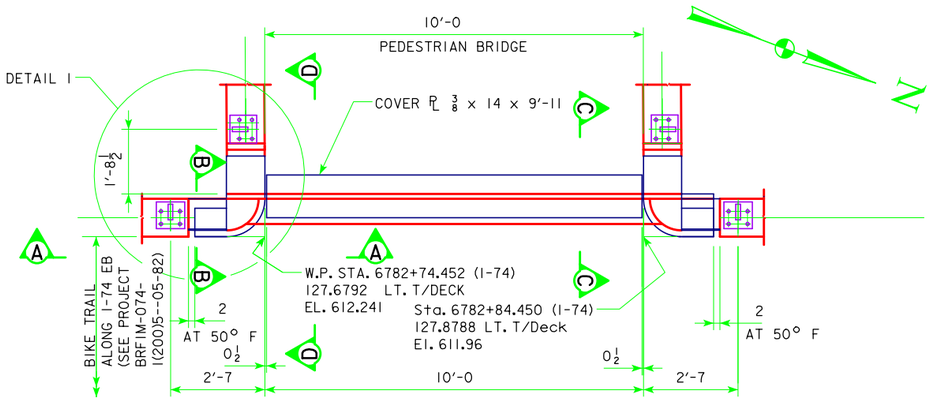


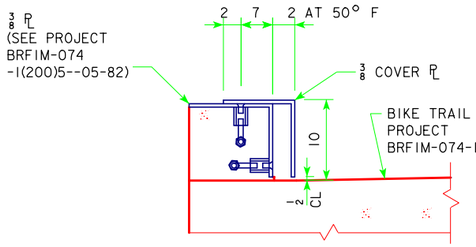
SECTION E-E



DETAIL I



PLAN - DECK LEVEL



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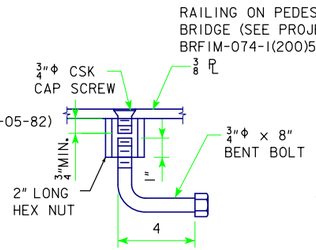
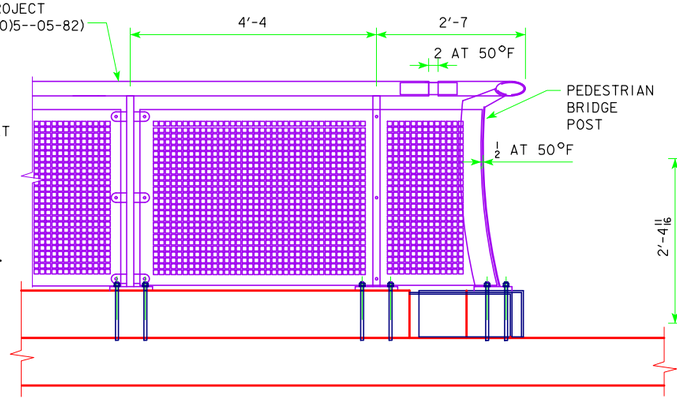


BENT BOLT DETAIL



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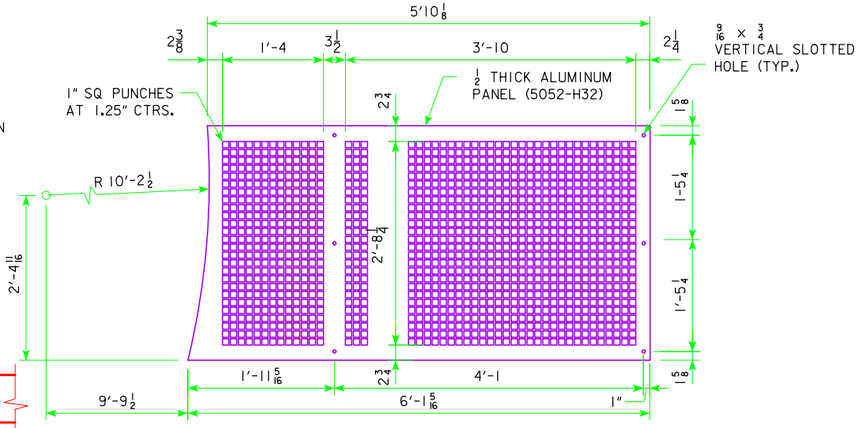
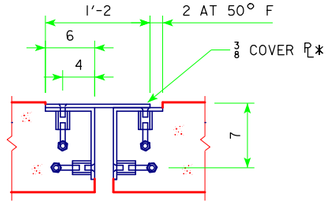
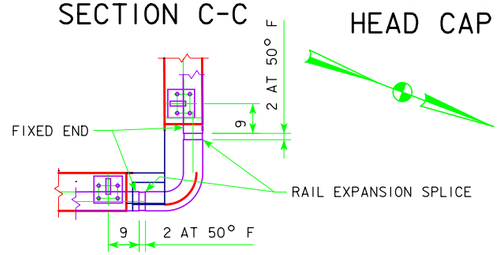


PANEL LAYOUT (FLATTENED)

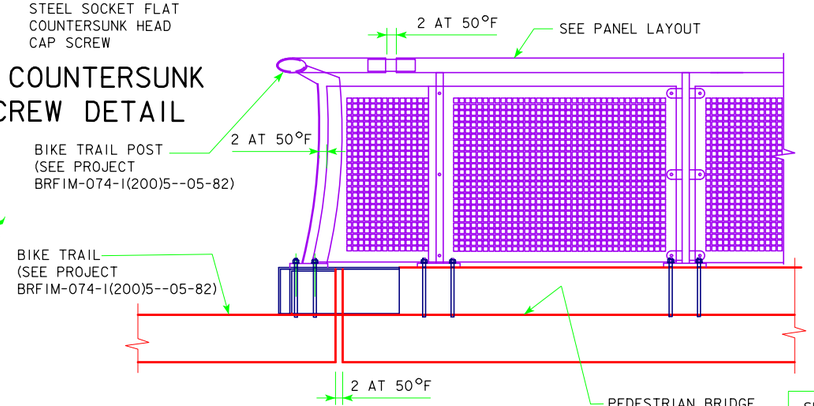


SECTION C-C

SOCKET FLAT COUNTERSUNK HEAD CAP SCREW DETAIL



PLAN - RAILING LEVEL



SECTION D-D

NOTES

COVER PLATES SHALL BE ASTM A709 GRADE 36. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A307. THE PLATES, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.

*COVER PLATE SURFACE SHALL BE RECESSED 1/4" FROM BIKE TRAIL AND PEDESTRIAN BRIDGE AND THE PROFILE OF THE PLATE SHALL MATCH THE PROFILE OF THE BIKE TRAIL AND PEDESTRIAN BRIDGE SURFACE. IT IS INTENDED THAT THE 5/8" RECESSED AREA BE FORMED SO THAT WHEN THE 3/8" COVER PLATE IS INSTALLED, THE PLATE WILL BE able TO MOVE FREELY IN THE RECESSED AREA.

COST OF FURNISHING AND INSTALLING THE COVER PLATE ASSEMBLY SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR STRUCTURAL CONCRETE (BRIDGE).

CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW THE TOP OF THE PLATE.

SEE PROJECT BRFIM-074-1(200)5--05-82 FOR ADDITIONAL DETAILS OF BIKE TRAIL.

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

RAILING, EXPANSION JOINT DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 14 OF 15 FILE NO. 30253 DESIGN NO. 120

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ILLINOIS FIRM NUMBER: 184-000214

DESIGN TEAM JDA/MAR/JDA	SCOTT COUNTY	PROJECT NUMBER IM-074-1(255)5--13-82	SHEET NUMBER V.14

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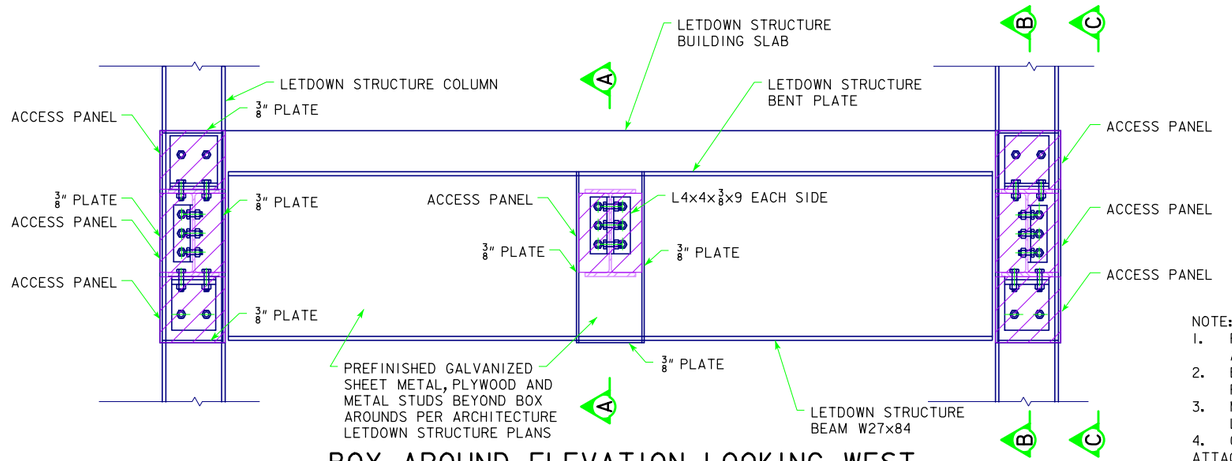
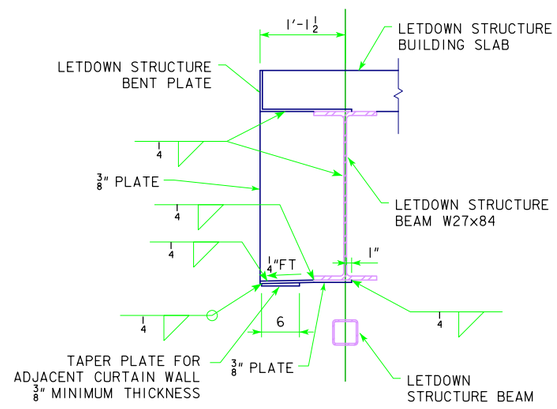
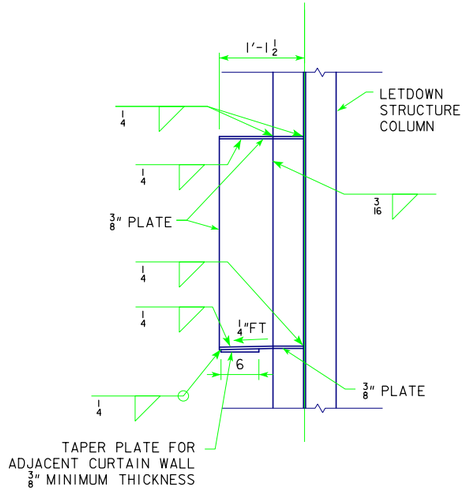


BOX AROUND ELEVATION LOOKING WEST

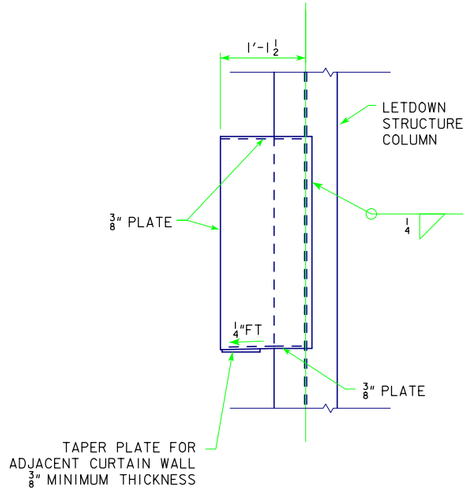
NOTE:
1. PAINT EXPOSED AREAS OF ACCESS PANELS AND PLATES SUPPORTING ACCESS PANELS PER PEDESTRIAN BRIDGE BEAM'S SPECIFICATIONS.
2. BOX AROUND DETAILS ARE PAID FOR IN LETDOWN STRUCTURE PROJECT BUT REPEATED HERE FOR COORDINATION.
3. MAKE WELDS CONTINUOUS AT BOX AROUND PLATES TO SEAL LETDOWN BUILDING STRUCTURE FROM WATER.
4. CONTRACTOR TO SUBMIT 1/8" GALVANIZED STEEL ACCESS PANELS AND ATTACHMENT DETAILS FOR APPROVAL. USE STAINLESS STEEL HEX HEAD FASTENERS.



SECTION A-A BOX AROUND AT BEAM



SECTION B-B BOX AROUND AT COLUMN



SECTION C-C BOX AROUND AT COLUMN

DESIGN FOR 0° SKEW

17'-3 x 10' STEEL GIRDER PEDESTRIAN BRIDGE

17'-3 SPAN

DETAILS

STA. 6782+79.40 - 130.78' LEFT ℄ I-74 JULY, 2019

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 15 OF 15 FILE NO. 30253 DESIGN NO. 120

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