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07/16/2026

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

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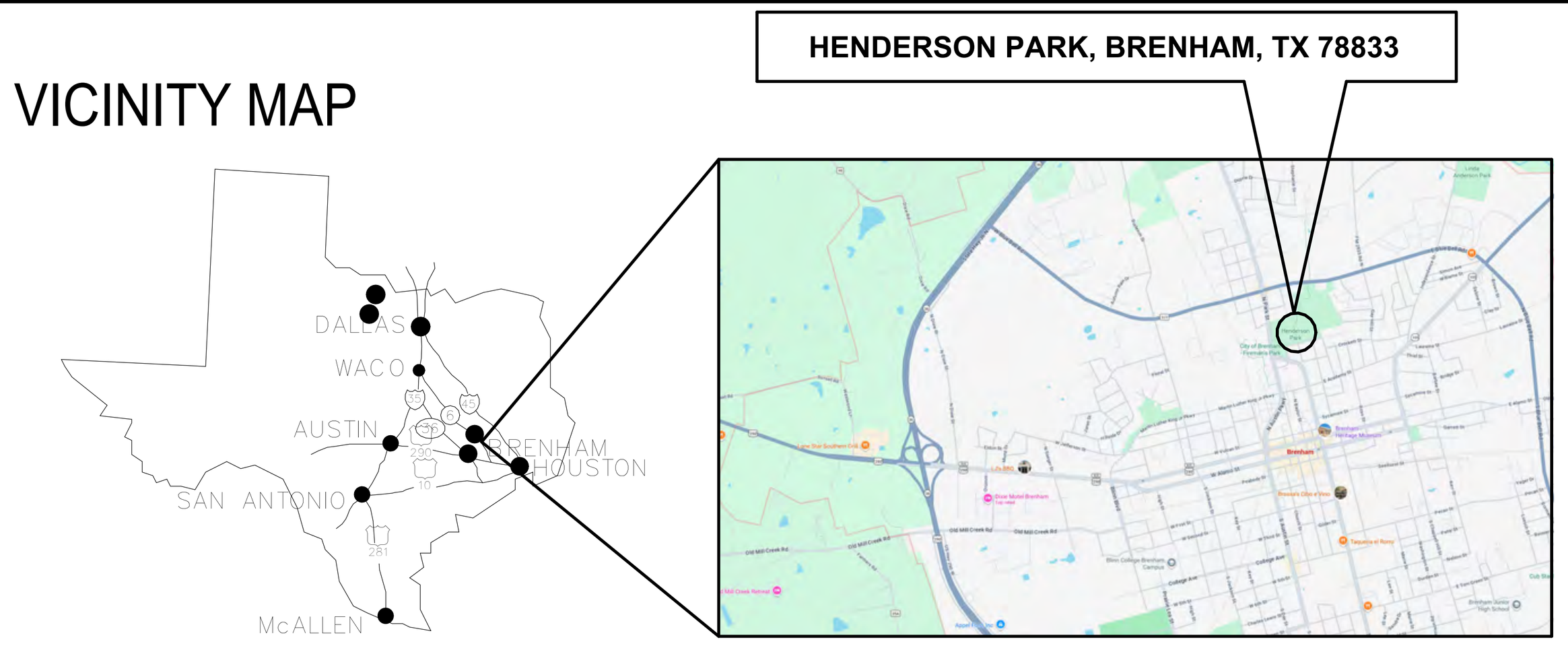
VICINITY MAP



CONSTRUCTION DRAWINGS

FOR PERMIT AND BID

INDEX OF DRAWINGS

PLAN LEGEND SYMBOLS

- DRAWINGS ARE DESIGNATED BY A NUMBER FOLLOWED BY THE SHEET ON WHICH THEY APPEAR
- DOOR REFERENCE
- WINDOW FRAME REFERENCE
- BUILDING SECTION
- WALL SECTION
- ELEVATION MARKER
- COLUMN LINE OR CENTERLINE
- DIMENSION GIVEN TO FACE OF STUD
- COLUMN LINE OR CENTER LINE DIMENSION
- DIMENSION TO FACE
- CONTINUATION OF DIMENSION
- PARTITION TYPE
- CHANGE IN FLOOR MATERIALS
- ELEVATION REFERENCE (A.F.F. = ABOVE FINISHED FLR) (F.F.E. = FINISHED FLOOR ELEV.)
- TURNING RADIUS, or T SHOWING MIN. CLEARANCE REQUIREMENTS FOR ACCESSIBILITY
- CLEAR FLOOR SPACE SHOWING MIN. CLEARANCE REQUIREMENTS FOR ACCESSIBILITY

ABBREVIATIONS

A	
@	AT
A, AMP	AMPERE
AB	ANCHOR BOLT
ABV	ABOVE
A/C	AIR CONDITIONING
ACO	ACOUSTICAL
ADJ.	ADJUSTABLE
ADMIN	ADMINISTRATIVE
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AGG	AGGREGATE
AHU	AIR HANDLING UNIT
AL.ST.	ALUMINUM STOREFRONT
ALUM	ALUMINUM
ALT	ALTERNATE
∠	ANGLE
ANOD	ANODIZED
AP	ACCESS PANEL
APC	ACCOUSTICAL PANEL CEILING
APPROX	APPROXIMATELY
ARCH, ARCH'L	ARCHITECTURAL
ASSY	ASSEMBLY
AUX	AUXILIARY
AWI	ARCHITECTURAL WOODWORK INSTITUTE
B	
BD	BOARD
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BLKHD	BULKHEAD
BM	BEAM
BOS	BOTTOM OF STEEL
B, BOTT	BOTTOM
BRZ	BRONZE
BTU	BRITISH THERMAL UNIT
BUR	BUILT-UP ROOF
C	
C	CENTIGRADE
CAB	CABINET
CBB	CEMENTITIOUS BACKER BOARD
CFMF	COLD-FORMED METAL FRAMING
CH	COAT HOOK
CHBD	CHALK BOARD
CI	CAST IRON
CJ	CONTROL JOINT
CL, ℄	CENTER LINE
CLG	CEILING
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST.	CONSTRUCTION
CONT	CONTINUOUS
CRD	CORRIDOR
CRS	COURSE
CT	CERAMIC TILE
CTK	CURTAIN TRACK
CU	CUBIC
CUST	CUSTODIAN
CWFP	CEMENTITIOUS WOOD FIBER PLANK
D	
DBL	DOUBLE
DEF	DEFORMED
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGRAM
DIM	DIMENSION
DISP	DISPENSER
DIV	DIVISION
DN	DOWN
DP	DAMPPROOFING
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DWG	DRAWING
DWLS	DOWELS
DWR	DRAWER
E	
E, ELEC	ELECTRICAL
EA	EACH
EF	EXHAUST FAN
EGSB	EXTERIOR GYPSUM SOFFIT BOARD
EIFS	EXTERIOR INSULATED FINISH SYSTEM
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
EQ	EQUAL
EWC	ELECTRIC WATER COOLER
EQUIP	EQUIPMENT
ETC	ET CETERA
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EXG	EXISTING GRADE
EXH	EXHAUST
EXIST, EXG	EXISTING
EXP	EXPANSION
EXPD	EXPOSED
EXT	EXTERIOR
F	
F	FAHRENHEIT
FA	FIRE ALARM
FC	FIRE CODE
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FHC	FIRE HOSE CABINET
FIN	FINISH
FLASH	FLASHING
FLR	FLOOR
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOLD PART	FOLDING PARTITION
FRP	FIBER REINFORCED PLASTIC
FR-WD	FIRE-RETARDANT TREATED WOOD
FS	FOOD SCRAPER
FT	FEET
Fy	YIELD STRESS
FUR	FURRING
G	
G	GAS
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GD	GRADE
GDW, GYP.BD	GYPSUM DRYWALL, GYPSUM BOARD
GEN	GENERAL
GL	GLASS
GMMU	GLASS MESH MORTAR UNITS
GND	GROUND
GSFT	GLAZED STRUCTURAL FACING TILE
GYP	GYPSUM
H	
H-CONC	HARDENED CONCRETE
HB	HOSE BIBB
HC	HANDICAPPED, HOLLOW CORE
HCFV	HOLLOW CORE FINISH VENEER
HD	HEADER, HEADED, HEAVY DUTY
HDF	HANDICAP DRINKING FOUNTAIN
HDG	HOT-DIPPED GALVANIZED
HDWR	HARDWARE
HEWC	HANDICAP ELECTRIC WATER COOLER
HLB	HORIZONTAL LOUVER BLINDS
HM	HOLLOW METAL
HORIZ, HORIZL	HORIZONTAL
HR, HRS	HOUR, HOURS
HT	HEIGHT
HWD	HARDWOOD
I	
IAW	IN ACCORDANCE WITH
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER, DIMENSION
IG	INSULATING GLASS
IN	INCH, INCHES
INC	INCANDESCENT
INCL	INCLUDING
INSUL	INSULATION
INT	INTERIOR
IRWC	IMPACT-RESISTANT WALL COVERING
J	
JAN	JANITOR
JST	JOIST
JT	JOINT
L	
L	ANGLE
LAM	LAMINATE
LAV	LAVATORY
LB	POUND
LF	LINEAR FOOT
LG	LENGTH
LIB	LIBRARY
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSD	LIQUID SOAP DISPENSER
LVR	LOUVER
LW	LIGHTWEIGHT
M	
MAS	MASONRY
MAINT	MAINTENANCE
MAX	MAXIMUM
MB	MOP BASIN
MC	MEDICINE CABINET
MECH, MECH'L	MECHANICAL
MFC	MINERAL FIBER CEMENT SHINGLES
MFR	MANUFACTURER
MGR	MANAGER
MH	MANHOLE
MIC	MULTICOLORED INTERIOR COATING
MID	MIDDLE
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MJ	MASONRY EXPANSION JOINT
MKB	MARKER BOARD
MM	MILLIMETER
MMB	MEMBRANE
MO	MASONRY OPENING
MPH	MILES PER HOUR
MTL, MET	METAL
MULL	MULLION
N	
NA	NOT APPLICABLE
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
O	
OC	ON CENTER
OCC	OCCUPANT LOAD
OCD	OVERHEAD COILING DOOR
OCG	OVERHEAD COILING GRILL
OD	OUTSIDE DIAMETER/DIMENSION
OF	OFFICE
OH	OVERHEAD
OPH	OPPOSITE HAND
OPN	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
P	
PA	PUBLIC ADDRESS
PAR	PARALLEL
PCP	PORTLAND CEMENT PLASTER
PEN	PENETRATION
PERP	PERPENDICULAR
PG	PLATE GLASS
PL, ℙ	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLCP	PREMANUFACTURED LAMINATE CLAD PLASTIC
PLT	PANELWORK
PLYWD	PLYWOOD
PNL	PANEL
PNT	PAINT, PAINTED
PNTGR	PAINT GRADE
POS	POSITIVE
PR	PAIR
PREFAB	PREFABRICATED
PREFIN, PF	PREFINISHED
PT	PRESSURE TREATED
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
Q	
QA	QUALITY ASSURANCE
QT	QUARRY TILE
R	
R	RADIUS
RAF	RESILIANT ATHLETIC FLOORING
RBR	RUBBER
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REINF	REINFORCED, REINFORCEMENT
REF	REFER, REFERENCE
REP	REPRESENTATIVE
REQ	REQUIRED
RO	ROUGH OPENING
RM	ROOM
RV	ROOF VENT
RWAF	RESILIANT WOOD ATHLETIC FLOORING
S	
SACB	SOUND ABSORBING CONCRETE BLOCK
SB	SPLASH BLOCK
SC	SOLID CORE
SCFV	SOLID CORE FLUSH VENEER
SCHED	SCHEDULE
SD	SMOKE DETECTOR
SEC	SECONDARY
SF	SQUARE FEET
SGFT	STRUCTURAL GLAZED FACING TILE
SGL	SINGLE
SH, SHT	SHEET
SHR	SHOWER
SIM	SIMILAR
SJ	SAWN CONTROL JOINT
SLD	SEALED
SND	SANITARY NAPKIN DISPOSAL UNIT
SNT	SEALANT
SNV	SANITARY NAPKIN VENDOR
SPA	SPACES
SQ	SQUARE
SR	SHOWER ROD
SS	STAINLESS STEEL
SSK	SERVICE SINK
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT, STRCT	STRUCTURE, STRUCTURAL
SUS	SUSPENDED
SSM	SOLID SURFACING MATERIAL
T	
T, TEL	TELEPHONE
T	TOP
TC	TEACHER CABINET
TECH	TECHNICAL
TEMP	TEMPERATURE
TKBD	TACKBOARD
TKS	TACK STRIP
TKSF	TACK SURFACE
TLT	TOILET
TOB	TOP OF BEAM
TOC	TOP OF CURB
TOD	TOP OF DRAIN
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TOW	TOP OF WALL
TP	TOILET PARTITION
TTD	TOILET TISSUE DISPENSER
TWC	TEXTILE WALL COVERING
TYP	TYPICAL
U	
UBC	UNIFORM BUILDING CODE
UON	UNLESS OTHERWISE NOTED
URS	URINAL SCREEN
UTIL	UTILITY
V	
V	VOLTS
V, VERT	VERTICAL
VCT	VINYL COMPOSITION TILE
VEND	VENDING
VEST	VESTIBULE
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	
W	WATTS
W/	WITH
WB	WIND BRACE
WBBP	WIND BRACE BASEPLATE
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WNDW	WINDOW
WO	WITHOUT
WOM	WOMEN
WP	WEATHERPROOF
WPG	WATERPROOFING
WR	WASTE RECEPTICLE
WRGBB	WATER RESISTANT GYPSUM BACKER BOARD
WR-WD	WATER-RESISTIVE TREATED WOOD
WSTRIP	WEATHER-STRIP
WT	WEIGHT
WWF	WELDED-WIRE FABRIC

TEXAS ACCESSIBILITY STANDARDS

CHAPTER 3 BUILDING BLOCKS

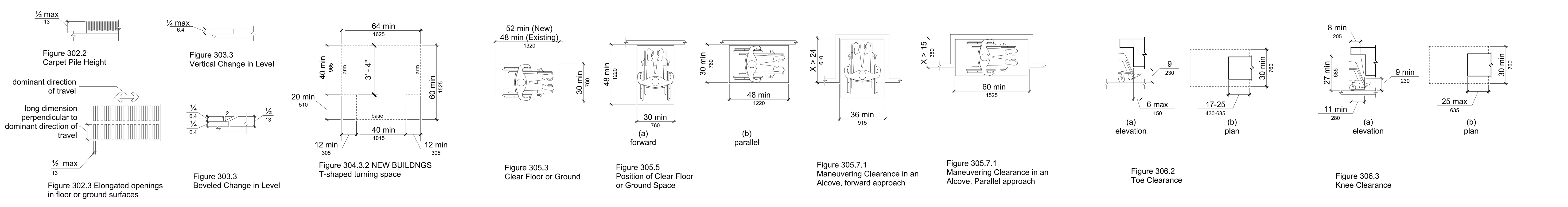


Figure 302.2 Carpet Pile Height
dominant direction of travel
long dimension perpendicular to dominant direction of travel
Figure 302.3 Elongated openings in floor or ground surfaces
Figure 303.3 Vertical Change in Level
Figure 303.3 Beveled Change in Level
Figure 304.3.2 NEW BUILDNGS T-shaped turning space
52 min (New) 48 min (Existing)
Figure 305.3 Clear Floor or Ground
Figure 305.5 Position of Clear Floor or Ground Space
(a) forward
(b) parallel
Figure 305.7.1 Maneuvering Clearance in an Alcove, forward approach
Figure 305.7.1 Maneuvering Clearance in an Alcove, Parallel approach
Figure 306.2 Toe Clearance
Figure 306.3 Knee Clearance

302 FLOOR OR GROUND SURFACES | 303 CHANGES IN LEVEL | 304 TURNING SPACE | 305 CLEAR FLOOR OR GROUND SPACE | 306 KNEE AND TOE CLEARANCE

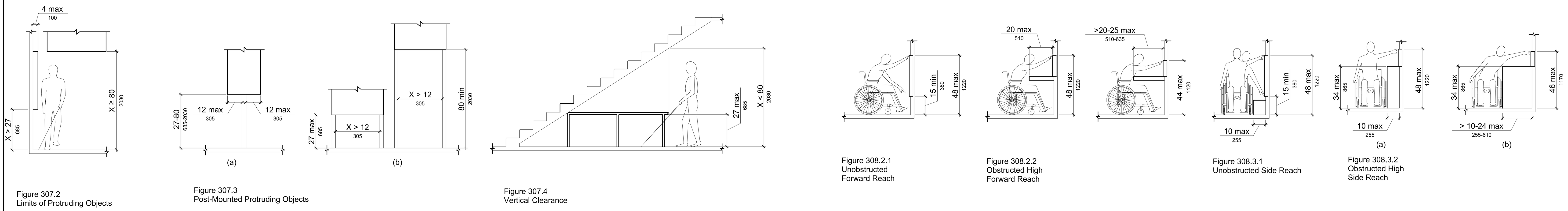


Figure 307.2 Limits of Protruding Objects
Figure 307.3 Post-Mounted Protruding Objects
Figure 307.4 Vertical Clearance
Figure 308.2.1 Unobstructed Forward Reach
Figure 308.2.2 Obstructed High Forward Reach
Figure 308.3.1 Unobstructed Side Reach
Figure 308.3.2 Obstructed High Side Reach

307 PROTRUDING OBJECTS | 308 REACH RANGES

LEGEND

Convention	Description
36 / 915	dimension showing English units (in inches unless otherwise specified) above the line and SI units (in millimeters unless otherwise specified) below the line
6 / 150	dimension for small measurements
33-36 / 840-915	dimension showing a range with minimum - maximum
min	minimum
max	maximum
>	greater than
≥	greater than or equal to
<	less than
≤	less than or equal to
	boundary of clear floor space or maneuvering clearance
℄	centerline
	a permitted element or its extension
	direction of travel or approach
	a wall, floor, ceiling or other element cut in section or plan
	a highlighted element in elevation or plan
	location zone of element, control or feature

CHAPTER 4 ACCESSIBLE ROUTES

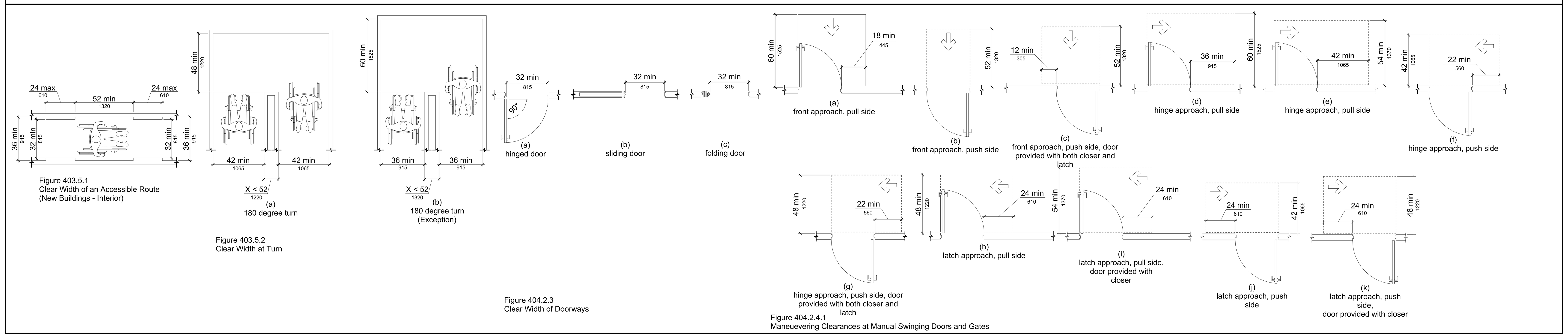
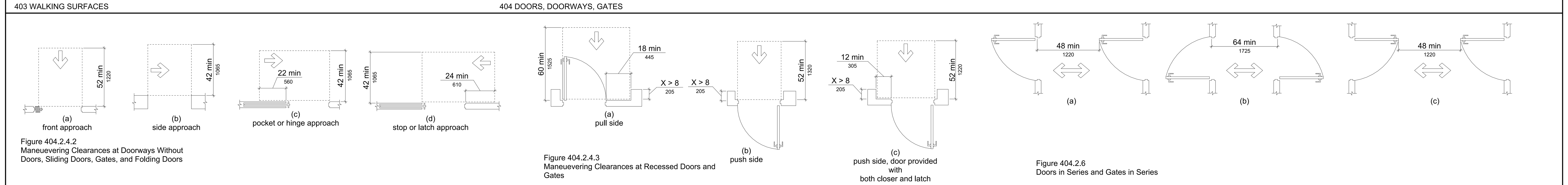


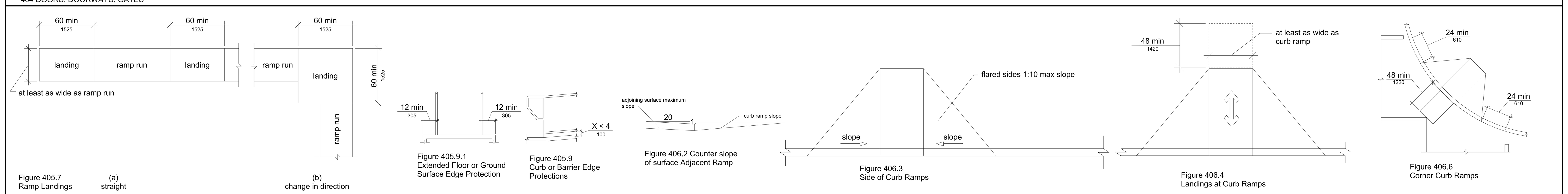
Figure 403.5.1 Clear Width of an Accessible Route (New Buildings - Interior)
(a) 180 degree turn
(b) 180 degree turn (Exception)
Figure 403.5.2 Clear Width at Turn
(a) hinged door
(b) sliding door
(c) folding door
Figure 404.2.3 Clear Width of Doorways
(a) front approach, pull side
(b) front approach, push side
(c) front approach, push side, door provided with both closer and latch
(d) hinge approach, pull side
(e) hinge approach, pull side
(f) hinge approach, push side
(g) hinge approach, push side, door provided with both closer and latch
(h) latch approach, pull side
(i) latch approach, pull side, door provided with closer
(j) latch approach, push side
(k) latch approach, push side, door provided with closer
Figure 404.2.4.1 Maneuvering Clearances at Manual Swinging Doors and Gates

403 WALKING SURFACES | 404 DOORS, DOORWAYS, GATES



(a) front approach
(b) side approach
(c) pocket or hinge approach
(d) stop or latch approach
Figure 404.2.4.2 Maneuvering Clearances at Doorways Without Doors, Sliding Doors, Gates, and Folding Doors
(a) pull side
(b) push side
(c) push side, door provided with both closer and latch
Figure 404.2.4.3 Maneuvering Clearances at Recessed Doors and Gates
Figure 404.2.6 Doors in Series and Gates in Series

404 DOORS, DOORWAYS, GATES



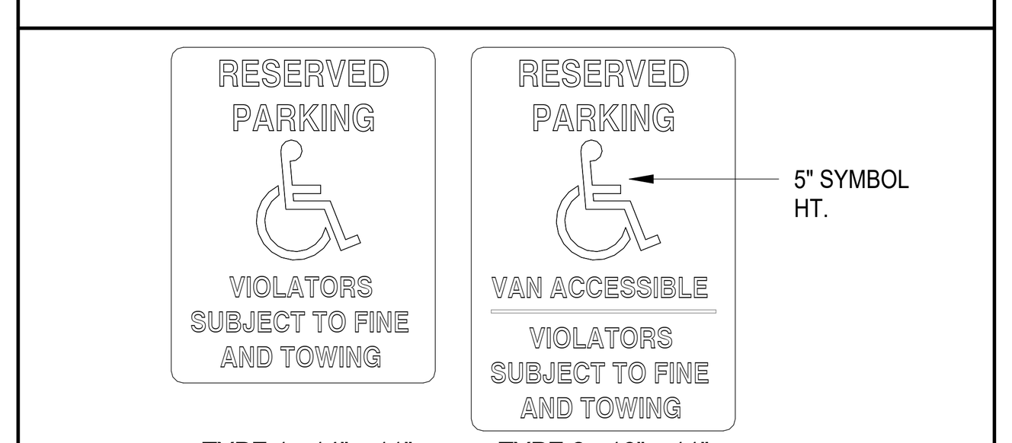
landing
ramp run
at least as wide as ramp run
Figure 405.7 Ramp Landings
(a) straight
(b) change in direction
Figure 405.9.1 Extended Floor or Ground Surface Edge Protection
Figure 405.9 Curb or Barrier Edge Protections
adjoining surface maximum slope
curb ramp slope
Figure 406.2 Counter slope of surface Adjacent Ramp
flared sides 1:10 max slope
Figure 406.3 Side of Curb Ramps
at least as wide as curb ramp
Figure 406.4 Landings at Curb Ramps
Figure 406.6 Corner Curb Ramps

405 RAMPS | 406 CURB RAMPS

NOTES

1. DRAWINGS ON THIS SHEET REPRESENT THE REQUIREMENTS SET BY THE TEXAS ACCESSIBILITY STANDARDS (TAS) OF THE ARCHITECTURAL BARRIERS ACT ARTICLE 9102, TEXAS CIVIL STATUTES EFFECTIVE MARCH 15, 2012. THE CONTRACTOR IS TO COMPLY WITH THESE STANDARDS.
2. THESE REQUIREMENTS ARE MINIMUMS SET FORTH BY THE TEXAS ACCESSIBILITY STANDARDS AND MAY NOT REFLECT THE ACTUAL SCOPE OF WORK. THE CONSTRUCTION DOCUMENTS SHALL GOVERN OVER THESE STANDARDS EXCEPT WHERE THE DOCUMENTS DO NOT MEET THE MINIMUM REQUIREMENTS SHOWN ON THIS SHEET. CONTRACTOR TO NOTIFY THE ARCHITECT IMMEDIATELY IF ANY CONDITIONS ARISE THAT DO NOT MEET THESE STANDARDS.

CH. 5 GENERAL SITE & BUILDING ELEMENTS

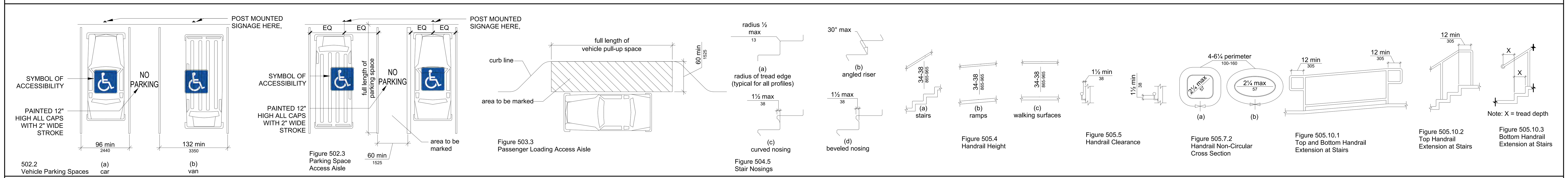


TYPE 1 - 14" x 11" | TYPE 2 - 16" x 11"

NOTES:
1. TEXT AND SYMBOL IN WHITE ON BLUE BACKGROUND WITH 1" LETTER HT. MIN.
2. FURNISH POST-MOUNTED SIGNAGE AT EACH ACCESSIBLE PARKING SPACE.
3. MOUNT BOTTOM OF SIGN 5' ABOVE PAVEMENT.
4. TYPE 1 AT ALL CAR LOCATIONS, TYPE 2 AT VAN LOCATIONS.

504 PARKING SPACES

CHAPTER 5 GENERAL SITE AND BUILDING ELEMENTS



POST MOUNTED SIGNAGE HERE,
SYMBOL OF ACCESSIBILITY
NO PARKING
PAINTED 12" HIGH ALL CAPS WITH 2" WIDE STROKE
502.2 Vehicle Parking Spaces
(a) car
(b) van
full length of parking space
area to be marked
Figure 502.3 Parking Space Access Aisle
curb line
full length of vehicle pull-up space
area to be marked
Figure 503.3 Passenger Loading Access Aisle
(a) radius of tread edge (typical for all profiles)
(b) angled riser
(c) curved nosing
(d) beveled nosing
Figure 504.5 Stair Nosings
(a) stairs
(b) ramps
(c) walking surfaces
Figure 505.4 Handrail Height
Figure 505.5 Handrail Clearance
4-6¼ perimeter
Figure 505.7.2 Handrail Non-Circular Cross Section
Figure 505.10.1 Top and Bottom Handrail Extension at Stairs
Figure 505.10.2 Top Handrail Extension at Stairs
Note: X = tread depth
Figure 505.10.3 Bottom Handrail Extension at Stairs

504 PARKING SPACES | 503 PASSENGER LOADING ZONES | 504 STAIRWAYS | 505 HANDRAILS

Project:	2019.10
Release Date:	07/16/2026
Revisions:	No. Description Date

Consultant:

City of Brenham Henderson Park Basketball Court Pavilion

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07/16/2026

TX Accessibility Standards

A0.1

CHAPTER 6 PLUMBING ELEMENTS AND FACILITIES

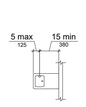
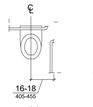


Figure 602.5
Drink Fountain
Spout Location



(a)
wheelchair
accessible
water closets

(b)
ambulatory
accessible
water
closets

Figure 604.2
Water Closet
Location

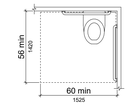


Figure 604.3.1
Size of Clearance at
Water Closets

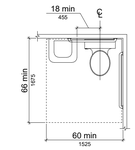


Figure 604.3.2
Overlap of Water Closet
Clearance in Residential
Dwelling Units

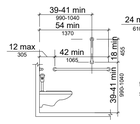


Figure 604.5.1
Side Wall Grab Bar
at Water Closets

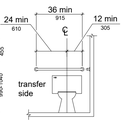


Figure 604.5.2
Rear Wall Grab Bar
at Water closets

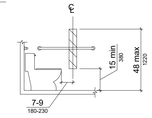
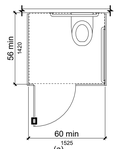
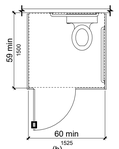


Figure 604.7
Dispenser Outlet
Location



(a)
adult wall hung
water closet



(b)
adult floor mounted water
closet
and children's water closet

Figure 604.8.1.1
Size of Wheelchair Accessible
Toilet Compartment

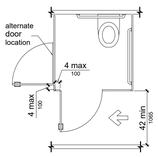
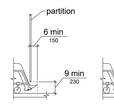
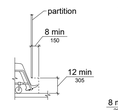


Figure 604.8.1.2
Wheelchair
Accessible Toilet
Compartment Doors

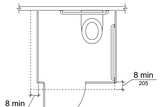


(a)
elevation
adult



(b)
elevation
children

Figure 604.8.1.4
Wheelchair Accessible Toilet
Compartment Toe Clearance



(c)
plan

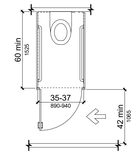
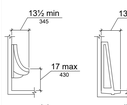


Figure 604.8.2
Ambulatory Accessible
Toilet Compartment

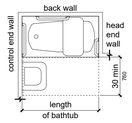
602 DRINKING FOUNTAINS 604 WATER CLOSETS AND TOILET COMPARTMENTS



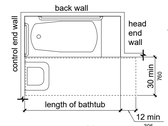
(a)
wall hung type

(b)
stall type

Figure 604.8.2
Height and Depth of
Urinals

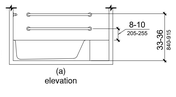


(a)
removable in-tub seat

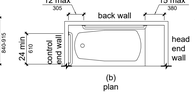


(b)
permanent seat

Figure 607.2
Clearance for Bathtubs

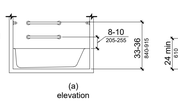


(a)
elevation

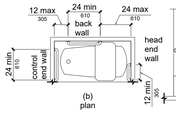


(b)
plan

Figure 607.4.1
Grab Bars for Bathtubs
with Permanent Seats



(a)
elevation



(b)
plan

Figure 607.4.2
Grab Bars for Bathtubs
with Removable In-Tub Seats

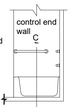
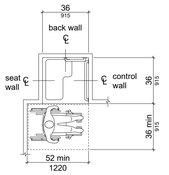
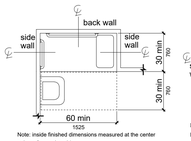


Figure 607.5
Bathtub Control
Location

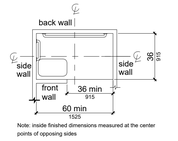


Note: inside finished dimensions measured at the
center points of opposing sides



Note: inside finished dimensions measured at the center
points of opposing sides

Figure 608.2.2
Standard Roll-In Type
Shower Compartment
Size and Clearance



Note: inside finished dimensions measured at the center
points of opposing sides

Figure 608.2.3
Alternate Roll-In Type
Shower Compartment
Size and Clearance

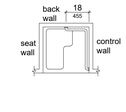
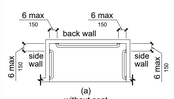
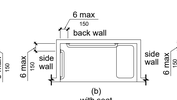


Figure 608.2.2
Standard Roll-In
Type Shower
Compartment Size
and Clearance

604 WATER CLOSETS 607 BATHTUBS 608 SHOWER COMPARTMENTS



(a)
without seat



(b)
with seat

Figure 608.3.2
Grab Bars for Standard
Roll-In Type Showers

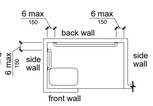


Figure 608.3.3
Grab Bars for Alternate
Roll-in Type Showers

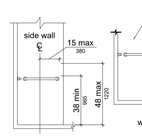
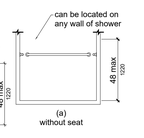
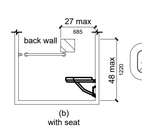


Figure 608.5.1
Transfer Type Shower
Compartment Control
Location



(a)
without seat



(b)
with seat

Figure 608.5.2
Standard Roll-In Type
Shower Compartmnet
Control Location

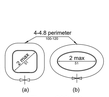
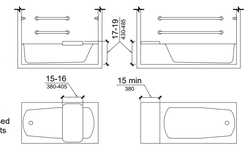


Figure 609.2.2
Grab Bar Non-Circular
Cross Section

(a)
projecting
objects

Figure 609.3
Spacing of Grab Bars

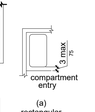
(b)
recessed
objects



(a)
Removable
In-Tub Seat

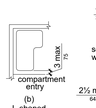
(b)
Permanent Seat

Figure 610.2
Bathtub Seats



(a)
rectangular

Figure 610.3
Extent of Seat



(b)
L-shaped

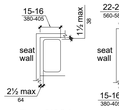
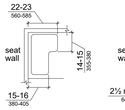


Figure 610.3.1
Rectangular
Shower Seat



(a)
size

(b)
distance from
wall

Figure 610.3.2
L-Shaped Shower
Seat

(a)
top loading

(b)
front loading

Figure 611.4
Height of Laundry
Compartment Opening

608 SHOWER COMPARTMENTS 609 GRAB BARS 610 SEATS 611 WASHING MACHINES AND DRYERS

CHAPTER 7 COMMUNICATION ELEMENTS AND FEATURES

Figure 703.2.5
Height of Raised
Characters

Figure 703.3.1
Braille Measurement

Figure 703.3.2
Position of Braille

Figure 703.4.1
Height of Tactile Characters Above
Finish Floor or Ground

Figure 703.4.2
Location of Tactile
Signs at Doors

Figure 703.6.1
Pictogram Field

1 International Symbol of Accessibility
2 International Symbol of TTY
3 Volume Control Telephone
4 International Symbol of Access for
Hearing Loss

Figure 703.7.2. 1-4
Pictogram Field

703 SIGNS

CHAPTER 8 SPECIAL ROOMS SPACES AND ELEMENTS

Figure 804.2.1
Pass Through Kitchens

(a) (b)

Figure 804.2.2
U-Shaped Kitchens

804 KITCHENS AND KITCHENETTES

NOTES

1. DRAWINGS ON THIS SHEET REPRESENT THE REQUIREMENTS SET BY THE TEXAS ACCESSIBILITY STANDARDS (TAS) OF THE ARCHITECTURAL BARRIERS ACT ARTICLE 9102, TEXAS CIVIL STATUTES EFFECTIVE MARCH 15, 2012. THE CONTRACTOR IS TO COMPLY WITH THESE STANDARDS.
2. THESE REQUIREMENTS ARE MINIMUMS SET FORTH BY THE TEXAS ACCESSIBILITY STANDARDS AND MAY NOT REFLECT THE ACTUAL SCOPE OF WORK. THE CONSTRUCTION DOCUMENTS SHALL GOVERN OVER THESE STANDARDS EXCEPT WHERE THE DOCUMENTS DO NOT MEET THE MINIMUM REQUIREMENTS SHOWN ON THIS SHEET. CONTRACTOR TO NOTIFY THE ARCHITECT IMMEDIATELY IF ANY CONDITIONS ARISE THAT DO NOT MEET THESE STANDARDS.

Project:	2019.10		
Release Date:	07/16/2026		
Revisions:	No.	Description	Date

Consultant:

City of Brenham
Park Basketball Court
Pavilion

BRENHAM, TEXAS

Architect:
BBAx Architects
213 W Main St. Brenham, TX 77833
Tel: (979) 836-0523
Email: mailbox@bbax.com

REGISTERED ARCHITECT
DAMIEN CRAIG HENNE
1998
STATE OF TEXAS

07/16/2026

TX Accessibility Standards

A0.2

1 BUILDING PLANNING & DESCRIPTION

Name of Project: City of Brenham, Henderson Park Basketball Court Pavilion

Address: 804 Old N Market, Brenham, TX 77833

Proposed Use: Participant Sport

Owner's Contact: Dane Rau, email: drau@cityofbrenham.org Phone: (979) 337-7407

DESIGNER OF RECORD/PROJECT ENGINEERS:

REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE: Darren C. Heine, AIA, BBA Architects, LP

ARCHITECTURAL	FIRM	NAME	TELEPHONE #
Architect	BBAx Architects	Darren C. Heine, AIA	(979) 836-0523
Structural Engineer	Dudley Engineering	Drew Dudley, PE	(979) 690-6555

☒ NEW CONSTRUCTION ☐ SUBSTANTIAL IMPROVEMENT

Authorities Having Jurisdiction: **City of Brenham** CITY: **Brenham, Tx** COUNTY: **Washington**

Flood Plain: ☐ YES ☒ NO

Multi-Story: ☐ YES ☒ NO

Mezzanine: ☐ YES ☒ NO

TYPE OF CONSTRUCTION: II B

HEIGHT LIMITATION: 55' (NS) AREA LIMITATION: 9,500 SF *(TABLE 506.2)*

ALLOWABLE AREA: 9,500 SF *(not considering available frontage increase)*

GROSS BUILDING AREA: 7,833 SF

2 OCCUPANCY TYPE AND LOAD

(CHAPTER 2, 3 & TABLE 1004.1.2 IBC 2021)

OCCUPANCY CLASSIFICATION TYPES : [CIRCLE]

A-1	A-2	(A-3)	A-4	A-5	B	E
F-1	F-2	H-1	H-2	H-3	H-4	H-5
I-1	I-2	I-3	I-4	M	R-1	R-2
	R-3	R-4	S-1	S-2	U	

SINGLE OCCUPANCY ☒ YES ☐ NO

MIXED OCCUPANCY ☐ YES ☒ NO ☐ SEPARATED USE SEPARATION: ____ HR. ☐ NON-SEPARATED USE

(SECTION 508.3 OR 508.4 IBC 2021)

NON-SEPARATED OCCUPANCIES: N/A

BREAK DOWN AREAS AND OCCUPANT LOADS PER FLOOR

#	ROOMNAME	OCC. GRP.	FUNCTION OF SPACE *(TABLE 1004.1.2 IBC 2021)*	SQUARE FOOTAGE	OCCUPANT LOAD FACTOR	DESIGN OCCUPANTS
	PAVILION	A-3	PARTICIPANT SPORT	7,833 SF	50 SF/OCC	157

TOTAL: 157

3 MEANS OF EGRESS

(CHAPTER 10 IBC 2021)

Occupant Load Calculations (Table 1004.1.1)

Total Building Occupancy = 157 occupants

Egress Width (Sec 1005.1)

N/A -- OPEN PAVILION

EGRESS WIDTH REQUIRED: **N/A** EGRESS WIDTH PROVIDED: **N/A**

PANIC HARDWARE ON EXIT DOORS? **N/A** *(SECTION 1010.1.10 IBC 2021)*

MINIMUM CLEAR WIDTHS ARE SHOWN ON: **N/A** *(EACH STAIRWELL)*

EGRESS WIDTHS ARE SHOWN ON: **N/A**

ACCESSIBLE AREAS OF REFUGE & 2-WAY COMMUNICATIONS ARE SHOWN ON: **N/A**

SECTION 1009.1 - 1009.6.5 IBC 2021

EXIT SIGNS / EGRESS ILLUMINATION *SECTION 1008*

REQUIRED AND SHOWN ON: **N/A**

EXTERIOR EMERGENCY LIGHTING PROVIDED: ☐ YES ☒ NO *(SPACES REQUIRING TWO OR MORE EXITS)*

EXIT TRAVEL DISTANCE *TABLE 1017.2 IBC 2021*

[N/A THIS PROJECT]

ELEVATORS **[N/A THIS PROJECT]**

NEW ☐ EXISTING ☐ *ELEVATOR KEYBOX LOCATED IN LOBBY? (MUST BE WITHIN 20' OF THE CALL BUTTON)* ☐ YES ☐ NO

4 FIRE PROTECTION SYSTEMS

(CHAPTER 9 IBC 2021 & IFC 2021)

[N/A THIS PROJECT]

DEFERRED SUBMITTALS? ☐ YES ☒ NO TYPE: ____

AUTOMATIC FIRE SPRINKLER SYSTEM

SYSTEM PROVIDED:

☐ NFPA 13 ☒ NONE REQUIRED***

☐ OTHER: ____

***ONE STORY STRUCTURE IS BELOW 12,000 SF WITH A 157 OCCUPANCY COUNT. THEREFORE NO AUTOMATIC FIRE SPRINKLER SYSTEM IS REQUIRED.

FIRE DEPARTMENT ACCESS TO SPRINKLER CONTROLS:

☐ SPRINKLER RISER ROOM OR POST INDICATOR VALVE SHOWN ON: **N/A**

☐ FDC SHOWN ON: **N/A** *FDC SHALL COMPLY WITH SECTION 912 IFC 2021*

STANDPIPE SYSTEM & HOSE CONNECTIONS

(I.E. IN STAIRWAYS, STAGES, MALLS)

☐ PROVIDED AS NOTED ON: ____ TYPE OF SYSTEM PROVIDED: ____

☒ NOT REQUIRED

PORTABLE FIRE EXTINGUISHERS *(SECTION 906 IFC 2021)*

☐ PROVIDED AS NOTED ON: ____ NUMBER PROVIDED: ____

FIRE ALARM & DETECTION SYSTEMS *(SECTION 907 IFC 2021)*

☐ FIRE ALARM SYSTEM (DEFERRED SUBMITTAL)

☐ NOT REQUIRED PER SECTION 907

☐ EMERGENCY VOICE EVACUATION

☐ OTHER: ____

☐ DEDICATED FUNCTION (SPRINKLER MONITORING, ELEVATOR RECALL, PRE-ACTION, EMERGENCY ALARM, SMOKE CONTROL)

HVAC & AIR DISTRIBUTION SYSTEM CONTROLS *(SECTION 907 IFC 2021)*

☐ SMOKE DETECTORS PROVIDED TO SHUT DOWN UNITS OVER 2,000 CFM PROVIDED ON: ____

☐ NO HVAC UNITS OVER 2,000 CFM

☐ FIRE/SMOKE DAMPERS IN THE BUILDING SHOWN ON: ____

☐ OTHER: ____

SMOKE CONTROL SYSTEMS *(SECTION 909 IFC 2021) (I.E. FOR HIGH RISE, ATRIUMS & STAIRWAY PRESSURIZATION)*

☐ PROVIDED AS NOTED ON: ____

☒ NOT REQUIRED

SMOKE & HEAT VENTILATION *(SECTION 910 & TABLE 910.3 IFC 2021)*

☐ CALCULATIONS PROVIDED AS NOTED ON: **N/A**

5 FIRE RESISTANCE RATED CONSTRUCTION

(CHAPTERS 6, 7 & 10 IBC 2021)

DETAILS OF FIRE WALLS OR FIRE BARRIERS MEETING HORIZONTAL WALLS AND ROOF DECKS ARE SHOWN ON: **N/A** **[N/A THIS PROJECT]**

FIRE-RESISTANCE RATING REQUIREMENTS *(TABLES 601, 602 IBC 2021)*

BUILDING ELEMENTS	HOURS REQUIRED	HOURS PROVIDED	UL OR IBC STANDARD USED & DESIGN DETAIL SHOWN ON
STRUCTURAL FRAME	**0**	**0**	
EXTERIOR BEARING WALLS	**0**	**0**	
EXTERIOR NON-BEARING WALLS	**0**	**0**	
INTERIOR BEARING WALLS	**0**	**0**	
FLOOR CONSTRUCTION	**0**	**0**	
ROOF CONSTRUCTION	**0**	**0**	
STAIRWELLS *(SECTION 1009)*	**N/A**	**N/A**	
ELEVATOR SHAFTS *(SECTION 713)*	**N/A**	**N/A**	
CORRIDORS *(TABLE 1020.1)*	**N/A**	**N/A**	
FIRE RATED DOORS *(TABLE 716.5)*	**N/A**	**N/A**	
PARTITION WALL *(SECTION 708)*	**N/A**	**N/A**	
FIRE BARRIER *(SECTION 707)*	**N/A**	**N/A**	
FIRE WALL *(SECTION 706)*	**N/A**	**N/A**	

DRAFTSTOPS: ☐ YES, SHOWN ON: ____ ☐ NO, *(SPRINKLED ATTIC)* ☒ N/A *(SECTION 718.4)*

HAVE YOU CHECKED WIDTH OF OPENINGS IN FIRE RATED WALLS? ☐ YES ☐ NO ☒ N/A *(TABLE 705.8, SECTION 706.8 & 707.6 IBC 2021)*

FIRE SEPARATION DISTANCE (FEET) *(SECTION 602 IBC 2021)*	<or=to 10' NORTH	0 SOUTH	0 EAST	0 WEST

ROOF COVERING CLASSIFICATION PROVIDED: *(TABLE 1505.1 IBC 2021)*

6 WATER SUPPLY (FOR FIREFIGHTING)

(CHAPTER 5, APPENDIX B & C IFC 2021)

7,833 GROSS SIZE OF BUILDING IN SQUARE FEET *(INCLUDE ALL OVERHANGS UNDER ROOF)*

PUBLIC WATER SUPPLY WITH FIRE HYDRANTS

(FOR PROPOSED & EXISTING FIRE HYDRANTS ONLY)

NAME OF MUNICIPAL UTILITY DISTRICT: CITY OF BRENHAM

NUMBER OF HYDRANTS WITHIN 400 FT (NON-SPRINKLERED) OR 600 FT (SPRINKLERED) OF BUILDING: 1 SHOWN ON: A1.1

REQUIRED GPM: ____ DURATION: ____ *(TABLE B105.1 IFC 2021)*

75% REDUCTION? ☐ YES ☐ NO *(MUST MAINTAIN MINIMUM OF 1,500 GPM)*

WATER SOURCE FOR RURAL AREAS WITHOUT FIRE HYDRANTS

☐ ***DRY HYDRANT ☐ UNDERGROUND STORAGE

☐ ABOVE GROUND STORAGE ☐ OTHER:

IN ACCORDANCE WITH FIRE FLOW CALCULATOR NFPA 1142

*** DRY HYDRANT DESIGN PLANS & CALCULATIONS TO BE SUBMITTED FOR REVIEW TO AHJ*

7 FIRE LANE ACCESS

(CHAPTER 5, APPENDIX D IFC 2021)

FIRE LANE LAYOUT PLAN, WHICH SHALL INCLUDE THE SITE PLAN, THE FIRE LANE & FIRE HYDRANTS, IS SHOWN ON: A1.1 AERIAL ACCESS LAYOUT, FOR BUILDINGS OVER 30 FT, IS SHOWN ON: N/A

☐ PROVIDING A DRY STANDPIPE/WALL HYDRANT OR REMOTE FIRE HOSE CONNECTION TO COMPLY WITH FIRE LANE HOSE COVERAGE. SUBMIT PLANS TO FIRE PROTECTION FOR REVIEW.

9 PLUMBING SYSTEMS

CHAPTER 29, IBC 2021

[N/A THIS PROJECT]

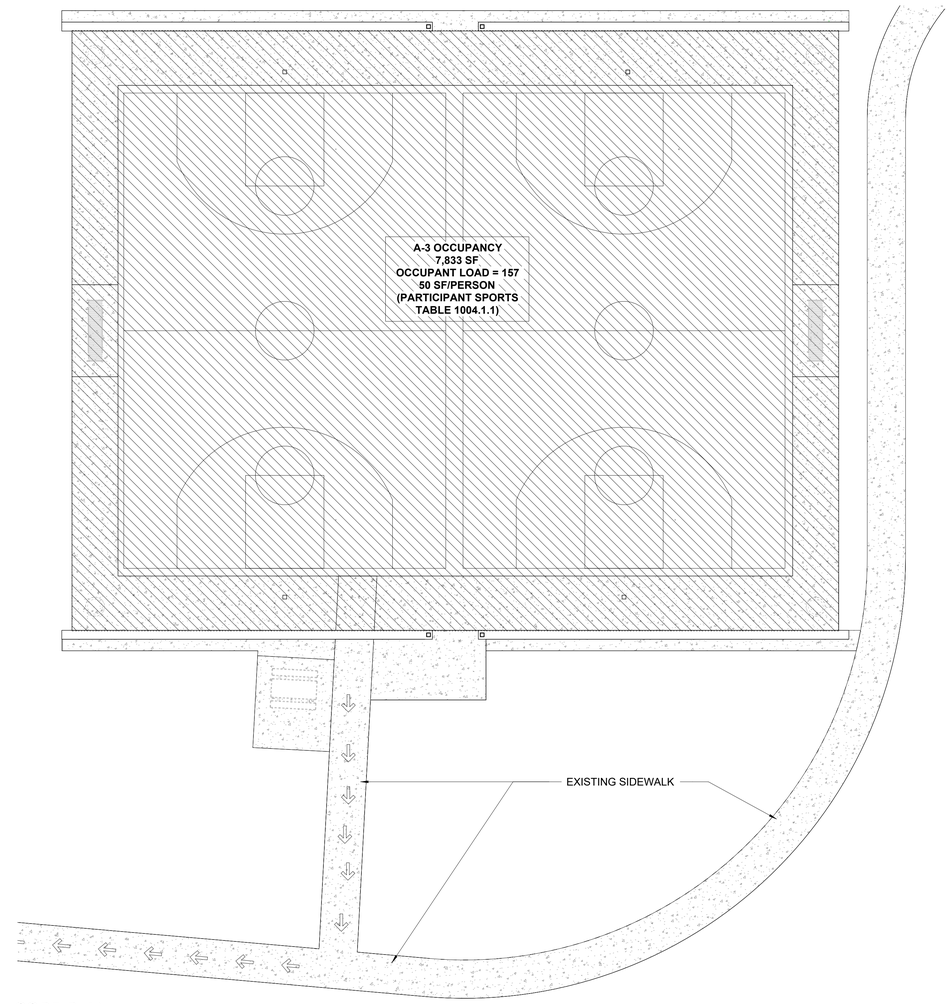
10 SPECIAL CONDITIONS

☐ YES	☒ NO	ATRIUM(S) PER 404 IBC 2018?
☐ YES	☒ NO	HIGH RISE BLDG. PER IBC 2018?
☐ YES	☒ NO	ANY FUEL STORAGE TANK PER 5704 IFC 2018?
☐ YES	☒ NO	SEPTIC SYSTEM? SUBMIT PLANS TO WASTEWATER FOR REVIEW.
☒ YES	☐ NO	PUBLIC UTILITIES?
☐ YES	☒ NO	HEALTH DEPT. APPROVAL? (SERVE/PREPARE FOOD FOR PUBLIC?)
☐ YES	☒ NO	OTHER: ____

CODE PLAN LEGEND

ACCESSIBLE ROUTE

ASSEMBLY GROUP A-3



1 CODE PLAN
1/8" = 1'-0"

11 COMMENTS & NOTES

12 BUILDING CODES USED

- 2021 International Building Code
- 2021 International Mechanical Code
- 2021 International Plumbing Code
- 2021 International Fire Code
- 2021 International Fuel Gas Code
- 2021 International Energy Conservation Code
- 2020 National Electrical Code

THIRD PARTY TESTING / INSPECTIONS

STRUCTURAL TESTING:

SEE SHEET S0.3 WHERE TABLES ARE LISTED IDENTIFYING CONTINUOUS OR PERIODIC INSPECTION REQUIREMENTS AND MATERIALS TESTING FOR:

1. DRIVEN DEEP FOUNDATION ELEMENTS
2. CONCRETE CONSTRUCTION
3. STEEL CONSTRUCTION
4. STRUCTURAL STEEL
5. SOILS

Project: 2019.10
Release Date: 07/16/2026
Revisions:

No.	Description	Date

Consultant:

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

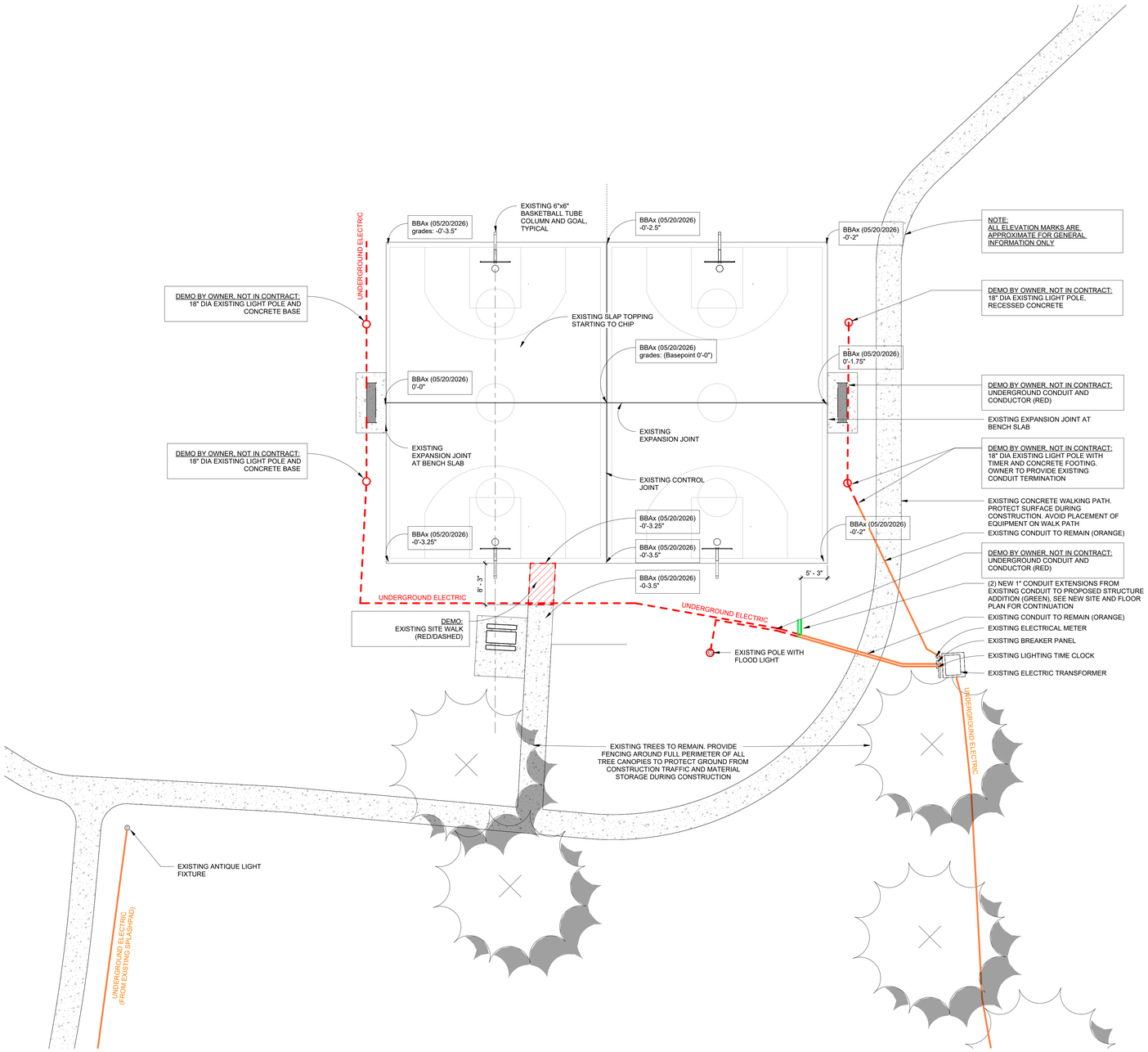
Architect:
BBAx Architects
213 W Main St Brenham, TX 77833
Tel: (979) 836-0523
Email: mailbox@bbax.com

REGISTERED ARCHITECT DARREN CRAIG HEINE 29985 STATE OF TEXAS

07/16/2026

Code Review

A0.3



1 SITE PLAN - EXISTING

1" = 10'-0"

NOTES:

1. ALL EXISTING CONCRETE PAVING AT BASKETBALL COURT CONTROL JOINTS AND EXPANSION JOINTS TO BE SEALED AFTER CONSTRUCTION IS COMPLETE.
2. EXISTING COURT TOP COAT SURFACE IS SPALLING IN VARIOUS LOCATIONS. CONTRACTOR IS TO TAKE PRECAUTION TO AVOID FURTHER DAMAGE. COURTS ARE TO BE RESURFACED BY CITY OF BRENHAM AFTER CONSTRUCTION IS COMPLETE.
3. PROTECT EXISTING BASKETBALL GOALS DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR REPAIR / REPLACEMENT IF DAMAGED
4. MAINTAIN POSITIVE DRAINAGE AROUND CONSTRUCTION PERIMETER

Project: 2019.10
Release Date: 07/16/2026

No.	Description	Date

Revisions:

Consultant:

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

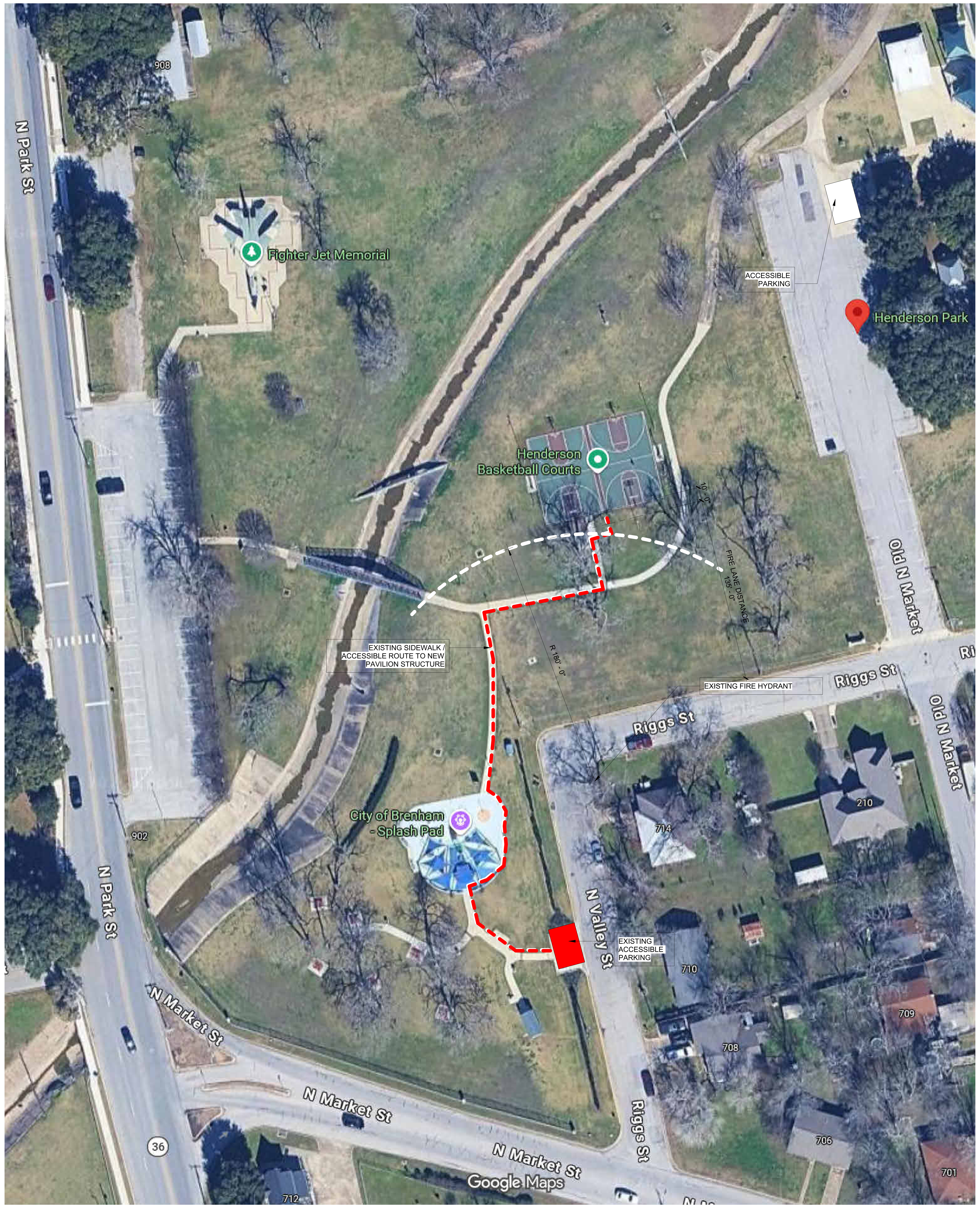
Architect:
BBAx Architects
213 W Main St Brenham, TX 77833
Tel: (979) 836-0523
Email: mailbox@bbax.com

REGISTERED ARCHITECT DARREN CRAIG HOME 19984 STATE OF TEXAS

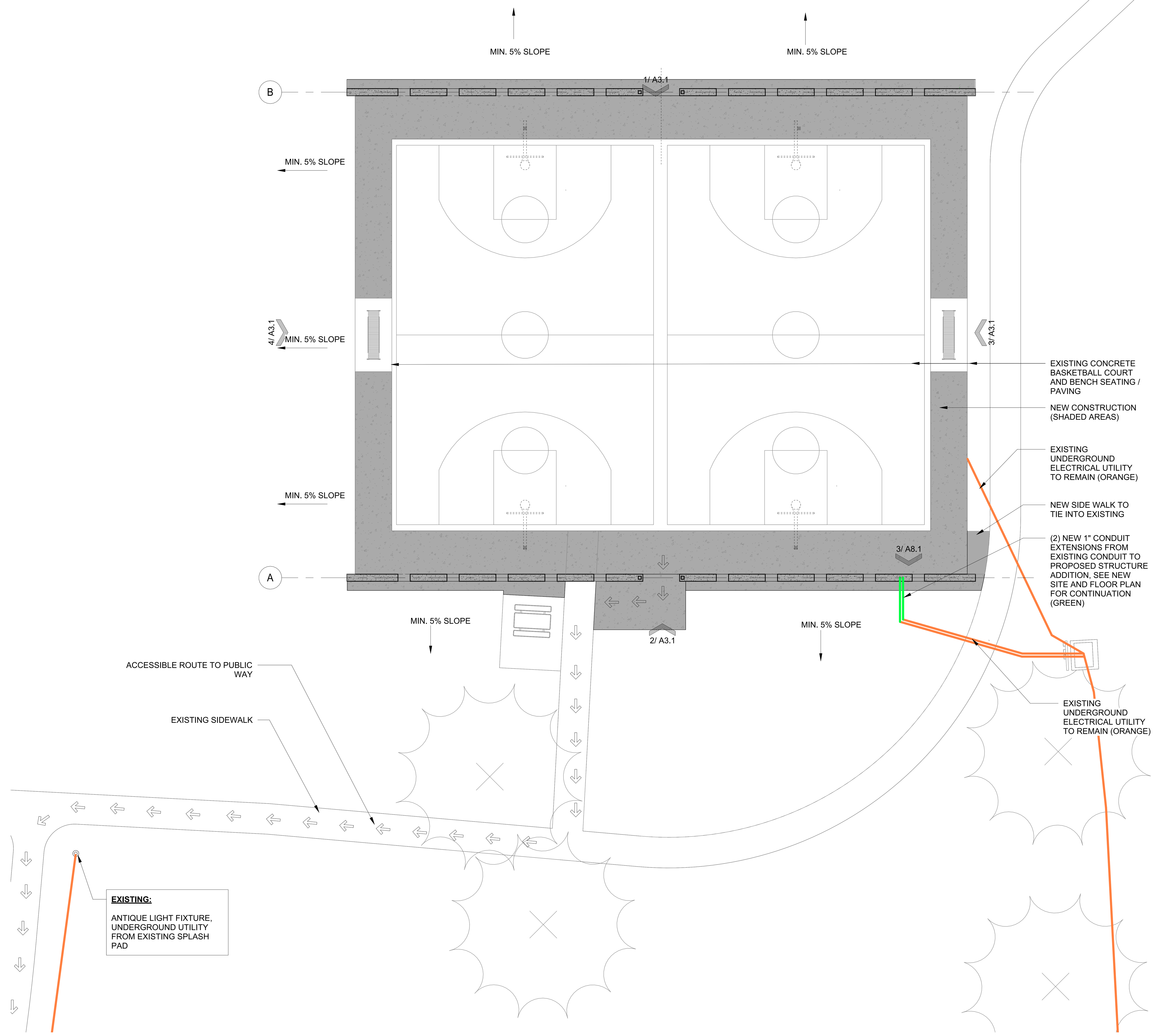
07/16/2026

Site - Existing / Demo

A1.0



2 EXISTING ACCESSIBLE PARKING AND ACCESSIBLE ROUTE
1" = 40'-0"



PLAN NORTH

1 SITE PLAN - NEW CONSTRUCTION
1" = 10'-0"

Project: 2019.10
Release Date: 07/16/2026
Revisions:

No.	Description	Date

Consultant:

City of Brenham Henderson Park Basketball Court Pavilion

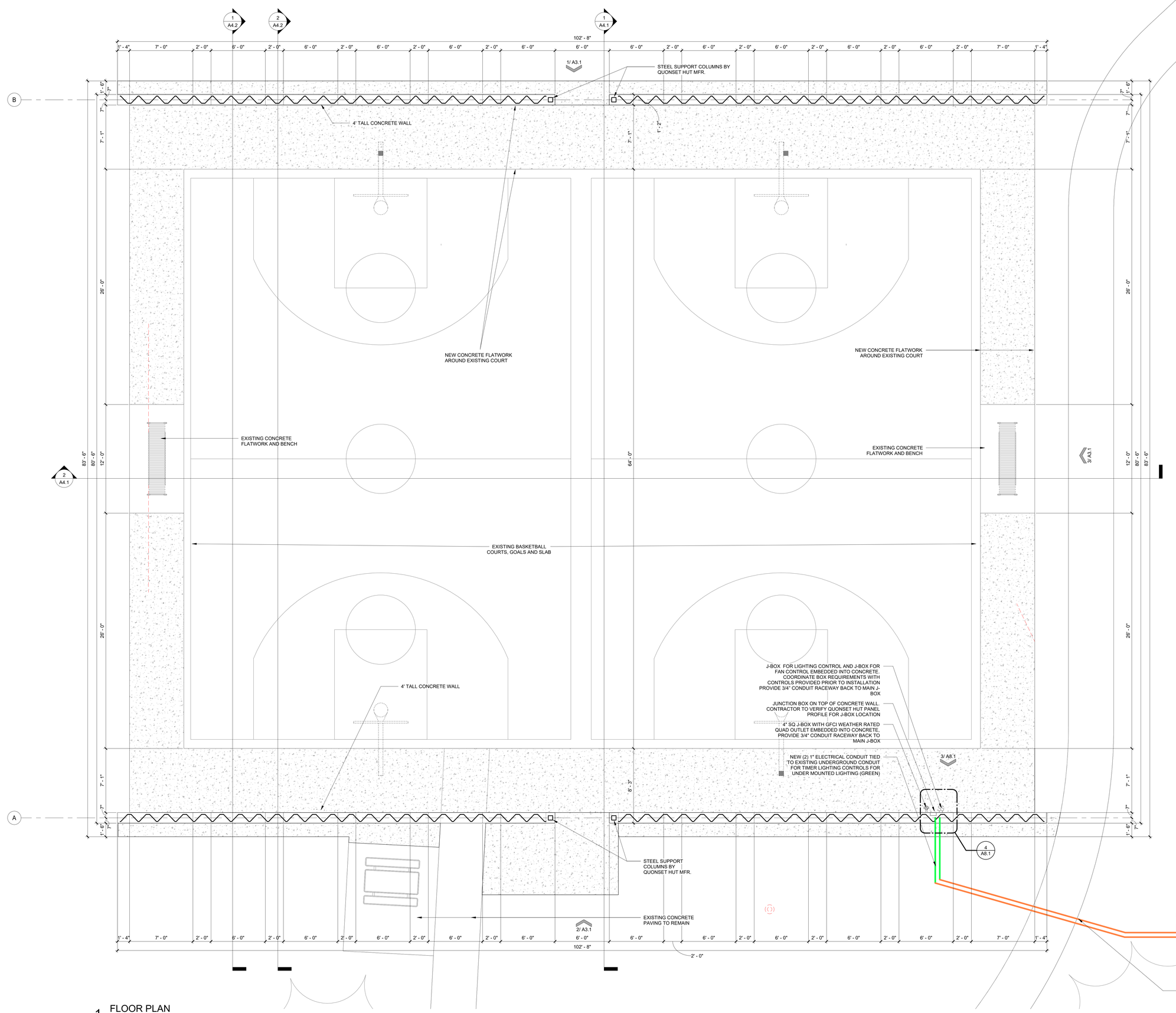
BRENHAM, TEXAS

Architect:
BBAx Architects
213 W Main St Brenham, TX 77833
Tel: (979) 836-0523
Email: mailbox@bba-x.com

REGISTERED ARCHITECT
DARREN CRAIG HEINE
13984
STATE OF TEXAS
07/16/2026

Site Plans

A1.1



1 FLOOR PLAN
1/4" = 1'-0"

Project:	2019.10
Release Date:	07/16/2026
Revisions:	No. Description Date

Consultant:

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

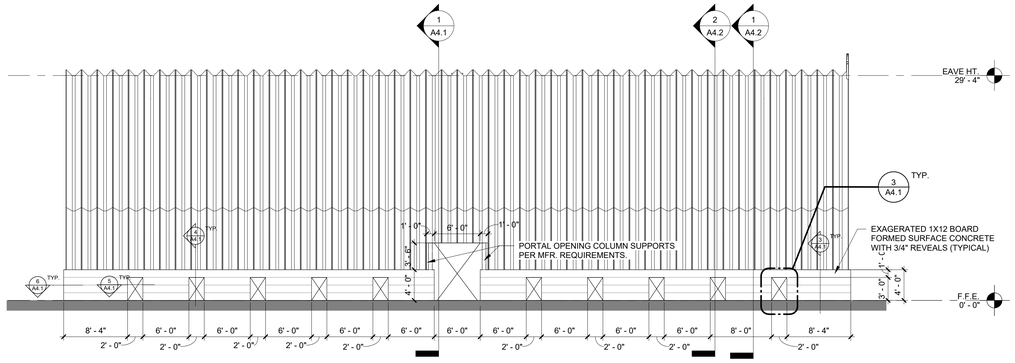
Architect:
BBAx Architects
213 W Main St. Brenham, TX 77833
Tel: (979) 836-0323
Email: mailbox@bbax.com

REGISTERED ARCHITECT DONNIE CRAIG MEINE 13984 STATE OF TEXAS

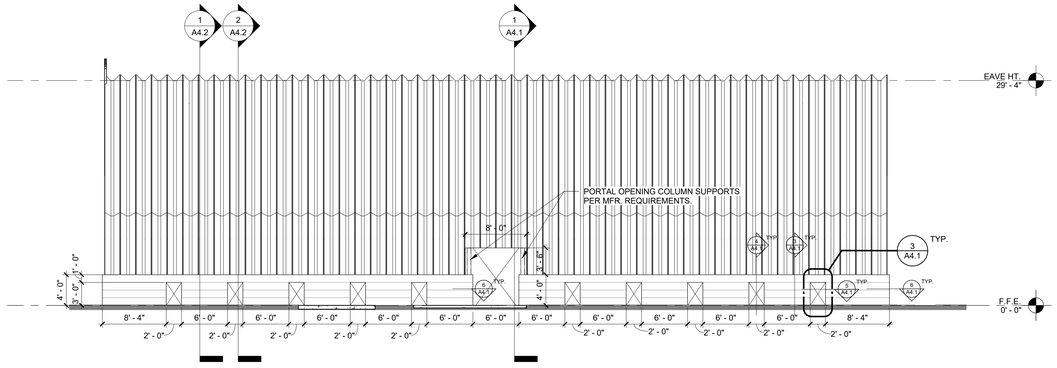
07/16/2026

Floor Plan

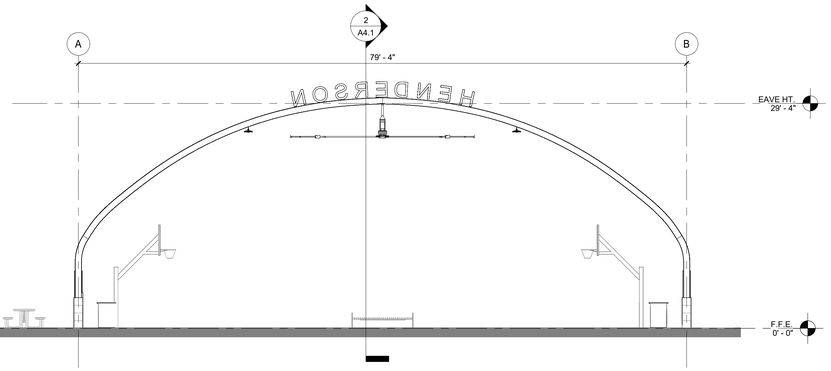
A2.1



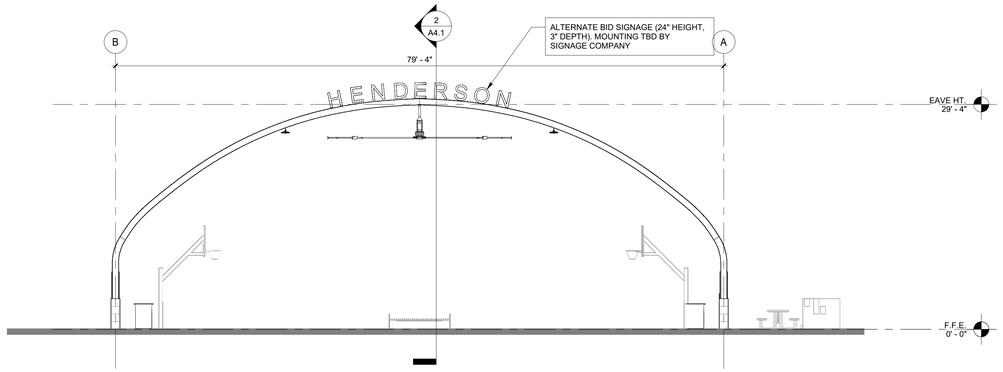
1 NORTH ELEVATION
1/8" = 1'-0"



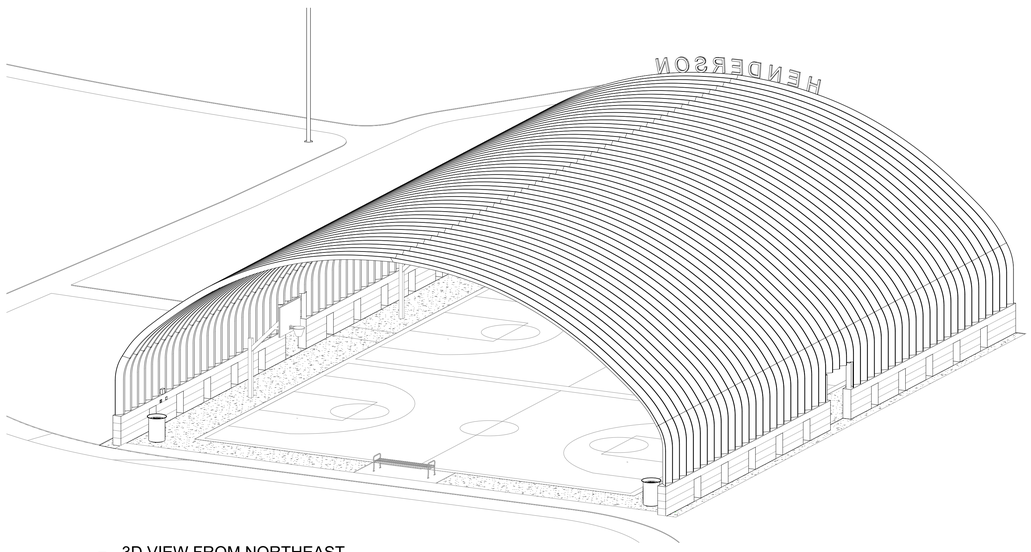
2 SOUTH ELEVATION
1/8" = 1'-0"



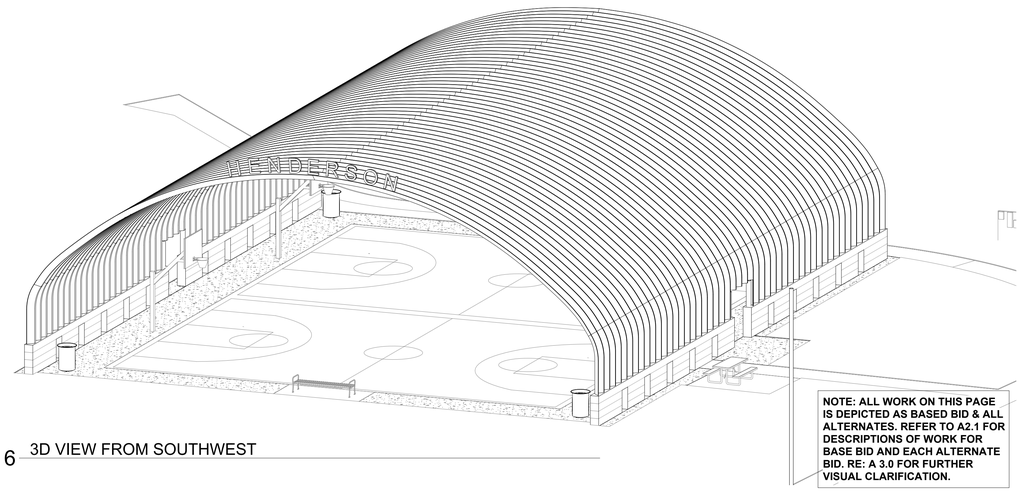
3 EAST ELEVATION
1/8" = 1'-0"



4 WEST ELEVATION
1/8" = 1'-0"



5 3D VIEW FROM NORTHEAST



6 3D VIEW FROM SOUTHWEST

NOTE: ALL WORK ON THIS PAGE IS DEPICTED AS BASED BID & ALL ALTERNATES. REFER TO A2.1 FOR DESCRIPTIONS OF WORK FOR BASE BID AND EACH ALTERNATE BID. RE: A 3.0 FOR FURTHER VISUAL CLARIFICATION.

Project: 2019.10
Release Date: 07/16/2026
Revisions:

No.	Description	Date

Consultant:

City of Brenham Henderson
Park Basketball Court
Pavilion

BRENHAM, TEXAS

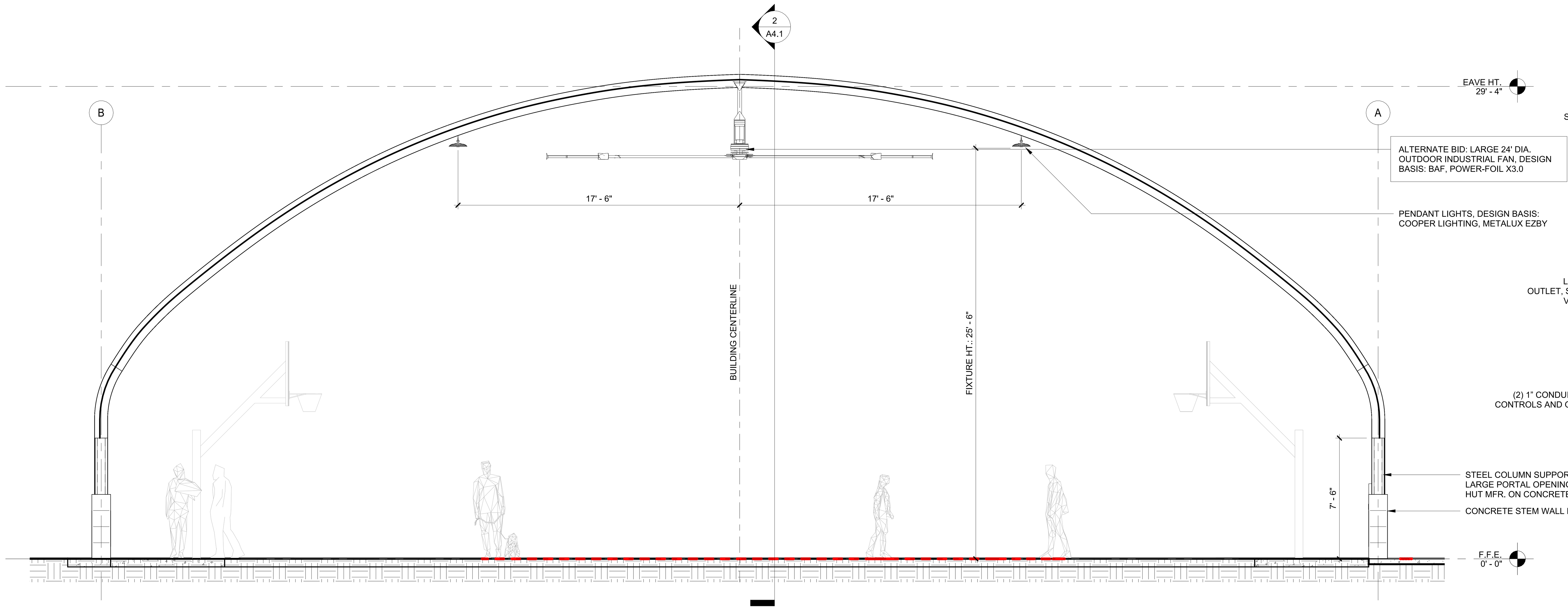
Architect:
BBAx Architects
213 W Main St. Brenham, TX 77833
Tel: (979) 836-0323
Email: mailbox@bbax.com

REGISTERED ARCHITECT
DONALD CRAIG MENKE
13984
STATE OF TEXAS

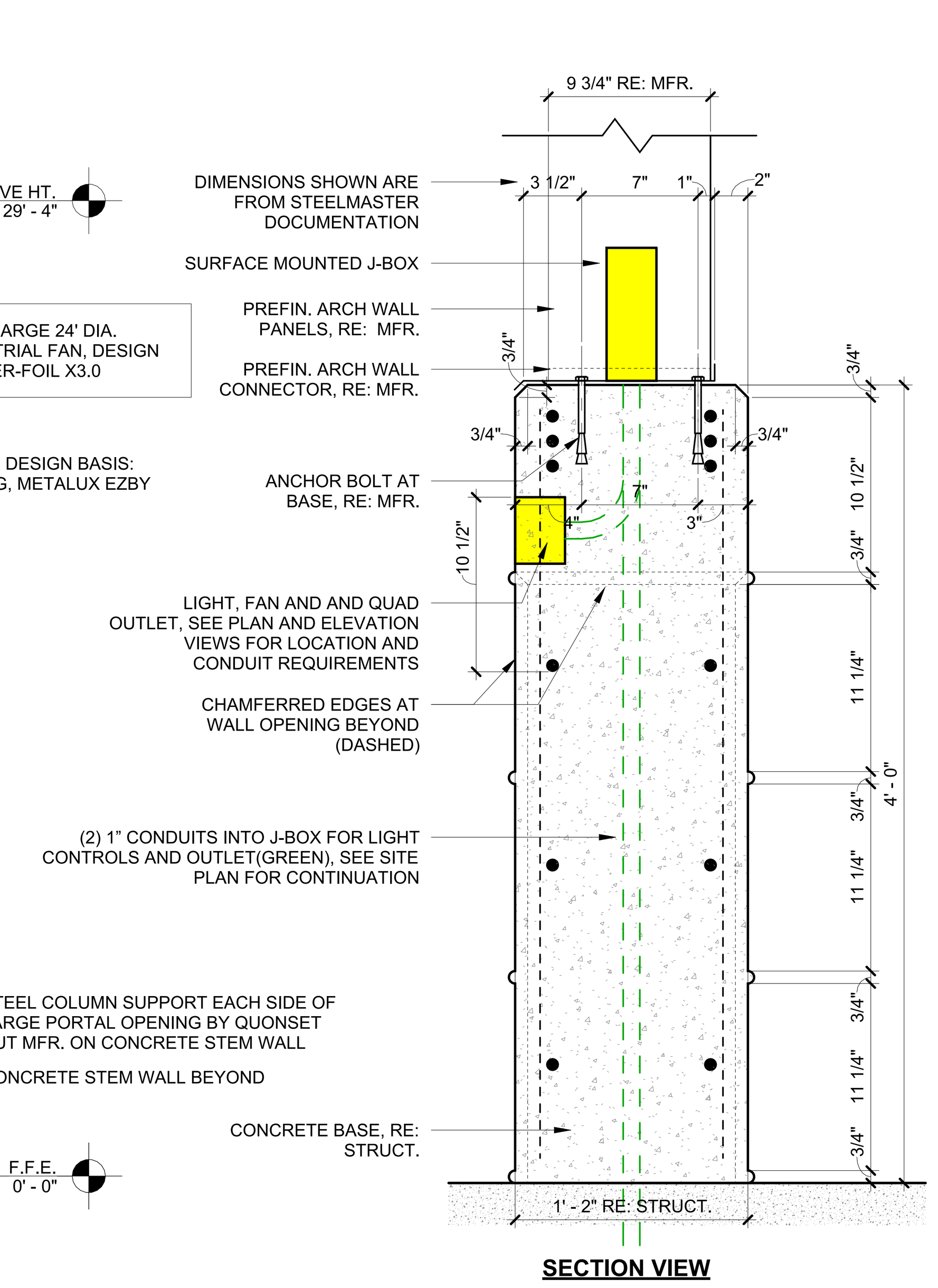
07/16/2026

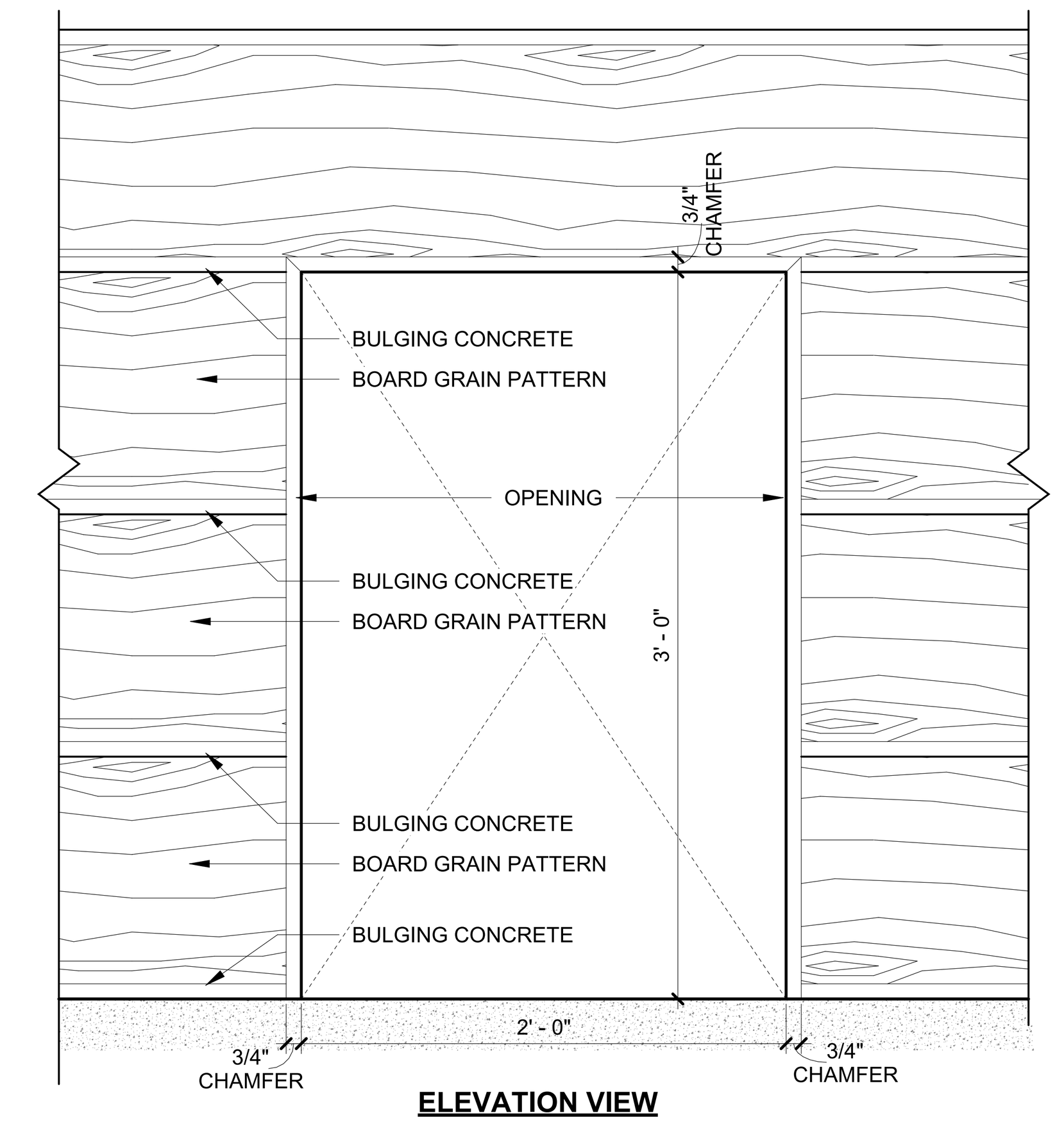
Exterior Elevations

A3.1

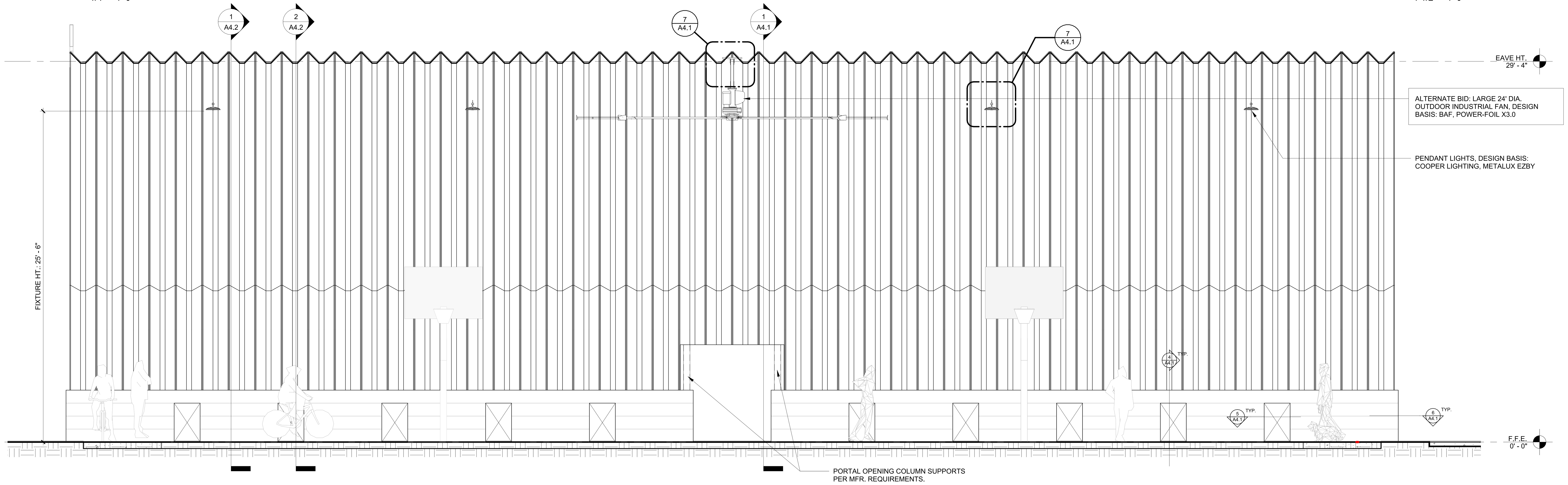


1 CROSS SECTION THRU LARGE PORTAL OPENINGS
1/4" = 1'-0"

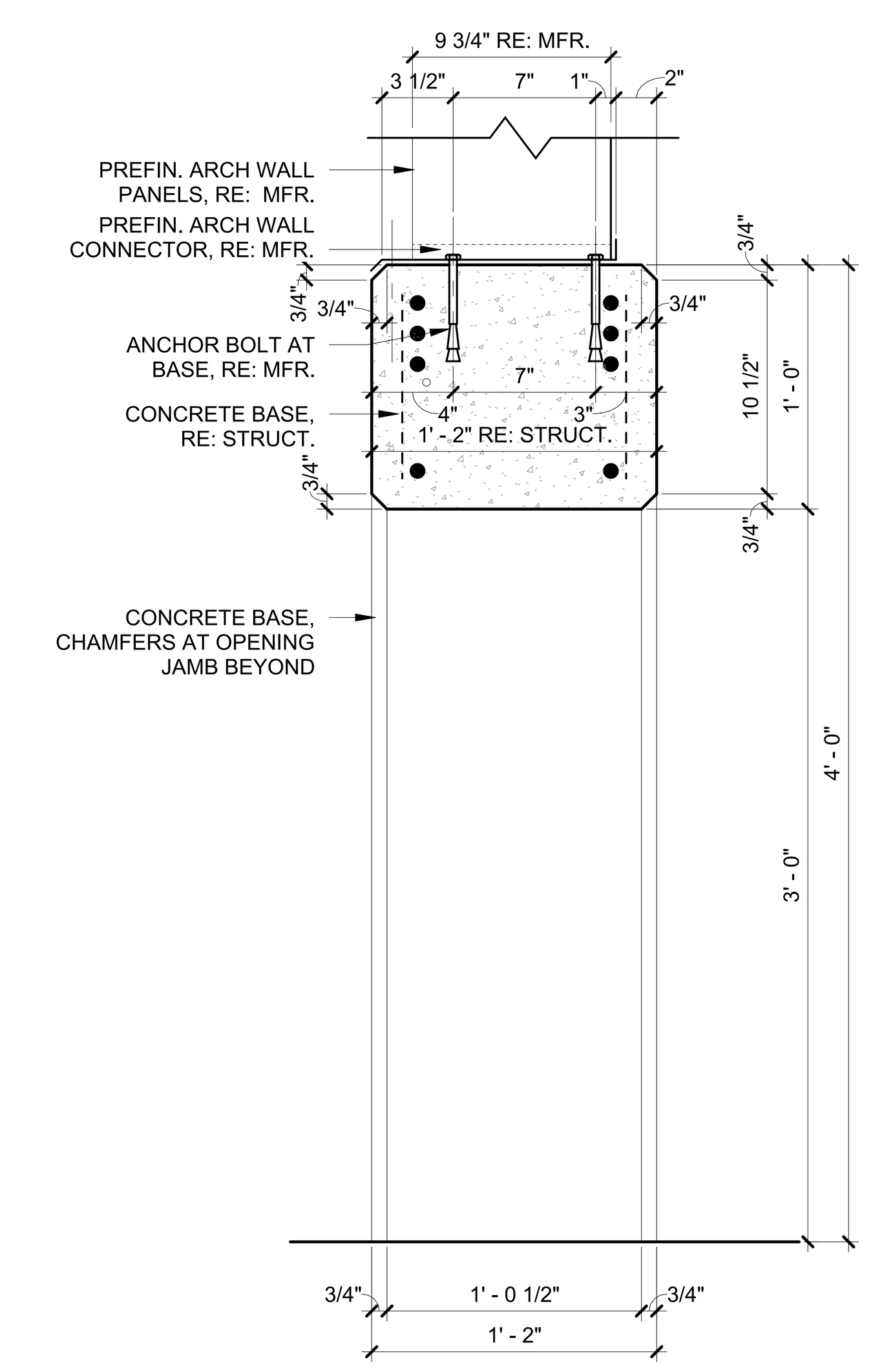




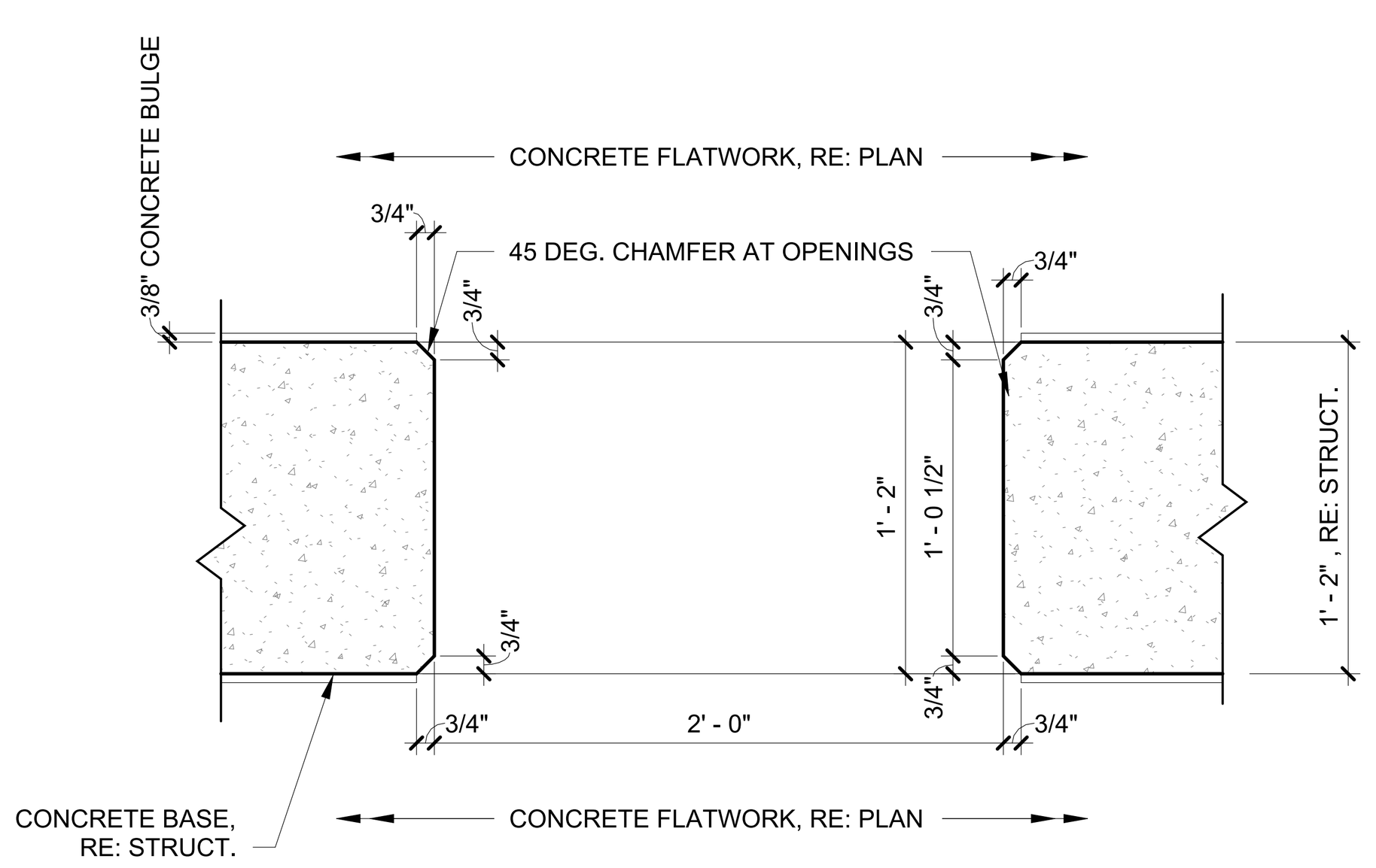
3 QUONSET HUT BASE
1 1/2" = 1'-0"



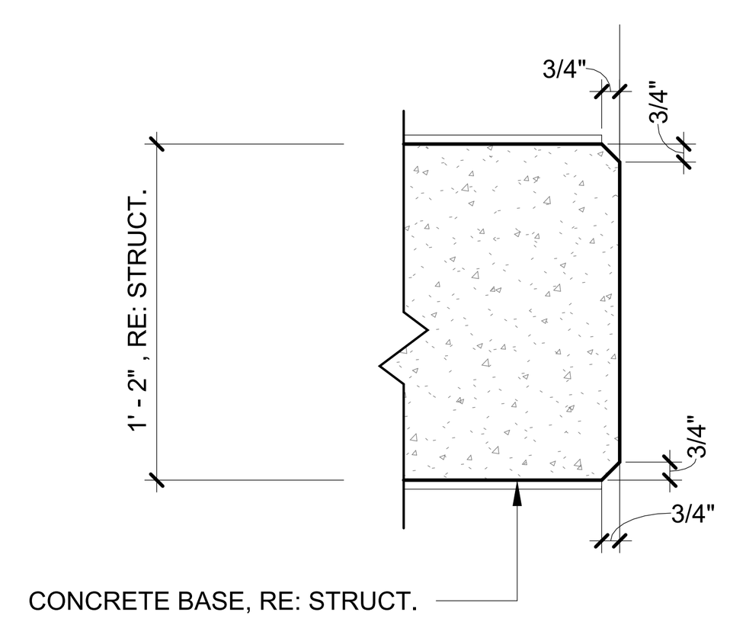
2 LONGITUDINAL SECTION
1/4" = 1'-0"



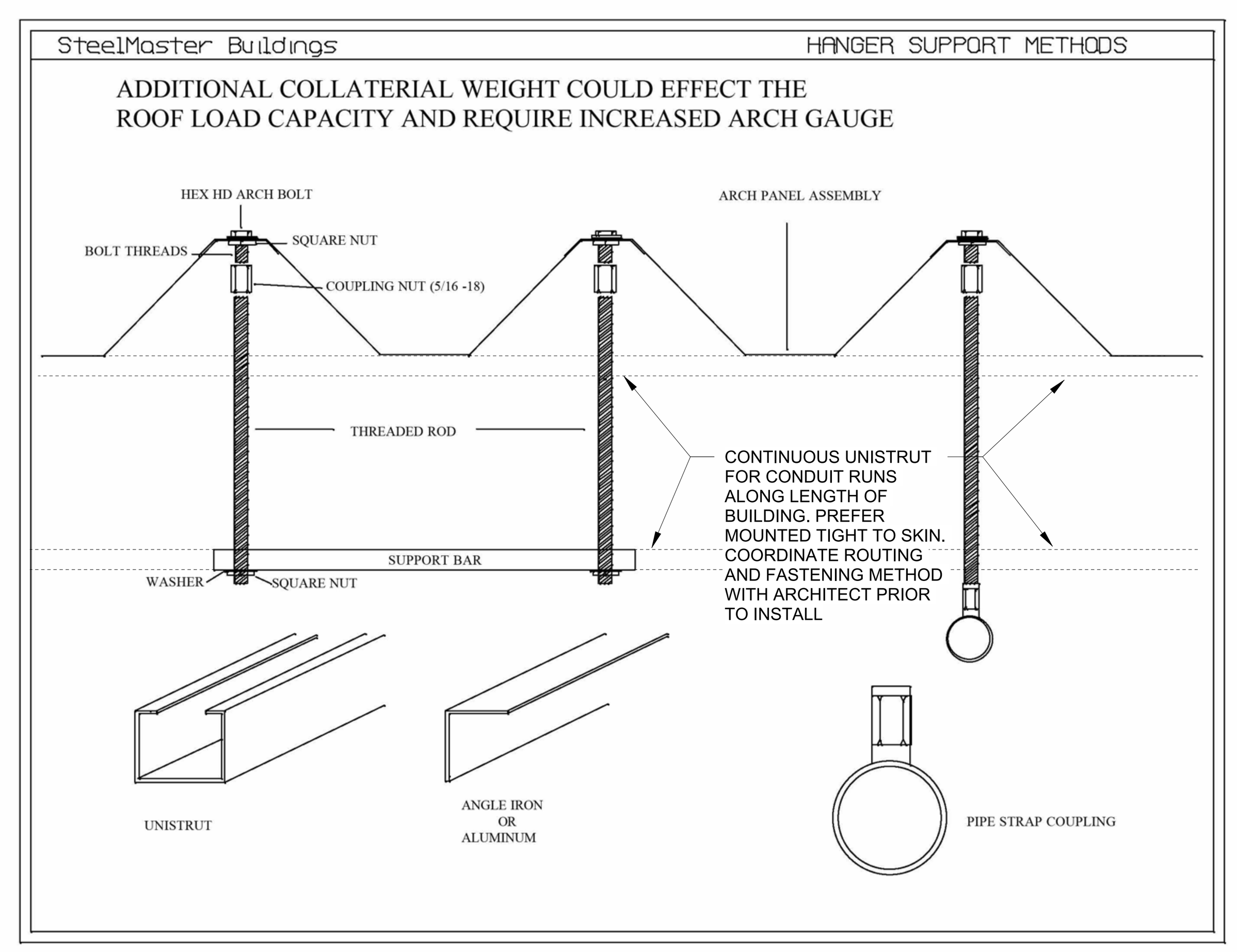
4 QUONSET HUT BASE AT SMALL OPENINGS
1 1/2" = 1'-0"



5 QUONSET HUT PLAN BASE (AT OPENINGS)
1 1/2" = 1'-0"



6 QUONSET HUT PLAN BASE (ENDS)
1 1/2" = 1'-0"



7 STEELMASTER HANGER SUPPORT METHODS
1" = 1'-0"

Project: 2019.10
Release Date: 07/16/2026
Revisions:

No.	Description	Date

Consultant:

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

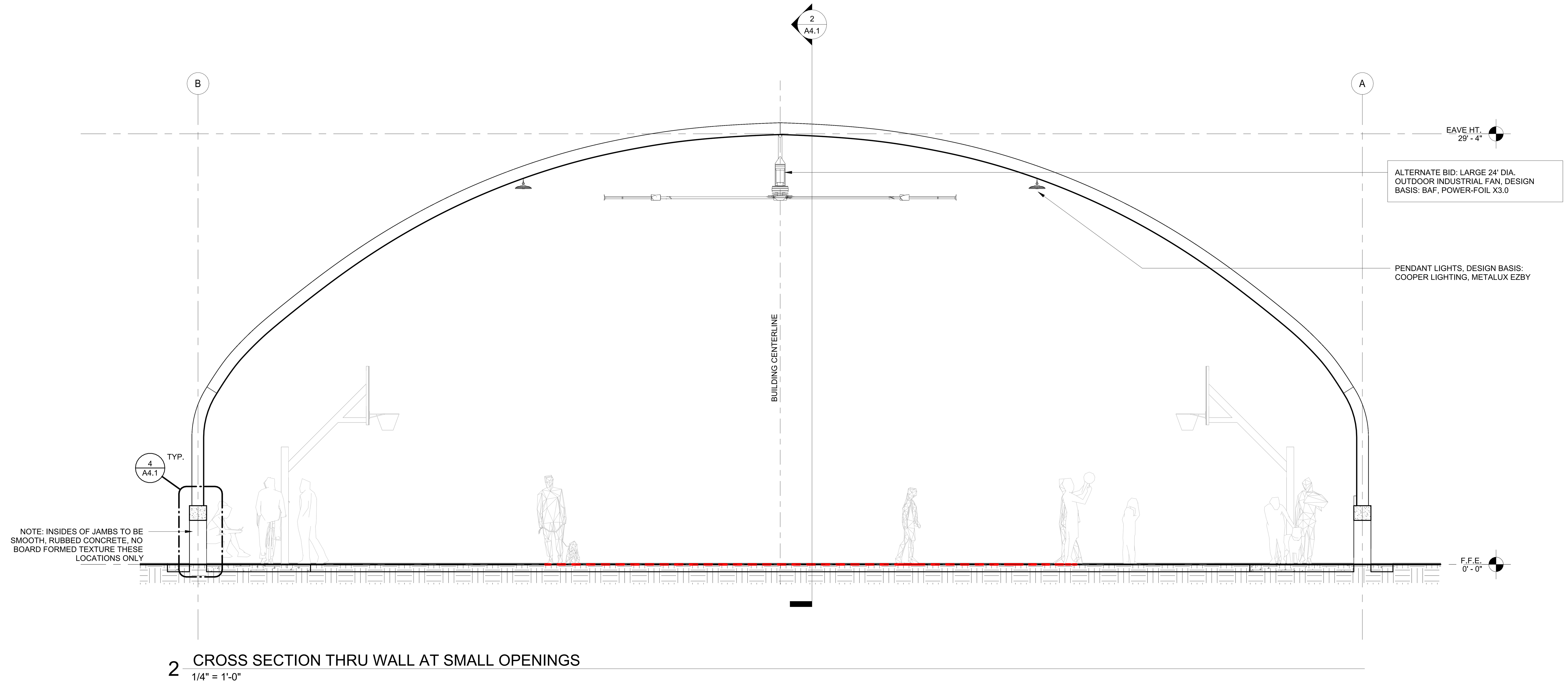
Architect:
BBAx Architects
213 W Main St. Brenham, TX 77833
Tel: (979) 836-6523
Email: mailbox@bba-x.com

REGISTERED ARCHITECT DARREN CRAIG HENRY 13984 STATE OF TEXAS

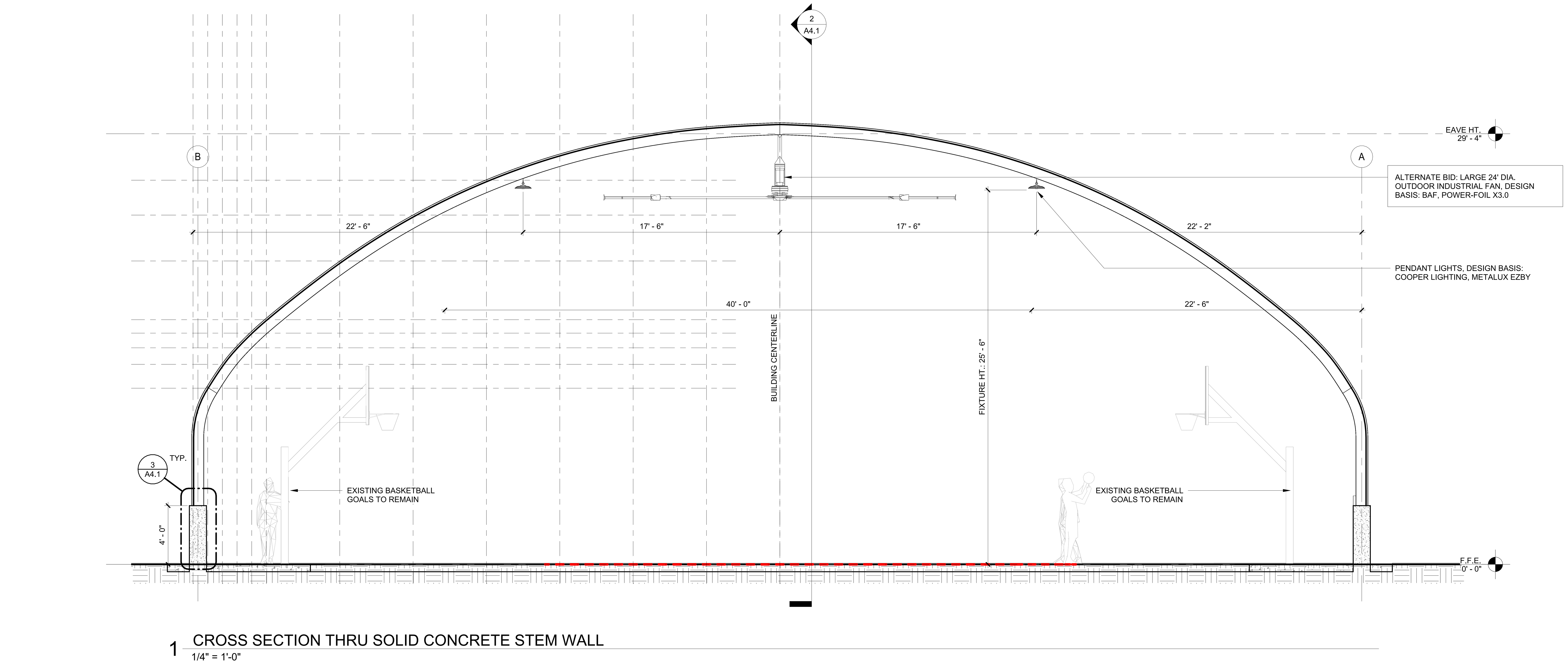
07/16/2026

Building Sections

A4.1



2 CROSS SECTION THRU WALL AT SMALL OPENINGS
1/4" = 1'-0"



1 CROSS SECTION THRU SOLID CONCRETE STEM WALL
1/4" = 1'-0"

Project:	2019.10		
Release Date:	07/16/2026		
Revisions:	No.	Description	Date

Consultant:

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

Architect:

BBAx Architects
213 W Main St Brenham, TX 77833
Tel: (979) 836-0523
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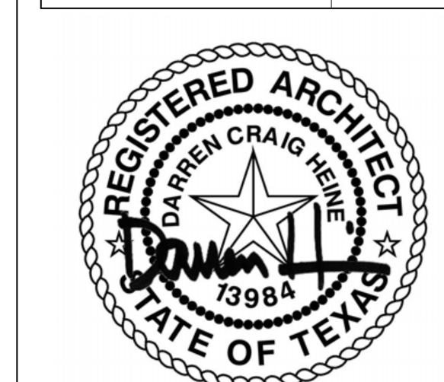
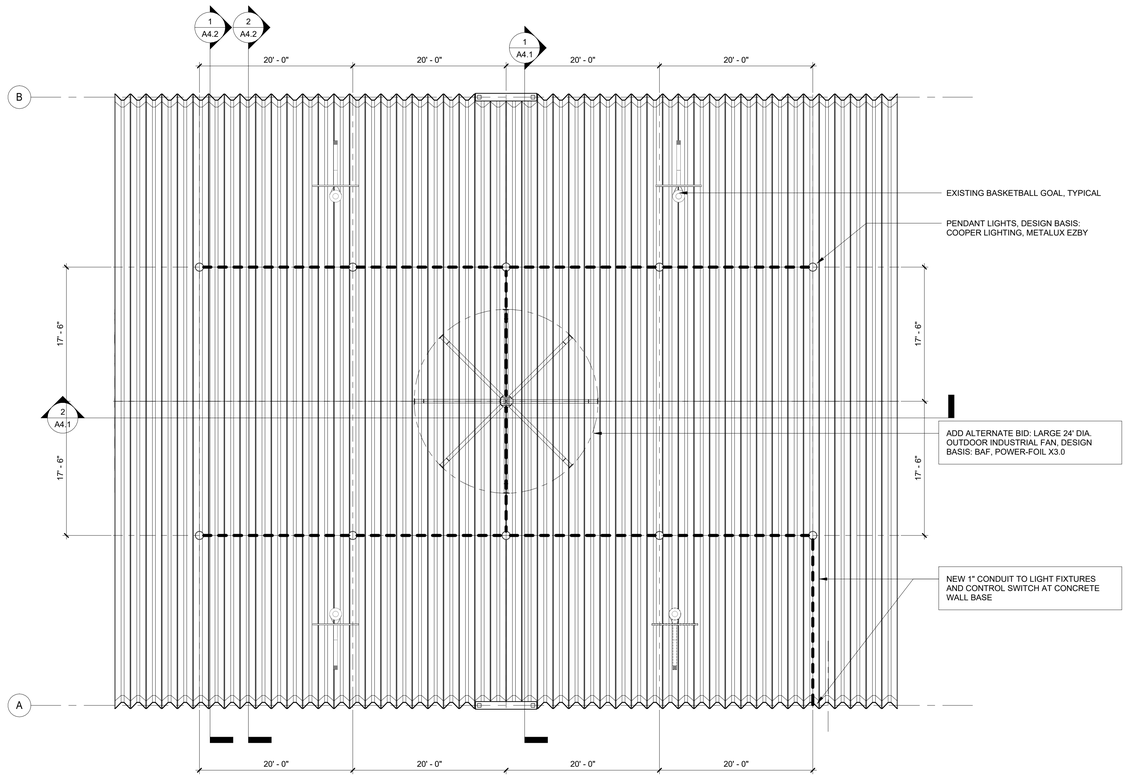


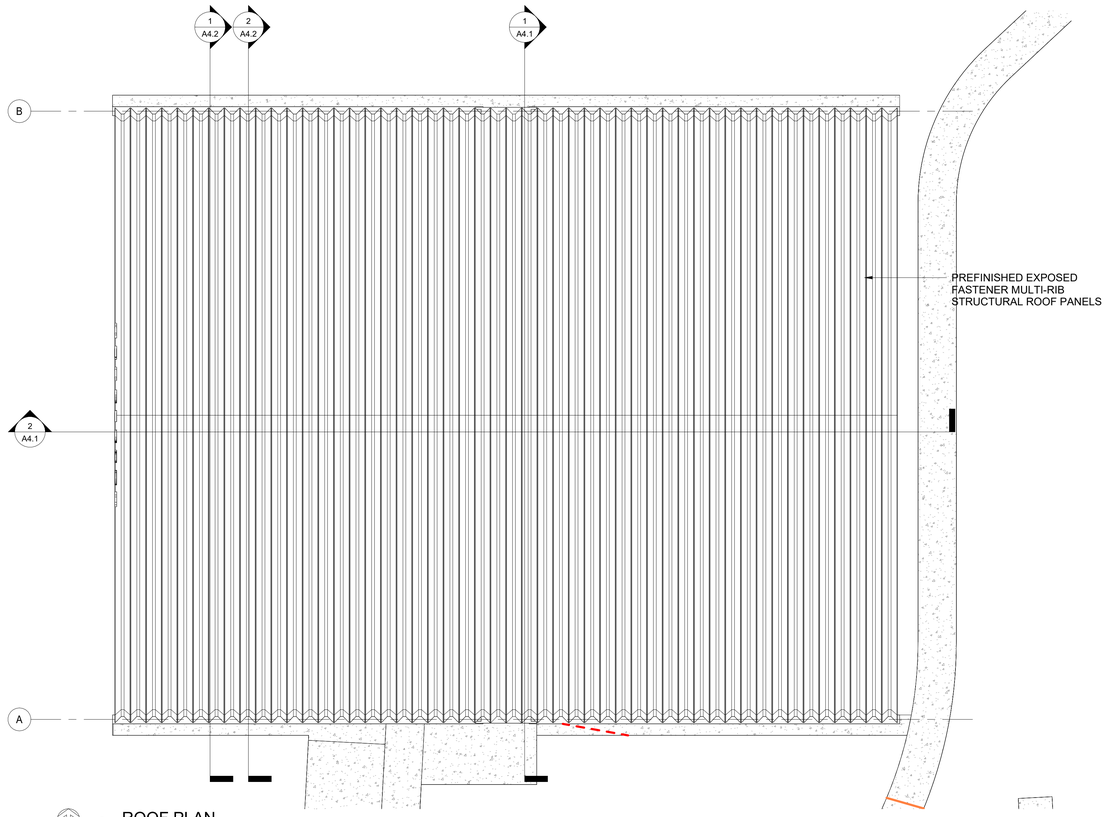
07/16/2026

Building Sections

A4.2



1 REFLECTED CEILING PLAN
1/8" = 1'-0"



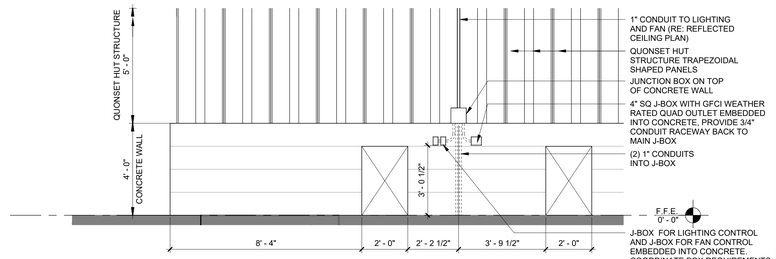
2 ROOF PLAN
1/8" = 1'-0"

LEGEND

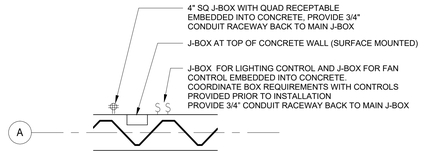
MARK	DESCRIPTION	MARK	DESCRIPTION
○	PENDANT DOWNLIGHT		

GENERAL REFLECTED CEILING PLAN NOTES

1. ALL EXTERIOR LAMPS SHALL BE A CONSISTENT COLOR TEMPERATURE: 40000 K U.N.O.
2. 1. CONTRACTOR SHALL REVIEW AND COORDINATE WITH ARCHITECTURAL, ELECTRICAL, & STRUCTURAL PLANS TO ASCERTAIN EXACT CONDITIONS AND COMPONENTS RELATED TO THE WORK DESCRIBED BY THESE DOCUMENTS. ALL WORK SHALL BE IN ACCORDANCE WITH ACCEPTED MANUFACTURER'S PRINTED INSTRUCTIONS AND NRCA STANDARDS.



3 ELEVATION AT ELECTRICAL COMPONENTS
3/8" = 1'-0"



4 PLAN AT ELECTRICAL COMPONENTS
1/2" = 1'-0"

No.	Description	Date

Project: 2019.10
Release Date: 07/16/2026
Revisions:

Consultant:

City of Brenham Henderson Park Basketball Court Pavilion
BRENHAM, TEXAS

Architect:
BBA Architects LP
1702 South Market Street Brenham, TX 77833
Tel: (979) 836-0523
Email: mailbox@bba-architects.com

FOR REVIEW ONLY
DOCUMENT INCOMPLETE. NOT RELEASED FOR REGULATORY APPROVAL, PERMIT, OR CONSTRUCTION.
ARCHITECT: DARREN C. HEINE
REGISTRATION NO.: 13984
DATE: 07/16/2026

RCP & Roof Plan

A8.1

STRUCTURAL PROJECT TEAM:

PROJECT MANAGER (PM):.............................. Santiago Chavez, P.E. | schavez@dudleyeng.com

DESIGN ENGINEER (DE):.............................. Diego Castaneda, E.I.T. | dcastaneda@dudleyeng.com & Jose Fernandez | jfernandez@dudleyeng.com

PRINCIPAL IN CHARGE (PIC):........................ Drew Dudley, P.E., S.E. | ddudley@dudleyeng.com

CONSTRUCTION ADMINISTRATION (CA):...... CA@dudleyeng.com

COMMUNICATION: THE CONTRACTOR AND THE AGENCY RESPONSIBLE FOR SPECIAL INSPECTIONS AND TESTING SHALL COPY ALL PARTIES OF THE STRUCTURAL PROJECT TEAM INDICATED ABOVE ON ALL CORRESPONDENCE. CA@DUDLEYENG.COM MUST BE INCLUDED ON ALL NOTIFICATIONS FOR RFI, SUBMITTALS, TESTING/INSPECTION REPORT, ETC

DESIGN CRITERIA

1. THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE *INTERNATIONAL BUILDING CODE* WITH LOCAL AMENDMENTS FROM THE AUTHORITY HAVING JURISDICTION.
   A. BUILDING CODE VERSION:.............. 2021 INTERNATIONAL BUILDING CODE W. LOCAL AHJ AMENDMENTS
   B. AUTHORITY HAVING JURISDICTION:.... CITY OF BRENHAM, TX
   C. RISK CATEGORY:.............. II
2. DEAD LOADS:
   a. DEAD LOADS ARE BASED UPON THE ACTUAL WEIGHTS OF MATERIALS AND FIXED SERVICE EQUIPMENT INDICATED IN THESE DRAWINGS.
   b. ASSUMED LOADS FOR KNOWN FIXED EQUIPMENT ARE INDICATED ON THE STRUCTURAL DRAWINGS. ANY CHANGES IN THE TYPE, SIZE, LOCATION OR WEIGHT OF EQUIPMENT SHALL BE REPORTED TO THE EOR FOR VERIFICATION OF THE ADEQUACY OF SUPPORTING MEMBERS PRIOR TO THE SUBMISSION OF SHOP DRAWINGS.
   c. ASSUMED EQUIPMENT WEIGHTS INCLUDE THE WEIGHT OF CONCRETE PADS OR CURBS (IF APPLICABLE)
3. COLLATERAL LOADS:
   A. FOR EQUIPMENT NOT INDICATED ON THE STRUCTURAL DRAWINGS IN WHICH THE WEIGHT OF THE EQUIPMENTS DIVIDED BY ITS SURFACE AREA EXCEEDS THE INDICATED LIVE LOAD FOR THE LOCATION, THE CONTRACTOR SHALL NOTIFY THE EOR PRIOR TO SUBMISSION OF SHOP DRAWINGS.
   B. HANGING CEILING AND MECHANICAL LOADS: AN ALLOWANCE OF 3 PSF HAS BEEN MADE FOR HANGING CEILING AND MECHANICAL EQUIPMENTS SUCH AS DUCT WORK AND SPRINKLER PIPES.
4. ROOF LIVE LOAD
   a. ORDINARY, FLAT, PITCHED AND CURVED UNOCCUPIED ROOFS:..............20 PSF (NON-REDUCIBLE) , 300 LB
   b. AWNINGS AND CANOPIES (IF APPLICABLE):..............20 PSF (NON-REDUCIBLE) , 300 LB
      - EXCEPTION: FABRIC CONSTRUCTION SUPPORTED BY A SKELETON STRUCTURE:..............5 PSF (NON-REDUCIBLE)
5. SNOW LOAD:
   A. GROUND SNOW LOAD, Pg:.............. 5 PSF
6. WIND:
   A. BASIC WIND SPEED V:.............. 117 MPH (3-SEC PEAK GUST)
   B. ALLOWABLE STRESS DESIGN WIND SPEED, [Vasd = V x sqrt (0.6)]:.............. 91 MPH (3-SEC PEAK GUST)
   C. TORNADO SPEED, V_T:.............. NOT APPLICABLE
   D. WIND EXPOSURE CATEGORY:.............. B
   E. INTERNAL PRESSURE COEFFICIENT:.............. ± 0.18 (PARTIALLY OPEN)
   F. COMPONENTS AND CLADDING PRESSURES:.............. SEE SCHEDULE
   G. THE STRUCTURE IS DESIGNED AS AN ENCLOSED STRUCTURE. ALL DOORS, WINDOWS, VENTS, ETC. MUST BE CLOSED & CERTIFIED TO MEET OR EXCEED THE WIND CRITERIA FOR THIS STRUCTURE.
7. RAIN
   A. MEDIAN 15-MIN DURATION RAINFALL INTENSITY (IN/HR):.............. 8.43
   B. MAXIMUM ROOF RAIN LOAD:.............. 20 PSF
   C. MAXIMUM RAINWATER LEVEL - PONDING (STATIC + HYDRAULIC HEAD):.............. 3¼" (REF NOTE I BELOW)
   D. THE SUREST WAY TO AVOID A PONDING COLLAPSE IS TO CONSTRUCT A ROOF WITH SUFFICIENT SLOPE AND FREE DRAINAGE SO THAT WATER NEVER ACCUMULATES.
   E. FOR DRAINAGE, THE MINIMUM SLOPE OF THE ROOF COVERING SHALL BE IN ACCORDANCE WITH IBC §1507 BUT NOT LESS THAN 1/4" PER FT.
   F. ROOF DRAINAGE SHALL BE DESIGNED IN ACCORDANCE §1502 OF THE IBC AND CH. 11 OF THE INTERNATIONAL PLUMBING CODE, BY THE ARCHITECT AND/OR PLUMBING ENGINEER. THE SECONDARY ROOF DRAINAGE (EMERGENCY OVERFLOW SCUPPERS OR SECONDARY DRAINS) QUANTITY, SIZE, LOCATION AND INLET ELEVATION OF THE SCUPPERS SHALL BE SIZED BY THE ARCHITECT/PLUMBING ENGINEER TO KEEP THE MAXIMUM RAINWATER LEVEL BELOW THAT INDICATED ABOVE.
   G. WHERE APPLICABLE, THE INLET ELEVATION OF SECONDARY DRAINAGE SYSTEMS (OVERFLOW DRAINS AND/OR OVERFLOW SCUPPERS) MUST BE AT LEAST 2" ABOVE THE LOW POINT OF THE ROOF SURFACE. THE SECONDARY DRAINAGE SYSTEM SHALL NOT SHARE DRAIN LINES WITH THE PRIMARY DRAINAGE SYSTEM. CONTROLLED FLOW ROOF DRAINS (BLUE ROOFS FOR STORMWATER DETENTION) ARE NOT ALLOWED.
   H. ROOFS AND THEIR DRAINAGE INLETS MUST BE INSPECTED AFTER ROOF CONSTRUCTION, PRIOR TO THE START OF THE RAINY OR HURRICANE SEASONS, FOLLOWING STORMS, AND AT LEAST EVERY 3 MONTHS. OBSTRUCTIONS OR ACCUMULATIONS OF FOREIGN MATTER MUST BE CLEARED AS FREQUENTLY AS NECESSARY.
   I. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED IF THE MAXIMUM RAINWATER LEVEL EXCEEDS THE DESIGNED RAIN ROOF LOAD, OR IF ANY OF THE OTHER REQUIREMENTS ABOVE CANNOT BE ADHERED TO.
8. SEISMIC:
   MAPPED SPECTRAL RESPONSE VALUES, DESIGN SPECTRAL RESPONSE VALUES, AND AS SITE CLASS, HAVE BEEN PROVIDED BY :
   A. GEOTECHNICAL COMPANY AND REPORT NO.:.............. REFER TO FOUNDATION DESIGN CRITERIA SECTION
   B. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS, S_S & S_1.............. 0.064 & 0.038
   C. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS, S_{DS} & S_{D1}:.............. 0.069 & 0.061
   D. SITE CLASS:.............. D
   E. SEISMIC DESIGN CATEGORY, SDC:.............. A
   F. RESPONSE MODIFICATION FACTOR, R:.............. REFERENCE LATERAL LOAD RESISTING SYSTEM SECTION
   G. IMPORTANCE FACTOR (SEISMIC), I_e:.............. 1.0

LATERAL LOAD RESISTING SYSTEM

1. ALL LATERAL LOAD RESISTANCE AND STABILITY OF THE BUILDING IS PROVIDED EXCLUSIVELY BY THE VERTICAL LATERAL LOAD RESISTING SYSTEM. THE HORIZONTAL DIAPHRAGMS DISTRIBUTE THE LATERAL WIND AND SEISMIC FORCES HORIZONTALLY TO THE VERTICAL LATERAL LOAD RESISTING SYSTEM. WHERE MULTIPLE VLLRS's ARE USED, THE LOWEST R-VALUE WAS USED FOR DESIGN. **THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY BRACING/SHORING OF THE STRUCTURE UNTIL THE BELOW SYSTEMS ARE COMPLETELY INSTALLED WITH ALL PASSING INSPECTIONS & SPECIAL INSPECTIONS PER THESE CONSTRUCTION DOCUMENTS AND STANDARD INDUSTRY PRACTICE.**
   A. VERTICAL LATERAL LOAD RESISTING SYSTEM (VLLRS): REFER TO APPROVED QUONSET SUBMITTAL (TO BE SPECIFIED BY SSE FOR QUONSET SYSTEM)
   B. HORIZONTAL LATERAL LOAD RESISTING SYSTEM (HLLRS): REFER TO APPROVED QUONSET SUBMITTAL (TO BE SPECIFIED BY SSE FOR QUONSET SYSTEM)

C&C - GROSS ULTIMATE WIND PRESSURES

Region	Effective Area (sf)	Coefficients		Wind pressures	
		+GCp	-GCp	+p (psf)	-p (psf)
ROOF - WINDWARD QUARTER	N/A	0.41	-0.96	+24.2	-16.0
ROOF - CENTER HALF		1.63	-0.53	-18.8	-46.7
ROOF - LEEWARD QUARTER		0.05	-1.05	+29.1	-16.0
2r	10	0.90	-1.80	+36.7	-59.4
	25	0.74	-1.40	+32.6	-49.4
	50	0.62	-1.10	+29.6	-41.7
	100	0.50	-0.80	+26.6	-34.1
	500	0.50	-0.80	+26.6	-34.1
2e	10	0.90	-1.80	+36.7	-59.4
	25	0.74	-1.40	+32.6	-49.4
	50	0.62	-1.10	+29.6	-41.7
	100	0.50	-0.80	+26.6	-34.1
	500	0.50	-0.80	+26.6	-34.1
2n	10	0.90	-2.00	+36.7	-64.5
	25	0.74	-1.69	+32.6	-56.7
	50	0.62	-1.46	+29.6	-50.9
	100	0.50	-1.23	+26.6	-45.0
	500	0.50	-1.00	+26.6	-39.2
3r	10	0.90	-2.00	+36.7	-64.5
	25	0.74	-1.69	+32.6	-56.7
	50	0.62	-1.46	+29.6	-50.9
	100	0.50	-1.23	+26.6	-45.0
	500	0.50	-1.00	+26.6	-39.2
3e	10	0.90	-2.49	+36.7	-77.0
	25	0.74	-2.09	+32.6	-66.8
	50	0.62	-1.79	+29.6	-59.1
	100	0.50	-1.48	+26.6	-51.4
	500	0.50	-1.00	+26.6	-39.2

b = 1.5h_1, BUT NOT GREATER THAN 100-FT

h = MEAN ROOF HEIGHT OF A BUILDING, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR ROOF ANGLES LESS THAN OR EQUAL TO 10° (~2:12 ROOF PITCH)

MEAN ROOF HEIGHT = THE AVERAGE OF THE ROOF EAVE HEIGHT AND HEIGHT TO THE HIGHEST POINT ON THE ROOF SURFACE.

POSITIVE PRESSURE = ACTING TOWARDS SURFACE
NEGATIVE PRESSURE = ACTING AWAY FROM SURFACE

COMPONENTS AND CLADDING ZONES[1]	
DESCRIPTION	ZONE
ROOF INTERIOR	1,1'
ROOF EDGE	2,2e
ROOF RIDGE	2r,3r
ROOF CORNER	3,3e
WALL INTERIOR	4
WALL EDGE	5

NOTES:
1. REFER TO FIGURE FOR ZONE LOCATIONS/APPLICATIONS. ZONE DESIGNATIONS AS PER ASCE 7.
2. MULTIPLY LISTED PRESSURES BY 0.6 TO CONVERT TO SERVICE-LEVEL PRESSURES.
3. THE PRESSURES SHOWN ARE THE CODE-REQUIRED WIND PRESSURES AND DO NOT INCLUDE ANY SAFETY FACTOR REQUIRED BY FM GLOBAL. THE SUPPLIERS FOR THE VARIOUS COMPONENTS & CLADDING SHALL APPLY THE FM GLOBAL SAFETY FACTOR AS NEEDED.

SCOPE OF DRAWINGS:

SCOPE	DESCRIPTION	INCLUDED?
REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (RDPIRC)	REGISTERED DESIGN PROFESSIONAL OR PRIME CONSULTANT WORKING DIRECTLY FOR THE REGISTERED DESIGN PROFESSIONAL WHO IS RESPONSIBLE FOR ENSURING THE PROJECT CONSTRUCTION DOCUMENTS ARE IN COMPLIANCE WITH THE APPLICABLE REQUIREMENTS OF ANY GOVERNING BUILDING AUTHORITIES. RESPONSIBLE FOR REVIEWING AND COORDINATING SUBMITTAL DOCUMENTS PREPARED BY OTHERS, INCLUDING PHASED AND DEFERRED SUBMITTAL ITEMS, FOR COMPATIBILITY WITH THE DESIGN OF THE BUILDING. TYPICALLY THIS IS THE ARCHITECT OR CIVIL ENGINEER-OF-RECORD.	NO
STRUCTURAL ENGINEER-OF-RECORD	STRUCTURAL CONSULTANT UNDER THE RDPIRC WHO IS RESPONSIBLE FOR ENSURING THE PRIMARY STRUCTURAL SYSTEM IS DESIGNED IN ACCORDANCE WITH THE APPLICABLE STRUCTURAL REQUIREMENTS OF ANY GOVERNING AUTHORITIES. FOR THIS PROJECT, THE CLIENT HAS NOT RETAINED DUDLEY FOR THE SUPERSTRUCTURE DESIGN, THEREFORE WE HAVE PROVIDED THE REQUIRED PERFORMANCE CRITERIA AND EXPECT THAT THE SUPERSTRUCTURE WILL EITHER BE DESIGNED PER THE PRESCRIPTIVE REQUIREMENTS OF THE BUILDING CODE OR THAT A STRUCTURAL ENGINEER WILL BE ENGAGED FOR THIS DESIGN, IF REQUIRED.	YES
SPECIALTY STRUCTURAL ENGINEER (SSE) SUPERSTRUCTURE DESIGN	STRUCTURAL ENGINEER RESPONSIBLE FOR THE SUPERSTRUCTURE. IT IS THE OWNER/CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL PROJECT PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE REQUIREMENTS OF ANY GOVERNING BUILDING AUTHORITIES. IT IS ASSUMED THAT A STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT WILL BE ENGAGED FOR THE DESIGN OF THE SUPERSTRUCTURE.	NO
CONSTRUCTION ENGINEERING	TEMPORARY SHORING, SCAFFOLDING, LOAD CHECKS FOR MATERIAL STOCKPILING, STRUCTURAL MODIFICATIONS FOR STORAGE, STAGING AND CONSTRUCTION EQUIPMENT LOADING, MEANS OF EGRESS FOR EQUIPMENT, CRANE SELECTION, LOCATION, SUPPORT AND BRACING, ETC.	NO

GEOTECHNICAL REPORT, FOUNDATION DESIGN CRITERIA & NOTES

1. THIS FOUNDATION DESIGN IS BASED ON THE RECOMMENDATIONS CONTAINED WITHIN THE GEOTECHNICAL REPORT PROVIDED TO SER. IN PREPARING THE FOUNDATION DESIGN, THE SER HAS RELIED ON THE INFORMATION PRESENTED IN THE REPORT BUT DOES NOT ASSUME RESPONSIBILITY FOR ITS ACCURACY OR COMPLETENESS. THE GEOTECHNICAL INFORMATION REFLECTS SUBSURFACE CONDITIONS AT THE SPECIFIC BORING AND/OR PIT LOCATIONS ONLY. ACTUAL CONDITIONS BETWEEN AND BEYOND THESE LOCATIONS MAY DIFFER FROM THOSE INDICATED. IF CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFER FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT, OR IF THE SITE SOILS HAVE BEEN MODIFIED SINCE THE REPORT WAS ISSUED, THE SER SHALL BE NOTIFIED IN WRITING PRIOR TO PROCEEDING WITH CONSTRUCTION SO THE POTENTIAL IMPACTS ON THE FOUNDATION DESIGN CAN BE EVALUATED. WHERE REQUIREMENTS SHOWN IN THE STRUCTURAL DRAWINGS OR SPECIFICATIONS EXCEED THOSE IN THE GEOTECHNICAL REPORT, THE DRAWINGS AND SPECIFICATIONS SHALL GOVERN.
2. GEOTECHNICAL INFORMATION INCLUDED IN THE STRUCTURAL CONSTRUCTION DOCUMENTS IS INTENDED TO REPLICATE THE RECOMMENDATIONS STATED IN THE GEOTECHNICAL REPORT. THE INCLUSION OF THIS INFORMATION DOES NOT REPRESENT OR IMPLY GEOTECHNICAL EXPERTISE BY THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL OBTAIN AND REVIEW A COPY OF THE GEOTECHNICAL REPORT AND COMPLY WITH THE RECOMMENDATIONS CONTAINED THEREIN. IF ANY DISCREPANCIES ARE DISCOVERED BETWEEN THE GEOTECHNICAL REPORT AND THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR SHALL NOTIFY BOTH THE SER AND THE GEOTECHNICAL ENGINEER OF RECORD (GER) IN WRITING FOR BIDDING AND CONSTRUCTION PURPOSES, THE MOST STRINGENT REQUIREMENT—WHETHER FROM THESE DRAWINGS OR THE GEOTECHNICAL REPORT—SHALL GOVERN. ALL CLARIFICATIONS OR INTERPRETATIONS OF THE GEOTECHNICAL REPORT SHALL BE PROVIDED BY THE GER AND REPORTED TO THE SER.
   A. GEOTECHNICAL ENGINEER:...... *DUDLEY*
   B. REPORT NUMBER: *25-00384*
   C. REPORT DATE: .... *DECEMBER 9, 2025*
3. **GRADE ASSUMPTIONS AND COORDINATION:** UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, THE FOUNDATION DESIGN IS BASED ON THE FOLLOWING GRADE ASSUMPTIONS: FINAL GRADE IS NO MORE THAN *1 FT* BELOW FINISHED FLOOR ELEVATION, AND FINAL GRADE IS NO MORE THAN *2 FT* ABOVE EXISTING OR NATURAL GRADE. THESE ASSUMPTIONS HAVE BEEN USED BECAUSE THE STRUCTURAL ENGINEER MAY NOT HAVE THE LATEST CIVIL GRADING INFORMATION AT THE TIME THE STRUCTURAL DRAWINGS ARE ISSUED. THE CONTRACTOR SHALL COORDINATE THE STRUCTURAL DRAWINGS WITH THE CIVIL AND LANDSCAPE ARCHITECTURE DRAWINGS TO VERIFY EXISTING GRADES, FINAL GRADES, FINISHED FLOOR ELEVATIONS, AND REQUIRED FOUNDATION EMBEDMENTS PRIOR TO DEVELOPING FOUNDATION REINFORCING SUBMITTALS OR BEGINNING FOUNDATION CONSTRUCTION. ALL FOUNDATION ELEMENTS SHALL ACHIEVE THE MINIMUM REQUIRED EMBEDMENT SHOWN IN THE STRUCTURAL DRAWINGS. IF ACTUAL FIELD CONDITIONS, EXISTING GRADES, PROPOSED FINAL GRADES, OR GRADING PLAN REVISIONS DIFFER FROM THE ASSUMPTIONS STATED ABOVE, OR IF THEY WOULD PREVENT THE REQUIRED FOUNDATION EMBEDMENT FROM BEING ACHIEVED, DUDLEY SHALL BE NOTIFIED IN WRITING BEFORE FOUNDATION REINFORCING SUBMITTALS ARE PREPARED OR FOUNDATION WORK PROCEEDS. THE FOUNDATION DESIGN SHALL THEN BE REVIEWED AND REVISED AS NECESSARY. FOUNDATION REINFORCING SUBMITTALS SUBMITTED WITHOUT THIS GRADE COORDINATION BEING COMPLETED WILL BE RETURNED AS REVISE AND RESUBMIT.
4. **POST-CONSTRUCTION FOUNDATION MOVEMENT:** THE FOUNDATION DESIGN PARAMETERS PROVIDED DO NOT ELIMINATE THE POSSIBILITY OF POST-CONSTRUCTION FOUNDATION MOVEMENT. ACCORDINGLY, MEASURES SHALL BE IMPLEMENTED TO INCREASE THE TOLERANCE OF THE ELEMENTS SUPPORTED BY THE FOUNDATION. SUCH MEASURES INCLUDE, BUT ARE NOT LIMITED TO, FREQUENT CONTRACTION (CONTROL) JOINTS FOR DRYWALL, MASONRY, BRICK, STONE, OR STUCCO EXTERIOR VENEER, VERTICAL SLIP CONNECTIONS TO ATTACH NON-LOAD BEARING WALLS TO FRAMING MEMBERS, AND OTHER DETAILS TO ACCOMMODATE MOVEMENT.
5. **ABNORMAL CONDITIONS:** THE FOUNDATION DESIGN ASSUMES THAT THE FOUNDATION IS CONSTRUCTED WHEN THE SOIL AT THE SITE IS NEAR OR AT EQUILIBRIUM MOISTURE CONTENT. IF THE SITE IS CONSTRUCTED AT A TIME WHEN THE SITE MAY BE IN A CONDITION OF EXTREME DRYNESS/WETNESS FROM A PROLONGED DRY/WET PERIOD, THEN THE CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL ENGINEER FOR RECOMMENDATIONS TO ADJUST THE MOISTURE CONTENT IN THE BUILDING PAD TO ACHIEVE EQUILIBRIUM.
6. **FOUNDATION MOVEMENT:** THE FOUNDATION HAS BEEN DESIGNED WITH THE ASSUMPTION THAT MOVEMENT CAN BE TOLERATED WITHIN A STANDARD PERFORMANCE LIMIT:
   A. STANDARD PERFORMANCE DEFLECTION LIMIT: *L/360*
   B. STANDARD PERFORMANCE TILT LIMIT: *1%*
7. **SOIL MOISTURE LEVEL:** A REASONABLY UNIFORM SOIL MOISTURE LEVEL IS REQUIRED TO BE MAINTAINED AROUND THE FOUNDATION FOR THE LIFE OF THE STRUCTURE.
8. **FOUNDATION MAINTENANCE:** POSITIVE DRAINAGE AWAY FROM THE STRUCTURE SHALL BE MAINTAINED FOR THE LIFE OF THE STRUCTURE AND THE CONTRACTOR SHALL CONVEY THIS REQUIREMENT TO THE OWNER. THE INITIAL AND ALL SUBSEQUENT OWNERS SHALL MAINTAIN THE FOUNDATION IN ACCORDANCE WITH THE LATEST REVISION OF DOCUMENT NO. FPA-SC-07, "FOUNDATION MAINTENANCE AND INSPECTION GUIDE FOR RESIDENTIAL AND OTHER LOW-RISE BUILDINGS", AVAILABLE ON THE FOUNDATION PERFORMANCE ASSOCIATION'S WEBSITE: WWW.FOUNDATIONPERFORMANCE.ORG. CONTRACTOR SHALL PROVIDE THIS DOCUMENT TO OWNER.
9. **MEP UTILITIES:** LOCATE MEP UTILITIES IN ACCORDANCE WITH MEP DRAWINGS, IF APPLICABLE AND LATEST CODES. UTILITIES SHALL NOT BE PLACED WITHIN THE SLAB NOR PARALLEL WITHIN OR BELOW GRADE BEAMS OR FOOTINGS.
10. **GROUNDING**: COORDINATE GROUNDING REQUIREMENTS WITH THE ELECTRICAL ENGINEER, IF NOT AVAILABLE ADHERE TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
11. **EXPIRATION:** PLANS ARE VALID FOR 6-MONTHS FROM THE DATE THE PLANS ARE ISSUED OR REVISED BY THE ENGINEER. CONTACT ENGINEER FOR REVIEW IF PLANS HAVE EXPIRED OR IF CONSTRUCTION OF THE FOUNDATION HAS NOT COMMENCED WITHIN THIS TIME FRAME.
12. **VERIFY EXISTING UTILITIES AND OBSTRUCTIONS PRIOR TO DRILLING**
    A. UTILITY LOCATIONS, WHERE SHOWN, ARE BASED ON THE BEST AVAILABLE INFORMATION AND MAY NOT REPRESENT ALL EXISTING CONDITIONS OR THE EXACT HORIZONTAL OR VERTICAL LOCATION OF UNDERGROUND OR HIDDEN OBSTRUCTIONS. WHETHER OR NOT CIVIL DRAWINGS OR SURVEY INFORMATION ARE PROVIDED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE PRESENCE AND LOCATION OF ALL EXISTING UTILITIES, FOUNDATIONS, STRUCTURES, AND OTHER SUBSURFACE OR SURFACE OBSTRUCTIONS PRIOR TO DRILLING, EXCAVATION, OR CONSTRUCTION OPERATIONS.
    B. IN ADDITION TO CONTACTING 811, THE CONTRACTOR SHALL CONDUCT ALL REASONABLE MEASURES NECESSARY TO LOCATE AND VERIFY EXISTING UTILITIES AND OBSTRUCTIONS. SUCH MEASURES SHALL INCLUDE, AS APPLICABLE, THE USE OF PRIVATE UTILITY LOCATE SERVICES, GROUND-PENETRATING RADAR (GPR) SCANS, POTHOLING, OR OTHER METHODS TO IDENTIFY ITEMS THAT MAY INTERFERE WITH OR BE DAMAGED BY THE PROPOSED WORK.
    C. THE CONTRACTOR SHALL NOT PROCEED WITH DRILLING OR EXCAVATION UNTIL THE WORK AREA HAS BEEN VERIFIED CLEAR OF EXISTING UTILITIES AND OBSTRUCTIONS AND ANY POTENTIAL CONFLICTS HAVE BEEN REVIEWED WITH THE ENGINEER. DAMAGE TO EXISTING UTILITIES OR STRUCTURES RESULTING FROM FAILURE TO PERFORM SUCH VERIFICATION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
13. **UNCLASSIFIED EXCAVATION**: EXCAVATE TO SUBGRADE ELEVATIONS REGARDLESS OF THE CHARACTER OF SURFACE AND SUBSURFACE CONDITIONS ENCOUNTERED. UNCLASSIFIED EXCAVATED MATERIALS MAY INCLUDE ROCK, SOIL MATERIALS, EXISTING STRUCTURES AND OBSTRUCTIONS. NO CHANGES IN THE CONTRACT SUM OR THE CONTRACT TIME WILL BE AUTHORIZED FOR ROCK EXCAVATION OR REMOVAL OF OBSTRUCTIONS. PRIOR TO REMOVAL OF ANY OBSTRUCTIONS, THE CONTRACTOR SHALL NOTIFY THE SER AND GEOTECHNICAL ENGINEER FOR APPROVAL ON THE CONTRACTORS PROPOSED METHOD OF REMOVAL. BACKFILLING WITH SELECT FILL, CEMENT STABILIZE SAND OR LEAN CONCRETE ARE TYPICAL BACKFILL METHODS TO FILL ANY VOIDS CAUSED BY REMOVAL OF OBSTRUCTIONS.
14. **GEOTECHNICAL ENGINEER REVIEW OF FOUNDATION / EARTHWORK:** THE ENTITY WHO ENGAGED THE GEOTECHNICAL ENGINEER OF RECORD SHALL RETAIN THE SAME ENGINEER/FIRM TO REVIEW THE FINAL STRUCTURAL FOUNDATION DESIGN AND EARTHWORK REQUIREMENTS. THIS REVIEW MUST CONFIRM THAT THE GEOTECHNICAL RECOMMENDATIONS HAVE BEEN PROPERLY INTERPRETED, THAT PROJECT CONDITIONS REMAIN CONSISTENT WITH THE ASSUMPTIONS OF THE ORIGINAL REPORT, AND THAT ANY REQUIRED SUPPLEMENTARY RECOMMENDATIONS ARE ISSUED SO THE STRUCTURAL ENGINEER OF RECORD CAN ADJUST THE DESIGN AS NECESSARY.
15. **GEOTECHNICAL LOAD BEARING VALUES OF SOIL**
    - ***DRILLED PIERS:***
      1. ***ALLOWABLE BEARING PRESSURE (MAXIMUM): 7,500 PSF***
      2. ***ALLOWABLE BEARING PRESSURE (SUSTAINED): 5,000 PSF***
    - ***L-PILE PARAMETERS:***
      REFER TO GEOTECHNICAL REPORT

STRUCTURAL DEFERRED SUBMITTALS:

1. STRUCTURAL DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH REQUIRE STRUCTURAL ENGINEERING THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION BUT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL AT A LATER DATE. DEFERRED SUBMITTALS SHALL BE SUBMITTED TO AND APPROVED BY THE RDPiRC, SER & BUILDING OFFICIAL PRIOR TO INSTALLATION OF ANY SAID WORK.
2. COMPLETE STRUCTURAL SHOP DRAWINGS FOR CONSTRUCTION OF EACH BUILDING COMPONENT NOT DESIGNED BY THE SER AND NOT SPECIFIED ON THE PROJECT CONSTRUCTION DOCUMENTS SHALL BE SEALED AND SIGNED BY A SSE WHO IS A REGISTERED DESIGN PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BEING CONSTRUCTED WHO IS QUALIFIED TO PERFORM SAID WORK. A SEAL BY A LICENSED PROFESSIONAL ENGINEER IS NOT REQUIRED FOR PRODUCTS WHICH HAVE BEEN TESTED AND CERTIFIED BY AN APPROVED AGENCY SUCH AS THE ICC, NOR FOR COMPONENTS WHICH ARE FABRICATED BY A FABRICATOR THAT IS CERTIFIED BY AN APPROVED AGENCY IN WHICH THE AGENCY SPECIFIED THAT SEALING OF THE SHOP DRAWINGS IS NOT REQUIRED (E.G. STEEL JOIST INSTITUTE IN REGARDS TO OPEN WEB STEEL JOISTS). THE CONTRACTOR SHALL INCLUDE ALLOWANCES FOR ALL ITEMS REQUIRED BY THE DEFERRED SUBMITTALS TO FORM A COMPLETE SYSTEM. IF THE CONTRACTOR BELIEVES THERE IS MISSING INFORMATION IN THE CONSTRUCTION DOCUMENTS THAT WILL NOT ALLOW THEM TO DEVELOP AN ADEQUATE ESTIMATE WITH ALLOWANCE FOR A DEFERRED SUBMITTAL, THEN THEY SHALL NOTIFY THE SER IN WRITING PRIOR TO ISSUING A BID.
3. THE SSE SHALL SPECIFICALLY INDICATE IN A COVER PAGE AT THE FRONT OF THE SHOP DRAWING THAT THEY ARE THE SSE IN RESPONSIBLE CHARGE FOR THE DEFERRED SUBMITTAL AND THAT THEY HAVE REVIEWED THE SHOP DRAWING TO ENSURE COMPLIANCE WITH THEIR DESIGN AND CALCULATIONS. PERFORMANCE SPECIFICATIONS HAVE BEEN PROVIDED IN THE CONSTRUCTION DOCUMENTS, HOWEVER THE SSE IS SOLELY RESPONSIBLE FOR THE DESIGN OF THESE ELEMENTS AND SHALL DO SO IN COMPLIANCE WITH ALL RELEVANT CODES AND PROJECT CONDITIONS.
4. CALCULATION PACKAGE: ALL DEFERRED SUBMITTALS WITH (*) SYMBOL SHALL BE ACCOMPANIED BY A CALCULATION PACKAGE FOR ALL OF THE COMPONENTS ALONG WITH A SEALED LETTER BY THE SSE ATTESTING THE FOLLOWING:
   - *"I [SPECIALTY STRUCTURAL ENGINEER] HAVE REVIEWED THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, SENT ANY CLARIFICATION QUESTIONS TO THE STRUCTURAL ENGINEER-OF-RECORD FOR REVIEW, PERFORMED ANALYSIS AND DESIGN ON THE [SPECIAL STRUCTURAL ENGINEERING SCOPE], PROVIDED THIS INFORMATION TO THE FABRICATOR AND HAVE REVIEWED THE SHOP DRAWINGS TO ENSURE THAT THE DESIGN HAS BEEN PROPERLY IMPLEMENTED AND MEETS ALL CRITERIA OF THE BUILDING CODE AND CONSTRUCTION DOCUMENTS."*
   A. THE CALCULATION PACKAGE SHALL BE IN PDF FORMAT AND HAVE A COVER PAGE WITH BOOKMARKS AT EACH UNIQUE CALCULATION. THE PDF MUST BE SEARCHABLE.
   A. SUPPLEMENTAL STATEMENT OF SPECIAL INSPECTIONS: ALL DEFERRED SUBMITTALS WITH (+) SYMBOL, REQUIRE THE SSE TO SUBMIT A SUPPLEMENTAL STATEMENT OF SPECIAL INSPECTIONS, REF §1704.3.1.
5. DEFERRED SUBMITTALS SHALL BE SUBMITTED IN PDF FORMAT THAT ALLOWS ADDING MARKUPS. IF THE PDF DOES NOT ALLOW MARKUPS, THE SUBMITTAL WILL BE RETURNED UNREVIEWED AS REVISE AND RESUBMIT.
6. ALL STRUCTURAL DEFERRED SUBMITTALS SHALL BE REVIEWED BY THE SER AND MARKED AS EITHER NO EXCEPTIONS OR EXCEPTION NOTED, PRIOR TO SUBMITTING TO THE "FOR CONSTRUCTION" VERSION TO THE AUTHORITY HAVING JURISDICTION (AHJ) AND PRIOR TO RELEASE FOR FABRICATION.
7. DEFERRED SUBMITTALS SHALL CLEARLY INDICATE ANY REQUIRED SPECIAL INSPECTIONS AND TESTING REQUIRED EITHER BY THE BUILDING CODE OR THE SSE FOR THEIR SCOPE OF WORK.
8. STRUCTURAL DEFERRED SUBMITTALS ON THIS PROJECT INCLUDE:
   A. *+SUPPORT TO STRUCTURE FOR: MEP UTILITIES/EQUIPMENT, ETC.
   B. QUONSET HUT SYSTEM AND ANCHORAGE TO STRUCTURE

GENERAL CONDITIONS

1. **THE DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE SCOPE AND DESIGN INTENT. MEANS, METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION. THE PURPOSE OF THESE DRAWINGS AND SPECIFICATIONS ARE NOT TO SERVE AS AN INSTRUCTION MANUAL SHOWING THE CONTRACTOR HOW TO ASSEMBLE A STRUCTURE, BUT INSTEAD DEFINE PROJECT SCOPE AND DESIGN INTENT. BECAUSE STRUCTURAL DRAWINGS CANNOT REASONABLY ANTICIPATE EVERY FIELD CONDITION OR COORDINATION ISSUE, REASONABLE ALLOWANCES FOR STRUCTURAL MATERIALS ARE INCLUDED WITHIN THESE DRAWINGS. THESE ALLOWANCES ACCOUNT FOR NORMAL COORDINATION ITEMS, MINOR CLARIFICATIONS, FIELD ADJUSTMENTS, AND REFINEMENTS NECESSARY TO ACHIEVE THE INTENDED STRUCTURAL DESIGN.**
2. **CONTRACTOR COORDINATION & MEANS AND METHODS: THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR COORDINATION OF THE WORK BETWEEN ALL TRADES, SUBCONTRACTORS, SUPPLIERS, AND DISCIPLINES. THIS RESPONSIBILITY INCLUDES, BUT IS NOT LIMITED TO, COORDINATION OF DIMENSIONS, LOCATIONS, TOLERANCES, SEQUENCING, ACCESS, CLEARANCES, OPENINGS, PENETRATIONS, EMBEDS, SLEEVES, EQUIPMENT SIZES AND WEIGHTS, SUPPORTS, CONNECTIONS, AND INTERFACES BETWEEN BUILDING SYSTEMS AND THE STRUCTURE. THE CONTRACT DOCUMENTS ESTABLISH THE DESIGN INTENT, PERFORMANCE CRITERIA, AND REQUIRED STRUCTURAL CAPACITIES. THEY ARE NOT INTENDED TO SERVE AS AN INSTRUCTION MANUAL FOR CONSTRUCTION MEANS AND METHODS, SEQUENCING, OR TRADE COORDINATION. THE CONTRACTOR SHALL REVIEW, COORDINATE, AND VERIFY ALL SHOP DRAWINGS, PRODUCT DATA, AND SUBMITTALS TO ENSURE COMPATIBILITY BETWEEN TRADES AND CONFORMANCE WITH THE CONTRACT DOCUMENTS PRIOR TO FABRICATION AND INSTALLATION. RFIS REQUESTING RESOLUTION OF TRADE-TO-TRADE COORDINATION, DIMENSIONAL FIT-UP, SEQUENCING, TEMPORARY CONDITIONS, MEANS AND METHODS, OR ISSUES THAT ARE REASONABLY INFERABLE FROM THE CONTRACT DOCUMENTS SHALL BE RETURNED WITHOUT REVIEW AND SHALL NOT CONSTITUTE A BASIS FOR ADDITIONAL COST OR TIME. THE CONTRACTOR'S FAILURE TO PROPERLY COORDINATE THE WORK, INCLUDING FAILURE TO IDENTIFY CONFLICTS, DISCREPANCIES, OMISSIONS, OR CONSTRUCTABILITY ISSUES THAT ARE REASONABLY DISCOVERABLE THROUGH COORDINATION AND REVIEW OF THE CONTRACT DOCUMENTS, SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, NOR SHALL SUCH FAILURE ENTITLE THE CONTRACTOR TO ADDITIONAL COMPENSATION OR EXTENSIONS OF CONTRACT TIME.**
3. **THE CONTRACTOR'S WORK PLAN FOR THE MEANS-AND-METHODS OF CONSTRUCTION (I.E. SHOP DRAWINGS, SCHEDULES, SUBCONTRACTS, ETC.) MUST DEFINE WHEN AND HOW THE STRUCTURE WILL BE CONSTRUCTED. THE CONTRACTOR SHALL PERFORM A CONSTRUCTABILITY REVIEW PRIOR TO BIDDING AND ON AN ONGOING BASIS THROUGHOUT THE PROJECT, BASED ON THEIR SELECTED MEANS AND METHODS. ANY CONCERNS OR POTENTIAL ISSUES IDENTIFIED SHALL BE PROMPTLY COMMUNICATED TO THE SER.**
4. REVIEW AND/OR ANALYSIS OF EQUIPMENT, MATERIAL STOCKPILING, ETC. TO BE PLACED ON THE STRUCTURE DURING CONSTRUCTION ARE NOT WITHIN THE SER'S BASIC SCOPE OF SERVICES. CONSTRUCTION ENGINEERING SERVICES CAN BE PROVIDED AS AN ADDITIONAL SERVICE OR THE CONTRACTOR CAN ENGAGE A SPECIALTY STRUCTURAL ENGINEER TO CONDUCT THE REVIEW/ANALYSIS. THE STRUCTURE HAS ONLY BEEN DESIGNED FOR THE LOADS INDICATED IN THE DESIGN CRITERIA SECTION AND/OR LIVE LOAD PLANS OF THESE GENERAL NOTES. ANY VEHICLES ON EXPOSED CONCRETE SLABS SHALL HAVE NON-MARKING TIRES OR TIRE COVERS TO PREVENT MARKING ON THE SLAB.
5. REFER TO DRAWINGS/SPECIFICATIONS OTHER THAN STRUCTURAL FOR COMPLETE INFORMATION REGARDING: SLEEVES, CURBS, INSERTS, DEPRESSIONS, OPENINGS, ETC. THE CONTRACTOR SHALL SUBMIT A COMPOSITE PLAN SHOWING ALL SLEEVES, CURBS, INSERTS, DEPRESSION, OPENINGS, ETC. TO THE SER FOR REVIEW FOR GENERAL CONFORMANCE WITH THE STRUCTURAL DESIGN INTENT PRIOR TO INSTALLATION.
6. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST REVISIONS/ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS OR MATERIAL PROCUREMENT.
7. THE USE OR REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES THEIR ACCEPTANCE OF ALL INFORMATION SHOWN HERE ON AS CORRECT, AND ASSUMES RESPONSIBILITY FOR ANY RESULTING ERRORS, OMISSIONS, OR COSTS DUE TO IMPROPER USE OF THE CONTRACT DOCUMENTS IN LIEU OF PREPARED SUBMITTALS AND WAIVES CLAIMS RELATED TO MISINTERPRETATION OR INCOMPLETE COORDINATION RESULTING THEREFROM
8. ALL WORK SHALL CONFORM TO OSHA STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ADHERENCE AND COMPLIANCE.
9. THE CONTRACTOR SHALL CAREFULLY REVIEW & COMPARE ALL DESIGN DISCIPLINE DRAWINGS AND REPORT ANY DISCREPANCIES BETWEEN EACH SET OF DRAWINGS AND WITHIN EACH SET OF DRAWINGS TO THE DESIGN TEAM PRIOR TO THE BUY-OUT, FABRICATION AND INSTALLATION OF ANY STRUCTURAL ELEMENTS. IF THE CONTRACTOR IDENTIFIES ANY REQUIREMENT WHETHER PERFORMANCE, PRESCRIPTIVE OR A COMBINATION THEREOF THAT THEY DEEM IMPOSSIBLE TO PERFORM WITH THE MEANS AND METHODS STANDARD IN THE INDUSTRY FOR THE GEOGRAPHIC REGION THE PROJECT IS LOCATED, THEY SHALL NOTIFY THE ENGINEER IMMEDIATELY AND PRIOR TO THE BUY-OUT, FABRICATION AND INSTALLATION OF ANY STRUCTURAL ELEMENTS.
10. WHERE MEMBER LOCATIONS ARE NOT SPECIFICALLY DIMENSIONED, MEMBERS ARE EITHER LOCATED ON COLUMN LINES OR ARE EQUALLY SPACED BETWEEN THE LOCATED MEMBERS. FOR DIAGONAL BRACES, THE WORKPOINT OF THE BRACE SHALL BE AT THE CENTERLINE INTERSECTION OF THE FRAMING ELEMENTS, UNO.
11. IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SHOWN OR SPECIFIED IN SIMILAR CONDITIONS.
12. WHERE CONFLICT EXISTS AMONG THE VARIOUS PARTS OF THE CONTRACT DOCUMENTS, STRUCTURAL DRAWINGS, GENERAL NOTES AND SPECIFICATIONS, THE STRICTEST REQUIREMENTS, AS INDICATED BY THE SER, SHALL GOVERN.
13. INFORMATION SHOWN FOR OTHER DISCIPLINES (ARCHITECTURE, CIVIL, MEP, ETC.) ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL REFER TO THE DISCIPLINES SPECIFIC DRAWINGS AND SPECIFICATIONS FOR ALL REQUIREMENTS.
14. DUDLEY IS NOT RESPONSIBLE FOR WATERPROOFING/BUILDING ENVELOPE DESIGN OF THE STRUCTURE. WHERE WATERPROOFING ELEMENTS ARE SHOWN, THEY ARE DONE SO CONCEPTUALLY. IF WATERPROOFING/BUILDING ENVELOPE DESIGN/SPECIFICATION IS NOT ADEQUATELY COVERED BY THE ARCHITECTURAL DRAWINGS, THEN THE CONTRACTOR SHALL SOLICIT A BUILDING ENVELOPE SPECIALIST AS A DEFERRED SUBMITTAL.
15. ANY CLAIMS, CHANGE ORDERS OR CONSTRUCTION CHANGE DIRECTIVES RELEVANT TO THE STRUCTURAL ENGINEER'S SCOPE OF WORK MUST BE PROMPTLY SENT TO THE STRUCTURAL ENGINEER FOR REVIEW & APPROVAL PRIOR TO ISSUANCE AND MUST INCLUDE A CLEAR, FACT-BASED JUSTIFICATION WITH AN ITEMIZED BREAKDOWN OF COST. GENERALIZED LANGUAGE SUCH AS 'DESIGN CHANGE' OR 'FIELD CONDITIONS' IS NOT ACCEPTABLE
16. **THE STRUCTURAL ENGINEER'S ROLE DURING CONSTRUCTION**
    A. THE STRUCTURAL ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES; FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK; FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK; OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
    B. PERIODIC FIELD OBSERVATION BY THE STRUCTURAL ENGINEER OR THEIR AUTHORIZED REPRESENTATIVE IS SOLELY FOR THE PURPOSE OF BECOMING GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK AND DETERMINING, IN GENERAL, IF THE WORK OBSERVED IS BEING PERFORMED IN A MANNER INDICATING THAT, WHEN FULLY COMPLETED, IT WILL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SUCH OBSERVATIONS SHALL NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS INSPECTION OF THE WORK, WHICH IS THE RESPONSIBILITY OF THE CONTRACTOR AND SPECIAL INSPECTORS. THE ENGINEER'S PERIODIC OBSERVATIONS ARE INTENDED TO HELP GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.
    C. **THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF RECORD (SER) WHEN THE WORK IS READY FOR STRUCTURAL OBSERVATION AND SHALL COORDINATE ALL REQUIRED SPECIAL INSPECTIONS WITH THE RELEVANT PARTIES. OBSERVATIONS AND SPECIAL INSPECTIONS SHALL BE SCHEDULED SUCH THAT THE STRUCTURAL OBSERVATION OCCURS AFTER (PREFERRED) OR CONCURRENT WITH THE SPECIAL INSPECTION TO FACILITATE COORDINATION OF FINDINGS AND MAINTAIN ALIGNMENT WITH INSPECTION RESULTS.**
       a. **STRUCTURAL OBSERVATIONS BY A REGISTERED PROFESSIONAL ENGINEER LICENSED BY THE STATE SHALL BE REQUIRED FOR ALL RISK CATEGORY III & IV STRUCTURES OR WHEN SPECIFICALLY REQUIRED BY THE SER OR BUILDING OFFICIAL (SEE DESIGN CRITERIA NOTE 1C).**
    D. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE STRUCTURAL ENGINEER OF SCHEDULED DATES FOR CRITICAL CONSTRUCTION ACTIVITIES, INCLUDING BUT NOT LIMITED TO THE FOLLOWING (IF APPLICABLE). FAILURE TO PROVIDE NOTICE AT LEAST **48 HOURS** IN ADVANCE MAY RESULT IN THE SER BEING UNABLE TO PERFORM TIMELY OBSERVATION AND MAY REQUIRE ADDITIONAL SITE VISITS AT THE CONTRACTOR'S EXPENSE.
       a. FIRST STRUCTURAL CONCRETE POUR
       b. FIRST ELEVATED CONCRETE POUR ON STRUCTURE
       c. FRAMING COMPLETION AFTER MEP ROUGH-IN
17. THE OWNER/PROPERTY MANAGER IS RESPONSIBLE FOR SOLICITING A STRUCTURAL ENGINEER TO EVALUATE ANY EQUIPMENT OR PENETRATIONS THAT ARE TO BE COMPLETED DURING TENANT FINISH-OUT AND/OR FUTURE RENOVATIONS/ADDITIONS. WE RECOMMEND THAT DUDLEY BE SOLICITED FOR THIS SERVICE.
18. ALL STRUCTURES REQUIRE PERIODIC MAINTENANCE TO EXTEND LIFESPAN AND ENSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. A PLANNED PROGRAM OF MAINTENANCE SHALL BE ESTABLISHED BY THE BUILDING OWNER. THIS PROGRAM SHALL INCLUDE SUCH ITEMS AS, BUT NOT LIMITED TO, PAINTING OF STRUCTURAL STEEL, PROTECTIVE COATING FOR CONCRETE, SEALANTS, CAULKED JOINTS, EXPANSION JOINTS, CONTRACTION (CONTROL) JOINTS, SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF EXPOSED STRUCTURAL ELEMENTS EXPOSED TO A SALT ENVIRONMENT OR OTHER HARSH CHEMICALS.
19. **COORDINATES AND LAYOUT:** STRUCTURAL DRAWINGS AND MODEL EXPORTS ARE FOR REFERENCE ONLY AND SHALL NOT BE USED TO ESTABLISH SURVEY CONTROL. ALL LAYOUT SHALL BE BASED ON VERIFIED CIVIL SURVEY BENCHMARKS AND CONTROL POINTS. THE CONTRACTOR SHALL CONFIRM ALIGNMENT OF ARCHITECTURAL AND STRUCTURAL MODELS WITH THE CIVIL SURVEY PRIOR TO LAYOUT.
20. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH ALL CODES AND REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
21. ANY BASEMENT/RETAINING WALLS WHICH ARE SHOWN TO HAVE SUPPORT IN THE FINISHED STRUCTURE SHALL EITHER WAIT TO BE BACKFILLED UNTIL AFTER SAID STRUCTURE IS FINISHED OR BE PROVIDED WITH TEMPORARY BRACING (PROVIDED BY THE CONTRACTOR) TO TEMPORARY REPLACE THE SUPPORT THAT IS TO BE PROVIDED BY THE FINISHED STRUCTURE. THE CONTRACTOR SHALL ENGAGE A PROFESSIONAL ENGINEER TO PROVIDE THIS DESIGN.
22. WATERPROOFING OF THE BUILDING ENVELOPE IS OF CRITICAL IMPORTANCE TO LONG-TERM STRUCTURAL PERFORMANCE. WATERPROOFING DESIGN SHALL BE THE RESPONSIBILITY OF THE ARCHITECT/CONTRACTOR AND SHALL BE IN ACCORDANCE WITH BEST PRACTICES FOR THE LOCALITY AND THE PARTICULAR ASSEMBLY.
23. FLATWORK (SIDEWALK, PAVEMENT, STOOPS, ETC.) ADJACENT TO THE STRUCTURE IS NOT WITHIN THE SCOPE OF THE STRUCTURAL ENGINEER-OF-RECORD. THE CIVIL ENGINEER & CONTRACTOR SHALL FOLLOW ALL RECOMMENDATIONS FROM THE GEOTECHNICAL REPORT AND REQUIREMENTS OF THE BUILDING CODE (IMPERVIOUS SURFACE SHALL BE PERMITTED TO BE SLOPED LESS THAN 2% WHERE THE SURFACE IS A DOOR LANDING OR RAMP). THE PROCEDURE USED TO ESTABLISH THE FINAL GROUND LEVEL ADJACENT TO THE FOUNDATION SHALL ACCOUNT FOR ADDITIONAL SETTLEMENT OF BACKFILL, FREEZE/THAW DUE TO FROST, AND HEAVE/SUBSIDENCE DUE TO EXPANSIVE SOIL.
24. **ADJACENT BUILDINGS AND PROPERTY:** THE GENERAL CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION METHODS USED WILL NOT CAUSE DAMAGE OR DISTRESS TO THE ADJACENT BUILDING COMPONENTS AND PROPERTY.
    A. TEMPORARY EXCAVATION ADJACENT TO EXISTING BUILDINGS OR PROPERTY SHALL BE PROPERLY SHORED TO PROHIBIT DAMAGED OR DISTRESS. THE CONTRACTOR SHALL SUBMIT SEALED TEMPORARY SHORING DRAWINGS FROM A LICENSED PROFESSIONAL ENGINEER WHO IS AN EXPERT AT TEMPORARY SHORINGS OF THIS KIND.
    B. CONSTRUCTION ACTIVITIES AND/OR EQUIPMENT THAT INDUCE VIBRATIONS SHALL BE REVIEWED BY A CONSTRUCTION ENGINEER TO CONFIRM THEY WILL NOT HAVE AN ADVERSE IMPACT ON ADJACENT BLDGS OR PROPERTY.
    C. THE GENERAL CONTRACTOR IS ADVISED TO PERFORM ALL PHOTOGRAPHIC SURVEYS, ELEVATION SURVEYS, AND OTHER DOCUMENTATION OF THE ADJACENT BUILDINGS BEFORE THE START OF AND DURING CONSTRUCTION TO ESTABLISH BASELINE CONDITIONS.
25. **FIELD VERIFICATION:** DIMENSIONS MARKED "FIELD VERIFY" (FV) OR "VERIFY IN FIELD" ARE APPROXIMATE OR BASED ON DESIGN ASSUMPTIONS AND MUST BE CONFIRMED BY THE CONTRACTOR THROUGH ON-SITE MEASUREMENTS PRIOR TO FABRICATION OR INSTALLATION. DO NOT RELY ON THESE DIMENSIONS WITHOUT FIELD VERIFICATION. IF FIELD-VERIFIED DIMENSIONS SIGNIFICANTLY DEVIATE FROM THOSE SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE STRUCTURAL ENGINEER OF RECORD (SER) IN WRITING VIA A REQUEST FOR INFORMATION (RFI) FOR EVALUATION AND POTENTIAL DESIGN REVISIONS.

CONTRACTOR QUALIFICATION

1. WORK SHALL BE PERFORMED BY A QUALIFIED CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR EXPERIENCED IN THIS TYPE OF WORK. SUCH KNOWLEDGE SHALL INCLUDE MAKING ALLOWANCES FOR PERFORMING WORK OF THIS NATURE FOLLOWING INDUSTRY STANDARDS OF CARE.
2. THE CONSTRUCTION CONTRACTOR AND SUBCONTRACTORS SHALL UNDERSTAND THE NATURE OF DRAWING PRODUCTION AND COORDINATION BETWEEN CONSULTANTS AND SHALL NOT ENTER INTO A CONTRACT BASED ON DRAWINGS THAT ARE BELIEVED TO CONTAIN DISCREPANCIES OR ARE OTHERWISE INCOMPLETE UNLESS PROPER ALLOWANCES HAVE BEEN MADE FOR COST IMPLICATIONS THAT MAY ARISE DUE TO FUTURE CHANGES MADE IN PREPARATION OF FINAL CONSTRUCTION DOCUMENTS AND/OR SHOP DRAWINGS TO COMPLETE THE STRUCTURAL SYSTEM.
3. IN THE COURSE OF PRODUCING AND ISSUING DRAWINGS, VARIOUS STAGES OF COMPLETION ARE DEVELOPED. THE CONSTRUCTION CONTRACTOR AND SUBCONTRACTORS SHALL UNDERSTAND THE PURPOSE AND CONTENT CONTAINED IN PERMIT, PRICING, AND CONSTRUCTION DRAWINGS. COST IMPLICATIONS AND CONTRACTIBILITY ARE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR AND SUBCONTRACTORS UNLESS PRIOR ARRANGEMENTS HAVE BEEN MADE WITH THE OWNER.

CONSTRUCTION PROJECT MANAGEMENT SOFTWARE PLATFORM & COMMUNICATION PROTOCOLS

1. CONSTRUCTION PROJECT MANAGEMENT SOFTWARE (CPMS)
   A. THE CONTRACTOR SHALL USE ONE OF THE FOLLOWING CPMS PLATFORMS TO FACILITATE DOCUMENT MANAGEMENT, COMMUNICATION, AND COORDINATION THROUGHOUT THE PROJECT: PROCORE, AUTODESK CONSTRUCTION CLOUD, E-BUILDER, NEWFORMA, BUILDERTREND, OR APPROVED EQUIVALENT
   B. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN SUBMITTAL & RFI REVIEW TIMELINES CONSISTENT WITH THOSE INDICATED ON THIS SHEET OR WITHIN THE **APPROVED SUBMITTAL SCHEDULE**. THE CPMS MUST CLEARLY REFLECT THESE TIMELINES TO ENSURE ACCOUNTABILITY AND TRACEABILITY.
   C. IF A SUBMITTAL IS SUBMITTED LATER THAN THE DATE AGREED UPON IN THE APPROVED SUBMITTAL SCHEDULE, THE CONTRACTOR MUST NOTE THE LATE SUBMITTAL AND REVISE THE DUE DATE ACCORDINGLY TO REFLECT THE ACTUAL SUBMISSION DATE. THE DESIGN TEAM SHALL NOT BE PENALIZED FOR DELAYS CAUSED BY THE CONTRACTOR'S LATE SUBMITTALS.
   D. THE CPMS SHALL HAVE FOLLOWING ROLES FOR THE STRUCTURAL PROJECT TEAM:
      a. APPROVER - PROVIDES THE OFFICIAL REVIEW STATUS/RESPONSE FROM THE SER (REF SER REVIEW STAMP DESIGNATIONS) FOR SUBMITTALS AND RFI'S. NOTE THAT THE RDPIRC(TYPICALLY THE ARCHITECT) ALWAYS PROVIDES THE FINAL REVIEW STATUS AND RESPONSES TO ALL SUBMITTALS AND RFI'S.
      b. REVIEWER - RECEIVES NOTIFICATIONS FOR ALL SUBMITTALS AND RFI'S, BUT IT NOT AN APPROVER (NOT LISTED AS "BALL IN COURT").
   E. THE CONTRACTOR SHALL SETUP THE STRUCTURAL PROJECT TEAM WITH THE FOLLOWING ROLES FOR THE PROJECT.
      a. PROJECT MANAGER (PM): APPROVER
      b. DESIGN ENGINEER (DE): REVIEWER
      c. PRINCIPAL IN CHARGE (PIC): REVIEWER
      d. CONSTRUCTION ADMINISTRATION (CA): REVIEWER
2. **COMMUNICATION PROTOCOLS:** ALL OFFICIAL PROJECT COMMUNICATIONS SHALL OCCUR VIA THE CPMS PLATFORM TO ENSURE FULL TRANSPARENCY, DOCUMENTATION, AND TRACEABILITY.
   A. EMAILS MAY BE USED FOR INFORMAL COMMUNICATION BUT MUST ALWAYS BE FOLLOWED BY FORMAL DOCUMENTATION IN THE CPMS. THE CONTRACTOR SHALL INCLUDE ALL STRUCTURAL TEAM MEMBERS AND THE RDPIRC ON ALL EMAIL CORRESPONDENCE.
   B. PHONE CALLS ARE ACCEPTABLE FOR INFORMAL DISCUSSION BUT MUST BE SUMMARIZED AND DOCUMENTED BY THE CONTRACTOR IN THE CPMS WITHIN 24 HOURS.
   C. TEXT MESSAGING SHALL NOT BE USED TO FACILITATE OR DOCUMENT PROJECT COMMUNICATION.

DRAWING INTERPRETATION:

1. DRAWING VIEWS LABELED AS TYPICAL
   A. PARTIAL PLANS, ELEVATIONS, SECTIONS, DETAIL OR SCHEDULES LABELED WITH "TYPICAL" AT THE BEGINNING OF THEIR TITLE SHALL APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY SHOWN. THE APPLICABILITY OF THE CONTENT OF THESE VIEWS TO LOCATIONS ON THE PLAN CAN BE DETERMINED FROM THE TITLE OF THE VIEW. SUCH VIEWS SHALL APPLY WHETHER OR NOT THEY ARE KEYED IN AT EACH LOCATION. DECISIONS REGARDING APPLICABILITY OF THESE "TYPICAL" VIEWS SHALL BE DETERMINED BY THE STRUCTURAL ENGINEER.
2. COLOR: THESE DRAWINGS ARE INTENDED TO BE VIEWED IN COLOR. IF THE FOLLOWING COLORS ARE NOT RED GREEN BLUE THEN THIS DRAWING SET IS NOT BEING VIEWED AS INTENDED.
3. SCALE: IF THE FOLLOWING LINE IS NOT EXACTLY 1" LONG, THEN THIS SET HAS BEEN SCALED.

1"

SUBSTITUTIONS:

1. ALL REQUESTS FOR SUBSTITUTIONS OF MATERIALS OR DETAILS SHOWN IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED FOR APPROVAL DURING THE BIDDING PERIOD. AFTER BIDS ARE ACCEPTED, PROPOSED SUBSTITUTIONS WILL BE CONSIDERED ONLY WHEN THEY ARE OFFICIALLY SUBMITTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE REQUIREMENTS BELOW:
   A. SUBMITTED A MINIMUM OF 21 CALENDAR DAYS PRIOR TO THE REQUIRED PURCHASE DATE AND/OR INSTALLATION DATE.
   B. CONTRACTOR STATEMENT INDICATING WHY SUBSTITUTION IS BEING REQUESTED.
   C. CONTRACTOR DETAILED COMPARISON OF THE SUBSTITUTION AND CONTRACT DOCUMENT
   D. REQUIREMENTS FOR COMPATIBILITY INCLUDING COST SAVINGS TO THE OWNER AND CONSTRUCTION/DELIVERY TIME REDUCTION TO THE PROJECT SCHEDULE.
   E. CONTRACTOR TO INDICATE THAT THE SUBSTITUTION HAS BEEN COORDINATED WITH OTHER CONTRACTOR WORK, IF APPLICABLE.
   F. CONTRACTOR TO PROVIDE SIMILAR SUBMITTAL SUBMISSION AS REQUIRED BY THE CONTRACT DOCUMENTS.
   G. SUBMITTAL REVIEW TIME FRAME.
2. SUBMISSION OF SUBSTITUTIONS AS RFI'S WILL BE NOT BE REVIEWED.

SUBMITTALS

1. **PURPOSE OF SUBMITTALS:** SUBMITTALS INCLUDING SHOP DRAWINGS, PRODUCT DATA AND SIMILAR SUBMITTALS ARE **PREPARED BY THE CONTRACTOR TO DEMONSTRATE HOW THE CONTRACTOR PROPOSES TO CONFORM TO THE INFORMATION GIVEN AND THE DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS.** SHOP DRAWINGS ILLUSTRATE HOW SPECIFIC PORTIONS OF THE WORK SHALL BE FABRICATED AND/OR INSTALLED. **SUBMITTALS ARE NOT CONTRACT DOCUMENTS.**
   A. USE OF CONTRACT DOCUMENTS IN LIEU OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COORDINATION, FIELD VERIFICATION, OR COMPLIANCE WITH THE CONTRACT DOCUMENTS.
2. **SUBMITTAL LIST AND SCHEDULE**: THE GENERAL CONTRACTOR SHALL PREPARE A DETAILED LIST AND SCHEDULE OF ALL STRUCTURAL SUBMITTALS (**SUBMITTAL SCHEDULE**) TO BE SENT TO THE SER FOR REVIEW **PRIOR TO THE START OF CONSTRUCTION**. THE SER IS NOT RESPONSIBLE FOR DELAYS RESULTING FROM OVERLAPPING SUBMITTAL SCHEDULES AND/OR SUBMITTALS SUBMITTED LATER THAN IDENTIFIED IN THE APPROVED SUBMITTAL SCHEDULE. **IF THE CONTRACTOR DOES NOT ADHERE TO THESE REQUIREMENTS, THEN THE STRUCTURAL ENGINEER WILL REVIEW WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME, IN THE SER'S PROFESSIONAL JUDGMENT, TO PERMIT ADEQUATE REVIEW.** THE SUBMITTAL SCHEDULE SHALL, AT A MINIMUM, INCLUDE THE FOLLOWING:
   1. LIST SUBMITTALS IN CHRONOLOGICAL ORDER BY DATES REQUIRED FOR CONSTRUCTION.
   2. INCLUDE CONTRACTOR AND DESIGN TEAM REVIEW TIME, ORDERING, FABRICATION, DELIVERY, AND TIME FOR REQUIRED REVISIONS.
   3. AVOID OVERLAPPING REVIEW PERIODS OF SUBMITTALS BY MORE THAN ONE WEEK.
   4. BE UPDATED AND MAINTAINED AS THE PROJECT PROGRESSES.
3. **CONTRACTOR RESPONSIBILITY FOR SUBMITTALS:** THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION, REVIEW, AND COORDINATION OF ALL SUBMITTALS PRIOR TO SUBMISSION TO THE DESIGN TEAM. BY FORWARDING SUBMITTALS TO THE DESIGN TEAM, THE CONTRACTOR REPRESENTS THAT THEY HAVE PERFORMED A THOROUGH AND COMPREHENSIVE REVIEW OF THE SUBMITTAL AND VERIFIED THAT THE WORK SHOWN IS IN GENERAL CONFORMANCE WITH THE DESIGN INTENT AND REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR'S REVIEW SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
   A. VERIFICATION OF DIMENSIONS AND QUANTITIES, INCLUDING FIELD VERIFICATION OF EXISTING CONDITIONS WHERE APPLICABLE.
   B. COORDINATION BETWEEN ALL TRADES, DISCIPLINES, AND SUBCONTRACTORS INCLUDING BUT NOT LIMITED TO STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND ARCHITECTURAL REQUIREMENTS.
   C. CONFIRMATION THAT STRUCTURAL SUPPORT REQUIREMENTS FOR EQUIPMENT, OPENINGS, PENETRATIONS, AND ATTACHMENTS ARE PROPERLY COORDINATED WITH THE STRUCTURAL FRAMING SHOWN IN THE CONTRACT DOCUMENTS.
   D. CONFIRMATION THAT PENETRATIONS, OPENINGS, SLEEVES, EMBEDS, AND SUPPORT REQUIREMENTS ASSOCIATED WITH MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS HAVE BEEN COORDINATED WITH THE STRUCTURAL SYSTEM.
   E. REVIEW AND APPROVAL OF FABRICATION DETAILS, INSTALLATION METHODS, SEQUENCING, AND PHASING OF THE WORK.
   F. COORDINATION OF THE WORK WITH OTHER SUBMITTALS AND WITH THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCING, AND CONSTRUCTION PROCEDURES.
4. **SER SCOPE OF REVIEW AND ADDITIONAL SERVICES**: THE SER'S REVIEW OF SUBMITTALS IS FOR THE LIMITED PURPOSE OF EVALUATING GENERAL CONFORMANCE WITH THE DESIGN INTENT AND REQUIREMENTS OF THE STRUCTURAL CONTRACT DOCUMENTS. **BEYOND A REVIEW FOR GENERAL CONFORMANCE, THE ENGINEER'S REVIEW IS LIMITED TO ITEMS IDENTIFIED BY THE CONTRACTOR AS DEVIATIONS FROM THE CONTRACT DOCUMENTS OR REQUESTS FOR CLARIFICATION.** THE ENGINEER SHALL HAVE NO OBLIGATION TO SEARCH SUBMITTALS FOR UNIDENTIFIED DEVIATIONS FROM THE CONTRACT DOCUMENTS. REVIEW OF SUBMITTALS IS NOT A COMPREHENSIVE REVIEW OF THE ENTIRE SUBMITTAL. THE ENGINEER'S REVIEW IS NOT FOR THE PURPOSE OF DETERMINING THE ACCURACY OR COMPLETENESS OF OTHER INFORMATION INCLUDING, BUT NOT LIMITED TO, DIMENSIONS, QUANTITIES, FABRICATION DETAILS, INSTALLATION PROCEDURES, FIELD CONDITIONS, OR COORDINATION WITH OTHER TRADES. THE ENGINEER'S REVIEW SHALL NOT CONSTITUTE APPROVAL OF SAFETY PRECAUTIONS, CONSTRUCTION MEANS OR METHODS, TEMPORARY WORKS, OR CONSTRUCTION SEQUENCING.
   A. THE SER WILL REVIEW ONLY THOSE STRUCTURAL SUBMITTALS TRANSMITTED TO THE SER BY THE CONTRACTOR OR ARCHITECT AND IDENTIFIED IN THE STRUCTURAL CONTRACT DOCUMENTS AS REQUIRING STRUCTURAL REVIEW. THE SER SHALL HAVE NO RESPONSIBILITY TO REQUEST, TRACK, OR ENSURE SUBMISSION OF REQUIRED SUBMITTALS. FAILURE OF THE CONTRACTOR TO SUBMIT REQUIRED SUBMITTALS SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.SUBMITTALS NOT DESIGNATED AS REQUIRING STRUCTURAL REVIEW MAY BE RETURNED WITHOUT REVIEW OR MARKED "FOR INFORMATION ONLY" OR "NOT REVIEWED – NOT IN SER SCOPE."
   B. REVIEW FOR GENERAL CONFORMANCE MEANS A LIMITED REVIEW PERFORMED BY THE STRUCTURAL ENGINEER OF RECORD (SER) TO DETERMINE WHETHER THE PROPOSED MATERIALS, SYSTEMS, AND DETAILS GENERALLY APPEAR CONSISTENT WITH THE DESIGN INTENT AND REQUIREMENTS INDICATED IN THE STRUCTURAL CONTRACT DOCUMENTS. THIS REVIEW MAY INCLUDE VERIFICATION THAT THE PROPOSED STRUCTURAL SYSTEM IS CONSISTENT WITH THE STRUCTURAL DESIGN SHOWN IN THE CONTRACT DOCUMENTS, THAT STRUCTURAL MEMBERS GENERALLY MATCH THE SPECIFIED TYPES, SIZES, AND CONFIGURATIONS, THAT LOADS AND DESIGN CRITERIA APPEAR CONSISTENT WITH THOSE SPECIFIED IN THE STRUCTURAL CONTRACT DOCUMENTS, THAT CONNECTIONS GENERALLY REFLECT THE INTENDED LOAD PATHS AND STRUCTURAL CONCEPT, AND THAT ELEMENTS SUPPORTED BY THE PRIMARY STRUCTURAL SYSTEM APPEAR COMPATIBLE WITH THE STRUCTURAL DESIGN.
   C. REVIEW FOR GENERAL CONFORMANCE DOES NOT INCLUDE VERIFICATION OF DIMENSIONS, QUANTITIES, FABRICATION DETAILS, SHOP FABRICATION METHODS, FIELD MEASUREMENTS, EXISTING CONDITIONS, INSTALLATION PROCEDURES, COORDINATION WITH OTHER TRADES, CONSTRUCTION SEQUENCING, TEMPORARY WORKS, OR COMPLIANCE WITH THE CONTRACTOR'S MEANS AND METHODS, ALL OF WHICH REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.
   D. THE SER'S BASE SCOPE OF SERVICES INCLUDES A MAXIMUM OF TWO (2) REVIEWS PER SUBMITTAL, PROVIDED AN APPROVED SUBMITTAL SCHEDULE IS IN PLACE.
   E. IF ADDITIONAL REVIEWS ARE REQUIRED, OR IF THE CONTRACTOR FAILS TO SUBMIT OR ADHERE TO AN APPROVED SUBMITTAL SCHEDULE, THE SER RESERVES THE RIGHT TO TREAT SUCH ADDITIONAL REVIEW EFFORT AS ADDITIONAL SERVICES. SUCH SERVICES SHALL BE INVOICED TO THE SER'S CLIENT IN ACCORDANCE WITH THE PROFESSIONAL SERVICES AGREEMENT. COSTS ATTRIBUTABLE TO SUCH SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, SUBJECT TO THE CONTRACT DOCUMENTS.
   F. THE ENGINEER'S REVIEW OF SUBMITTALS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PERFORMING THE REVIEWS AND COORDINATION DESCRIBED IN CONTRACTOR RESPONSIBILITY FOR SUBMITTALS. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR COORDINATION BETWEEN TRADES OR FOR IDENTIFYING CONFLICTS BETWEEN THE WORK OF DIFFERENT SUBCONTRACTORS.
5. **SUBMITTAL REQUIREMENTS:** ALL SUBMITTALS MUST BE REVIEWED AND ELECTRONICALLY STAMPED BY THE GENERAL CONTRACTOR & RELEVANT SUBCONTRACTORS PRIOR TO SUBMISSION.
   A. BY FORWARDING A SUBMITTAL TO THE DESIGN TEAM, THE CONTRACTOR AFFIRMS THAT IT HAS REVIEWED AND APPROVED THE SUBMITTAL, THAT IT GENERALLY CONFORMS TO THE DESIGN INTENT AND REQUIREMENTS OF THE CONTRACT DOCUMENTS, AND THAT THE CONTRACTOR HAS COORDINATED THE WORK AMONG THE APPLICABLE TRADES, INCLUDING BUT NOT LIMITED TO THE ITEMS LISTED BELOW:
      a. CONFIRM THAT THE SUBMITTAL ACCURATELY REPRESENTS THE WORK AS PURCHASED AND AS THE CONTRACTOR INTENDS TO FABRICATE, INSTALL, AND PLACE IT.
      b. VERIFICATION OF MATERIALS
      c. FIELD VERIFICATION
      d. COORDINATION WITH OTHER DISCIPLINES, TRADES, AND RELATED SUBMITTALS, INCLUDING EQUIPMENT LOCATIONS, WEIGHTS, SUPPORT CONDITIONS, PENETRATIONS, AND OPENING SIZES REQUIRED TO BE COORDINATED WITH STRUCTURAL FRAMING FOR FLOORS, ROOFS, AND WALLS.
   B. THE SER RESERVES THE RIGHT TO RETURN ANY SUBMITTAL WITHOUT SUBSTANTIVE REVIEW, OR TO MARK IT REVISE AND RESUBMIT, IF THE CONTRACTOR FAILS TO REVIEW THE SUBMITTAL IN ACCORDANCE WITH THESE REQUIREMENTS AND ELECTRONICALLY STAMP THE SUBMITTAL PRIOR TO TRANSMITTAL.
   C. **ANY DEVIATION FROM THE CONTRACT DOCUMENTS OR REQUEST FOR CLARIFICATION SHALL BE CLEARLY IDENTIFIED BY REVISION CLOUD AND WRITTEN EXPLANATION WITHIN THE SUBMITTAL FOR SPECIFIC REVIEW BY THE DESIGN TEAM. DEVIATIONS NOT CLEARLY IDENTIFIED SHALL BE DEEMED TO CONFORM TO THE CONTRACT DOCUMENTS AND SHALL NOT BE CONSIDERED REVIEWED BY THE ENGINEER. A NON-RESPONSE TO A NOTED DEVIATION SHALL NOT BE INTERPRETED AS APPROVAL. THE CONTRACTOR SHALL SEEK WRITTEN CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING.**
   D. ALL SUBMITTALS MUST INCLUDE A TRANSMITTAL SHEET WHICH INDICATES:
      a. SUBMITTAL NUMBER PER THE FOLLOWING FORMAT: E.G. 03 30 00-01.00 (DIVISION, SUBMITTAL # FOR DIVISION, ISSUE # - THE EXAMPLE INDICATES THE FIRST SUBMITTAL, FIRST ISSUE OF A CONCRETE SUBMITTAL)
      b. BRIEF DESCRIPTION OF SUBMITTAL CONTENTS
      c. DATE ISSUED
      d. REQUESTED RETURN DATE
      e. ISSUING PARTY INCLUDING NAME, PHONE NUMBER AND EMAIL
   E. CONTRACTOR SHALL PROVIDE THE SUBMITTAL IN ELECTRONIC (PDF) FORMAT. SUBMITTALS SHALL NOT BE SCANNED COPIES OF PRINTED DOCUMENTS. SUBMITTALS MUST ALLOW MARKUPS.
   F. **ALL MEMBERS OF THE STRUCTURAL DESIGN TEAM INDICATED ON THIS SHEET INCLUDING CA@DUDLEYENG.COM SHALL BE PROVIDED NOTIFICATION OF SUBMITTALS THAT REQUIRE A STRUCTURAL RESPONSE.**
   G. OMISSIONS OR ERRORS IN SUBMITTALS, OR THE FAILURE TO SHOW ANY REQUIREMENT OF THE CONTRACT DOCUMENTS, SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, REGARDLESS OF WHETHER SUCH ITEMS WERE REVIEWED, SHOWN, OR COMMENTED UPON IN THE SHOP DRAWING REVIEW.
   H. THE CONTRACTOR MUST ALLOW A MINIMUM OF 10 BUSINESS DAYS FOR STRUCTURAL REVIEW OF ALL SUBMITTALS, UNLESS OTHERWISE APPROVED BY THE SER IN WRITING IN THE APPROVED SUBMITTAL SCHEDULE. THE CONTRACTOR MAY REQUEST AN EXPEDITED REVIEW AT AN AGREED-UPON FEE AS AN ADDITIONAL SERVICE.
   I. RESUBMITTALS REQUIRE THE SAME MINIMUM REVIEW TIME AS THE ORIGINAL SUBMITTAL. IF PRIOR EXCEPTIONS, COMMENTS, MARKUPS, ETC. FROM A PREVIOUS SUBMITTAL REVIEW ARE NOT INCORPORATED INTO THE SUBSEQUENT RESUBMISSION, THEN THE SER RESERVES THE RIGHT TO RETURN THE SUBMITTAL AS REVISE AND RESUBMIT UNTIL ALL ITEMS ARE INCORPORATED.
   J. SHOP DRAWING SUBMITTALS SHALL BE PROPORTIONED INTO REASONABLY SIZED PACKAGES, CONTAINING NO MORE THAN 150 SHEETS PER SUBMITTAL, UNLESS APPROVED BY THE SER PRIOR TO SUBMISSION.
6. **SER REVIEW STAMP DESIGNATIONS:**
   A. **NO EXCEPTIONS** - NO EXCEPTIONS WITH THE STRUCTURAL CONTRACT DOCUMENTS WERE IDENTIFIED IN OUR LIMITED REVIEW FOR GENERAL CONFORMANCE. THIS DOES NOT CONSTITUTE APPROVAL FOR ANY NON-CONFORMING ITEMS THAT WERE NOT IDENTIFIED IN OUR REVIEW. NO "FOR REVIEW" RESUBMITTAL IS REQUIRED.
   B. **EXCEPTIONS NOTED** - EXCEPTIONS WITH THE STRUCTURAL CONTRACT DOCUMENTS WERE IDENTIFIED IN OUR LIMITED REVIEW FOR GENERAL CONFORMANCE AND NEED TO BE REVISED PRIOR TO SUBMITTING THE "FOR CONSTRUCTION" SUBMITTAL. THIS DOES NOT CONSTITUTE APPROVAL FOR ANY NON-CONFORMING ITEMS THAT WERE NOT IDENTIFIED IN OUR REVIEW.
   C. **REVISE AND RESUBMIT** - APPLIES TO EITHER OF THE FOLLOWING:
      a. THE CONTRACTOR(S) DID NOT REVIEW AND ELECTRONICALLY STAMP THE SUBMITTALS.
      b. SIGNIFICANT ITEMS WERE FOUND IN CONFLICT WITH THE STRUCTURAL CONTRACT DOCUMENTS. THE SUBMITTAL NEEDS TO BE RESUBMITTED "FOR REVIEW".
      c. THE CONTRACTOR SHALL DIRECT SPECIFIC ATTENTION, IN WRITING OR ON RESUBMITTED SHOP DRAWINGS, PRODUCT DATA, SAMPLES, OR SIMILAR SUBMITTALS, TO REVISIONS OTHER THAN THOSE REQUESTED BY THE ENGINEER ON PREVIOUS SUBMITTALS. IN THE ABSENCE OF SUCH NOTICE, THE ENGINEER'S APPROVAL OF A RESUBMISSION SHALL NOT APPLY TO SUCH REVISIONS.
   D. **FOR INFORMATION/RECORD ONLY** - THIS SUBMITTAL DOES NOT REQUIRE REVIEW OR APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD (SER) AND HAS BEEN FILED FOR RECORD PURPOSES ONLY. THE SER HAS NOT REVIEWED NOR ASSUMED RESPONSIBILITY FOR ITS CONTENT. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR DETERMINING WHETHER SUBMISSION WAS REQUIRED AND FOR ENSURING COMPLIANCE WITH THE CONTRACT DOCUMENTS. IF THE CONTRACTOR BELIEVES STRUCTURAL REVIEW IS NECESSARY, THEY SHALL NOTIFY DUDLEY IN WRITING.
      - EXAMPLES: MILL TEST REPORTS FOR REINFORCING OR STRUCTURAL STEEL, CONCRETE BATCH PLANT CERTIFICATIONS, FORMWORK OR TEMPORARY BRACING PLANS, CONSTRUCTION SEQUENCING PLANS.
   E. **IMPACT TO STRUCTURE** - APPLIES TO DEFERRED SUBMITTALS. THIS DEFERRED SUBMITTAL HAS BEEN REVIEWED ONLY FOR ITS IMPACT ON THE STRUCTURE SHOWN IN THE CONSTRUCTION DOCUMENTS. THE REVIEW IS LIMITED TO VERIFYING THAT THE DESIGN CRITERIA USED ALIGN WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS AND THAT ELEMENTS SUPPORTED BY MEMBERS DESIGNED BY THE SER (E.G., STAIR STRINGERS FRAMING INTO FLOOR BEAMS) MEET THE INTENDED DESIGN CRITERIA. RESPONSIBILITY FOR THE DESIGN AND ADEQUACY OF THE DEFERRED SUBMITTAL ITEM ITSELF REMAINS WITH THE CONTRACTOR AND THEIR DELEGATED DESIGN PROFESSIONAL.
      - EXAMPLES: DEFERRED SUBMITTALS SUCH AS STAIRS, RAILS, LADDERS, COLD-FORMED METAL FRAMING, ETC.
   F. **NOT REVIEWED - NOT IN SER SCOPE** - APPLIES TO SUBMITTALS SENT TO THE SER FOR REVIEW THAT WERE NOT INCLUDES IN THE SER'S SCOPE OF SERVICES FOR THIS PROJECT.
7. **CONTRACTOR RESPONSIBILITY UPON RETURN OF REVIEWED SUBMITTALS:** THE CONTRACTOR SHALL PROMPTLY REVIEW ALL COMMENTS ISSUED BY THE DESIGN TEAM ON RETURNED SUBMITTALS AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD (SER) OF ANY QUESTIONS, CONFLICTS, OR CLARIFICATION REQUIRED.
   a. FAILURE TO SEEK CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.

REQUEST FOR INFORMATION / INTERPRETATION (RFI)

1. DEFINITION: A REQUEST SEEKING ONE OF THE FOLLOWING. RFIS SHALL NOT BE USED TO REQUEST APPROVAL OF MEANS AND METHODS, SUBSTITUTIONS, VALUE ENGINEERING, SCHEDULING, OR CONTRACTOR COORDINATION ISSUES UNLESS EXPRESSLY PERMITTED BY THE CONTRACT DOCUMENTS.
   A. CLARIFICATION OF THE CONTRACT DOCUMENTS WHERE THE MATERIAL, PROCESS, OR SYSTEM CANNOT BE DETERMINED, WHERE ELEMENTS OF CONSTRUCTION CONFLICT, OR WHERE INFORMATION IS DESCRIBED DIFFERENTLY IN MULTIPLE LOCATIONS;
   B. RESOLUTION OF A FIELD CONDITION AFFECTING DESIGN INTENT
2. **PREPARATION:**
   A. PREPARE AN RFI WITHIN **2-BUSINESS DAYS** UPON DISCOVERY OF A NEED FOR INTERPRETATION OF CONTRACT DOCUMENTS. FAILURE TO SUBMIT AN RFI IN A TIMELY MANNER IS NOT A LEGITIMATE CAUSE FOR CLAIMING ADDITIONAL COSTS OR DELAYS IN EXECUTION OF THE WORK.
   B. RFIS THAT SOLELY REQUIRE COORDINATION BETWEEN SUBCONTRACTORS WILL BE RETURNED WITHOUT REVIEW.
   C. THE CONTRACTOR SHALL REVIEW ALL RFIS PRIOR TO SUBMISSION TO ENSURE ACCURACY, COMPLETNESS. THE CONTRACTOR SHALL ACT AS THE SINGLE POINT OF SUBMISSION FOR ALL RFIS.
   D. THE CONTRACTOR SHALL PROVIDE A PROPOSED SOLUTION FOR ALL RFI'S.
   E. ALL RFIS REQUIRING STRUCTURAL INPUT SHALL BE SUBMITTED TO THE STRUCTURAL DESIGN TEAM AT THE CONTACT(S) LISTED ON THIS SHEET.
3. **FORMATTING REQUIREMENTS:** RFI'S MUST BE FORMATTED IN ACCORDANCE WITH CSI/CSC FORM 13.2A REQUEST FOR INTERPRETATION, THAT AT A MINIMUM INDICATES THE FOLLOWING INFORMATION:
   A. RFI NUMBER | DATE SUBMITTED | DATE RESPONSE NEED BY | SUBMITTED BY (INCLUDE EMAIL AND PHONE NUMBER)
   B. RFI DESCRIPTION INCLUDING:
      a. REFERENCE SHEET NUMBER, DETAIL AND/OR SPECIFICATION NUMBER, IF APPLICABLE
      b. MARKED-UP DRAWINGS, SKETCHES, AND/OR RELEVANT PHOTOGRAPHS WHEN APPROPRIATE TO CLEARLY ILLUSTRATE THE ISSUE AND WHERE IT OCCURS.
   C. EACH RFI MUST INCLUDE THE CONTRACTOR'S PROPOSED SOLUTION AS WELL AS AN ASSESSMENT OF POTENTIAL IMPACTS ON CONTRACT TIME AND SUM. IF NO IMPACTS ARE IDENTIFIED, THE RFI WILL BE REVIEWED WITH THE UNDERSTANDING THAT NO COST OR SCHEDULE IMPACTS ARE ANTICIPATED.
4. **RESPONSE TIME (DUE DATE)**
   A. THE CONTRACTOR SHALL ALLOW A MINIMUM OF 5 **BUSINESS DAYS** FOR REVIEW AND RESPONSE BY THE STRUCTURAL PROJECT TEAM TO A **COMPLETE RFI**, INCLUDING ALL REQUIRED ATTACHMENTS AND THE CONTRACTOR'S PROPOSED SOLUTION. CORRECTIVE REPAIR RFI'S MAY REQUIRE LONGER RESPONSE TIME THAT ARE MORE APPROPRIATELY HANDLED VIA ARCHITECT'S SUPPLEMENTAL INSTRUCTION (ASI).
5. **TRACKING, CLASSIFICATION AND REPORTING OF RFIS**
   A. DUDLEY RESERVES THE RIGHT TO CLASSIFY RFIS FOR TRACKING AND REPORTING. RFIS WILL BE CATEGORIZED AS EITHER:
      a. VALID: REQUIRE CLARIFICATION OR INPUT FROM THE SER.
      b. INVALID: SER INPUT NOT REQUIRED OR MUST FOLLOW AN ALTERNATE SUBMISSION PROCESS. EXCESSIVE INVALID RFI'S MAY BE SUBJECT TO ADDITIONAL SERVICES BY THE SER.
   B. RFI CLASSIFICATION:
      1. **DESIGN CLARIFICATIONS** (VALID): ADDRESS CONFLICTS, DISCREPANCIES, INCOMPLETE DETAILS, OR AMBIGUITIES WITHIN THE CONTRACT DOCUMENTS THAT REQUIRE CLARIFICATION BY THE DESIGN TEAM.
      2. **CONSTRUCTABILITY CONCERNS** (VALID): ADDRESS CONSTRUCTION MEANS AND METHODS, SEQUENCING, OR TEMPORARY CONDITIONS (E.G., SHORING, RESHORING, BRACING) WHERE CONTRACTOR INPUT IS REQUIRED PRIOR TO IMPLEMENTATION. THE SER IS NOT RESPONSIBLE FOR MEANS, METHODS, SEQUENCING, OR TEMPORARY CONDITIONS; HOWEVER, MAY REVIEW DESIGN ADJUSTMENTS SOLELY TO MAINTAIN STRUCTURAL INTEGRITY OF THE FINISHED STRUCTURE.
      3. **DIFFERING SITE CONDITIONS** (VALID): WHEN ACTUAL SITE CONDITIONS DIFFER FROM THOSE ANTICIPATED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR MUST PROVIDE IMMEDIATE WRITTEN NOTICE TO THE OWNER AND DESIGN TEAM UPON DISCOVERY AND PRIOR TO PROCEEDING WITH AFFECTED WORK.
      4. **CORRECTIVE REPAIR** (VALID): RFI REQUIRING THE SER TO ADDRESS STRUCTURAL ISSUES ARISING FROM DEFECTIVE MATERIALS, WORKMANSHIP ERRORS, CONSTRUCTION MISTAKES, COMPONENT DAMAGE, DESIGN DEVIATIONS, OR SEQUENCING/INSTALLATION ISSUES. THE CONTRACTOR SHALL IMPLEMENT ANY REQUIRED FIELD CORRECTIONS UNDER SER DIRECTION TO RESTORE SYSTEM FUNCTIONALITY. CORRECTIVE ACTIONS SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE UNLESS OTHERWISE DETERMINED BY THE OWNER.
      5. **INFORMATION PROVIDED IN CONTRACT DOCUMENTS** (INVALID): PERTAINING TO INFORMATION THAT IS INDICATED IN THE CONTRACT DOCUMENTS. THESE WILL BE RETURNED WITH REFERENCE TO THE APPLICABLE DRAWING OR SPECIFICATION SECTION. RESPONSIBILITY REMAINS WITH THE CONTRACTOR TO THOROUGHLY REVIEW THE DOCUMENTS PRIOR TO SUBMISSION.
      6. **CONTRACTOR COORDINATION** (INVALID): PERTAINING TO ITEMS THAT REQUIRE THE GENERAL CONTRACTOR TO COORDINATE BETWEEN TRADES OR DISCIPLINES. THESE DO NOT REQUIRE DESIGN TEAM INPUT AND WILL BE RETURNED FOR CONTRACTOR RESOLUTION.
      7. **NOT REVIEWED - INCORRECT SUBMISSION PROCESS** (INVALID): INCLUDES BUT NOT LIMITED TO REQUESTS FOR SUBSTITUTION, VALUE ENGINEERING, SUBMITTALS, RESPONSE TO NOTICES OF NON-CONFORMANCE, SAFETY PLANS, SCHEDULES, ROUTINE COMMUNICATIONS (I.E., CONFIRMATION OF MEETING DATES, TRANSMITTAL OF MEETING MINUTES, CONFIRMATION OF TELEPHONE OR FACE TO FACE DISCUSSIONS, ETC.)
      8. **NOT REVIEWED - NOT RELATED TO DUDLEY SCOPE** (INVALID): AN ISSUE NOT RELEVANT TO DUDLEY'S SCOPE OF WORK FOR THE PROJECT. WILL BE RETURNED AS NOT REVIEWED. THE RESPONSIBILITY REMAINS WITH CONTRACTOR TO ROUTE RFIS TO THE APPROPRIATE PARTY. E.G. CONTRACTOR MEANS & METHODS, RFI RELATED TO OTHER DISCIPLINE, OR NOT INCLUDED WITHIN DUDLEY'S BASIC SCOPE OF SERVICES ON THIS PROJECT.
   C. EACH RFI RESPONSE WILL BE ISSUED WITH A DUDLEY CLASSIFICATION. IF THE CONTRACTOR DOES NOT FORMALLY DISPUTE THE CLASSIFICATION IN WRITING WITHIN SEVEN (7) CALENDAR DAYS OF ISSUANCE, THE CLASSIFICATION SHALL BE DEEMED ACCEPTED.
   D. IF THE CONTRACTOR BELIEVES AN RFI RESPONSE MAY LEAD TO A CLAIM OR CHANGE IN CONTRACT TIME OR SUM, THE CONTRACTOR MUST PROVIDE WRITTEN NOTICE WITHIN **TEN (10) BUSINESS DAYS** OF RECEIVING THE RESPONSE, FOLLOWED BY SUBMISSION OF A CLAIM OR CHANGE ORDER REQUEST WITHIN **TWENTY (20) BUSINESS DAYS**. FAILURE TO PROVIDE TIMELY NOTICE SHALL CONSTITUTE A WAIVER OF ENTITLEMENT.
   E. **ADDITIONAL SERVICES**: RFIS THAT ARE CLASSIFIED AS INVALID OR CORRECTIVE REPAIR, INCLUDING BUT NOT LIMITED TO RFIS ARISING FROM CONTRACTOR ERRORS, OMISSIONS, COORDINATION FAILURES, DEFECTIVE WORK, OR DEVIATIONS FROM THE CONTRACT DOCUMENTS, ARE OUTSIDE THE SER'S BASE SCOPE OF SERVICES. THE SER RESERVES THE RIGHT TO TREAT EXCESSIVE OR REPETITIVE RFIS OF THIS NATURE AS ADDITIONAL SERVICES. ADDITIONAL SERVICES SHALL BE INVOICED TO THE SER'S CLIENT IN ACCORDANCE WITH THE PROFESSIONAL SERVICES AGREEMENT. COSTS ATTRIBUTABLE TO SUCH RFIS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, SUBJECT TO THE TERMS OF THE CONTRACT DOCUMENTS.

INSPECTIONS:

1. CONSTRUCTION OR WORK FOR WHICH A PERMIT IS REQUIRED SHALL BE SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL/AHJ AND SUCH CONSTRUCTION OR WORK SHALL REMAIN ACCESSIBLE AND EXPOSED FOR INSPECTION PURPOSES UNTIL APPROVED. THE CONTRACTOR SHALL COORDINATE WITH THE AHJ ON THE REQUIRED INSPECTIONS.
2. **SPECIAL INSPECTIONS:** REFER TO THE STATEMENT OF SPECIAL INSPECTIONS FOR REQUIRED STRUCTURAL SPECIAL INSPECTIONS.
3. **ADDITIONAL INSPECTIONS/OBSERVATIONS REQUIRED BY STRUCTURAL ENGINEER:** REFERENCE SPECIFICATIONS / GENERAL CONDITIONS

FUTURE EXPANSION

1. NO PROVISIONS FOR ANY FUTURE EXPANSION HAVE BEEN MADE IN THE STRUCTURAL DESIGN.

Project:	25-00384	
Release Date:	07/10/2026	
Revisions:	No.	Description	Date

Consultant:

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City of Brenham Henderson Park Basketball Court Pavilion

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07/10/2026

GENERAL NOTES

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......OF......

UTILITIES & EXCAVATIONS UNDER STRUCTURE

1. PROVISIONS SHALL BE MADE TO MITIGATE THE POSSIBILITY THAT UTILITY TRENCHES WILL SERVE AS PATHWAYS FOR WATER TO MIGRATE FROM AREAS OUTSIDE OF THE BUILDING AREA TO BENEATH THE STRUCTURE DURING OR AFTER CONSTRUCTION. ADHERE TO ALL REQUIREMENTS FROM THE GEOTECHNICAL REPORT AND CIVIL ENGINEER. NOTIFY DUDLEY IF CONFLICTING INFORMATION IS SPECIFIED. THE FOLLOWING ARE THE MINIMUM REQUIREMENTS:
   A. THE BOTTOM OF THE UTILITY TRENCHES SHALL BE SLOPED A MINIMUM OF 1/2:12 (2.4%) IN A DOWNWARD DIRECTION AWAY FROM THE BUILDING.
   B. ANTI-SEEP COLLARS & BENTONITE PLUGS SHALL BE UTILIZED WITHIN UTILITY TRENCHES AT THE PERIMETER OF THE BUILDING TO SERVE AS A BARRIER TO MOISTURE MIGRATION ALONG THE SOILS IN THE TRENCHES TO THE INTERIOR PORTIONS OF THE BUILDING. THE ANTI-SEEP COLLAR SHALL HAVE A KEY AT THE TRENCH EDGES WHICH EXTENDS A MINIMUM OF 1'-0" INTO UNDISTURBED SOIL ON 3-SIDES (BOTH SIDES AND BOTTOM). APPROVED PRODUCTS INCLUDE THE FOLLOWING (CONTRACTOR MAY SUBMIT PROPOSE EQUIVALENT PRODUCTS FOR APPROVAL):
      a. AQUABLOK - TRENCH DAM (ANTI-SEEP COLLAR)
2. ALL EXCAVATIONS UNDER THE STRUCTURE SHALL BE UNCLASSIFIED EXCAVATION. NOTIFY THE SER AND GEOTECHNICAL ENGINEER IF UNFORSEEN CONDITIONS ARE ENCOUNTERED UNDER THE STRUCTURE.
   A. UNCLASSIFIED EXCAVATION – ALL MATERIALS ENCOUNTERED DURING EXCAVATION SHALL BE CONSIDERED UNCLASSIFIED. NO DISTINCTION WILL BE MADE BETWEEN DIFFERENT TYPES OF MATERIALS (E.G., SOIL, ROCK, FILL, DEBRIS, ETC.) FOR THE PURPOSES OF PRICING, REMOVAL, OR PAYMENT. THE CONTRACTOR SHALL INCLUDE ALL COSTS ASSOCIATED WITH EXCAVATION, REGARDLESS OF MATERIAL TYPE, IN THEIR BASE BID.
3. EXCAVATION AND SHORING REQUIREMENTS FOR ALL OPEN EXCAVATIONS SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PROVISIONS OF OSHA 29 CFR 1926.
4. SOILS USED TO BACKFILL UTILITY TRENCHES SHALL BE FREE OF DELETERIOUS MATERIAL AND EXCESSIVE AMOUNTS OF SILT. NATIVE SOILS OR SOILS MEETING STRUCTURAL FILL REQUIREMENTS MAY BE USED FOR BACKFILLING OF UTILITY TRENCHES UNLESS OTHERWISE PROHIBITED BY PROJECT PLANS AND SPECIFICATIONS.
5. TRENCH BACKFILL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8 INCHES AND MECHANICALLY COMPACTED TO THE REQUIRED MOISTURE/DENSITY SPECIFICATIONS.
6. SOILS USED TO BACKFILL UTILITIES LOCATED BENEATH STRUCTURE, PAVED SURFACES, OR OTHER STRUCTURAL UNITS SHALL MEET THE SPECIFIED MATERIAL CHARACTERISTICS AND SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE PREVIOUSLY REFERENCED STANDARD PROCTOR COMPACTION TEST, ASTM D698.
7. UTILITY LINES UNDER THE BUILDING SHALL BE LINED TO MINIMIZE UNDERLYING HEAVE DUE TO BREAKS AND/OR LEAKS IN WATER BEARING UTILITIES.

REINFORCING STEEL - 03 20 00

1. THE CONTRACTOR MUST SUBMIT **PLACING DRAWINGS** (DRAWINGS SHOWING FABRICATION DIMENSIONS AND PLACEMENT LOCATIONS OF REINFORCEMENT AND REINFORCEMENT SUPPORT) COMPLETE WITH LAYOUT, SYMBOLS AND NOTATION, AND SCHEDULES WITH THE REINFORCING STEEL SHOP DRAWINGS. THE PLACING DRAWINGS MUST INCLUDE ALL INFORMATION NECESSARY FOR COMPLETE FABRICATION AND PLACING OF ALL REINFORCING STEEL. IF THE CONTRACTOR ONLY SUBMITS SCHEDULES (BAR LISTS, CUT AND BEND INFORMATION), THE SUBMITTAL WILL NOT BE REVIEWED AND WILL BE RETURNED FOR INFORMATION ONLY. DETAILING OF CONCRETE REINFORCEMENT BARS AND ACCESSORIES SHALL CONFORM TO THE FOLLOWING: ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", CRSI "REINFORCING BAR DETAILING" , AND CRSI "MANUAL OF STANDARD PRACTICE". ALL REFERENCES SHALL BE THE LATEST EDITION AVAILABLE.
2. PRIOR TO SUBMITTING THE CONCRETE REINFORCEMENT SUBMITTAL FOR REVIEW BY DUDLEY, THE CONTRACTOR IS REQUIRED TO PROVIDE A SUBMITTAL THAT COORDINATES THE FINAL DEPTHS OF THE GRADE BEAMS, FOOTINGS, AND PIERS (AS APPLICABLE IN THE PROJECT), IN ALIGNMENT WITH THE FINALIZED CIVIL GRADING PLAN. THIS SUBMITTAL AIMS TO ENSURE THAT THE FOUNDATION ELEMENTS COMPLY WITH THE EMBEDMENT REQUIREMENTS SPECIFIED IN THE STRUCTURAL DRAWINGS AND/OR THE GEOTECHNICAL REPORT. THE CIVIL GRADING PLAN MAY FLUCTUATE OR CHANGE DURING THE DESIGN PHASE OF THE PROJECT, AND DUDLEY DOES NOT HAVE CONTROL OVER THESE VARIATIONS WHICH IS THE REASON THAT DUDLEY CANNOT DICTATE THESE.
3. THE REINFORCING SHOP DRAWINGS SHALL INCLUDE LABEL LEGENDS INDICATING THE SPACING, BAR MARK, BAR SIZE, NUMBER OF BARS, AND NUMBER OF LOCATIONS FOR SPECIFIED REINFORCEMENT.
4. PLACING DRAWINGS ARE DETAILED WORKING DRAWINGS THAT SHOW THE QUANTITY, SIZE, DIMENSIONS, SPACING, LOCATIONS, AND OTHER INFORMATION REQUIRED FOR REINFORCEMENT FABRICATION AND INSTALLATION. PLACING DRAWINGS SHALL BE USED BY THE IRONWORKERS ON THE PROJECT TO PLACE (INSTALL) THE REINFORCING STEEL.
   A. LAYOUT: THE PLACING DRAWINGS MUST INCLUDE PLANS, DETAILS (W. DETAILS CUT AT APPLICABLE LOCATIONS ON THE PLAN & ELEVATIONS), ELEVATIONS, GRAPHICS, SCHEDULES, MATERIAL LISTS, AND BENDING DETAILS OF REINFORCEMENT AND REINFORCEMENT SUPPORTS, AS APPLICABLE TO THIS PROJECT. FOR PROJECTS WITH CMU WALLS, THE PLACING DRAWINGS MUST COORDINATE AND SHOW ALL CAST-IN-PLACE DOWELS.
   B. FIELD CONDITIONS, FIELD MEASUREMENTS, LOCATION OF CONSTRUCTION, CONTRACTION (CONTROL) JOINTS, AND EXPANSION JOINTS SHALL BE IMPLEMENTED INTO THE PLACING DRAWINGS.
   C. THE PLACING DRAWINGS MUST BE PREPARED BASED UPON THE LATEST CONSTRUCTION DOCUMENTS ALONG WITH SHOP DRAWINGS FOR OTHER TRADES THAT AFFECT THE REINFORCEMENT. THE PLACING DRAWINGS MUST INDICATE THE LATEST ISSUE OF CONTRACT DRAWINGS THEY ARE BASED UPON.
   D. THE PLACING DRAWINGS MUST BE COMPUTER GENERATED.
5. COMPLETE REINFORCING PLACING DRAWINGS PREPARED IN ACCORDANCE WITH ACI 315 SHALL BE REVIEWED BY THE ENGINEER AND AVAILABLE ON THE JOB SITE PRIOR TO & DURING THE PLACING OF CONCRETE.
6. CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615. BARS #3 THRU #6 SHALL ADHERE TO A MIN OF GRADE 60 KSI. **BARS SIZES #7 & GREATER SHALL ADHERE TO A MIN. GRADE OF 75 KSI.**
7. WELDED WIRE REINFORCEMENT (WWR) SHALL CONFORM TO ASTM 1064 GR.80 AND SHALL BE PROVIDED IN SHEET FORM. SHEETS SHALL BE MFR'D WITH SUFFICIENT OVERHANG LENGTHS TO ACHIEVE A LAP SPLICE EQUAL TO THE GREATER OF 12" OR THE LAP SPLICE DIMENSION SHOWN IN THE REBAR LAP SCHEDULE FOR BAR OF EQUAL OR GREATER DIAMETER AND GRADE. UNO, SHEETS SHALL BE INSTALLED COPLANAR SO AS TO NOT "STACK".
8. ALL REINFORCING STEEL SHALL BE SUPPORTED AT THE SPECIFIED DEPTH USING CONTINUOUS CHAIRS, SPACED AT A MAXIMUM OF 48" O.C. IN BOTH DIRECTIONS. WHERE CONDITIONS REQUIRE, THE CONTRACTOR SHALL PROVIDE CLOSER SPACING TO ADEQUATELY SUPPORT THE REINFORCEMENT. REINFORCEMENT SUPPORTS SHALL COMPLY WITH CRSI RB4.1 "SUPPORTS FOR REINFORCEMENT USED IN CONCRETE," LATEST EDITION, SUBJECT TO THE FOLLOWING ADDITIONAL REQUIREMENTS:
   A. SLABS-ON-GROUND – PLASTIC OR METALLIC CHAIRS SHALL INCORPORATE SAND PLATES.
   B. PRECAST CONCRETE SUPPORTS (UTILITY BRICKS) – PERMITTED ONLY AT THE BOTTOM OF GRADE BEAMS, FOOTINGS, OR TURNDOWNS WITH A MINIMUM DEPTH OF 12", OR WHEN SPECIFICALLY APPROVED IN WRITING BY THE SER. WHEN PERMITTED, SUPPORTS SHALL HAVE A MINIMUM BEARING AREA OF 4 IN² AND A COMPRESSIVE STRENGTH EQUAL TO OR GREATER THAN THE DESIGN CONCRETE STRENGTH.
   C. WATER-CONTAINMENT STRUCTURES (POOLS, TANKS, ETC.) – ONLY NON-METALLIC CHAIRS SHALL BE USED, SPACED AT A MAXIMUM OF 48" O.C. EACH WAY.
   D. CIVIL WASTEWATER STRUCTURES – NON-METALLIC CHAIRS SHALL BE USED DUE TO DURABILITY AND CORROSION CONCERNS AND SHALL BE SPACED AT A MAXIMUM OF 48" O.C. EACH WAY. ALTERNATIVES MAY BE SUBMITTED FOR WRITTEN REVIEW AND APPROVAL BY THE SER. MASONRY BRICKS ARE NOT ALLOWED.
9. END HOOKS, DEVELOPMENT LENGTHS, AND SPLICES SHALL CONFORM TO THE REQUIREMENTS OF ACI 318.
10. REINFORCEMENT MAY BE PLACED IN BUNDLES OF NOT MORE THAN TWO W/ THE CLEAR DISTANCE BETWEEN BUNDLES OF REINFORCEMENT OR TENDONS OF 3 INCHES MINIMUM. CONCRETE COVER NOT SPECIFICALLY DETAILED ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH ACI 318.
11. COVERAGE: THE FOLLOWING SHALL BE THE MINIMUM REINFORCEMENT CONCRETE COVERAGE (INCLUDING TENDONS):
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH .... 3"
   B. CONCRETE EXPOSED TO EARTH OR WEATHER:
      a. NO. 6 AND LARGER .... 2"
      b. NO. 5 BAR AND SMALLER .... 1½"
   C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND .... ¾"
12. LAP SPLICES
   A. UNO REFER TO THE "TYPICAL TENSION LAP SPLICE LENGTH" DETAIL FOR ALL LAP SPLICES.
   B. IF THE "TYPICAL TENSION LAP SPLICE LENGTH" DETAIL IS NOT PROVIDED, ALL LAP SPLICES OF REINFORCEMENT IN GROUND SUPPORTED ELEMENTS (GRADE BEAMS, FOOTINGS, TURN DOWNS) SHALL BE A MINIMUM OF 48Ø, WHERE Ø = THE DIAMETER OF THE BAR. REINFORCEMENT IN STRUCTURAL SLABS, WALLS, OR ELEVATED STRUCTURES SHALL REFER TO THE TYPICAL LAP SPLICE DETAIL. IF NOT PROVIDED, REQUEST IN AN RFI.
   C. LAP SPLICES FOR BAR TWO BARS OF DIFFERENT SIZES SHALL CONFORM TO THE REQUIRED LAP LENGTH FOR THE LARGER BAR.
13. HEADED CONCRETE STUD ANCHORS ("HSA") FASTENED TO AN EMBED PLATE SHALL BE NELSON OR KSM HEADED CONCRETE ANCHORS (OR APPROVED ALTERNATIVE). ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE NELSON STUD WELDING COMPANY OR THE KSM WELDING SYSTEMS COMPANY.

CONCRETE FINISHING AND CURING

1. FINISHING: FINISHING OPERATIONS AND BULL FLOATING SHALL BE COMPLETED PRIOR TO THE ACCUMULATION OF BLEED WATER ON THE SURFACE. FINAL FINISHING SHOULD NOT BEGIN UNTIL THE BLEED WATER HAS EVAPORATED AND THE WATER SHEEN HAS DISAPPEARED FROM THE SURFACE. TROWELLING THE WET SURFACE WILL WEAKEN IT AND CAN RESULT IN SURFACE CRAZING AND DUSTING. REFER TO ARCHITECTURE FOR FINAL FINISHING REQUIREMENTS (STEEL TROWEL, BROOM FINISH, ETC.).
2. EXCESSIVE BLEED WATER REMOVAL: BLEEDING (FREE SURFACE WATER) OCCURS AS AGGREGATES SETTLE IN THE PLACED CONCRETE, DISPLACING WATER TO THE SURFACE. IF ALLOWED TO REMAIN ON THE SURFACE, IT DILUTES THE CEMENT CONTENT, SIGNIFICANTLY REDUCING THE STRENGTH NEAR THE SURFACE. THE CONTRACTOR SHALL REMOVE BLEED WATER. ONE METHOD OF REMOVING BLEED WATER IS TO DRAG THE SURFACE WITH A GARDEN HOSE.
3. CONTRACTION (CONTROL) JOINTS (SAW CUTS) IF REQUIRED, SHALL BE MADE AS SOON AS THE CONCRETE CAN SUPPORT THE WEIGHT OF WORKER AND THE EQUIPMENT.
4. CURING: IMMEDIATELY AFTER FINISHING THE SLAB, THE SLAB MUST BE CURED FOR A MINIMUM OF 7 DAYS. IF MITIGATING CRACKS IS A PRIORITY THEN BOTH A CURING COMPOUND AND WET CURING ARE REQUIRED, OTHERWISE ONLY A CURING COMPOUND MAY BE USED.
   A. WET-CURED BY PONDING, CONTINUOUS FOGGING, OR CONTINUOUS SPRINKLING OR A COMBINATION THEREOF.
   B. APPLYING A WATER-BASED DISSIPATING RESIN TYPE CURING COMPOUND WHICH CHEMICALLY BREAKS DOWN AFTER APPROXIMATELY 4 WEEKS. MEMBRANE FORMING COMPOUND SHALL ADHERE TO ASTM C309, TYPE 1D, CLASS B. THE COMPOUND SHALL BE APPLIED IN TWO COATS, EACH AT RIGHT ANGLES TO THE OTHER TO ENSURE A TIGHTLY SEALED SURFACE. **APPLICATION MUST OCCUR AS SOON AS FINISHING OPERATIONS IN AN AREA ARE COMPLETE.** PRE-APPROVED PRODUCTS INCLUDE:
      a. W.R. MEADOWS 1100
      b. SPECCHEM SPEC-REZ

RETEMPERING / SLUMP ADJUSTMENT (ADDING WATER TO CONCRETE ON-SITE)

1. WATER SHALL **NOT BE ADDED** TO THE MIX TRUCKS ON THE JOB SITE UNLESS THE FOLLOWING TWO CRITERIA PER ACI 301 §4.3.2.1 ARE MET:
   A. THE FIELD CONCRETE SLUMP TEST RESULTS FOR THAT TRUCK ARE BELOW THE DESIGN SLUMP INDICATED ON THE APPROVED CONCRETE MIX DESIGN & BATCH TICKET.
      a. IF THE SLUMP TEST RESULT ARE AT OR ABOVE (WITHIN TOLERANCE) OF THE APPROVED SLUMP, THEN NO WATER SHALL BE ADDED.
      b. THE SLUMP MUST BE TESTED FIRST ON ANY TRUCK IN WHICH THE CONTRACTOR WISHES TO ADD WATER.
   B. THE CONCRETE BATCH TICKET MUST INDICATE THAT THE READY-MIX PLANT WITHHELD (TRIM) WATER AT THE PLANT.
2. IF THE CRITERIA ABOVE ARE MET, THEN WATER CAN BE ADDED TO THE TRUCK WITHIN THE GUIDELINES BELOW IN ACCORDANCE WITH ASTM C94.
   A. DO NOT ADD WATER TO A POINT IN WHICH THE APPROVED SLUMP IS EXCEEDED.
   B. DO NOT ADD WATER IN EXCESS OF AMOUNT THE BATCH TICKET INDICATES WAS WITHHELD AT THE BATCH PLANT.
3. ASTM C94 REQUIREMENTS
   A. DO NOT EXCEED THE MAXIMUM WATER CONTENT FOR THE BATCH AS ESTABLISHED BY THE ACCEPTED CONCRETE MIXTURE PROPORTIONS.
   B. NO CONCRETE HAS BEEN DISCHARGED FROM THE MIXER EXCEPT FOR SLUMP TESTING.
   C. ALL WATER ADDITIONS SHALL BE COMPLETED WITHIN 15 MINUTES FROM THE START OF THE FIRST WATER ADDITION.
   D. WATER SHALL BE INJECTED INTO THE MIXER WITH SUCH PRESSURE AND DIRECTION OF FLOW TO ALLOW FOR PROPER DISTRIBUTION WITHIN THE MIXER.
   E. THE DRUM SHALL BE TURNED AN ADDITIONAL 30 REVOLUTIONS OR MORE AT MIXING SPEED TO ENSURE A HOMOGENOUS MIXTURE
4. IF THE APPROVED SLUMP AND THE ASSOCIATED TOLERANCE IS EXCEEDED, THEN THE CONCRETE SHALL BE REJECTED.
5. IF THE CONTRACTOR EXCEEDS THE APPROVED SLUMP OR ADDS WATER IN EXCESS OF THE AMOUNT THE BATCH TICKET INDICATES WAS WITHHELD, THEN THEY ARE FULLY RESPONSIBLE FOR ANY REMEDIATION REQUIRED (INCLUDING ENGINEERING FEES) INCLUDING BUT NOT LIMITED TO THE FOLLOWING OPTIONS:
   A. FULL REMOVAL AND REPLACEMENT
   B. CRACK REPAIR VIA EPOXY INJECTION, ROUTING AND SEALING, NEAR SURFACE REINFORCING AND PINNING, EXTERNAL PRESTRESSING, ETC.
6. PER ACI 224.1R § 1.3.6 POOR CONSTRUCTION PRACTICES "ADDED WATER HAS THE EFFECT OF REDUCING STRENGTH, INCREASING SETTLEMENT, AND INCREASING DRYING SHRINKAGE"

CONCRETE CRACKS

1. EVEN WITH PROPER DESIGN AND CONSTRUCTION, MINOR CRACKING IN CONCRETE IS EXPECTED. PLASTIC SHRINKAGE CRACKS CONTINUE TO OPEN AS THE CONCRETE AGES UP TO APPROXIMATELY ONE YEAR, AND REACH 50% OF THEIR FINAL SIZE IN APPROXIMATELY 30 DAYS. MANY PLASTIC SHRINKAGE CRACKS ARE VERY SMALL WHICH MAKE THEM BARELY NOTICEABLE AND INCONSEQUENTIAL TO THE STRUCTURAL PERFORMANCE OF THE CONCRETE.
   1. CRACKS WIDER THAN THOSE INDICATED BELOW ARE INDICATIVE OF CONCRETE PLACEMENT THAT DID NOT ADHERE TO THE CONCRETE MIX REQUIREMENTS AND RETEMPERING, PLACEMENT, FINISHING & CURING REQUIREMENTS. IN ADDITION TO BEING VISIBLY OBJECTIONABLE AND INCREASING LIKELIHOOD OF CORROSION, IF THESE CRACKS EXIST IN REGULAR CONSISTENCY, THEY MAY REDUCE THE STRUCTURAL PERFORMANCE OF THE CONCRETE AND REQUIRE STRUCTURAL REPAIR (FILL CRACKS WITH EPOXY PRODUCT) OR REPLACEMENT.
      A. **CRACK WIDTH DESIGN CRITERIA:**
         a. TYPICAL STRUCTURAL CONCRETE (ACI 318) 0.016"
         b. NON-STRUCTURAL SLAB ON GROUND (ACI 360) 0.025"
         c. ENVIRONMENTAL STRUCTURAL CONCRETE (ACI 350) N/A
      B. THE CONTRACTOR SHALL EPOXY INJECT ALL CRACKS EXCEEDING THE WIDTHS INDICATED ABOVE AND UP TO 1/4 IN. IN WIDTH WITH A SUPER-LOW-VISCOSITY STRUCTURAL INJECTION EPOXY (SUCH AS SIMPSON STRONG-TIE CI-SLV, SIKA SIKADUR®-55 SLV, CHEMCO SYSTEMS KEMKO® 038 / CCS™ LOW VISCOSITY IR, OR APPROVED EQUIVALENT MEETING ASTM C881, TYPE I OR IV, GRADE 1, CLASS C).
   2. PLASTIC SHRINKAGE CRACKS: OCCUR SOON AFTER THE CONCRETE IS PLACED AND WHILE IT IS STILL PLASTIC. IT IS CAUSED BY OVERLY RAPID DRYING OF THE SURFACE, USUALLY DUE TO HOT WEATHER, HIGH WIND, LOW HUMIDITY, OR A DELAY IN APPLYING THE CURING MEMBRANE.
   3. PRIOR TO INSTALLATION OF ANY FLOOR FINISHES, THE FLOORING CONTRACTOR SHALL INSPECT AND CERTIFY THAT THE CONCRETE SUBSTRATE IS SUITABLE FOR APPLICATION OF THE FLOORING. A DECOUPLING MEMBRANE SHALL BE PLACED BENEATH ANY BRITTLE FINISHES SUCH AS CERAMIC TILE, STONE, ETC.

BROOM FINISH

1. SLIP-RESISTIVE BROOM FINISH: APPLY SLIP-RESISTIVE BROOM FINISH TO FLOORS AND RAMPS LESS THAN 6% SLOPE, EXTERIOR CONCRETE PLATFORMS, STEPS, RAMPS AND ELSEWHERE AS INDICATED. IMMEDIATELY AFTER FLOAT FINISHING, SLIGHTLY ROUGHEN CONCRETE SURFACE BY BROOMING WITH FIBER BRISTLE BROOM PERPENDICULAR TO MAIN TRAFFIC ROUTE.
2. BROOM BRISTLES SHALL BE MOISTENED PRIOR TO PASSING, AVOIDING EXCESSIVELY WET OR DRIPPING WATER. DO NOT USE BROOM WITH BLEED WATER ON THE CONCRETE SURFACE.
3. BROOMING SHALL BE PULLED AT A CONTROLLED STEADY RATE, NOT PUSHED.
4. AFTER EACH PULL, BRISTLES SHALL BE SHAKEN OR WIPED CLEAN TO AVOID BUILD-UP.
5. COORDINATE REQUIRED FINAL FINISH WITH CIVIL/ARCHITECT PRIOR TO APPLICATION.
6. BROOM FINISHES SHALL BE "FINE BROOM FINISH" AS DEFINED BY ACI 310R, UNLESS NOTED OTHERWISE PER PLAN.
   A. FINE-BROOM FINISH - LESS THAN 1/32 IN. IN DEPTH AND CREATED WITH A SOFT OR HORSEHAIR BRISTLE CONCRETE FINISHING BROOM.
   B. MEDIUM-BROOM FINISH - 1/32 TO 3/36 IN. IN DEPTH AND CREATED WITH A HORSEHAIR OR SYNTHETIC BRISTLE CONCRETE FINISHING BROOM.
   C. HEAVY-BROOMED FINISH - 3/64 AND 1/8 IN. IN DEPTH AND CREATED WITH A STIFF-BRISTLED CONCRETE BROOM.
7. FINAL APPEARANCE MAY VARY, IT IS RECOMMENDED FOR CONTRACTOR TO PROVIDE A 10FT X 10FT MOCK-UP SLAB REPRESENTING THE DESIRED FINAL FINISH, TO BE APPROVED BY THE OWNER (OR REP) PRIOR TO PROCEEDING WITH CONCRETE PLACEMENT.

REINFORCED CONCRETE - 03 30 00

1. **REINFORCED CONCRETE ALLOWANCE**
   a. **IN ADDITION TO THE REINFORCED CONCRETE INDICATED IN THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR SHALL INCLUDE AN ALLOWANCE OF 3.5 CUBIC YARDS (CY) OF REINFORCED CONCRETE WITH AN ASSUMED 200 LBS/CY OF GRADE 60 REINFORCING STEEL. THIS ALLOWANCE SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR THE FURNISHING (INCLUDING SHIPPING AND HANDLING), FABRICATION, DETAILING, AND PLACEMENT OF REINFORCED CONCRETE THAT MAY BE REQUIRED DURING THE PROGRESSION OF WORK AS DIRECTED BY THE STRUCTURAL ENGINEER OF RECORD (SER) OR ARCHITECT. PROVIDE THE UNIT COST FOR REINFORCED CONCRETE WITH THE BID FORM. AT PROJECT CLOSEOUT, ANY UNUSED PORTION OF THIS ALLOWANCE SHALL BE CREDITED TO THE OWNER BY CHANGE ORDER.**
   b. THIS ALLOWANCE IS INTENDED TO COVER MINOR, FIELD-ADJUSTED, OR COORDINATION-DRIVEN CHANGES ONLY. IT SHALL NOT BE USED TO ADDRESS DESIGN OMISSIONS OR SCOPE DEFICIENCIES. EXAMPLES OF WORK COVERED UNDER THIS ALLOWANCE INCLUDE ADDITIONAL EMBEDS, EDGE BEAMS, THICKENED SLABS, CURBS, EQUIPMENT PADS, ANCHOR BLOCKS, AND OTHER INCIDENTAL REINFORCED CONCRETE ELEMENTS REQUIRED FOR FIELD COORDINATION OR CONSTRUCTIBILITY.
   c. THIS ALLOWANCE DOES NOT RELIEVE THE CONTRACTOR FROM PERFORMING THE COMPLETE, CODE-COMPLIANT REINFORCED CONCRETE SCOPE AS SHOWN OR REASONABLY INFERABLE FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR REMAINS RESPONSIBLE FOR PROVIDING ALL REINFORCED CONCRETE AND ASSOCIATED REINFORCEMENT REQUIRED TO ACHIEVE A COMPLETE STRUCTURAL SYSTEM IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE, PROJECT SPECIFICATIONS, AND DESIGN INTENT.
   d. THE CONTRACTOR SHALL INCLUDE IN THIS ALLOWANCE ALL COSTS ASSOCIATED WITH ADJUSTMENT, COORDINATION, AND DETAILING OF REINFORCED CONCRETE DURING THE SHOP DRAWING AND SUBMITTAL REVIEW PROCESS, INCLUDING INCIDENTAL REVISIONS DIRECTED BY THE SER TO MAINTAIN STRUCTURAL INTEGRITY, CONSTRUCTABILITY, AND COORDINATION WITH OTHER DISCIPLINES.
   e. IF THE CONTRACTOR OR REINFORCING STEEL DETAILER BELIEVES THAT THE CONTRACT DOCUMENTS ARE INCOMPLETE OR INSUFFICIENT TO ACCURATELY ESTIMATE REINFORCED CONCRETE QUANTITIES, THEY SHALL NOTIFY THE SER AND GENERAL CONTRACTOR PRIOR TO BID SUBMISSION. THE CONTRACTOR SHALL COLLABORATE WITH THE SER TO CONFIRM ASSUMPTIONS, DOCUMENT ANY MISSING OR UNCERTAIN INFORMATION, AND ESTABLISH APPROPRIATE ALLOWANCES AND CONTINGENCIES TO ADDRESS THE UNCERTAINTY.
   f. THE INTENT OF THIS ALLOWANCE IS TO PROVIDE FLEXIBILITY FOR MINOR UNFORESEEN OR FIELD-ADJUSTED REINFORCED CONCRETE WORK—INCLUDING ADDITIONAL FOUNDATIONS, PAD EXTENSIONS, REINFORCEMENT ADJUSTMENTS, OR CONNECTION MODIFICATIONS—WITHOUT CAUSING DELAY OR REQUIRING MULTIPLE SMALL CHANGE ORDERS. THIS ALLOWANCE DOES NOT RELIEVE THE CONTRACTOR OF THE OBLIGATION TO PERFORM A COMPLETE, CODE-COMPLIANT, AND COORDINATED SCOPE OF REINFORCED CONCRETE WORK AS REQUIRED BY THE CONTRACT DOCUMENTS.
2. **GENERAL**
   A. CONCRETE WORK SHALL CONFORM TO THE LATEST ED. OF ACI 301 (SPECIFICATIONS FOR STRUCTURAL CONCRETE) UNO IN THESE CONSTRUCTION DOCUMENTS.
   B. POINT OF DELIVERY = AT DISCHARGE FROM THE CONCRETE MIX TRUCK (END OF THE CHUTE)
   C. POINT OF PLACEMENT = AT THE LOCATION WHERE CONCRETE IS PLACED TO HARDEN. IF PUMPING, THIS WILL BE AT THE END OF THE PUMP HOSE
   D. WELDING OF REINFORCEMENT IS NOT ALLOWED WITHOUT WRITTEN PERMISSION FROM ENGINEER.
   a. **CONCRETE MIX DESIGN & PLACEMENT:**
      A. ALL CONCRETE MIXES SHALL CONFORM TO ACI 301. MIX DESIGN DATA RESULTS SHALL BE SUBMITTED FOR EACH CONCRETE MIX. PROPORTIONS OF MATERIALS FOR CONCRETE SHALL BE ESTABLISHED TO:
         a. PROVIDE WORKABILITY AND CONSISTENCY TO PERMIT CONCRETE TO BE WORKED READILY INTO FORMS AND AROUND REINFORCEMENT UNDER CONDITIONS OF PLACEMENT TO BE EMPLOYED, WITHOUT SEGREGATION OR EXCESSIVE BLEEDING.
         b. MEET REQUIREMENTS FOR APPLICABLE EXPOSURE REQUIREMENTS.
         c. MEET OR EXCEED THE REQUIRED F'C.
         d. NOT EXCEED THE MAXIMUM W/C RATIO.
      B. **CONCRETE MIX DESIGN SUBMITTALS** MUST INCLUDE THE FOLLOWING INFORMATION IN THE ORDER PRESENTED:
         a. **MIX DESIGN**
            • INDICATE THE INTENDED USE (I.E. GRADE BEAMS) AND MIX CODE
            • METHOD OF PLACEMENT (PUMP, DIRECT DISCHARGE, ETC.)
            • MINIMUM INFORMATION TO BE INCLUDED: W/CM RATIO, F'C, TARGET SLUMP, TYPE OF CEMENT, ENTRAINED AIR CONTENT, COARSE AGGREGATE SIZE AND SOURCE, PROPORTIONS OF SUPPLEMENTARY CEMENTITIOUS MATERIALS, CONCRETE DENSITY, LIST OF ALL MATERIALS, ADMIXTURES, AND ADDITIVES ALONG WITH THEIR PROPORTIONS, LIMITATIONS ON TOTAL CHLORIDES, OR OTHER DURABILITY OR EXPOSURE CRITERIA.
         b. **TEST DATA TO VALIDATE THE REQUIRED CONCRETE STRENGTH** (ONE OF THE METHODS BELOW MUST BE USED), THE FOLLOWING IS A SUMMARY OF THE REQUIREMENTS. REFER TO ACI 301 AND 318. THE CONTRACTOR IS RESPONSIBLE FOR FULL COMPLIANCE WITH THESE CODE SECTIONS.
            • **FIELD STRENGTH TEST RECORDS** (HISTORICAL TEST DATA) - ACI 301 §4.2.3.2(a)
               1. FIELD STRENGTH TEST RESULTS CAN BE USED IF THERE ARE AT LEAST (10) CONSECUTIVE TESTS FOR MIXTURES USING SIMILAR MATERIALS UNDER SIMILAR CONDITIONS. IF THIS CONDITION IS NOT SATISFIED, THE MIX MUST BE QUALIFIED BASED ON THE RESULTS OF A SERIES OF TRIAL MIXTURES.
               2. A FIELD STRENGTH TEST IS THE AVERAGE COMPRESSIVE STRENGTH OF EITHER (3) 4X8 OR (2) 6X12 CYLINDERS AT 28-DAYS.
               3. AT LEAST (15) TEST RESULTS FROM A SINGLE GROUP ARE REQUIRED TO ESTABLISH A STANDARD DEVIATION USED TO DETERMINE THE REQUIRED AVERAGE STRENGTH, F'CR. WHEN LESS THAN (15) TEST RECORDS ARE AVAILABLE, ACI 301 TABLE 4.2.3.3.B ESTABLISHES THE REQUIRED AVERAGE STRENGTH IN EXCESS OF THE SPECIFIED F'C DATA FROM (2) GROUPS OF CONSECUTIVE COMPRESSIVE STRENGTH TESTS TOTALING AT LEAST (30) COMPRESSIVE STRENGTH TESTS, WITH NEITHER OF THE GROUPS HAVING LESS THAN (10) TESTS.
               4. A MODIFICATION FACTOR IS APPLIED TO THE STANDARD DEVIATION WHEN LESS THAN (30) TESTS ARE USED. SUCH TESTS SHALL BE FOR CONCRETE MIXES HAVING STRENGTH WITHIN 1,000 PSI OF F'C.
               5. TO QUALIFY AS CONSECUTIVE TESTS, THE FIELD STRENGTH TEST RECORDS MUST HAVE BEEN PERFORMED OVER A PERIOD OF AT LEAST (45) DAYS AND HAVE BEEN BASED ON SIMILAR CONCRETE MIXES WITHIN 1,000 PSI OF F'C. FIELD STRENGTH TEST RECORDS SHALL BE NO MORE THAN (24) MONTHS OLD.
               6. A SIMILAR MIX IS ONE INCORPORATING SIMILAR MATERIALS AND PROPORTIONS AND THAT IS NOT MORE RESTRICTIVE THAN THE MIX UNDER CONSIDERATION. FOR EXAMPLE, A MIX HAVING A W/CM OF 0.55 COULD BE USED TO SUPPORT A MIX WITH A W/CM OF 0.50 IF THE MATERIALS AND PROPORTIONS ARE SIMILAR. SIMILARLY, A 5.0- SACK MIX CAN BE USED TO SUPPORT A 6.0 SACK MIX, IF THEIR DESIGN STRENGTH IS WITHIN 1,000 PSI OF EACH OTHER. LIKEWISE, A 20% FLY ASH MIX COULD BE USED TO SUPPORT A 15% FLY ASH MIX IF THE W/CM IS THE SAME OR HIGHER SINCE THE 20% FLY ASH MIX WOULD BE EXPECTED TO PRODUCE A LOWER STRENGTH THAN THE PROPOSED MIX. SIMILAR MIXES SHOULD HAVE THE SAME MAXIMUM AGGREGATE SIZE AND SIMILAR GRADATIONS. SIMILAR MIXES SHALL USE THE SAME SOURCE OF MATERIAL (CEMENT, FLY ASH, AGGREGATES, ETC.)
            • **TRIAL MIXTURES** (TRIAL BATCH TEST DATA) ACI 301 §4.2.3.2(c)
               1. REQUIRES A MINIMUM OF THREE LABORATORY TRIAL BATCHES WITH A RANGE OF PROPORTIONS THAT WOULD PRODUCE A RANGE OF STRENGTHS THAT BRACKET THE REQUIRED COMPRESSIVE STRENGTHS.
               2. WHEN MULTIPLE TYPES OF CEMENTITIOUS MATERIALS ARE USED, MORE TRIAL BATCHES MAY BE NEEDED TO EXPLORE THE SENSITIVITY OF COMPRESSIVE STRENGTH TO VARIATIONS IN MIXTURE PROPORTIONS.
               3. THE PRACTICE OF SUBMITTING THE RESULTS OF A SINGLE TRIAL BATCH DOES NOT COMPLY WITH THE REQUIREMENTS FOR QUALIFICATION BY TRIAL BATCHES.
            • **CONTRACTOR'S RISK:** IF THE CONTRACTOR CANNOT COMPLY WITH EITHER OF THE METHODS ABOVE TO VALIDATE THE CONCRETE STRENGTH, THEN THE SER CANNOT APPROVE THE MIX DESIGN. IF THE F'C OF THE MIX IS BELOW 5,000 PSI, AND THE CONTRACTOR CERTIFIES IN WRITING BASED ON EXPERIENCE OR INFORMATION THAT THE MIX WILL ACHIEVE ALL PERFORMANCE REQUIREMENTS, THE CONTRACTOR MAY PROCEED AT THEIR OWN RISK. IF THIS OPTION IS TAKEN, THEN THE SAMPLING FREQUENCY FOR THE CONCRETE SHALL BE A MINIMUM OF EVERY 30 CY OR A MINIMUM OF (3) SETS PER POUR.
         c. MILL REPORTS FOR CEMENTITIOUS MATERIALS
         d. CERTIFICATIONS AND TEST RESULTS FOR CONCRETE COMPONENTS (COARSE AND FINE AGGREGATE GRADATION REPORTS)
         e. PRODUCT DATA FOR ADMIXTURES
      C. ADHERE TO THE MINIMUM CEMENTITIOUS MATERIAL CONTENT FOR FLOORS (REF ACI 301 TABLE 4.2.2.1).
      D. THE CONTRACTOR MUST INDICATE THE PLANNED PLACEMENT METHOD FOR EACH CONCRETE MIX.
      E. THE CONTRACTOR MUST PROVIDE THE APPROVED MIX DESIGNS TO THE SPECIAL INSPECTOR (OWNER'S TESTING & INSPECTION AGENCY).
      F. NO WATER SHALL BE ADDED AT THE SITE (RE-TEMPERING) WITHOUT THE SPECIAL INSPECTOR PRESENT TO ENSURE THAT THE W/C IS NOT EXCEEDED. THE READY-MIX COMPANY MUST INDICATE THE WATER WITHHELD AT THE PLANT ON EACH BATCH TICKET. WHEN THE SLUMP IS BELOW REQUIRED, WATER CAN BE ADDED, BUT MUST BE DONE IN ACCORDANCE WITH ACI 301 AND ASTM C94, SEE BELOW. IF ADDITIONAL SLUMP BEYOND THAT INDICATED IN THE CONCRETE MIX SUBMITTAL IS REQUIRED FOR PLACEMENT AND FINISH OF THE CONCRETE, THEN THE CONTRACTOR SHALL COORDINATE WITH THE CONCRETE SUPPLIER TO ADD ADDITIONAL WORKABILITY VIA PLASTICIZER, SUPERPLASTICIZER, ETC. WITHOUT INCREASING THE W/C RATIO. EXCEEDING THE W/C RATIO HAS DETRIMENTAL EFFECTS OUTSIDE OF LOWERING THE COMPRESSIVE STRENGTH INCLUDING HIGHER FREQUENCY OF SHRINKAGE CRACKS, MORE POROUS CONCRETE, AND LESS DURABLE CONCRETE.
         a. ACI 301 §4.3.2.1 SLUMP ADJUSTMENT — WHEN CONCRETE SLUMP TEST RESULTS ARE BELOW THE REQUIRED SLUMP, THE SLUMP MAY BE ADJUSTED BY ADDING WATER UP TO THE AMOUNT ALLOWED IN THE ACCEPTED MIXTURE PROPORTIONS. ADDITION OF WATER SHALL BE IN ACCORDANCE WITH ASTM C94/ C94M. DO NOT EXCEED THE SPECIFIED W/CM, SLUMP, OR ADD WATER IN EXCESS OF THAT WITHHELD AT THE BATCH PLANT.
         b. ASTM C94 REQUIREMENTS
            • DO NOT EXCEED THE MAXIMUM WATER CONTENT FOR THE BATCH AS ESTABLISHED BY THE ACCEPTED CONCRETE MIXTURE PROPORTIONS.
            • NO CONCRETE HAS BEEN DISCHARGED FROM THE MIXER EXCEPT FOR SLUMP TESTING.
            • ALL WATER ADDITIONS SHALL BE COMPLETED WITHIN 15 MINUTES FROM THE START OF THE FIRST WATER ADDITION.
            • WATER SHALL BE INJECTED INTO THE MIXER WITH SUCH PRESSURE AND DIRECTION OF FLOW TO ALLOW FOR PROPER DISTRIBUTION WITHIN THE MIXER.
            • THE DRUM SHALL BE TURNED AN ADDITIONAL 30 REVOLUTIONS OR MORE AT MIXING SPEED TO ENSURE A HOMOGENEOUS MIXTURE.
      G. SAMPLES FOR SLUMP TESTS SHALL BE TAKEN AT THE POINT OF PLACEMENT WITH THE EXCEPTIONS NOTED BELOW:
         a. IF THE POINT OF DELIVERY IS THE SAME AS THE POINT OF PLACEMENT (CONCRETE IS PLACED DIRECTLY FROM TRUCK)
         b. IF THE CONTRACTOR HAS DEVELOPED AN ACCEPTABLE (APPROVED BY SPECIAL INSPECTOR AND EOR) CORRELATION BETWEEN FRESH CONCRETE PROPERTIES AT THE POINT OF DELIVERY AND POINT OF PLACEMENT.
      H. **TRUCKS WITH SAMPLES THAT EXCEED THE APPROVED SLUMP + TOLERANCE PER THE CONCRETE MIX DESIGN SHALL BE REJECTED BY THE CONTRACTOR. IF PLACED IN THE SLAB IT IS AT THE CONTRACTOR'S RISK FOR PERFORMANCE (STRENGTH) AND AESTHETIC (SHRINKAGE CRACKING) WITH THE UNDERSTANDING THAT THEY MAY NEED TO REMOVE AND REPLACE IF PERFORMANCE/AESTHETICS ARE NOT ACCEPTABLE.**
      I. AIR-ENTRAINED CONCRETE SHALL NOT BE USED IN ANY NORMAL WEIGHT CONCRETE FLOOR SLAB THAT IS TO RECEIVE A HARD-TROWELED FINISH.
   b. **CONCRETE CONSTRUCTION MATERIALS:** (FOR ALL MATERIALS APPROVED EQUIVALENTS ARE ACCEPTABLE - IT IS THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH THAT THE SUBSTITUTE PRODUCT IS EQUAL TO OR BETTER THAN THE SPECIFIED PRODUCT).
      A. **HYDRAULIC CEMENT:**
         a. USE ASTM C150 TYPE I/II OR TYPE III OR ASTM C595 TYPE IL, EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE IN TABLE BELOW.
         b. ELEMENTS WITH HIGH SULFATE EXPOSURE (CATEGORY S2 OR HIGHER) SHALL BE TYPE V CEMENT TESTED IN ACCORDANCE WITH ASTM C1012 FOR SULFATE RESISTANCE EXCEPT WHERE INDICATED OTHERWISE IN TABLE BELOW.
      B. **FLY ASH:**
         a. FLY ASH MAY BE USED TO REPLACE A PORTION OF THE PORTLAND CEMENT, SUBJECT TO THE APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER NOT TO EXCEED THE AMOUNTS LISTED IN THE CONCRETE TABLE.
         b. USE ASTM C618 CLASS C OR F.
      C. **NORMAL WEIGHT AGGREGATE:**
         a. USE ASTM C33.
         b. MATERIAL CERTIFICATES FROM THE AGGREGATE SUPPLIER MUST BE SUBMITTED WITH THE CONCRETE MIX DESIGN.
         c. PEA STONE (PEA GRAVEL) AGGREGATES ARE NOT ACCEPTABLE.
      D. **WATER:**
         a. COMPLY WITH THE REQUIREMENTS OF ASTM C1602.
   c. **CHLORIDE ION:**
      A. FOR CORROSION PROTECTION OF REINFORCEMENT IN CONCRETE, MAXIMUM WATER SOLUBLE ION CONCENTRATIONS IN HARDENED CONCRETE AT AGES FROM 28 TO 42 DAYS CONTRIBUTED FROM THE INGREDIENTS INCLUDING WATER, AGGREGATES, CEMENTITIOUS MATERIALS, AND ADMIXTURES SHALL NOT EXCEED THE LIMITS INDICATED IN THE TABLE BELOW.
   d. **PLACEMENT:**
      A. CONCRETE ELEMENTS (BEAMS, SLAB, FOOTINGS, ETC.) SHALL BE PLACED MONOLITHICALLY UNO. THE CONTRACTOR SHALL REQUEST IN WRITING PROPOSED CONSTRUCTION JOINT LOCATIONS PRIOR TO REBAR SUBMITTAL REVIEW.
      B. CONCRETE SHALL BE PLACED CAREFULLY SO AS NOT TO DEVIATE REINFORCEMENT FROM THE DESIGN LOCATION.
      C. CONCRETE SHALL BE PROPERLY VIBRATED, ESPECIALLY AROUND POST-TENSIONED ANCHORAGES AND CONGESTED AREAS SUCH AS COLUMN JOINTS.
      D. PLACEMENT OF CONCRETE SHALL BE COMPLETED WITHIN 90 MINUTES AFTER THE INTRODUCTION OF THE MIXING WATER (BATCH TIME), IN ACCORDANCE WITH ASTM C94.
      E. TOLERANCES FOR CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST ED. OF ACI 117 (SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS).
      F. BOARD FORM EXPOSED FACE OF GRADE BEAMS, FOOTINGS, ETC.
   e. **CONCRETE CONSTRUCTION PRODUCTS**
      A. COMPRESSIBLE (JOINT) FILLER AT ISOLATION AND/OR EXPANSION JOINTS: MUST ADHERE TO ASTM D1751 ASPHALT-SATURATED CELLULOSIC FIBER
      B. JOINT FILLER (COMPRESSIBLE): CLOSED-CELL POLYETHYLENE FOAM EXPANSION JOINT FILLER. FASTFLEX, WR MEADOWS X-FOAM, OR APPROVED EQUIV.
      C. HYDROPHILIC SWELL WATERSTOPS: SHALL BE 1" WIDE x MIN 1/2" THICK, PROVIDE 2" MIN CLEAR COVER: SIKA HYDROTITE CJ-0725-3K, GRACE ADCOR ES, Henry HYDRO-FLEX, MiraSTOP. FOLLOW ALL MFR INSTALLATION REQUIREMENTS INCLUDING THE APPLICATION OF ADHESIVE PRIMER AND/OR STEEL WIRE MESH CAGE AS REQUIRED TO SECURE TO THE CONCRETE.
      D. PVC WATERSTOPS: GREENSTREAK PVC RIBBED WATERSTOP W. CENTER BULB. ALL CONSTRUCTION JOINTS IN WATER CONTAINING STRUCTURES SHALL CONTAIN A 6" PVC WATER STOP. EXPANSION JOINTS SHALL CONTAIN A MINIMUM 9" PVC CENTER BULB WATER STOP AND EXTEND THE FULL WIDTH OF JOINT. WATERSTOPS SHALL BE A MINIMUM OF 3/8" THICK AND WEAR RESISTANT TO CHEMICAL EXPOSURE, THE ENVIRONMENT, AND JOINT MOVEMENT OVER THE LIFE OF THE FACILITY.
      E. ELASTOMERIC JOINT SEALANT: ADHERE TO ASTM D5893 - STANDARD SPECIFICATION FOR COLD-APPLIED, SINGLE-COMPONENT, CHEMICALLY CURING SILICONE JOINT SEALANT FOR PORTLAND CEMENT CONCRETE PAVEMENTS INSTALL FOAM BACKER RODS AS REQUIRED FOR INSTALLATION. PRE-APPROVED PRODUCTS - DOW - DOWSIL 890-SL SILICON JOINT SEALANT, Sikasil®-728 S. INSTALL CLOSED CELL FOAM BACKER RODS AS REQUIRED FOR INSTALLATION TO MAINTAIN A 2:1 WIDTH:DEPTH RATIO OF THE JOINT SEALANT OR AS RECOMMENDED BY THE MFR.
      F. METAL KEYWAYS: BO METALS QUICKEY, FORM-A-KEY KEY-LOC JOINT SYSTEM. ALL KEYWAYS MUST HAVE A NON-REMOVABLE PLASTIC CAP
      G. SMOOTH BAR DOWELS: ASTM A615 GR60. ONE END OF EACH DOWEL MUST BE FITTED WITH A TIGHT, NON-COMPRESSIBLE PLASTIC OR PVC SLEEVE TO ALLOW LONGITUDINAL MOVEMENT AND PREVENT BONDING WITH CONCRETE. DOWELS SHALL HAVE A MINIMUM OF 2½" OF CLEAR COVER FROM EITHER THE TOP OR BOTTOM OF ANY CONCRETE SURFACE. DURING INSTALLATION, ENSURE PROPER ALIGNMENT AND SECURE DOWELS USING APPROVED METHODS.
   f. **FIELD-CURED CYLINDERS** SHALL BE MADE AND CURED UNDER CONDITIONS INTENDED TO SIMULATE THOSE OF THE CONCRETE THEY REPRESENT, IN ACCORDANCE WITH ASTM C31. CYLINDERS SHALL BE STORED NEAR THE STRUCTURE, PROTECTED FROM MOISTURE LOSS, AND MAINTAINED AT TEMPERATURES SIMILAR TO THOSE OF THE STRUCTURE. THE PURPOSE OF FIELD-CURED CYLINDERS IS NOT FOR ACCEPTANCE TESTING, BUT TO VERIFY THE ADEQUACY OF CURING PRACTICES AND TO PROVIDE INFORMATION ON THE IN-PLACE CONCRETE STRENGTH FOR ACTIVITIES SUCH AS FORMWORK REMOVAL, POST-TENSIONING, AND STRUCTURAL LOADING DURING ERECTION. IF THE CONTRACTOR DOES NOT RETAIN THEIR OWN TESTING LABORATORY FOR QUALITY CONTROL TO PROCURE FIELD-CURED CYLINDERS, THE CONTRACTOR SHALL REIMBURSE THE OWNER FOR THE ASSOCIATED COSTS OF MAKING AND TESTING THESE CYLINDERS.
   g. **FORMWORK**
      A. THE CONTRACTOR SHALL SUBMIT FORMWORK DRAWINGS, PREPARED UNDER THE SUPERVISION AND SEALED BY THE FORMWORK DESIGN ENGINEER, SHALL BE SUBMITTED FOR OWNER'S RECORD AND SHALL BE REVIEWED BY THE ENGINEER FOR CONFORMANCE TO STRUCTURAL LAYOUT ONLY. SUCH SHOP DRAWINGS SHALL INDICATE ALL DIMENSIONS AND TYPES OF MATERIALS, SIZES, LENGTHS, CONNECTION DETAILS, DESIGN ALLOWANCE FOR CONSTRUCTION LOADS, ANCHORS, FORM TIES, SHORES, BRACES, CONSTRUCTION JOINTS, REVEALS, CAMBER, OPENINGS, FORMWORK COATINGS, AND ALL OTHER PERTINENT INFORMATION. **[NOT APPLICABLE TO GROUND SUPPORTED FORMWORK]**
      B. THE MINIMUM COMPRESSIVE STRENGTH OF CONCRETE FOR FORMWORK REMOVAL SHALL BE 75% OF THE SPECIFIED f'_c AS DETERMINED BY FIELD-CURED CYLINDERS.
      C. ANY EXPOSED SURFACES OF GROUND SUPPORTED GRADE BEAMS SHALL HAVE A SMOOTH SURFACE FORMED BY EITHER PLYWOOD OR STEEL FORMS.
   h. **CONCRETE STRENGTH VERIFICATION PRIOR TO FRAMING ERECTION** - FRAMING ERECTION SHALL NOT COMMENCE UNTIL THE CONTROLLING CONTRACTOR (GENERAL CONTRACTOR) HAS PROVIDED WRITTEN NOTIFICATION TO THE STEEL ERECTOR THAT THE CONCRETE IN FOOTINGS, AND PIERS HAS ATTAINED, ON THE BASIS OF AN APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD-CURED CYLINDERS (ASTM C31 FOR MAKING/CURING AND ASTM C39 FOR TESTING), EITHER (1) 75 PERCENT OF THE INTENDED MINIMUM COMPRESSIVE DESIGN STRENGTH OR (2) SUFFICIENT STRENGTH TO SAFELY SUPPORT THE LOADS IMPOSED DURING STEEL ERECTION (AS DETERMINED BY THE ERECTION/CONSTRUCTION ENGINEER), IN ACCORDANCE WITH OSHA 29 CFR 1926.752(a). THIS WRITTEN NOTIFICATION IS THE RESPONSIBILITY OF THE CONTROLLING CONTRACTOR (GC). THE STRUCTURAL ENGINEER OF RECORD (SER) DOES NOT ISSUE, AND SHALL NOT BE INTERPRETED AS ISSUING, APPROVAL TO BEGIN STEEL ERECTION.
   i. **ARCHITECTURALLY EXPOSED CONCRETE** - ANY CONCRETE ELEMENTS IN WHICH TEMPERATURE & SHRINKAGE CRACKS ARE TO BE MITIGATED (ARCHITECTURALLY EXPOSED CONCRETE, WATER-RETAINING CONCRETE, ETC.), SHALL HAVE MACRO SYNTHETIC FIBERS INCLUDED IN THE CONCRETE MIX AT A DOSAGE OF 4.0 LB/CY IN ADDITION TO THE TYPICAL REINFORCEMENT. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, THE FIBER INSTALLATION AND PRODUCT DATA. MIXING AND PLACEMENT SHALL FOLLOW THE MFR'S INSTRUCTIONS. A MINIMUM 10'x10' MOCK-UP OF THE SLAB SHALL BE PROVIDED FOR THE OWNER/ARCHITECT REVIEW PRIOR TO CONSTRUCTION. INCLUSION OF FIBERS MAY DECREASE SLUMP, HOWEVER, ADDITIONAL WATER SHOULD NOT BE ADDED. ONLY A WATER REDUCING OR HIGH RANGE WATER REDUCING ADMIXTURE SHOULD BE USED TO ADJUST CONCRETE TO THE DESIRED WORKABILITY PRIOR TO THE ADDITION OF THE FIBERS. PRE-APPROVED PRODUCTS INCLUDE THE FOLLOWING:
      a. SikaFiber-800 Stealth.
      b. MasterFiber MAX 2200 CB
   j. **POST-INSTALLED ANCHORS INTO CONCRETE:** POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE EOR PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REBAR. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING EQUIVALENT PERFORMANCE (MINIMUM) VALUES OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARDS. PROVIDE SPECIAL INSPECTIONS AS REQUIRED BY THE ANCHOR'S EVALUATION REPORT (ICC-ES OR IAPMO-UES ER). CONTACT MANUFACTURER'S REPRESENTATIVE FOR THE INITIAL TRAINING AND INSTALLATION OF ANCHORS AND FOR PRODUCT RELATED QUESTIONS AND AVAILABILITY.
      A. **MECHANICAL ANCHORS:** SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.2 AND/OR ICC-ES AC193 FOR CRACKED AND UNCRACKED CONCRETE.
      B. **ADHESIVE ANCHORS:** SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED AND UNCRACKED CONCRETE. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS. HOLES SHALL BE DRY AT THE TIME OF INSTALLATION. ACI 355.3 TEMPERATURE CATEGORY "B" ASSUMED IN DESIGN. PRIOR TO INSTALLATION OF ADHESIVE ANCHORS IN HORIZONTAL OR UPDWARDLY INCLINED ORIENTATIONS RESISTING SUSTAINED TENSION LOADS, INSTALLERS ARE REQUIRED TO BE CERTIFIED IN ACCORDANCE WITH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM AND MUST BE CONTINUOUSLY INSPECTED. THE ADHESIVE SHALL BE A TWO-COMPONENT SYSTEM THAT ADHERES TO ASTM C881.
         a. PRE-APPROVED PRODUCTS INCLUDE: SIMPSON SET X-P, SIMPSON SET 3G, HILTI HIT HY-200, DeWALT PURE220+, DeWALT PURE110+.
      C. ANY POST-INSTALLED ANCHORS INSTALLED INTO CONCRETE SHALL BE CERTIFIED FOR THE SPECIFIC APPLICATION AND FOLLOW ALL MFR INSTRUCTIONS. ADHESIVE ANCHORS WITHIN A CORROSIVE ENVIRONMENT SHALL USE EITHER EPOXY OR VINYLESTER EPOXY, ACRYLIC IS NOT ALLOWED.
   k. **SURFACE FINISH ON FORMED SURFACES:** UNO BY ARCHITECTURAL DRAWINGS/SPECIFICATIONS FORMED CONCRETE SHALL ADHERE TO SF-2.0 PER ACI 301. IF THE CONCRETE IS INTENDED TO BE ARCHITECTURALLY EXPOSED IT SHALL ADHERE TO SF-3.0 MINIMUM, AND THEN ADHERE TO ANY ARCHITECTURAL REQUIREMENTS FOR SPECIAL TEXTURED FINISHES, IF APPLICABLE.
      A. SNAP TIES WITH A MINIMUM 1" CONCRETE AND BREAK OFF DISTANCE SHALL BE USED. FOR CONCRETE IN EXPOSURE CLASS C2 OR ABOVE NON-FERROUS OR STAINLESS STEEL FORM TIES SHALL BE USED.
   l. **PRECONSTRUCTION MEETING**: THE CONTRACTOR SHALL SCHEDULE AND HOST A CONCRETE PRECONSTRUCTION MEETING TO ESTABLISH AND COORDINATE PROCEDURES WITH ALL KEY PARTICIPANTS INVOLVED IN THE DESIGN OR CONSTRUCTION OF CONCRETE ON THIS PROJECT. FOR SLABS, THE PRECONSTRUCTION MEETING SHALL FOLLOWING THE RECOMMENDATIONS OF ACI 302.1R.
   m. **QUALITY CONTROL**: THE CONCRETE CONTRACTORS, CONCRETE SUPPLIERS, TESTING LABORATORIES, AND CONCRETE FINISHERS SHALL ALL BE CERTIFIED BY AN INDEPENDENT THIRD-PARTY CERTIFICATION PROGRAM. FOR FLATWORK AND ADHESIVE ANCHORS THEY MUST HAVE CERTIFICATIONS FROM THE FOLLOWING PROGRAMS. THE CONTRACTOR SHALL SUBMIT EVIDENCE OF CERTIFICATION AS A SUBMITTAL FOR RECORD.
      A. FINISHER - ACI ADVANCED CONCRETE FLATWORK FINISHER
      B. ADHESIVE ANCHORS - ACI ADHESIVE ANCHOR INSTALLER
   n. FLOOR CLASS (ACI 302.1R) - THE CONTRACTOR SHALL ADHERE TO THE RECOMMENDATIONS IN ACI 302.1R FOR FLOOR CLASSES INDICATED BELOW. THE CONCRETE SHALL HAVE A - 5" MAX SLUMP AT POINT OF PLACEMENT IN ACCORDANCE WITH TABLE 8.4.1A OF ACI 302.1R-15.
      A. ALL FLOORS SHALL BE CLASS 4 (INSTITUTIONAL/COMMERCIAL), EXCEPT FOR PROJECTS WITH TILT-UP WALL CONSTRUCTION IN WHICH CASE IT SHALL BE CLASS 6 (HEAVY INDUSTRIAL).
3. **EMBED PLATE CONSOLIDATION AND VOIDING – GENERAL REQUIREMENTS**
   A. ALL CONCRETE AT STEEL EMBED PLATES SHALL BE PROPERLY CONSOLIDATED TO ELIMINATE HONEYCOMBING, VOIDS, AND SEPARATION BETWEEN EMBED PLATE AND SURROUNDING CONCRETE.
   B. EMBED PLATES SHALL BE IN FULL BEARING AGAINST DENSE, SOUND CONCRETE. VISIBLE SEPARATION ALONG PLATE EDGES IS NOT ACCEPTABLE.
   C. CONTRACTOR SHALL PERFORM HAMMER SOUNDING AT ALL STRUCTURAL EMBED PLATES AFTER FORM REMOVAL AND PRIOR TO STRUCTURAL LOADING.
   D. EMBED PLATES EXHIBITING HOLLOW RESPONSE, VISIBLE HONEYCOMBING, EXPOSED STUDS, OR SEPARATION BETWEEN PLATE AND CONCRETE SHALL BE MARKED AND DOCUMENTED.
   E. EMBED PLATES WITH CONFIRMED VOIDING BEHIND THE PLATE SHALL NOT BE RELIED UPON FOR STRUCTURAL LOAD TRANSFER UNTIL EVALUATED AND ACCEPTED BY THE SER.
   F. COSMETIC PATCHING, SURFACE PARGING, OR PRESSURE INJECTION SHALL NOT BE PERFORMED AT EMBED PLATES WITHOUT WRITTEN ACCEPTANCE FROM THE SER. THE CONTRACTOR MUST SUBMIT THEIR PROPOSED SOLUTION AND PRODUCTS FOR THESE REPAIR FOR SER REVIEW.
   G. WHERE VOIDING IS IDENTIFIED, UNSOUND CONCRETE SHALL BE REMOVED TO SOUND MATERIAL TO EXPOSE THE FULL EXTENT OF THE CONDITION. CONTRACTOR SHALL PROVIDE PHOTOGRAPHIC AND DIMENSIONED DOCUMENTATION OF AS-FOUND CONDITIONS.
   H. WHERE VOIDING IS CONFIRMED BEHIND STRUCTURAL EMBED PLATES, THE SER MAY REQUIRE ONE OF THE FOLLOWING:
      a. REMOVAL AND RECASTING OF AFFECTED PANEL,
      b. STRUCTURAL LOAD BYPASS (SUCH AS SUPPLEMENTAL FRAMING OR COLUMNS),
      c. ENGINEERED REMEDIATION DESIGNED BY A QUALIFIED STRUCTURAL OR FORENSIC ENGINEERING FIRM.
   I. IN CASES OF SIGNIFICANT OR WIDESPREAD VOIDING, OWNER OR CONTRACTOR MAY BE REQUIRED TO RETAIN AN INDEPENDENT DIAGNOSTIC OR FORENSIC STRUCTURAL ENGINEERING FIRM TO MAP EXTENT OF VOIDING, EVALUATE EMBED CAPACITY, AND DEVELOP ENGINEERED REPAIR PROCEDURES.
   J. REPORTS LIMITED TO VISUAL OR ACOUSTICAL OBSERVATION ONLY MAY NOT BE SUFFICIENT FOR FINAL STRUCTURAL ACCEPTANCE.
   K. CORRECTION OF CONSOLIDATION DEFICIENCIES AND ASSOCIATED ENGINEERING REQUIRED TO RESTORE STRUCTURAL CAPACITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WHEN RESULTING FROM CONSTRUCTION MEANS AND METHODS. THE SER CAN BE ENGAGED TO PROVIDE ENGINEERING SERVICES FOR THIS AS AN ADDITIONAL SERVICE.
   L. IF SOUNDING IDENTIFIES VOIDING AT MORE THAN FIVE PERCENT (5%) OF EMBED LOCATIONS, CONTRACTOR SHALL REVIEW AND CORRECT CONSOLIDATION PROCEDURES PRIOR TO CONTINUING CONCRETE PLACEMENT.
4. **FIELD WELDING TO EMBEDDED STEEL IN CONCRETE**
   A. FIELD WELDING OF STRUCTURAL STEEL TO PLATES EMBEDDED IN CONCRETE SHALL COMPLY WITH AWS D1.1.
   B. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, PROCEDURES, SEQUENCING, AND PROTECTION OF SURROUNDING MATERIALS, INCLUDING PREVENTING DAMAGE TO CONCRETE, REINFORCING STEEL, OR EMBEDDED ITEMS DUE TO WELDING OPERATIONS.
   C. THE STRUCTURAL ENGINEER OF RECORD (SER) ASSUMES NO RESPONSIBILITY FOR THE CONTRACTOR'S WELDING PROCEDURES OR FIELD OPERATIONS.
   D. ALL WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS USING QUALIFIED PROCEDURES AND SHALL BE SUBJECT TO IBC CHAPTER 17 SPECIAL INSPECTION WHERE REQUIRED.

ARCHITECTUALLY EXPOSED CONCRETE

1. ARCHITECTURALLY EXPOSED CAST-IN-PLACE CONCRETE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI PRC-303, LATEST EDITION, CAST-IN-PLACE ARCHITECTURAL CONCRETE PRACTICE, EXCEPT AS MODIFIED BY THE CONTRACT DOCUMENTS. ACI 303 INDICATES THAT ARCHITECTURAL CONCRETE REQUIRES SPECIAL CARE IN MATERIALS, FORMING, PLACING, CURING, FINISHING, INSPECTION, AND REPAIR.
2. ARCHITECTURALLY EXPOSED CONCRETE IS A PERFORMANCE REQUIREMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR MEANS, METHODS, MATERIALS, FORMWORK, PLACEMENT, CONSOLIDATION, CURING, FINISHING, REPAIR, AND CLEANUP NECESSARY TO ACHIEVE THE SPECIFIED ARCHITECTURAL RESULT.
3. WHERE THE ARCHITECTURAL CONCRETE FINISH IS NOT SPECIFICALLY DEFINED IN THE ARCHITECTURAL DRAWINGS OR SPECIFICATIONS, CONTRACTOR SHALL REQUEST CLARIFICATION PRIOR TO CONSTRUCTION. ARCHITECTURAL REQUIREMENTS SHALL INCLUDE ACCEPTABLE COLOR VARIATION, TEXTURE, BUGHOLES, FORM JOINTS, TIE HOLES, REPAIRS, VIEWING DISTANCE, AND MOCKUP ACCEPTANCE CRITERIA.
4. PROVIDE PRECONSTRUCTION MOCKUP FOR ARCHITECTURALLY EXPOSED CONCRETE WHERE REQUIRED BY THE ARCHITECTURAL DRAWINGS OR SPECIFICATIONS. MOCKUP SHALL INCLUDE REPRESENTATIVE FORM MATERIALS, FORM JOINTS, TIE HOLES, CORNERS, REVEALS, RUSTICATIONS, REPAIRS, SURFACE TREATMENTS, AND CURING PROCEDURES. APPROVED MOCKUP SHALL ESTABLISH THE STANDARD OF ACCEPTANCE FOR FINAL WORK.
5. ARCHITECTURALLY EXPOSED CONCRETE COLUMNS, WALLS, ELEVATED SLABS, AND BEAMS SHALL HAVE SMOOTH-FACED FORM MATERIAL SUITABLE FOR ARCHITECTURAL CONCRETE UNLESS NOTED OTHERWISE BY ARCHITECT. FORM MATERIALS, FORM RELEASE AGENTS, FORM REUSE, FORM REMOVAL, AND CURING SHALL BE CONSISTENT TO MINIMIZE COLOR AND TEXTURE VARIATION.
6. FORM JOINTS SHALL BE TIGHT, ALIGNED, AND SEALED TO MINIMIZE MORTAR LEAKAGE, PASTE LOSS, DISCOLORATION, FINS, RAGGED REVEALS, HONEYCOMBING, BUGHOLES, AND SURFACE DEFECTS. CHAMFER STRIPS, REVEAL STRIPS, RUSTICATION STRIPS, FORM LINERS, AND INSERTS SHALL BE SEALED AT EDGES TO PREVENT LEAKAGE BEHIND THE STRIPS. ACI 303 SPECIFICALLY NOTES THAT SPECIFICATIONS SHOULD REQUIRE FORM JOINTS TO BE SEALED TO MINIMIZE LEAKAGE.
7. CHAMFERS, REVEALS, RUSTICATIONS, AND JOINT LAYOUTS SHALL BE COORDINATED WITH ARCHITECTURAL DRAWINGS PRIOR TO FORM FABRICATION. STRIPS SHALL BE UNIFORM, NONABSORBENT, SUFFICIENTLY STIFF TO MAINTAIN ALIGNMENT DURING CONCRETE PLACEMENT, AND MITERED OR COPED AT INTERSECTIONS. ACI 303 NOTES THAT POORLY FASTENED STRIPS CAN RESULT IN LEAKAGE, RAGGED REVEALS, AND DISCOLORATION.
8. FORM TIES, TIE HOLES, CONES, AND RELATED ACCESSORIES SHALL BE CONSISTENT IN TYPE, SIZE, SPACING, AND LAYOUT. TIE HOLES AT EXPOSED SURFACES SHALL BE RECESSED OR CONED, PATCHED, AND SEALED IN A MANNER ACCEPTABLE TO THE ARCHITECT. PATCHING METHOD SHALL BE DEMONSTRATED IN THE MOCKUP WHERE A MOCKUP IS REQUIRED.
9. TIE WIRE AT OR NEAR EXPOSED SURFACES SHALL BE ANNEALED STAINLESS STEEL OR OTHER NONCORRODING MATERIAL ACCEPTABLE FOR ARCHITECTURAL CONCRETE. TIE WIRES SHALL BE BENT AWAY FROM FORMED SURFACES. TIE WIRE CLIPPINGS, NAILS, FORM HARDWARE, AND OTHER LOOSE FERROUS MATERIALS SHALL BE REMOVED FROM SURFACES THAT WILL BE EXPOSED TO VIEW.
10. CHAIRS, SPACERS, SIDE-FORM SPACERS, BOLSTERS, AND OTHER REINFORCEMENT SUPPORTS LOCATED AT OR NEAR EXPOSED SURFACES SHALL BE PLASTIC, EPOXY-COATED, STAINLESS STEEL, OR OTHER NONSTAINING MATERIALS. CONCRETE BLOCKS SHALL NOT BE USED BETWEEN REINFORCEMENT AND ARCHITECTURALLY EXPOSED FACES DUE TO POTENTIAL COLOR AND TEXTURE DIFFERENCES.
11. REINFORCEMENT, EMBEDS, INSERTS, AND ACCESSORIES SHALL BE SECURELY SUPPORTED TO MAINTAIN REQUIRED CLEAR COVER AND POSITION DURING CONCRETE PLACEMENT. CONFLICTS BETWEEN REINFORCEMENT AND REVEALS, RUSTICATIONS, FORM TIES, OR EMBEDDED ITEMS SHALL BE RESOLVED PRIOR TO PLACEMENT.
12. CONCRETE SHALL BE PLACED AND CONSOLIDATED IN A UNIFORM MANNER TO MINIMIZE BUGHOLES, VOIDS, HONEYCOMBING, LIFT LINES, COLD JOINTS, AND SURFACE DEFECTS. PLACEMENT RATE, LIFT HEIGHT, VIBRATION METHOD, AND VIBRATION DURATION SHALL BE CONSISTENT WITH THE APPROVED MOCKUP AND PROJECT SPECIFICATIONS.
13. WHERE INTERNAL VIBRATION IS RESTRICTED, INACCESSIBLE, OR INEFFECTIVE, CONTRACTOR SHALL USE APPROPRIATE ALTERNATE CONSOLIDATION METHODS. WHERE EXTERNAL FORM VIBRATION IS USED, FORMWORK SHALL BE SPECIFICALLY DESIGNED, BRACED, AND ANCHORED FOR THE ADDITIONAL FORCES GENERATED BY EXTERNAL VIBRATION. ACI 303 NOTES THAT EXTERNAL VIBRATION MAY REQUIRE ADDITIONAL ANCHORS, BRACING, TIES, AND WALERS.
14. REVIBRATION OF ARCHITECTURALLY EXPOSED SLABS MAY BE USED AFTER BLEED WATER HAS SUBSTANTIALLY DISAPPEARED BUT BEFORE INITIAL SET, PROVIDED IT IS COMPATIBLE WITH THE MIX DESIGN, PLACEMENT CONDITIONS, AND PROJECT SPECIFICATIONS. REVIBRATION SHALL NOT BE PERFORMED IN A MANNER THAT CAUSES SEGREGATION, FINISH DEFECTS, OR DISPLACEMENT OF REINFORCEMENT OR EMBEDS.
15. CONCRETE MIXTURES FOR ARCHITECTURALLY EXPOSED CONCRETE SHALL BE PROPORTIONED FOR THE REQUIRED STRUCTURAL PERFORMANCE, DURABILITY, WORKABILITY, CONSOLIDATION, AND ARCHITECTURAL APPEARANCE. CEMENT, AGGREGATE, ADMIXTURES, PIGMENTS, WATER CONTENT, SLUMP, AIR CONTENT, AND DELIVERY SHALL BE CONTROLLED TO MINIMIZE VARIATION IN COLOR, TEXTURE, AND FINISH. ACI 303 IDENTIFIES MATERIALS, MIXTURE CONSISTENCY, DELIVERY, PLACEMENT, CONSOLIDATION, CURING, AND FINISHING AS MAJOR CONTRIBUTORS TO COLOR AND SHADING VARIATION.
16. CURING METHODS AND MATERIALS FOR ARCHITECTURALLY EXPOSED CONCRETE SHALL BE CONSISTENT AND SHALL BE COORDINATED WITH THE DESIRED FINAL APPEARANCE. CURING COMPOUNDS, PLASTIC SHEETING, WET CURING, AND FORM RETENTION MAY AFFECT COLOR, STAINING, OR REPAIR BOND. CURING PROCEDURES SHALL BE EVALUATED ON THE MOCKUP WHERE A MOCKUP IS REQUIRED.
17. CONSTRUCTION JOINTS, CONTROL JOINTS, RUSTICATIONS, REVEALS, AND CRACK-INDUCING DETAILS SHALL BE COORDINATED WITH ARCHITECTURAL JOINT PATTERNS AND STRUCTURAL REQUIREMENTS. UNPLANNED CONSTRUCTION JOINTS IN ARCHITECTURALLY EXPOSED CONCRETE ARE NOT PERMITTED WITHOUT PRIOR APPROVAL.
18. CRACKING IS INHERENT IN CONCRETE CONSTRUCTION. REINFORCEMENT, JOINTS, REVEALS, AND OTHER CRACK CONTROL MEASURES ARE INTENDED TO MANAGE CRACKING, NOT ELIMINATE IT. CRACKS WITHIN SPECIFIED ACCEPTANCE CRITERIA SHALL NOT BE CAUSE FOR REJECTION.
19. REPAIRS TO ARCHITECTURALLY EXPOSED CONCRETE SHALL BE PERFORMED USING MATERIALS AND METHODS ACCEPTABLE TO THE ARCHITECT. REPAIR PROCEDURES SHALL BE DEMONSTRATED IN THE MOCKUP WHERE A MOCKUP IS REQUIRED. COLOR AND TEXTURE MATCH OF REPAIRS SHALL BE EVALUATED AFTER ADEQUATE CURING AND AGING.
20. CLEANING, STAIN REMOVAL, SEALERS, AND COATINGS SHALL BE COORDINATED WITH ARCHITECTURAL REQUIREMENTS. SEALERS AND COATINGS SHALL NOT BE USED UNLESS SPECIFIED OR APPROVED, AND SHALL BE COMPATIBLE WITH JOINT SEALANTS, REPAIR MATERIALS, AND THE DESIRED FINAL APPEARANCE.

CONCRETE MIX REQUIREMENTS

ELEMENT	MIN f'c (PSI)	EXPOSURE CATEGORY	MAX CL-	MAX FLY ASH	MAX W/CM RATIO	NOM MAX COARSE AGG. SIZE	MIN. AIR CONTENT[E]
DRILLED PIERS	3,000	F0,S0,P(W)0,C1	0.30	35%	0.55	3/4"	N/A
CAST-IN-PLACE WALLS	4,000	F0,S0,P(W)0,C1	0.30	20%	0.45	1"	N/A
FLATWORK/SIDEWALK	3,000	F0,S0,P(W)0,C1	0.30	20%	0.60	1"	3% MAX

N/A = MINIMUM AIR CONTENT FOR FREEZE/THAW REQUIREMENTS IS NOT APPLICABLE (APPLIES TO F0 EXPOSURE CATEGORY ONLY)

NOTES:

A. **SHRINKAGE:** CONCRETE MIXES FOR SLABS SHALL HAVE A MAXIMUM LENGTH OF CHANGE OF 0.035% AS TESTED PER ASTM C 157 "STANDARD TEST METHOD FOR LENGTH OF CHANGE OF HARDENED HYDRAULIC-CEMENT MORTAR AND CONCRETE". THE CONTRACTOR SHALL SUBMIT CERTIFICATION THAT THE PROPOSED MIX DESIGN COMPLIES. IT IS ESSENTIAL THAT THE CONCRETE USED IN THESE TESTS BE MADE WITH THE SAME MATERIALS THAT WILL BE USED IN THE ACTUAL CONSTRUCTION. THE PORTLAND CEMENT CONTENT AND THE CONTENT OF OTHER CEMENTITIOUS PRODUCTS, IF USED, SHOULD BE SUFFICIENT TO PERMIT SATISFACTORY FINISHABILITY UNDER THE ANTICIPATED FIELD CONDITIONS. THE SETTING CHARACTERISTICS OF THE CONCRETE SHOULD BE RELATIVELY PREDICTABLE. THE CONCRETE SHOULD NOT EXPERIENCE EXCESSIVE RETARDATION, DIFFERENTIAL SET TIME, OR SURFACE CRUSTING DIFFICULTIES UNDER THE CONDITIONS OF TEMPERATURE AND HUMIDITY EXPECTED ON THE PROJECT. IF A HISTORY OF FINISHING PROPERTIES IS NOT AVAILABLE FOR A CONCRETE MIXTURE, A TEST SLAB SHOULD BE PLACED UNDER JOB CONDITIONS TO EVALUATE THE WORKABILITY, FINISHABILITY, SETTING TIME, SLUMP LOSS, AND APPEARANCE OF THE CONCRETE PROPOSED FOR USE. MATERIALS, INCLUDING ALL ADMIXTURES, EQUIPMENT, AND PERSONNEL PROPOSED FOR THE PROJECT, SHOULD BE USED. THE TEST PANEL SHOULD BE AS LARGE AS POSSIBLE AND AT LEAST 20 X 20 FT, PLACED AT THE SPECIFIED PROJECT THICKNESS. A FLOOR SLAB AREA IN A NONCRITICAL SECTION IS OFTEN CHOSEN AS THE TEST PANEL. THE CONCRETE CONTRACTOR SHOULD REVIEW THE PROPOSED MIXTURE PROPORTIONS BEFORE THE PRECONSTRUCTION MEETING AND PLACEMENT OF THE TEST SLAB. IF A PUMP WILL BE USED FOR THE PLACEMENT OF CONCRETE MATERIALS, THE TEST SLAB SHOULD BE PLACED WITH THE SAME PUMP EQUIPMENT.

B. **PERMEABILITY:** "P(W)X" REFERS TO PERMEABILITY REQUIREMENTS OF THE CONCRETE. WHEN REFERENCING ACI318-11, CATEGORY SHOULD BE READ AS "PX". WHEN REFERENCING ACI318-14 OR ACI318-19, CATEGORY SHOULD BE READ AS "WX".
   a. FOR CONCRETE IDENTIFIED AS BEING EXPOSED TO WATER IN SERVICE ((W)1,2), EVIDENCE SHALL BE SUBMITTED THAT THE CONCRETE MIXTURE COMPLIES WITH (1) AND (2) BELOW:
      • AGGREGATES ARE NOT ALKALI-SILICA REACTIVE OR MEASURES TO MITIGATE ALKALI-SILICA REACTIVITY HAVE BEEN ESTABLISHED.
      • AGGREGATES ARE NOT ALKALI-CARBONATE REACTIVE.
   b. CONCRETE SUPPLIER SHALL SUBMIT CERTIFICATION THAT AGGREGATES DO NOT CONTAIN ANY DELETERIOUS MATERIALS THAT REACT WITH ALKALIS IN THE CONCRETE MIX TO CAUSE EXCESSIVE EXPANSION WHEN EXPOSED TO WET ENVIRONMENTS.
   c. AGGREGATES SHALL BE NON-REACTIVE AS DEMONSTRATED BY ASTM C1260 WITH EXPANSION OF LESS THAN 0.10% AT 14 DAYS OR PER ASTM C1293 WITH EXPANSION OF LESS THAN 0.04% AT 1-YEAR, ELSE REACTIVITY SHALL BE MITIGATED USING SUPPLEMENTARY CEMENTITIOUS MATERIALS (SCMS) PER ASTM C1778 MITIGATION STRATEGIES.
   d. THE TOTAL ALKALI CONTENT CONTRIBUTED FROM CEMENTITIOUS MATERIALS SHALL NOT EXCEED 4.0 LBS/CY OF CONCRETE. CEMENT HAS THE ADDITIONAL REQUIREMENT THAT EQUIVALENT ALKALIS (NA2O + 0.658K2O) DO NOT EXCEED 0.60% ACCORDING TO ASTM C150.

C. **SLUMP:** UNO, THE SLUMP RANGE IS 4" ≤ SLUMP ≤ 8", ALSO WITH ADHERENCE TO TABLE 8.4.1A OF ACI 302.1R-15 FOR CONCRETE PLACED FOR FLOORS. TARGET/DESIGN SLUMP SHALL BE DETERMINED BY THE CONTRACTOR AND CONCRETE PRODUCER BASED UPON HANDLING, PLACING, FINISHING, AND CURING CRITERIA FOR CONCRETE CONSTRUCTION IN ACCORDANCE WITH NRMCA. TARGET SLUMP SHALL NOT EXCEED 8" UNLESS SLUMP FLOW TESTS ARE USED TO VERIFY THE MIX WILL NOT SEGREGATE. IF THE CONTRACTOR IS NOT ABLE TO DETERMINE SLUMP REQUIREMENTS, THEN IT SHALL BE IN ACCORDANCE WITH ACI 301 (SLUMP = 4" ± 1" AT THE POINT OF PLACEMENT). PUMPED CONCRETE LIKELY WILL REQUIRE A SLUMP GREATER THAN 4" AT THE POINT OF DELIVERY TO ACCOUNT FOR SLUMP LOSS DURING PUMPING. THE CONTRACTOR SHALL REJECT MIXES WHEN THE FIELD SLUMP IS NOT WITHIN TOLERANCE OF THE TARGET SLUMP. SLUMP RANGES FOR DRILLED PILES SHALL BE (8" ± 1").

D. UNLESS NOTED OTHERWISE, REMOVAL OF SHORING, BRACING, FORMWORK OR BACKFILLING OF STRUCTURES SHALL NOT OCCUR UNTIL THE CONCRETE HAS OBTAINED A MINIMUM OF 75% OF F'C. SHORING, BRACING, FORMWORK, AND BACKFILLING OPERATIONS ARE MEANS AND METHOD OF CONSTRUCTION AND THUS THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THESE OPERATIONS. QUESTIONS ON CAPACITY OF THE STRUCTURE TO SUPPORT TEMPORARY LOADING CONDITIONS SHALL BE ADDRESSED IN WRITING TO THE ENGINEER. IN MANY CASES, THE CONTRACTOR WILL NEED TO CONSULT A SPECIALTY STRUCTURAL ENGINEER TO DESIGN SHORING, BRACING, ETC., TO FACILITATE THEIR SELECTED MEANS AND METHODS OF CONSTRUCTION.

E. MAXIMUM LIMITS APPLY TO SLABS THAT ARE TO RECEIVE A HARD TROWEL FINISH IS 3%, WITH AN ACCEPTABLE TOLERANCE LIMIT OF +0% / -1%.

F. UNLESS NOTED OTHERWISE, ALL CONCRETE IS TO BE NORMAL-WEIGHT WITH A DENSITY OF 145 PCF ± 2 PCF, TESTED IN ACCORDANCE WITH ASTM C567.

FLOOR FLATNESS AND LEVELNESS

1. THE SLAB FOR THIS PROJECT SHALL ADHERE TO THE CLASSIFICATION OF FLAT (UNO)
   1. SPECIFIED OVERALL VALUES FOR FLATNESS (SOF_F) AND LEVELNESS (SOF_L) SHALL CONFORM TO THE VALUES LISTED BELOW FOR THE FLOOR SURFACE CLASSIFICATION NOTED FOR EACH SLAB CATEGORY NOTED.

CLASSIFICATION	SOF_F	SOF_L	TYPICAL APPLICABILITY OF CLASSIFICATION
2. CONVENTIONAL	20	15	SLABS IN NONPUBLIC AREAS, MECHANICAL ROOMS, SURFACES TO HAVE THICK-SET TILE OR A TOPPING, AND PARKING STRUCTURES
3. MODERATELY FLAT	25	20	CARPETED AREAS
4. FLAT	35	25	INDUSTRIAL SLABS, EXPOSED SLABS IN PUBLIC SPACES, SLABS TO RECEIVE THIN-SET FLOORING
5. VERY FLAT	45	35	ICE OR ROLLER RINKS: GYMNASIUM FLOORS SCHEDULED TO RECEIVE WOOD PLAYING FLOOR, POLISHED CONCRETE FINISH
6. SUPER FLAT	60	40	MOVIE OR TELEVISION STUDIOS

2. MINIMUM LOCAL VALUES FOR FLATNESS (MLF_F) AND LEVELNESS (MLF_L) SHALL EQUAL 3/5 OF THE SOF_F AND SOF_L VALUES, RESPECTIVELY, UNLESS NOTED OTHERWISE. **<FOR INDUSTRIAL SLABS, MLF_F SHALL BE 23 AND MLF_L SHALL BE 17.>** THE MLF_F AND MLF_L VALUES SHALL APPLY TO THE MINIMUM AREAS BOUNDED BY THE COLUMN LINES AND HALF-COLUMN LINES, OR THE MINIMUM AREAS BOUNDED BY THE CONSTRUCTION AND CONTRACTION JOINTS, WHICHEVER ARE THE SMALLER AREAS.
3. THE SOF_L AND MFL_L TOLERANCE VALUES SHALL APPLY ONLY TO LEVEL SLABS-ON-GROUND OR TO LEVEL, UNCAMBERED SUSPENDED SLABS THAT ARE SHORED SUCH THAT IT CANNOT DEFLECT FROM THE TIME THE FLOOR IS PLACED TO THE TIME IT IS MEASURED.
4. SLABS SPECIFIED TO SLOPE SHALL HAVE A TOLERANCE FROM THE SPECIFIED SLOPE OF 3/8" IN 10 FEET AT ANY POINT.
5. REMEDIAL MEASURES FOR SLABS-ON-GROUND INCLUDE GRINDING, PLANNING, SURFACE REPAIR, RETOPPING, OR REMOVAL AND REPLACEMENT. FOR SUSPENDED SLABS, REMEDIAL MEASURES ARE LIMITED TO GRINDING OR USE OF AN UNDERLAYMENT OR TOPPING MATERIAL. THE ACCEPTABLE CORRECT METHOD(S) WILL BE DETERMINED BASED ON LEVEL ON NON-CONFORMANCE SPECIFIC FOR THIS PROJECT.
6. INITIAL FLOOR FLATNESS SHALL BE MEASURED **WITHIN 48 HOURS** AFTER THE COMPLETION OF FINISHING OPERATIONS, IN ACCORDANCE WITH ASTM E 1155.

STRUCTURAL STEEL - 05 12 00 (FOR ARCH BUILDING SYSTEMS)

1. GENERAL
   A. THE ARCH BUILDING SYSTEM IS A DELEGATED DESIGN COMPONENT. THE DESIGN OF THE ARCH BUILDING SYSTEM, INCLUDING ARCH PANELS, ENDWALLS, OPENING REINFORCEMENT, CONNECTIONS, BRACING, ATTACHMENTS, AND ALL STRUCTURAL COMPONENTS NOT SPECIFICALLY SHOWN ON THESE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE ARCH BUILDING SYSTEM ENGINEER.
   B. STRUCTURAL STEEL NOTES CONTAINED HEREIN APPLY ONLY TO STRUCTURAL STEEL SPECIFICALLY DESIGNED BY THE ENGINEER OF RECORD. STRUCTURAL COMPONENTS PROVIDED AS PART OF THE ARCH BUILDING SYSTEM SHALL COMPLY WITH THE APPROVED DELEGATED DESIGN SUBMITTAL.
   C. THE CONTRACTOR SHALL NOTIFY THE ARCH BUILDING SYSTEM ENGINEER OF ANY MISFABRICATED, DAMAGED, OR MODIFIED ARCH BUILDING SYSTEM COMPONENTS PRIOR TO ERECTION.
   D. PENETRATIONS SHALL NOT BE CUT IN ARCH BUILDING SYSTEM COMPONENTS UNLESS SPECIFICALLY SHOWN ON THE APPROVED DELEGATED DESIGN SUBMITTAL OR APPROVED IN WRITING BY THE ARCH BUILDING SYSTEM ENGINEER.
2. MATERIALS
   A. ANCHOR RODS: UNO, SHALL BE ASTM F1554 GRADE 55 S1 STRAIGHT ANCHORS WITH TACK-WELDED HEAVY HEX NUT AT THE EMBEDDED END. BENT (L-BOLT) ANCHORS ARE NOT ALLOWED. ANCHOR RODS AND WASHERS/NUTS FOR MEMBERS THAT ARE NOT IN PERMANENTLY CONDITIONED SPACE SHALL BE HOT-DIP GALVANIZED.
      a. THE CONTRACTOR SHALL CONDUCT AN ANCHOR ROD SURVEY PRIOR TO PLACEMENT OF CONCRETE AND SHALL TAKE MEASURES TO PROTECT THE ANCHORS FROM DAMAGE DURING THE COURSE OF CONSTRUCTION. MISPLACED OR DAMAGED ANCHOR RODS WHICH REQUIRE A REMEDIATION DETAIL CAN BE PROVIDED BY THE ENGINEER PER OUR HOURLY BILLING RATES.
   B. WELD ELECTRODES SHALL BE E70XX.
3. PROTECTION
   A. PROTECTED - STEEL LOCATED WITHIN PERMANENTLY CONDITIONED, NON-CORROSIVE SPACE AND WITHIN THE BUILDING ENVELOPE DOES NOT REQUIRE SHOP PAINT/PRIMER UNLESS STEEL WILL BE EXPOSED TO THE ELEMENTS FOR A YEAR OR MORE DURING CONSTRUCTION.
   B. UNPROTECTED - ALL STEEL LOCATED IN UNCONDITIONED SPACE AND/OR OUTSIDE THE BUILDING ENVELOPE SHALL EITHER BE HOT-DIP GALVANIZED OR PAINTED WITH A ZINC RICH PRIMER MEETING SSPC PAINTING SYSTEM NO.12 ONE COAT ZINC RICH PAINTING SYSTEM AND THEN PAINTED WITH A CORROSION INHIBITING HIGH PERFORMANCE PAINT AS SPECIFIED BY THE ARCHITECT. THE CONTRACTOR SHALL PREPARE THE STEEL IN ACCORDANCE WITH THE GALVANIZING OR PAINT MFRS. REQUIREMENTS.
      a. WHERE GALVANIZATION IS REQUIRED, STRUCTURAL STEEL MEMBERS, FABRICATIONS, AND WELDED ASSEMBLIES SHALL BE GALVANIZED AFTER FABRICATION BY HOT DIP PROCESS IN ACCORDANCE WITH ASTM A123. WEIGHT OF ZINC COATING SHALL CONFORM TO THE REQUIREMENTS SPECIFIED UNDER "WEIGHT OF COATING" IN ASTM A123 OR ASTM A386, AS APPLICABLE. THE AFFECTED PORTIONS OF FIELD WELDED GALVANIZED ASSEMBLIES SHALL BE FIELD PAINTED WITH ZINC RICH CORROSION RESISTANT PAINT.
      b. IF PAINT IS SPECIFIED ON A MEMBER THAT IS ALSO GALVANIZED (DUPLEX SYSTEM), THEN THE CONTRACTOR SHALL FOLLOW ASTM D6386: PRACTICE FOR PREPARATION OF ZINC (HOT-DIP GALVANIZED) COATED IRON AND STEEL PRODUCT AND HARDWARE SURFACES FOR PAINTING AND THE AMERICAN GALVANIZERS ASSOCIATION PUBLICATION "GUIDE TO PREPARING HOT-DIP GALVANIZED STEEL FOR PAINT"
         • REPAIR OF DAMAGED AND UNCOATED AREA OF HOT-DIP GALVANIZED COATINGS USING PAINTS CONTAINING ZINC DUST (ZINC RICH PAINT OR "COLD GALVANIZING")
            1. MATERIAL
               A. THE PAINT SHALL ADHERE TO ASTM A780, AND SSPC PAINT 20.
               B. ZINC DUST LEVEL – LEVEL 1 (≥ 85% ZINC DUST BY WEIGHT PRESENT IN DRY FILM)
               C. THE ZINC DUST MUST CONFORM TO ASTM D520, TYPE III.
            2. PRE-APPROVED PRODUCTS:
               A. ZRC® COLD GALVANIZING COMPOUND
               B. RUST-OLEUM 7000 SYSTEM COLD GALVANIZING COMPOUND
               C. HUB TRU-GALV® ZINC RICH COLD GALVANIZING SPRAY PAINT COMPOUND
            3. CLEANER / DEGREASER
               A. AN APPROPRIATE CLEANER OR DEGREASER TO REMOVE CONTAMINANTS FROM THE SURFACE PRIOR TO PAINTING.
            4. SURFACE PREPARATION
               A. CLEAN THE SURFACE TO BARE METAL, IN ACCORDANCE WITH SSPC-SP11 (POWER TOOL CLEAN TO BARE METAL), AS A MINIMUM. [ASTM A780-20 §A2.1.2. WHERE CIRCUMSTANCES DO NOT ALLOW BLAST OR POWER TOOL CLEANING, HAND TOLL AREAS CLEAN IN ACCORDANCE WITH SSPC-SP2. [ASTM A780-20 §A2.1.2]. *THESE AREAS MUST BE IDENTIFIED BY THE CONTRACTOR TO THE DESIGN TEAM FOR APPROVAL BEFORE PROCEEDING.*
               B. SURFACE PREPARATION SHALL EXTEND INTO THE SURROUNDING, UNDAMAGED GALVANIZED COATING. [ASTM A780-20 §A2.1.2]
               C. IF THE AREA TO BE RECONDITIONED INCLUDES WELDS, FIRST REMOVE ALL WELD FLUX RESIDUE AND WELD SPATTER (OF A SIZE THAT CANNOT BE REMOVED BY WIRE BRUSHING OR BLAST CLEANING) BY MECHANICAL MEANS, SUCH AS CHIPPING, GRINDING, OR POWER SCALING, ETC. [ASTM A780-20 §A2.1.3]
            5. CLEANING - ALL SURFACES TO BE PAINTED SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP 1 TO REMOVE OIL, GREASE, AND OTHER CONTAMINANTS.
            6. APPLICATION
               A. SPRAY OR BRUSH-APPLY THE PAINTS CONTAINING ZINC DUST TO THE PREPARED AREA. APPLY THE PAINT AS IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS IN A SINGLE APPLICATION EMPLOYING MULTIPLE PASSES TO ACHIEVE A DRY FILM THICKNESS TO BE A MINIMUM OF 2.5 MILS, UNLESS A THICKER COATING IS SPECIFIED BY THE MFR. THE COATING THICKNESS FOR THE PAINT MUST BE 50% MORE THAN THE SURROUNDING COATING THICKNESS, BUT DO NOT EXCEED A DRY FILM THICKNESS OF 4.0 MILS. ALLOW ADEQUATE CURING TIME BEFORE SUBJECTING REPAIRED ITEMS TO SERVICE CONDITIONS IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS. [ASTM A780-20 §A2.1.4]
            7. *QUALITY CONTROL*
               A. *THE CONTRACTOR SHALL* "TAKE THICKNESS MEASUREMENTS WITH EITHER A MAGNETIC, ELECTROMAGNETIC, OR EDDY-CURRENT GAUGE TO ENSURE THAT THE APPLIED COATING IS AS SPECIFIED IN ACCORDANCE WITH SSPC-PA2." [ASTM A780-20 §A2.1.5]. *SUBMIT FIELD REPORTS OF THE MEASURED DRY FILM THICKNESS AND MEASURING METHOD TO THE DESIGN TEAM.*
            8. *MAINTENANCE*
               a. *THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A PERIODIC MAINTENANCE PLAN FOR RE-APPLICATION OF COLD GALVANIZATION AS REQUIRED.*
      c. WHERE A PAINT SYSTEM FOR UNPROTECTED STEEL IS NOT SPECIFIED BY THE ARCHITECT, AND THE PAINT IS NOT VISIBLE IN THE FINAL CONDITION, THE PAINT SYSTEM SHALL BE A MOISTURE-CURE URETHANE COATING IN ADHERENCE TO INDUSTRY SPECIFICATION - SSPC PAINT 41 AND SHALL PROVIDE A MINIMUM 15-YEAR WARRANTY. PRE-APPROVED PRODUCTS ARE LISTED BELOW, THE CONTRACTOR MAY SUBMIT EQUIVALENT PRODUCTS FOR REVIEW.
         1. THE SUPERIOR PRODUCTS INTERNATIONAL II, INC. - RUST GRIP
         2. SHERWIN WILLIAMS - COROTHANE I IRONOX
4. WELDING
   A. THE REQUIREMENTS OF THIS SECTION APPLY ONLY TO STRUCTURAL STEEL COMPONENTS SPECIFICALLY DETAILED ON THESE DRAWINGS AND DO NOT APPLY TO COMPONENTS PROVIDED AS PART OF THE ARCH BUILDING SYSTEM DELEGATED DESIGN.
   B. WELDING SHALL CONFORM TO AWS D1.1.
   C. FIELD WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS.
   D. ALL COMPLETED WELDS SHALL BE CLEANED IN ACCORDANCE WITH AWS D1.1 PRIOR TO APPLICATION OF PAINT, GALVANIZING, OR OTHER COATINGS.
   E. FIELD WELDS ON GALVANIZED MEMBERS SHALL BE REPAIRED WITH ZINC-RICH PAINT IN ACCORDANCE WITH ASTM A780.
   F. FOR CONNECTIONS NOT SPECIFICALLY DETAILED ON THESE DRAWINGS, PROVIDE FILLET WELDS SUFFICIENT TO DEVELOP THE TENSILE STRENGTH OF THE SMALLER CONNECTED ELEMENT UNLESS NOTED OTHERWISE.
5. CORROSION PROTECTION
   A. STEEL EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 OR PROTECTED BY AN APPROVED CORROSION-RESISTANT COATING SYSTEM.
   B. DAMAGED GALVANIZED SURFACES AND FIELD WELDS SHALL BE REPAIRED IN ACCORDANCE WITH ASTM A780.
6. GROUT
   A. GROUT BELOW STRUCTURAL STEEL BASEPLATES SHALL BE NON-METALLIC, NON-SHRINK GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF [$2 \times f'_c$] OF THE CONCRETE ON WHICH IT BEARS UPON.
   B. GROUT SHALL CONFORM TO CORPS OF ENGINEERS SPECIFICATION FOR NON-SHRINK GROUT, CE-CRD-C621. TWENTY-EIGHT DAY COMPRESSIVE STRENGTH AS DETERMINED BY GROUT CUBE TESTS, SHALL BE 5,000 PSI. MINIMUM THICKNESS OF GROUT UNDER ALL BASEPLATES AND BEARING PLATES SHALL BE 1½ INCH, UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS.
   C. GROUT SHALL BE PLACED IN A FLUID FLOWABLE STATE UNDER BASE PLATES THAT HAVE A FORM BUILT AROUND THEM FOR GROUT CONFINEMENT. GROUT SHOULD BE CURED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

ARCH BUILDING SYSTEM DESIGN CRITERIA

FOR THE PURPOSES OF THESE NOTES, THE TERM "ARCH BUILDING SYSTEM" SHALL REFER TO THE COMPLETE PRE-ENGINEERED OR PROPRIETARY ARCH-TYPE BUILDING STRUCTURE, INCLUDING BUT NOT LIMITED TO QUONSET HUTS, STEEL ARCH BUILDINGS, AND SIMILAR SYSTEMS. THE TERM "ARCH BUILDING SYSTEM MANUFACTURER" SHALL REFER TO THE ENTITY RESPONSIBLE FOR THE ENGINEERING, DESIGN, FABRICATION, AND SUPPLY OF THE ARCH BUILDING SYSTEM. THE TERM "ARCH BUILDING SYSTEM ENGINEER" SHALL REFER TO THE LICENSED PROFESSIONAL ENGINEER RESPONSIBLE FOR THE DESIGN OF THE ARCH BUILDING SYSTEM.

A. THE ARCH BUILDING SYSTEM SHALL BE A DELEGATED DESIGN COMPONENT AND SHALL BE SUBMITTED AS A DEFERRED SUBMITTAL IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT. THE SUBMITTAL SHALL INCLUDE FOUNDATION REACTIONS, ANCHORAGE LOADS, DESIGN ASSUMPTIONS, AND ALL DESIGN CRITERIA USED FOR THE BUILDING SYSTEM.
B. SUBMIT FOUNDATION REACTIONS, ANCHORAGE LOADS, AND ANCHOR ROD PLACEMENT REQUIREMENTS A MINIMUM OF 10 DAYS PRIOR TO FOUNDATION CONSTRUCTION OR SUBMISSION OF ERECTION DRAWINGS, WHICHEVER OCCURS FIRST. THE CONTRACTOR SHALL COORDINATE FINAL FOUNDATION REQUIREMENTS WITH THE STRUCTURAL ENGINEER AFTER RECEIPT OF FINAL REACTIONS FROM THE ARCH BUILDING SYSTEM MANUFACTURER. THE CONTRACTOR SHALL COORDINATE AND INCORPORATE ALL FOUNDATION REQUIREMENTS NECESSARY TO ACCOMMODATE THE FINAL BUILDING REACTIONS.
C. THE ARCH BUILDING SYSTEM MANUFACTURER SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE ENGINEERED BUILDING PACKAGE INCLUDING, BUT NOT LIMITED TO, ARCH PANELS, ENDWALLS, OPENING REINFORCEMENT, BRACING, CONNECTIONS, ANCHORAGE REQUIREMENTS, TRIM, FRAMING MEMBERS, AND ALL STRUCTURAL COMPONENTS NECESSARY TO PROVIDE A COMPLETE LOAD PATH AND STRUCTURAL SYSTEM.
D. THE ARCH BUILDING SYSTEM MANUFACTURER SHALL REVIEW ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND OTHER CONTRACT DOCUMENTS AND SHALL MAKE PROVISIONS FOR THE SUPPORT OF ALL ELEMENTS DESIGNATED TO BE SUPPORTED BY THE BUILDING SYSTEM INCLUDING SUSPENDED EQUIPMENT, PIPING, DUCTWORK, SOLAR PANELS, CEILINGS, PARTITIONS, CLADDING, AND OTHER ATTACHED ELEMENTS. ANY OMITTED ITEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND ARCH BUILDING SYSTEM SUPPLIER.
E. THE ENGINEER OF RECORD'S STRUCTURAL SCOPE IS LIMITED TO FOUNDATION DESIGN AND REVIEW OF DELEGATED DESIGN SUBMITTALS FOR GENERAL CONFORMANCE WITH THE DESIGN INTENT. ANY STRUCTURAL MEMBERS SHOWN ON THE CONTRACT DOCUMENTS ARE SCHEMATIC IN NATURE AND ARE PROVIDED FOR REFERENCE ONLY. THE ARCH BUILDING SYSTEM MANUFACTURER SHALL BE RESPONSIBLE FOR THE COMPLETE DESIGN OF THE BUILDING SYSTEM INCLUDING GRAVITY LOAD RESISTING SYSTEMS, LATERAL LOAD RESISTING SYSTEMS, ENDWALL FRAMING, OPENING FRAMING, SUPPORT FRAMING, CONNECTIONS, AND ALL REQUIRED BRACING.
F. NO EXCLUSIONS FROM PROVIDING A COMPLETE STRUCTURAL BUILDING PACKAGE SHALL BE ACCEPTED. THE BUILDING PACKAGE SHALL INCLUDE ALL STRUCTURAL COMPONENTS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION. EXCLUSIONS FOR ENDWALLS, DOOR FRAMING, WINDOW FRAMING, OPENING REINFORCEMENT, OR OTHER STRUCTURAL COMPONENTS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY IDENTIFIED ON THE CONTRACT DOCUMENTS.
G. MINIMUM SHOP DRAWING REQUIREMENTS:
   1. OVERALL BUILDING DIMENSIONS.
   2. ARCH SPACING, PANEL THICKNESS, PANEL CONFIGURATION, CONNECTION DETAILS, AND MEMBER SIZES.
   3. LOCATIONS OF OPENINGS, ENDWALL FRAMING, BRACING, ATTACHMENTS, AND ACCESSORIES.
   4. DESIGN LOADS, LOAD COMBINATIONS, AND DRIFT/DEFLECTION LIMITS.
   5. GENERAL ERECTION DETAILS.
   6. ANCHORAGE DETAILS INCLUDING ANCHOR ROD SIZE, LOCATIONS, AND INSTALLATION REQUIREMENTS.
   7. FOUNDATION REACTIONS INCLUDING INDIVIDUAL LOAD CASE REACTIONS AND MAXIMUM FACTORED ENVELOPE REACTIONS.
   8. WELDING REQUIREMENTS AND CONNECTION DETAILS.
   9. SPECIAL INSPECTION REQUIREMENTS, IF APPLICABLE.
   10. ERECTION SEQUENCE REQUIREMENTS AND TEMPORARY BRACING REQUIREMENTS.
   11. SEALED STRUCTURAL CALCULATIONS.
   12. OPENING REINFORCEMENT DETAILS.
   13. FOUNDATION LOAD SCHEDULES.
   14. DESIGN ASSUMPTIONS USED IN THE BUILDING ANALYSIS.
H. GENERAL: DESIGN, FABRICATE, AND ERECT THE ARCH BUILDING SYSTEM TO RESIST ALL APPLICABLE DEAD, LIVE, WIND, SEISMIC, SNOW, RAIN, COLLATERAL, AND OTHER CODE-REQUIRED LOADS WITHOUT FAILURE. THE SYSTEM SHALL ACCOMMODATE THERMAL MOVEMENTS AND IN-SERVICE CONDITIONS WITHOUT CAUSING STRUCTURAL DISTRESS.
I. DESIGN LOADS SHALL BE AS INDICATED IN THE PROJECT DESIGN CRITERIA.
   1. BASIC LOADS INCLUDE DEAD, LIVE, WIND, SEISMIC, RAIN, AND SNOW LOADS.
   2. COLLATERAL LOADS INCLUDE SPRINKLER SYSTEMS, HVAC EQUIPMENT, SOLAR PANELS, CEILINGS, AND OTHER ATTACHED ELEMENTS.
   3. AUXILIARY LOADS INCLUDE CRANES, MONORAILS, CONVEYORS, OR OTHER SPECIALTY EQUIPMENT WHEN APPLICABLE.
J. STRUCTURAL DESIGN SHALL COMPLY WITH THE CURRENTLY ADOPTED BUILDING CODE AND REFERENCED STANDARDS INCLUDING:
   1. INTERNATIONAL BUILDING CODE (IBC).
   2. ASCE 7 FOR LOAD DETERMINATION.
   3. AISI S100 FOR COLD-FORMED STEEL STRUCTURAL MEMBERS, INCLUDING COLD-FORMED ARCH PANELS AND COLD-FORMED FRAMING COMPONENTS.
   4. AISC 360 FOR HOT-ROLLED OR STRUCTURAL STEEL MEMBERS NOT GOVERNED BY AISI S100, IF PROVIDED AS PART OF THE BUILDING SYSTEM.
   5. AWS D1.1 FOR WELDING OF STRUCTURAL STEEL.
   6. AWS D1.3 FOR WELDING OF SHEET STEEL, IF APPLICABLE.
   7. ALL APPLICABLE MANUFACTURER DESIGN MANUALS, ICC-ES REPORTS, TESTING DATA, OR OTHER CODE-APPROVED DESIGN INFORMATION FOR THE PROPRIETARY ARCH BUILDING SYSTEM.
K. DEFLECTION AND DRIFT LIMITATIONS SHALL BE PROVIDED BY THE ARCH BUILDING SYSTEM ENGINEER AND SHALL BE COMPATIBLE WITH ATTACHED ARCHITECTURAL FINISHES, OPENINGS, PARTITIONS, AND OTHER BUILDING COMPONENTS. DEFLECTION CRITERIA SHALL BE IDENTIFIED ON THE SUBMITTAL DOCUMENTS.
L. ARCHITECTURAL FINISHES, EXTERIOR STUD WALLS, AND INTERIOR PARTITIONS SHALL BE DETAILED TO ACCOMMODATE BUILDING MOVEMENT WITHOUT ATTRACTING LOADS FROM THE ARCH BUILDING SYSTEM. SLIP CONNECTIONS SHALL BE PROVIDED WHERE REQUIRED.
M. THE ARCH BUILDING SYSTEM ENGINEER SHALL IDENTIFY ALL REQUIRED SPECIAL INSPECTIONS AND TESTING ASSOCIATED WITH THE BUILDING SYSTEM. A STATEMENT OF SPECIAL INSPECTIONS SHALL BE INCLUDED WITH THE DEFERRED SUBMITTAL PACKAGE.
N. THE CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS PRIOR TO FABRICATION.
O. ANCHORAGE TO FOUNDATION
   1. UNLESS NOTED OTHERWISE, ANCHOR RODS SHALL BE ASTM F1554 GRADE 36.
   2. BENT (L-SHAPED) ANCHOR RODS SHALL NOT BE USED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER OF RECORD.
   3. THE ARCH BUILDING SYSTEM ENGINEER SHALL PROVIDE ALL DESIGN LOADS REQUIRED FOR FOUNDATION AND ANCHORAGE DESIGN INCLUDING TENSION, SHEAR, COMBINED TENSION AND SHEAR, OVERTURNING FORCES, COLLECTOR FORCES, DRAG FORCES, AND ALL OTHER LOAD EFFECTS NECESSARY FOR FOUNDATION DESIGN.
   4. ANCHOR ROD SIZE, QUANTITY, SPACING, EMBEDMENT, EDGE DISTANCES, AND FOUNDATION REINFORCEMENT SHALL BE DESIGNED BY THE ENGINEER OF RECORD BASED UPON LOADS PROVIDED BY THE ARCH BUILDING SYSTEM ENGINEER UNLESS SPECIFICALLY NOTED OTHERWISE.
   5. THE CONTRACTOR SHALL VERIFY ANCHOR ROD LOCATIONS PRIOR TO CONCRETE PLACEMENT AND SHALL PROTECT ANCHORS FROM DAMAGE DURING CONSTRUCTION.
   6. MISPLACED OR DAMAGED ANCHOR RODS REQUIRING REMEDIATION DETAILS MAY BE ADDRESSED BY THE ENGINEER AS AN ADDITIONAL SERVICE PER OUR HOURLY BILLING RATES.
P. THE DEFERRED SUBMITTAL SHALL CLEARLY IDENTIFY THE BUILDING'S LATERAL LOAD RESISTING SYSTEM INCLUDING ARCH ACTION, DIAPHRAGM ACTION, ENDWALL BRACING, COLLECTORS, DRAG MEMBERS, TENSION MEMBERS, AND ALL OTHER COMPONENTS REQUIRED TO TRANSFER LOADS TO THE FOUNDATION. THE ARCH BUILDING SYSTEM ENGINEER SHALL BE RESPONSIBLE FOR THE COMPLETE LOAD PATH FROM THE ARCH PANELS THROUGH ALL CONNECTORS, BRACING, COLLECTORS, ENDWALL FRAMING, OPENING REINFORCEMENT, ATTACHMENTS, AND CONNECTIONS TO THE FOUNDATION REACTION POINTS.
Q. ALL ENDWALL FRAMING SHALL BE DESIGNED BY THE ARCH BUILDING SYSTEM ENGINEER UNLESS SPECIFICALLY NOTED OTHERWISE. WHERE CUSTOM ENDWALLS ARE PROVIDED BY OTHERS, THE CONTRACTOR SHALL COORDINATE DESIGN BETWEEN THE ENDWALL ENGINEER AND THE ARCH BUILDING SYSTEM ENGINEER. THE ARCH BUILDING SYSTEM SHALL NOT RELY UPON NON-ENGINEERED ENDWALLS, PARTITIONS, CLADDING, OR OTHER NON-STRUCTURAL COMPONENTS FOR LATERAL STABILITY.
R. ALL DOOR OPENINGS, WINDOW OPENINGS, LOUVERS, VENTS, MECHANICAL OPENINGS, SIDE OPENINGS, PARTIAL SIDE OPENINGS, FRAMED WALL OPENINGS, CANOPY OPENINGS, AND OTHER INTERRUPTIONS OF THE STANDARD ARCH GEOMETRY SHALL BE DESIGNED, DETAILED, AND REINFORCED BY THE ARCH BUILDING SYSTEM ENGINEER AND INCLUDED IN THE DELEGATED DESIGN SUBMITTAL. SHOP DRAWINGS SHALL CLEARLY IDENTIFY ALL REQUIRED REINFORCEMENT AND CONNECTION REQUIREMENTS.
S. FIELD CUTTING, DRILLING, WELDING, OR MODIFICATION OF STRUCTURAL ARCH PANELS SHALL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE ARCH BUILDING SYSTEM ENGINEER. ANY MODIFICATIONS REQUIRED FOR MEP PENETRATIONS, ATTACHMENTS, OR OPENINGS SHALL BE REVIEWED AND APPROVED PRIOR TO INSTALLATION.
T. THE ARCH BUILDING SYSTEM MANUFACTURER SHALL IDENTIFY THE MAXIMUM ALLOWABLE SUPERIMPOSED LOADS FOR SUSPENDED MECHANICAL EQUIPMENT, PIPING, SPRINKLER SYSTEMS, SOLAR PANELS, CEILINGS, STORAGE SYSTEMS, AND OTHER ATTACHED ELEMENTS. ALL ATTACHED LOADS SHALL BE INCLUDED IN THE BUILDING DESIGN. THE DELEGATED DESIGN SUBMITTAL SHALL CLEARLY IDENTIFY ALL ASSUMED COLLATERAL LOADS, SUPERIMPOSED DEAD LOADS, MECHANICAL LOADS, SPRINKLER LOADS, SOLAR LOADS, AND OTHER APPLIED LOADS USED IN THE BUILDING DESIGN.
U. FOR PROJECTS WITH ATTACHED CANOPIES, AWNINGS, OVERHANGS, OR APPURTENANCES NOT PROVIDED BY THE ARCH BUILDING SYSTEM MANUFACTURER, THE MANUFACTURER SHALL COORDINATE THE DESIGN OF THE SUPPORTING STRUCTURE. THE ATTACHED ELEMENT SUPPLIER SHALL PROVIDE REACTIONS AND SUPPORT REQUIREMENTS TO THE ARCH BUILDING SYSTEM ENGINEER. THE ARCH BUILDING SYSTEM ENGINEER SHALL REVIEW AND APPROVE ALL ATTACHMENT DETAILS PRIOR TO FABRICATION.
V. THE DEFERRED SUBMITTAL SHALL PROVIDE A COMPLETE FOUNDATION LOAD SCHEDULE INCLUDING ALL GRAVITY, UPLIFT, SHEAR, AXIAL, DRAG, COLLECTOR, OVERTURNING, AND OTHER FORCES REQUIRED FOR FOUNDATION DESIGN. REACTIONS SHALL BE PROVIDED FOR ALL APPLICABLE LOAD COMBINATIONS. LOADS SHALL BE PROVIDED AT EACH FOUNDATION SUPPORT LOCATION AND SHALL INCLUDE MAXIMUM FACTORED ENVELOPE VALUES AS WELL AS INDIVIDUAL LOAD CASE REACTIONS.
W. THE ERECTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING ERECTION. TEMPORARY BRACING REQUIRED FOR CONSTRUCTION STAGES SHALL BE DESIGNED AND PROVIDED BY THE ERECTOR UNLESS SPECIFICALLY INCLUDED IN THE MANUFACTURER'S ERECTION DOCUMENTS.
X. THE ARCH BUILDING SYSTEM ENGINEER SHALL BE RESPONSIBLE FOR THE COMPLETE DESIGN OF THE ARCH BUILDING SYSTEM INCLUDING STRUCTURAL ANALYSIS, MEMBER DESIGN, CONNECTION DESIGN, STABILITY, BRACING, OPENING REINFORCEMENT, ATTACHMENTS, AND ALL LOAD PATHS REQUIRED TO TRANSFER DESIGN LOADS TO THE FOUNDATION REACTION POINTS. THE DELEGATED DESIGN SUBMITTAL SHALL CLEARLY IDENTIFY ALL DESIGN ASSUMPTIONS USED IN THE ANALYSIS AND DESIGN OF THE BUILDING SYSTEM.

DRILLED PIERS

1. GOVERNING STANDARDS
   A. DRILLED PIERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI SPEC-336.1 AND FHWA-NHI-10-016, EXCEPT AS MODIFIED BY THE CONTRACT DOCUMENTS. WHERE CONFLICTS OCCUR, THE CONTRACT DOCUMENTS SHALL GOVERN.
2. GEOTECHNICAL REPORT AND AUTHORITY
   A. THE GEOTECHNICAL REPORT IS PROVIDED FOR DESIGN INTENT AND CONSTRUCTION GUIDANCE ONLY. SUBSURFACE CONDITIONS MAY VARY FROM THOSE INDICATED. THE CONTRACTOR SHALL INCLUDE REASONABLE ALLOWANCES FOR VARIATIONS ENCOUNTERED.
   B. THE PROJECT GEOTECHNICAL ENGINEER SHALL BE THE SOLE AUTHORITY FOR DETERMINING ACCEPTABLE BEARING MATERIALS, REQUIRED BEARING DEPTHS, AND FINAL PIER TIP ELEVATIONS.
3. UTILITY AND OBSTRUCTION VERIFICATION
   A. PRIOR TO DRILLING, THE CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITIES, FOUNDATIONS, STRUCTURES, AND SUBSURFACE OBSTRUCTIONS. IN ADDITION TO CONTACTING 811, THE CONTRACTOR SHALL USE APPROPRIATE VERIFICATION METHODS INCLUDING PRIVATE UTILITY LOCATES, GPR, POTHOLING, OR EXPLORATORY EXCAVATION.
   B. DRILLING SHALL NOT PROCEED UNTIL CONFLICTS ARE RESOLVED AND REVIEWED WITH THE ENGINEER. DAMAGE TO UNVERIFIED UTILITIES OR OBSTRUCTIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
4. EXCAVATION OBSERVATION AND APPROVAL
   A. EACH DRILLED PIER EXCAVATION SHALL BE INSPECTED BY A REPRESENTATIVE OF THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF REINFORCEMENT OR CONCRETE. CONCRETE PLACEMENT WITHOUT REQUIRED INSPECTION SHALL BE GROUNDS FOR REJECTION.
5. EXCAVATION CLEANLINESS AND TIMING
   A. EXCAVATIONS SHALL BE FREE OF LOOSE MATERIAL AND WATER PRIOR TO CONCRETE PLACEMENT. REMOVE ALL LOOSE MATERIAL EXCEEDING 3 INCHES IN DIMENSION AND STANDING WATER EXCEEDING 6 INCHES IN DEPTH.
   B. CONCRETE SHALL BE PLACED IMMEDIATELY FOLLOWING INSPECTION AND APPROVAL OF THE EXCAVATION.
6. STABILIZATION OF EXCAVATIONS
   A. WHERE UNSTABLE SOILS OR GROUNDWATER ARE ENCOUNTERED, THE CONTRACTOR SHALL PROVIDE EXCAVATION SUPPORT USING TEMPORARY CASING, SLURRY DISPLACEMENT, OR OTHER APPROVED MEANS AS APPROVED BY THE GEOTECHNICAL ENGINEER OF RECORD.
   B. TEMPORARY CASING SHALL BE WATERTIGHT AND OF SUFFICIENT STRENGTH AND LENGTH TO MAINTAIN SHAFT STABILITY.
   C. SLURRY DISPLACEMENT METHODS SHALL MAINTAIN FLUID LEVELS AT LEAST 5 FEET ABOVE GROUNDWATER AND UNSTABLE STRATA.
   D. UNIT PRICES PER LINEAR FOOT FOR CASING AND SLURRY METHODS SHALL BE INCLUDED IN THE BID.
7. PIER LENGTH COORDINATION AND ADJUSTMENTS
   A. THE CONTRACTOR SHALL COORDINATE CIVIL GRADING PLANS, STRUCTURAL DRAWINGS, AND FIELD CONDITIONS TO ESTABLISH FINAL PIER LENGTHS AND REINFORCEMENT PRIOR TO SUBMITTING SHOP DRAWINGS.
   B. SHOP DRAWINGS SUBMITTED WITHOUT THIS COORDINATION WILL BE RETURNED REVISE AND RESUBMIT.
   C. PIER CAGES MAY BE FABRICATED LONGER THAN REQUIRED AND TRIMMED IN THE FIELD TO MATCH FINAL ELEVATIONS. UNIT PRICES PER LINEAR FOOT SHALL APPLY TO FIELD-DIRECTED LENGTH ADJUSTMENTS.
8. CONCRETE PLACEMENT AND SLUMP REQUIREMENTS
   A. CONCRETE SLUMP SHALL BE BASED ON INSTALLATION METHOD:
      a. DRY METHOD, UNCASED OR PERMANENT CASING: 4–6 INCHES
      b. TEMPORARY CASING: 6–8 INCHES
      c. SLURRY DISPLACEMENT: 7–9 INCHES
   B. USE TREMIE OR PUMP PLACEMENT WHERE REQUIRED TO PREVENT SEGREGATION OR WASHOUT. CONCRETE PLACEMENT SHALL BE CONTINUOUS.
9. DRILLED PIER SHAFT AND BELL SIZE ADJUSTMENTS
   A. DRILLED PIER SHAFT AND BELL DIAMETERS (IF APPLICABLE) INDICATED ON THE DRAWINGS REPRESENT THE MINIMUM SIZES REQUIRED TO SATISFY STRUCTURAL DESIGN CRITERIA.
   B. IF THE CONTRACTOR PROPOSES TO INCREASE SHAFT OR BELL DIAMETERS TO ACCOMMODATE THEIR MEANS AND METHODS OF CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF RECORD (SER) IN WRITING PRIOR TO CONSTRUCTION. ANY SUCH INCREASE SHALL NOT PROCEED WITHOUT WRITTEN ACKNOWLEDGMENT BY THE SER.
   C. IN GENERAL, INCREASES IN SHAFT OR BELL DIAMETER WILL REQUIRE ADDITIONAL REINFORCEMENT PROPORTIONAL TO THE INCREASE IN CONCRETE SURFACE AREA, WHICH SHALL BE INCORPORATED INTO THE REINFORCEMENT CAGES AT THE CONTRACTOR'S EXPENSE. INCREASES IN PIER SIZE REQUIRED SOLELY DUE TO THE CONTRACTOR'S MEANS AND METHODS SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER AND WITH NO ADJUSTMENT TO THE CONTRACT TIME.
   D. UNAUTHORIZED ENLARGEMENT - ENLARGEMENT OF DRILLED PIER SHAFTS OR BELLS BEYOND THE DIMENSIONS SHOWN ON THE DRAWINGS SHALL NOT BE PERMITTED WITHOUT PRIOR WRITTEN ACKNOWLEDGMENT BY THE STRUCTURAL ENGINEER OF RECORD. UNAUTHORIZED ENLARGEMENT MAY RESULT IN REJECTION OF THE DRILLED PIER OR REQUIRE CORRECTIVE MEASURES AT NO ADDITIONAL COST TO THE OWNER.
10. SUBMITTALS REQUIRING SER REVIEW
   A. SUBMIT THE FOLLOWING TO THE STRUCTURAL ENGINEER OF RECORD (SER) PRIOR TO CONSTRUCTION:
      a. REINFORCEMENT SHOP DRAWINGS
      b. CONCRETE MIX DESIGNS
      c. NON-STANDARD REINFORCEMENT SPLICES OR WELDING PROCEDURES
      d. CORRECTIVE CONSTRUCTION PROPOSALS FOR PIERS EXCEEDING TOLERANCES
   B. SUBMITTALS FOR RECORD ONLY
      a. SUBMIT THE FOLLOWING FOR RECORD PURPOSES ONLY:
         • INSTALLER QUALIFICATIONS
         • INSTALLATION SEQUENCE
         • DRILLED PIER INSTALLATION PROCEDURES, INCLUDING CASING AND SLURRY METHODS
         • SLURRY DISPLACEMENT PROCEDURES, IF USED
         • CONCRETE BATCH TICKETS (ASTM C94)
         • SLURRY TEST REPORTS AND CONCRETE VOLUME PLOTS, IF APPLICABLE
         • MATERIAL QUANTITY REPORTS
         • CERTIFIED MILL TEST REPORTS
         • EQUIPMENT LISTS
         • DISPOSAL APPROVALS
         • AS-BUILT PIER RECORDS
11. TOLERANCES AND UNACCEPTABLE PIERS
   A. DRILLED PIERS SHALL MEET ACI 336.1 TOLERANCES FOR LOCATION, PLUMBNESS, DIAMETER, AND ELEVATION. PIERS NOT MEETING TOLERANCES OR OTHERWISE DEEMED UNACCEPTABLE SHALL BE CORRECTED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER. CORRECTIVE WORK SHALL NOT PROCEED WITHOUT APPROVAL.
12. RESPONSIBILITY AND REVIEW LIMITATIONS
   A. REVIEW BY THE SER IS FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS ONLY AND DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR MEANS, METHODS, SAFETY, SEQUENCING, OR COMPLIANCE WITH APPLICABLE CODES AND STANDARDS.
13. GROUNDWATER AND EXCAVATION STABILITY
   A. THE PRESENCE OF GROUNDWATER, SLOUGHING SOILS, CAVING, OR UNSTABLE EXCAVATION CONDITIONS SHALL BE ANTICIPATED BY THE CONTRACTOR AND SHALL NOT, IN THEMSELVES, CONSTITUTE A DIFFERING SITE CONDITION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO MAINTAIN EXCAVATION STABILITY.
14. ADDITION / RENOVATION PROJECT
   A. ADJACENT FOUNDATION SETBACKS
      a. WHERE DRILLED PIERS ARE INSTALLED ADJACENT TO OR ABUTTING EXISTING FOUNDATIONS OR STRUCTURES, INCLUDING ROOF OVERHANGS OR OTHER ELEMENTS THAT MAY INTERFERE WITH DRILLING OPERATIONS, THE MINIMUM PIER SETBACK SHALL BE 1.5 TIMES THE SHAFT DIAMETER OR BELL DIAMETER, WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
      b. THE CONTRACTOR SHALL REVIEW THE SPECIFIED SETBACKS DURING BIDDING AND SHALL ACCOUNT FOR THEIR PROPOSED MEANS AND METHODS OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO DRILLING EQUIPMENT, CASING INSTALLATION, EXCAVATION STABILITY, AND PROTECTION OF ADJACENT STRUCTURES.
      c. IF THE CONTRACTOR BELIEVES THAT ADDITIONAL SETBACK BEYOND THAT SHOWN ON THE DRAWINGS IS REQUIRED TO SAFELY PERFORM THE WORK BASED ON THEIR PROPOSED MEANS AND METHODS, THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF RECORD (SER) PRIOR TO BIDDING. FAILURE TO PROVIDE SUCH NOTIFICATION PRIOR TO BID SHALL INDICATE ACCEPTANCE OF THE SPECIFIED SETBACKS, AND NO ADDITIONAL COMPENSATION OR SCHEDULE ADJUSTMENT SHALL BE GRANTED FOR INCREASED SETBACKS OR REVISED CONSTRUCTION APPROACHES REQUIRED AFTER AWARD. IF NOT IDENTIFIED AND ADDRESSED DURING BIDDING, ANY CHANGES REQUIRED DUE TO THE CONTRACTOR'S DETERMINATION THAT GREATER SETBACK IS NECESSARY TO ACCOMMODATE THEIR MEANS AND METHODS SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER AND WITH NO ADJUSTMENT TO THE CONTRACT TIME.
   B. TEMPORARY SUPPORT AND PROTECTION OF EXISTING STRUCTURES
      a. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN, INSTALLATION, MAINTENANCE, AND REMOVAL OF ANY TEMPORARY SHORING, BRACING, UNDERPINNING, OR SUPPORT REQUIRED TO PROTECT EXISTING FOUNDATIONS, SLABS, PAVEMENTS, OR STRUCTURES AFFECTED BY DRILLED PIER CONSTRUCTION.
      b. TEMPORARY SUPPORT REQUIRED DUE TO THE CONTRACTOR'S MEANS AND METHODS, SEQUENCING, OR EQUIPMENT SELECTION SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER AND WITH NO ADJUSTMENT TO THE CONTRACT TIME.
   C. NO RELIANCE ON EXISTING FOUNDATION CAPACITY
      a. EXISTING FOUNDATIONS, SLABS, AND STRUCTURAL ELEMENTS ADJACENT TO DRILLED PIERS SHALL NOT BE ASSUMED TO HAVE RESERVE CAPACITY UNLESS EXPLICITLY NOTED ON THE DRAWINGS. THE CONTRACTOR SHALL NOT RELY ON EXISTING FOUNDATIONS FOR SUPPORT, STABILITY, OR LOAD SHARING DURING DRILLED PIER CONSTRUCTION.
   D. CONSTRUCTION SEQUENCING NEAR EXISTING STRUCTURES
      a. THE CONTRACTOR SHALL SEQUENCE DRILLED PIER CONSTRUCTION TO AVOID LOSS OF SUPPORT, EXCESSIVE VIBRATION, OR DISTRESS TO ADJACENT FOUNDATIONS OR STRUCTURES. SEQUENCING ADJUSTMENTS REQUIRED TO PROTECT EXISTING CONSTRUCTION SHALL BE AT NO ADDITIONAL COST TO THE OWNER.

Project:	25-00384	
Release Date:	07/10/2026	
Revisions:	No. Description	Date

Consultant:

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City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

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GENERAL NOTES

S0.1

......OF......

STRUCTURAL SUBMITTAL REVIEW:

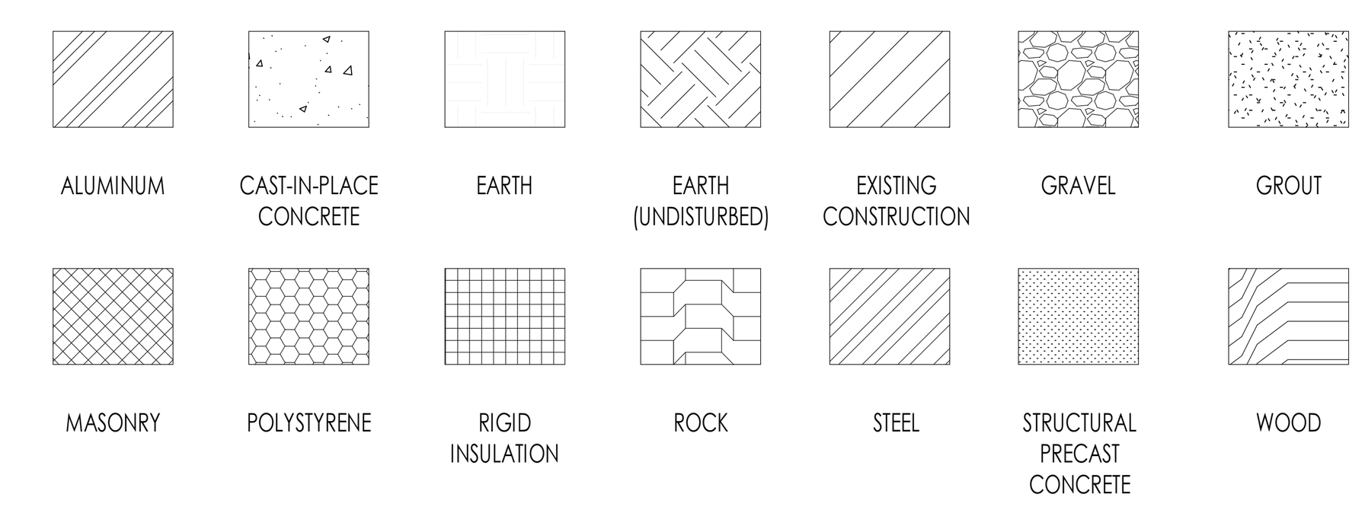
1. STRUCTURAL SUBMITTAL REVIEW IS LIMITED TO SUBMITTALS IDENTIFIED IN THE STRUCTURAL CONTRACT DOCUMENTS OR STRUCTURAL GENERAL NOTES AS REQUIRING REVIEW BY THE STRUCTURAL ENGINEER OF RECORD (SER).
2. THE SER WILL REVIEW ONLY SUBMITTALS TRANSMITTED BY THE CLIENT, ARCHITECT, OR CONTRACTOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND HAS NO RESPONSIBILITY TO SEEK OUT, TRACK, OR ENFORCE SUBMISSION OF REQUIRED SUBMITTALS.
3. REFER TO THE SUBMITTAL SECTION OF STR GENERAL NOTES FOR ADDITIONAL DEFINITIONS, CRITERIA AND REQUIREMENTS.
4. THE CONTRACTOR SHALL CLEARLY IDENTIFY ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS OR REQUESTS FOR CLARIFICATION WITHIN THE SUBMITTAL.
5. THE SER'S BASIC SERVICES INCLUDE REVIEW OF THE INITIAL SUBMITTAL AND ONE (1) RESUBMITTAL PER SUBMITTAL. REVIEW OF ADDITIONAL RESUBMITTALS OR EXPEDITED REVIEW REQUESTS MAY BE TREATED AS ADDITIONAL SERVICES.
6. SUBMITTALS NOT IDENTIFIED AS REQUIRING STRUCTURAL REVIEW MAY BE RETURNED WITHOUT REVIEW OR MARKED FOR RECORD ONLY.
7. ADDITIONAL SUBMITTALS NOT INCLUDED IN THE LIST OR WITHIN THE CONTRACT DOCUMENTS MAY BE SUBJECT TO ADDITIONAL SERVICES.
8. IF THERE IS NOT A GREEN CHECK MARK NEXT TO THE ROW, THEN IT IS NOT REQUIRED FOR THIS PROJECT, UNO.

	MATERIAL	SUBMITTALS REQUIRING SER REVIEW
✓	BUILDING PAD SOILS	• REVIEW OF SELECT FILL PIT MOISTURE DENSITY REPORTS • REVIEW FOR "IMPACT TO STRUCTURE" AND RETURN TO THE GEOTECHNICAL ENGINEER FOR APPROVAL
	STRUCTURAL STEEL	• SHOP DRAWINGS, ERECTION DRAWINGS, EMBEDMENT DRAWINGS • CONNECTIONS, STAIRS, RAILS, ETC. DEFERRED DESIGN TO A SSE
✓	REINFORCED CONCRETE	• MIX DESIGN • REINFORCEMENT PLACEMENT DRAWINGS • SLAB CONSTRUCTION & CONTRACTION JOINT LAYOUT AND POUR SEQUENCE • PRE-CAST CONCRETE PLANKS (IF REQ'D) • VOID FORMS (IF REQ'D)
✓	R.C. RETAINING WALL	• MIX DESIGN • REINFORCEMENT PLACEMENT DRAWINGS • WALL CONSTRUCTION & CONTRACTION JOINT LAYOUT AND POUR SEQUENCE
	TILT-UP PANELS	• SHOP DRAWINGS (COORDINATE WITH STEEL SHOPS FOR EMBED PLATES) • REINFORCEMENT PLACEMENT DRAWINGS • PANEL BOOK • CASTING SLAB • FORMS • LIFTING/BRACING • INSULATED PANEL INSULATION AND VENEER CONNECTORS (IF REQ'D)
	STEEL JOISTS	• PLACEMENT DRAWINGS
	STEEL DECK	• PLACEMENT DRAWINGS
	COLD-FORMED METAL FRAMING	• SHOP DRAWINGS • CALCULATIONS PACKAGES STAMPED BY THE SSE • TRUSS SUBMITTAL PACKAGE (IF REQ'D)
	WOOD TRUSSES / ENG. WOOD	• TRUSS SUBMITTAL PACKAGE • TRIMMABLE TRUSSES
	ARCH BUILDING	• ARCH BUILDING SYSTEM SUBMITTAL
	CMU	• MIX DESIGN (MORTAR AND GROUT) • COMPRESSIVE STRENGTH (BLOCK STRENGTH REPORTS) • PRODUCT INFORMATION (BAR POSITIONERS, JOINT REINFORCEMENT) • REINFORCEMENT PLACEMENT DRAWINGS • LIFT SEQUENCE / METHOD IF NOT USING LOW-LIFT METHOD (FOR INFORMATION ONLY) • TEMPORARY BRACING PLAN (FOR INFORMATION ONLY)
✓	MISCELLANEOUS STRUCTURAL: QUONSET HUT	• SHOP DRAWINGS (REACTIONS & CONNECTION DETAILS) IF ATTACHED TO STRUCTURE WILL BE REVIEWED FOR "IMPACT TO STRUCTURE" BASED ON CONFORMANCE WITH CONSTRUCTION DOCUMENTS. • REVIEW OF CALCULATION PACKAGES STAMPED BY AN SSE • **IF THERE IS NO DIRECT IMPACT TO THE PRIMARY STRUCTURE, WILL BE REVIEWED FOR "INFORMATION ONLY"**
	MISCELLANEOUS ARCHITECTURAL	• SUPPORT TO STRUCTURE FOR: MEP UTILITIES/EQUIPMENT, CEILINGS/SOFFITS, HVLS FANS, OPERABLE PARTITIONS, OVERHEAD DOORS, ETC. • EXTERIOR CLADDING SYSTEMS AND STOREFRONTS • LOUVERS, SCREEN WALLS, MECHANICAL SCREENS, ETC. • ARCHITECTURAL CAST STONE • SITE EQUIPMENT • **IF THERE IS NO DIRECT IMPACT TO THE PRIMARY STRUCTURE, WILL BE REVIEWED FOR "INFORMATION ONLY"**

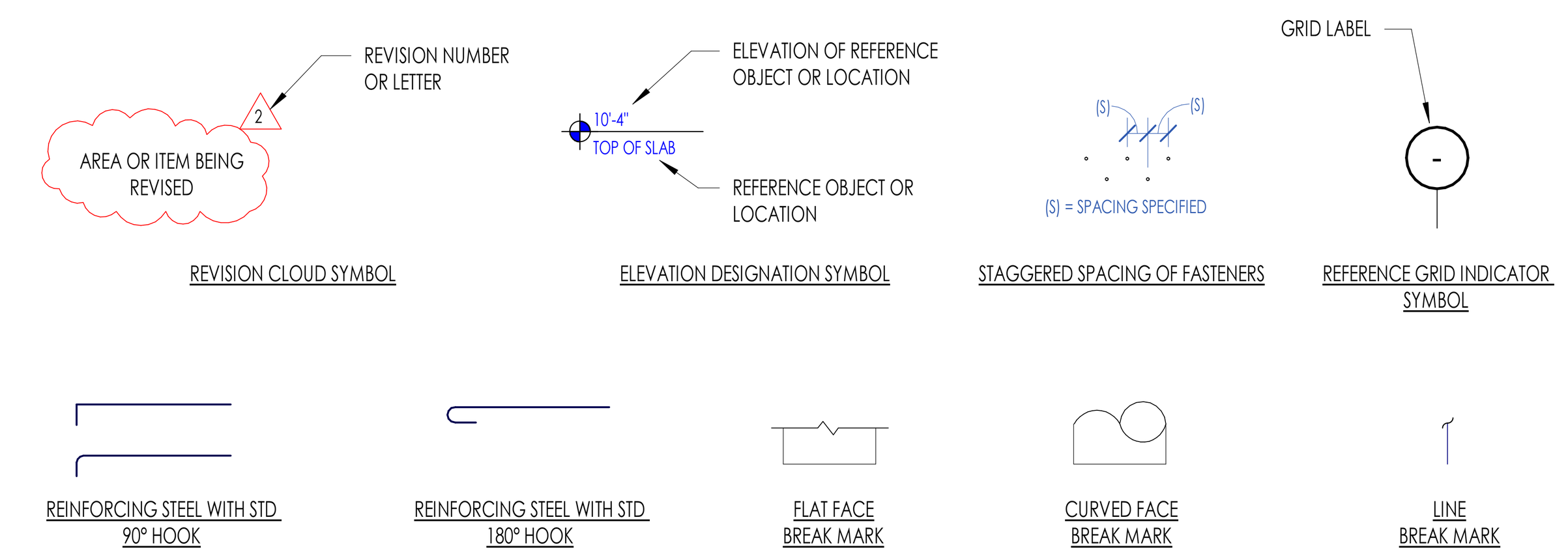
- NOT INCLUDED: REVIEW OF CALCULATION PACKAGES NOT STAMPED BY AN SSE OR REQUIRING CUSTOM CONNECTION DETAILING AND STRUCTURAL INTERFACING, WHICH REQUIRE EOR INVOLVEMENT AT THE DETAILED LEVEL FOR VERIFYING CONNECTIONS TO THE PRIMARY STRUCTURE, INTERFACING WITH MANUFACTURER, AND MODIFICATIONS FOR SPECIAL DETAILING.
- MAY BE INCLUDED AS ADDITIONAL SERVICES

CONTRACTOR MUST SUBMIT A SUBMITTAL SCHEDULE PRIOR TO THE START OF CONSTRUCTION

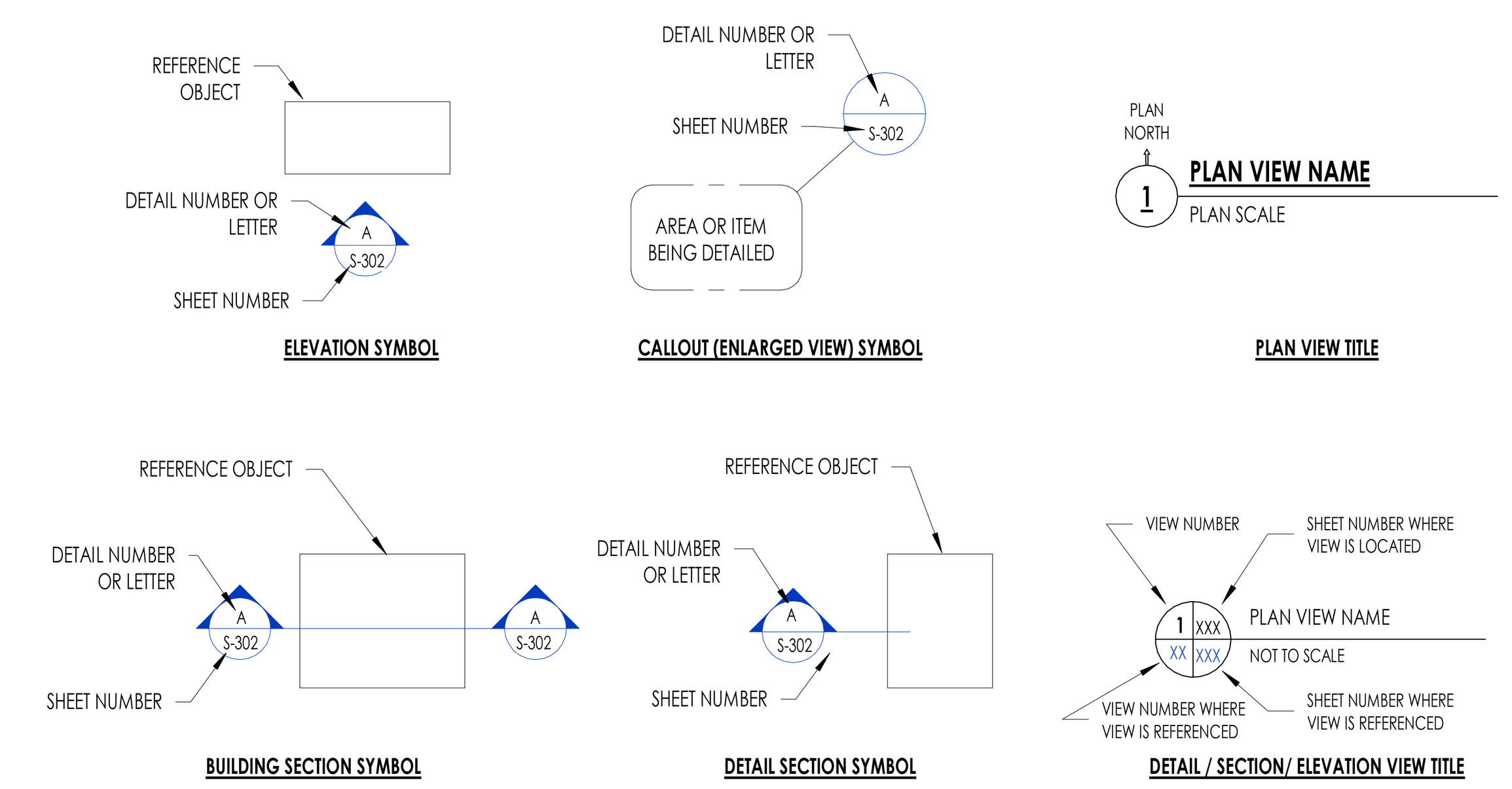
MATERIAL IDENTIFICATION SYMBOLS

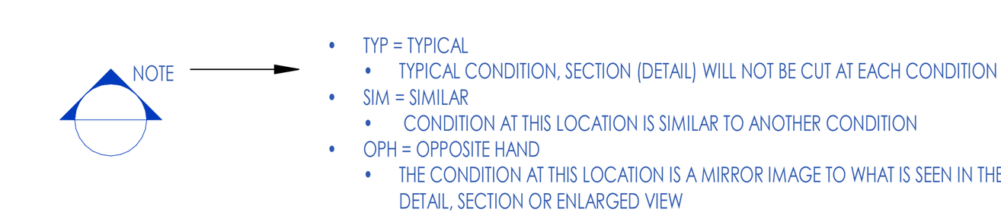


UNIVERSAL SYMBOLS

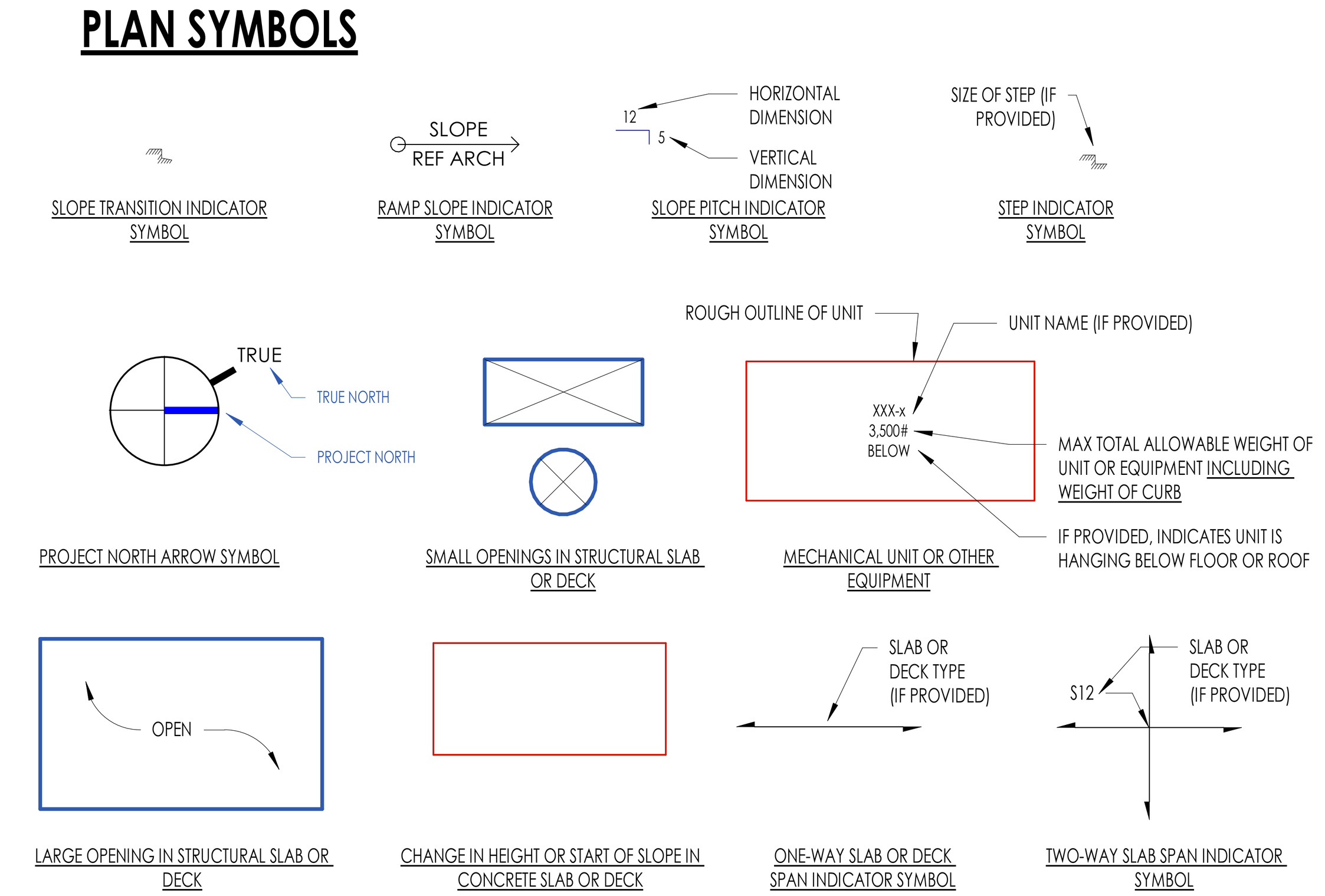


VIEW REFERENCE SYMBOLS





PLAN SYMBOLS



ABBREVIATIONS

@	AT
&	AND
#	NUMBER
Ø	ROUND, DIAMETER
ADDL	ADDITIONAL
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
BLDG	BUILDING
BO	BOTTOM OF
BOD	BOTTOM OF DECK
BOT	BOTTOM
BRDG	BRIDGING
BRG	BEARING
BTWN	BETWEEN
C	CAMBER
CANT	CANTILEVER
CFS	COLD-FORMED STEEL
CFMF	COLD FORMED METAL FRAMING
CIP	CAST-IN-PLACE
CJ	CONSTRUCTION/CONTRACTION (CONTROL) JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CTRS	CENTERS
db	BAR DIAMETER
DBA	DEFORMED BAR ANCHOR
DF	DOUGLAS FIR (WOOD)
DIA (Ø)	DIAMETER
DIM	DIMENSION
DWG	DRAWING
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL (ELEV)	ELEVATION
EMBED	EMBEDMENT, EMBEDDED
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FAB	FABRICATE
f'c	28 DAY CONCRETE STRENGTH
f'm	28 DAY MASONRY STRENGTH
FD	FLOOR DRAIN
FDN	FOUNDATION
FF	FAR FACE
FFE	FINISHED FLOOR ELEVATION
FIN	FINISH(ED)
FLR	FLOOR
FS	FAR SIDE
FTG	FOOTING
FUT	FUTURE
FV	FIELD VERIFY
Fy	YIELD STRENGTH
GALV	GALVANIZE(D)
GC	GENERAL CONTRACTOR
GEN	GENERAL
GR	GRADE
H	HORIZONTAL REACTION
HGR	HANGER
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
HSS	HOLLOW STRUCTURAL SECTION
ID	INSIDE DIAMETER
INFO	INFORMATION
INT	INTERIOR
JT	JOINT
K	KIPS (1000 LBS)
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
LBS	POUNDS
Ld	DEVELOPMENT LENGTH
LLBB	LONG LEG BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
LWC	LIGHTWEIGHT CONCRETE
M	MOMENT
MAX	MAXIMUM
MC	MOMENT CONNECTION
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	HORIZONTAL MOMENT
MIN	MINIMUM
MISC	MISCELLANEOUS
MPCWT	METAL PLATE CONNECTED WOOD TRUSS
MTL	METAL
NF	NEAR FACE
NIC	NOT IN CONTRACT
NLB	NON-LOAD BEARING
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMALWEIGHT CONCRETE
N/A	NOT APPLICABLE
N/R	NOT REQUIRED
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OSB	ORIENTED STRAND BOARD (WOOD)
OVS	OVERSIZED HOLE
P	AXIAL LOAD
PAF	POWDER ACTUATED FASTENER
PAR	PARALLEL
PCC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PCY	POUNDS PER CUBIC YARD
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PJP	PARTIAL JOINT PENETRATION
PRELIM	PRELIMINARY
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POST-TENSION(ED)
QTY	QUANTITY
V	VERTICAL SHEAR REACTION
RAD	RADIUS
REF	REFERENCE
REINF	REINFORCEMENT
REQD	REQUIRED
REV	REVISION
RTU	ROOF TOP UNIT
SC	SLIP CRITICAL
SCHED	SCHEDULE(D)
SECT	SECTION
SER	STRUCTURAL ENGINEER OF RECORD
SHT	SHEET
SIM	SIMILAR
SLBB	SHORT LEG BACK TO BACK
SLRS	SEISMIC LOAD RESISTING SYSTEM
SOG	SLAB-ON-GRADE
SPA	SPACING
SPEC	SPECIFICATION
SQ	SQUARE
SSE	SPECIALTY STRUCTURAL ENGINEER
STD	STANDARD
STIF	STIFFENER
STL	STEEL
STRUCT (STR)	STRUCTURE, STRUCTURAL
SW	SHEAR WALL
SYMM	SYMMETRIC, SYMMETRICAL
SYP	SOUTHERN YELLOW PINE
T	TORSION
TC	TOP OF COLUMN
TO	TOP OF
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TOS	TOP OF STEEL, TOP OF SLAB
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
WF (W)	WIDE FLANGE
WP	WORK POINT
WS	WATERSTOP
WSP	WOOD STRUCTURAL PANEL
WT	WEIGHT
WWR	WELDED WIRE REINFORCEMENT
XS	EXTRA STRONG (SCH. 40 PIPE)
XXS	DOUBLE EXTRA STRONG (SCH. 80 PIPE)

DEFINITIONS

1. **DEFERRED SUBMITTALS** ARE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION FOR PERMIT AND THAT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITHIN A SPECIFIED PERIOD. THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (RDPIRC) SHALL BE RESPONSIBLE FOR REVIEWING AND COORDINATING SUBMITTAL DOCUMENTS PREPARED BY THE CONTRACTOR, INCLUDING PHASED AND DEFERRED SUBMITTAL ITEMS, FOR COMPATIBILITY WITH THE DESIGN OF THE BUILDING. THE CONTRACTOR IS RESPONSIBLE FOR RETAINING A LICENSED DESIGN PROFESSIONAL TO DESIGN THE DEFERRED ITEM. DEFERRAL OF ANY SUBMITTAL ITEMS SHALL HAVE THE PRIOR APPROVAL OF THE BUILDING OFFICIAL. THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (RDPIRC) SHALL LIST THE DEFERRED SUBMITTALS ON THE CONSTRUCTION DOCUMENTS FOR REVIEW BY THE BUILDING OFFICIAL. DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (RDPIRC) WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.
2. **HORIZONTAL LATERAL LOAD RESISTING SYSTEM (DIAPHRAGM):** A STRUCTURAL ELEMENT WHICH TRANSMITS LATERAL LOADS TO THE VERTICAL LATERAL LOAD RESISTING SYSTEM
3. **NON-STRUCTURAL ELEMENTS** ARE ELEMENTS OF A BUILDING THAT ARE NOT PRIMARY OR SECONDARY STRUCTURAL ELEMENTS. ITEMS IN THIS CATEGORY COULD INCLUDE CURTAIN WALLS AND CLADDING, NON-BEARING PARTITIONS, STAIR RAILINGS, ETC. THESE ELEMENTS ARE NOT INCLUDED IN THE SER'S BASIC SCOPE OF SERVICES ON THIS PROJECT AND SHALL BE TREATED AS A DEFERRED SUBMITTAL.
4. **PRIMARY STRUCTURAL SYSTEM** IS THE COMPLETED COMBINATION OF ELEMENTS WHICH SERVE TO SUPPORT THE BUILDING'S SELF-WEIGHT, THE APPLICABLE LIVE LOAD WHICH IS BASED UPON THE OCCUPANCY AND USE OF THE SPACES AND THE ENVIRONMENTAL LOADS SUCH AS WIND, SEISMIC, AND THERMAL. CURTAIN WALL MEMBERS, NON-LOAD BEARING WALLS AND EXTERIOR FAÇADE ARE EXAMPLES OF ITEMS WHICH ARE NOT PART OF THE PRIMARY STRUCTURAL SYSTEM.
5. **PRIME DESIGN PROFESSIONAL** IS THE LEADER OF THE DESIGN TEAM CHARGED WITH THE DESIGN OF A FACILITY, EITHER AN ARCHITECT OR AN ENGINEER. THE PRIME DESIGN PROFESSIONAL IS RESPONSIBLE FOR DETERMINING AND INTERPRETING THE NEEDS OF THE CLIENT AND FOR COORDINATING THE WORK OF THE OTHER MEMBERS OF THE DESIGN TEAM. PRIME DESIGN PROFESSIONAL IS ALSO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (RDPIRC) AND MUST FULFILL THE DUTIES OUTLINED AS SUCH IN THE BUILDING CODE ADOPTED BY THE RELEVANT AUTHORITY HAVING JURISDICTION.
6. **REGISTERED DESIGN PROFESSION IN RESPONSIBLE CHARGE (RDPIRC)** OR PRIME DESIGN PROFESSIONAL WORKING DIRECTLY FOR THE REGISTERED DESIGN PROFESSIONAL WHO IS RESPONSIBLE FOR ENSURING THE PROJECT CONSTRUCTION DOCUMENTS COMPLY WITH THE APPLICABLE REQUIREMENTS OF ANY GOVERNING BUILDING AUTHORITIES. RESPONSIBLE FOR REVIEWING AND COORDINATING SUBMITTAL DOCUMENTS PREPARED BY OTHERS, INCLUDING PHASED AND DEFERRED SUBMITTAL ITEMS, FOR COMPATIBILITY WITH THE DESIGN OF THE BUILDING. TYPICALLY, THIS IS THE ARCHITECT OR CIVIL ENGINEER-OF-RECORD.
7. **REGISTERED DESIGN PROFESSIONAL** IS AN INDIVIDUAL WHO IS REGISTERED OR LICENSED TO PRACTICE THEIR RESPECTIVE DESIGN PROFESSION AS DEFINED BY THE STATUTORY REQUIREMENTS OF THE PROFESSIONAL REGISTRATION LAWS OF THE STATE OR JURISDICTION IN WHICH THE PROJECT IS TO BE CONSTRUCTED.
8. **SECONDARY STRUCTURAL ELEMENTS** ARE ELEMENTS THAT ARE STRUCTURALLY SIGNIFICANT FOR THE FUNCTION THEY SERVE BUT DO NOT CONTRIBUTE TO THE STRENGTH OR STABILITY OF THE PRIMARY STRUCTURAL SYSTEM. EXAMPLES MAY INCLUDE BUT ARE NOT LIMITED TO: SUPPORT BEAMS ABOVE THE PRIMARY ROOF STRUCTURE WHICH CARRY A CHILLER OR OTHER EQUIPMENT, EXTERIOR NON-LOAD BEARING WALLS OR CLADDING SYSTEMS, STAIRS, ELEVATOR SUPPORT RAILS AND BEAMS, RETAINING WALLS INDEPENDENT OF THE PRIMARY BUILDING, AND FLAGPOLE OR LIGHT POLE FOUNDATIONS.
9. **SPECIALTY STRUCTURAL ENGINEER (SSE)** IS A LICENSED PROFESSIONAL ENGINEER, NOT THE STRUCTURAL ENGINEER OF RECORD, WHO PERFORMS ADDITIONAL STRUCTURAL ENGINEERING FUNCTIONS FOR SOME OF THE ELEMENTS OF A PROJECT NOT DESIGNED BY THE SER AS LIMITED IN THIS AGREEMENT.
10. **STRUCTURAL ENGINEER OF RECORD (SER)** IS THE ENGINEER LEGALLY ELIGIBLE TO SEAL THE STRUCTURAL DOCUMENTS FOR THE PROJECT. THIS SEAL ACKNOWLEDGES THAT HE OR SHE HAS PERFORMED OR SUPERVISED THE ANALYSIS, DESIGN AND DOCUMENT PREPARATION FOR THE BUILDING STRUCTURE AND HAS KNOWLEDGE OF THE REQUIREMENTS FOR THE LOAD CARRYING STRUCTURAL SYSTEM. THE SER IS RESPONSIBLE FOR THE DESIGN OF THE PRIMARY STRUCTURAL SYSTEM.
11. **SUBMITTAL SCHEDULE** IS A DOCUMENT PREPARED BY THE CONTRACTOR THAT OUTLINES THE TIMING AND SEQUENCING OF ALL REQUIRED SUBMITTALS, INCLUDING SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER INFORMATION THAT MUST BE REVIEWED AND APPROVED BY THE PRIME DESIGN PROFESSIONAL AND OTHER RELEVANT DESIGN PROFESSIONALS BEFORE FABRICATION AND INSTALLATION. THE SCHEDULE SHALL LIST ALL REQUIRED SUBMITTALS, PROVIDE SUBMISSION AND REVIEW TIMEFRAMES AND BE UPDATED THROUGHOUT THE PROJECT TO REFLECT ANY CHANGES.
12. **VERTICAL LATERAL LOAD RESISTING SYSTEM**: ELEMENTS OF THE PRIMARY STRUCTURAL SYSTEM WHICH TRANSFER THE LATERAL LOADS INDUCED UPON THE STRUCTURE TO THE FOUNDATION AND ULTIMATELY INTO THE EARTH.
13. **GEOTECHNICAL ENGINEER OF RECORD (GER):** A REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE OF ALL FOUNDATION AND FLATWORK RECOMMENDATIONS.
14. **FIELD VERIFICATION:** DIMENSIONS MARKED "FIELD VERIFY" (FV) OR "VERIFY IN FIELD" ARE APPROXIMATE OR BASED ON DESIGN ASSUMPTIONS AND MUST BE CONFIRMED BY THE CONTRACTOR THROUGH ON-SITE MEASUREMENTS PRIOR TO FABRICATION OR INSTALLATION. DO NOT RELY ON THESE DIMENSIONS WITHOUT FIELD VERIFICATION. IF FIELD-VERIFIED DIMENSIONS SIGNIFICANTLY DEVIATE FROM THOSE SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE STRUCTURAL ENGINEER OF RECORD (SER) IN WRITING VIA A REQUEST FOR INFORMATION (RFI) FOR EVALUATION AND POTENTIAL DESIGN REVISIONS.

Project: 25-00384
Release Date: 07/10/2026
Revisions:

No.	Description	Date

Consultant:
DUDLEY

City of Brenham Henderson Park Basketball Court Pavilion
BRENHAM, TEXAS

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STATE OF TEXAS
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157367
LICENSED PROFESSIONAL ENGINEER
07/10/2026

SUBMITTALS, SYMBOLS, NOTATIONS, & DEFINITIONS

S0.2

APPROVED AGENCY REQUIREMENTS & STRUCTURAL STATEMENT OF SPECIAL INSPECTIONS & TESTING

1. §1703 APPROVALS - **FOLLOWING IS A RESTATEMENT OF REQUIREMENTS OF THE BUILDING CODE ALONG WITH ADDITIONAL REQUIREMENTS BY THE SER. THE APPROVED AGENCY FOR SPECIAL INSPECTIONS AND TESTS SHALL BE EXPERIENCED AND KNOWLEDGEABLE ON ALL REQUIREMENTS OF CHAPTER 17 - SPECIAL INSPECTIONS AND TESTING OF THE BUILDING CODE ADOPTED BY THE AUTHORITY HAVING JURISDICTION.**
   - **A.** THE NAMES AND CREDENTIALS OF THE SPECIAL INSPECTORS TO BE USED SHALL BE SUBMITTED TO THE **REGISTERED DESIGN PROFESSIONAL IN RESPONSBILE CHARGE (RDPIRC), STRUCTURAL ENGINEER OF RECORD (SER) - DUDLEY**, AND THE BUILDING OFFICIAL FOR APPROVAL. **DUDLEY ENGINEERING CAN BE SOLICITED TO PROVIDE STRUCTURAL SPECIAL INSPECTIONS. WE RECOMMEND THAT THE PROJECT GEOTECHNICAL ENGINEER BE SOLICITED TO PROVIDE SPECIAL INSPECTIONS FOR THE SOILS AND TESTING FOR THE SOIL, CONCRETE & DEEP FOUNDATIONS.**
   - B. §1703.1 APPROVED AGENCY - SPECIAL INSPECTIONS AND STRUCTURAL TESTING SHALL BE PROVIDED BY AN APPROVED INDEPENDENT AGENCY (FROM THE CONTRACTOR) EMPLOYED BY THE OWNER OR OWNER'S AUTHORIZED AGENT, OTHER THAN THE CONTRACTOR, FOR THE ITEMS IDENTIFIED IN THIS SECTION AND IN OTHER AREAS OF THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS. (SEE IBC CHAPTER 17).
     - a. §1703.1.1 INDEPENDENCE - AN APPROVED AGENCY SHALL BE OBJECTIVE, COMPETENT AND INDEPENDENT FROM THE CONTRACTOR RESPONSIBLE FOR THE WORK BEING INSPECTED. THE AGENCY SHALL DISCLOSE TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSBILE CHARGE (RDPIRC) POSSIBLE CONFLICTS OF INTEREST SO THAT OBJECTIVITY CAN BE CONFIRMED.
     - b. §1703.1.2 EQUIPMENT - AN APPROVED AGENCY SHALL HAVE ADEQUATE EQUIPMENT TO PERFORM REQUIRED TESTS. THE EQUIPMENT SHALL BE PERIODICALLY CALIBRATED.
     - c. §1703.1.3 PERSONNEL - AN APPROVED AGENCY SHALL EMPLOY EXPERIENCED PERSONNEL EDUCATED IN CONDUCTING, SUPERVISING AND EVALUATING TESTS AND SPECIAL INSPECTIONS.
   - C. §1703.2 WRITTEN APPROVALS - ANY MATERIAL, APPLIANCE, EQUIPMENT, SYSTEM OR METHOD OF CONSTRUCTION MEETING THE REQUIREMENTS OF THIS CODE SHALL BE APPROVED IN WRITING AFTER SATISFACTORY COMPLETION OF THE REQUIRED TESTS AND SUBMISSION OF REQUIRED TEST REPORTS.
   - D. §1703.3 RECORD OF APPROVAL - FOR ANY MATERIAL, APPLIANCE, EQUIPMENT, SYSTEM OR METHOD OF CONSTRUCTION THAT HAS BEEN APPROVED, A RECORD OF SUCH APPROVAL, INCLUDING THE CONDITIONS AND LIMITATIONS OF THE APPROVAL, SHALL BE KEPT ON FILE IN THE BUILDING OFFICIAL'S OFFICE AND SHALL BE AVAILABLE FOR PUBLIC REVIEW AT APPROPRIATE TIMES.
   - E. §1703.4 PERFORMANCE - SPECIFIC INFORMATION CONSISTING OF TEST REPORTS CONDUCTED BY AN APPROVED AGENCY IN ACCORDANCE WITH THE APPROPRIATE REFERENCED STANDARDS, OR OTHER SUCH INFORMATION AS NECESSARY, SHALL BE PROVIDED FOR THE BUILDING OFFICIAL TO DETERMINE THAT THE PRODUCT, MATERIAL OR ASSEMBLY MEETS THE APPLICABLE CODE REQUIREMENTS.
2. **DUDLEY ENGINEERING IS NOT THE RDPIRC.**
3. **DUTIES OF THE OWNER**
   - A. §1704.2 SPECIAL INSPECTIONS AND TESTS - WHERE APPLICATION IS MADE TO THE BUILDING OFFICIAL FOR CONSTRUCTION, THE OWNER OR THE OWNER'S AUTHORIZED AGENT, OTHER THAN THE CONTRACTOR, SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PROVIDE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION ON THE TYPES OF WORK SPECIFIED IN THE STATEMENT OF SPECIAL INSPECTIONS AND IDENTIFY THE APPROVED AGENCIES TO THE BUILDING OFFICIAL. THESE SPECIAL INSPECTIONS AND TESTS ARE IN ADDITION TO THE INSPECTIONS BY THE BUILDING OFFICIAL.
     - a. THE CONTRACTOR IS PERMITTED TO EMPLOY THE APPROVED AGENCIES WHERE THE CONTRACTOR IS ALSO THE OWNER.
   - B. § 1704.5 SUBMITTALS TO THE BUILDING OFFICIAL IN ADDITION TO THE SUBMITTAL OF REPORTS OF SPECIAL INSPECTIONS AND TESTS IN ACCORDANCE WITH SECTION 1704.2.4, REPORTS AND CERTIFICATES SHALL BE SUBMITTED BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL FOR EACH OF THE FOLLOWING:
     - a. CERTIFICATES OF COMPLIANCE FOR THE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES ON THE PREMISES OF AN APPROVED FABRICATOR IN ACCORDANCE WITH SECTION 1704.2.5.1.
     - b. CERTIFICATES OF COMPLIANCE FOR THE SEISMIC QUALIFICATION OF NONSTRUCTURAL COMPONENTS, SUPPORTS AND ATTACHMENTS IN ACCORDANCE WITH SECTION 1705.14.2.
     - c. CERTIFICATES OF COMPLIANCE FOR DESIGNATED SEISMIC SYSTEMS IN ACCORDANCE WITH SECTION 1705.14.3.
     - d. REPORTS OF PRECONSTRUCTION TESTS FOR SHOTCRETE IN ACCORDANCE WITH ACI 318.
     - e. CERTIFICATES OF COMPLIANCE FOR OPEN WEB STEEL JOISTS AND JOIST GIRDERS IN ACCORDANCE WITH SECTION 2207.5.
     - f. REPORTS OF MATERIAL PROPERTIES VERIFYING COMPLIANCE WITH THE REQUIREMENTS OF AWS D1.4 FOR WELDABILITY AS SPECIFIED IN SECTION 26.6.4 OF ACI 318 FOR REINFORCING BARS IN CONCRETE COMPLYING WITH A STANDARD OTHER THAN ASTM A706 THAT ARE TO BE WELDED.
     - g. REPORTS OF MILL TESTS IN ACCORDANCE WITH SECTION 20.2.2.5 OF ACI 318 FOR REINFORCING BARS COMPLYING WITH ASTM A615 AND USED TO RESIST EARTHQUAKE-INDUCED FLEXURAL OR AXIAL FORCES IN THE SPECIAL MOMENT FRAMES, SPECIAL STRUCTURAL WALLS OR COUPLING BEAMS CONNECTING SPECIAL STRUCTURAL WALLS OF SEISMIC FORCE-RESISTING SYSTEMS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B, C, D, E OR F.
4. **DUTIES OF THE SPECIAL INSPECTOR:**
   - A. §1704.2.1 - PRIOR TO THE START OF THE CONSTRUCTION, THE APPROVED AGENCIES SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING THE COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION. EXPERIENCE OR TRAINING SHALL BE CONSIDERED TO BE RELEVANT WHERE THE DOCUMENTED EXPERIENCE OR TRAINING IS RELATED IN COMPLEXITY TO THE SAME TYPE OF SPECIAL INSPECTION OR TESTING ACTIVITIES FOR PROJECTS OF SIMILAR COMPLEXITY AND MATERIAL QUALITIES. THE RDPIRC AND SER INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS AN APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS SPECIAL INSPECTORS FOR THE WORK DESIGNED BY THEM, PROVIDED THEY QUALIFY AS SPECIAL INSPECTORS.
   - B. THE SPECIAL INSPECTOR(S) SHALL REVIEW ALL DESIGNATED WORK FOR CONFORMANCE WITH THE APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS, WHICH ARE THE GOVERNING DOCUMENTS. **SUBMITTALS MAY BE USED AS A SUPPLEMENTARY REFERENCE TOOL TO AID IN FIELD VERIFICATION BUT SHALL NOT BE USED IN LIEU OF THE GOVERNING DOCUMENTS**. ANY DISCREPANCIES OBSERVED BETWEEN THE WORK, THE SUBMITTALS, AND THE GOVERNING DOCUMENTS SHALL BE PROMPTLY REPORTED TO THE DESIGN PROFESSIONAL FOR RESOLUTION. OMISSIONS OR DISCREPANCIES IN A SUBMITTAL, EVEN IF REVIEWED AND APPROVED BY THE DESIGN PROFESSIONAL, DO NOT RELIEVE THE CONTRACTOR OF THE OBLIGATION TO MEET ALL REQUIREMENTS OF THE GOVERNING DOCUMENTS.
   - C. **REPORT FREQUENCY:** THE SPECIAL INSPECTOR SHALL FURNISH SPECIAL INSPECTION REPORTS TO THE RDPIRC, STRUCTURAL ENGINEER-OF-RECORD (SER), CONTRACTOR, OWNER AND BUILDING OFFICIAL ON A **WEEKLY BASIS, OR MORE FREQUENTLY AS REQUIRED BY THE BUILDING OFFICIAL**. ALL ITEMS NOT IN COMPLIANCE SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND IF UNCORRECTED, TO THE SER AND THE BUILDING OFFICIAL.
     - **a. REPORTS WITH A NON-CONFORMING TEST AND/OR INSPECTION FLAGGED WITHIN MUST BE SPECIFICALLY BROUGHT TO THE ATTENTION OF THE SER BY THE SPECIAL INSPECTOR VIA EMAIL TO CA@DUDLEYENG.COM WITH THE WORDS "NON-CONFORMING" IN THE SUBJECT LINE.**
   - D. ONCE CORRECTIONS HAVE BEEN MADE BY THE CONTRACTOR, THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT TO THE BUILDING OFFICIAL STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE SPECIAL INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS AS WELL AS THE APPLICABLE WORKMANSHIP PROVISIONS OF THE IBC.
   - E. 1704.2.4 REPORT REQUIREMENT - APPROVED AGENCIES SHALL KEEP RECORDS OF SPECIAL INSPECTIONS AND TESTS. THE APPROVED AGENCY SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AT FREQUENCIES **REQUIRED BY THESE CONSTRUCTION DOCUMENTS** OR BUILDING OFFICIAL, **WHICHEVER IS MORE STRINGENT**. ALL REPORTS SHALL DESCRIBE THE NATURE AND EXTENT OF INSPECTIONS AND TESTS, THE LOCATION WHERE THE INSPECTIONS AND TESTS WERE PERFORMED, AND INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY 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 DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS, SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL.
5. **DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:**
   - A. THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE OWNER AND THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF WORK. IN ACCORDANCE WITH IBC 1704.4, THE STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED WITHIN THIS "STATEMENT OF SPECIAL INSPECTIONS".
   - B. THE CONTRACTOR SHALL NOTIFY THE RESPONSIBLE SPECIAL INSPECTOR THAT WORK IS READY FOR INSPECTION AT LEAST ONE WORKING DAY (24 HOURS MINIMUM) BEFORE SUCH INSPECTION IS REQUIRED.
   - C. ALL WORK REQUIRING SPECIAL INSPECTION SHALL REMAIN ACCESSIBLE AND EXPOSED UNTIL IT HAS BEEN OBSERVED BY THE SPECIAL INSPECTOR.
   - D. THE CONTRACTOR SHALL NOTIFY THE SER, OWNER AND SPECIAL INSPECTOR IN WRITING OF ANY SPECIAL INSPECTIONS OR TESTING REQUIRED FOR DEFERRED SUBMITTAL ITEMS.
   - E. **THE CONTRACTOR SHALL SUBMIT AN RFI FOR ANY NON-CONFORMING STRUCTURAL ITEMS IDENTIFIED IN THE SPECIAL INSPECTION AND TESTING REPORT(S) THAT REQUIRE CORRECTIVE REPAIR. OTHERWISE, THE SER ASSUMES THAT THE NON-CONFORMING ITEM(S) HAS BEEN RECTIFIED TO CONFORM WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.**
6. PLEASE SEE THE SPECIAL INSPECTION SCHEDULES BELOW FOR THE TYPES, EXTENTS AND FREQUENCY OF SPECIFIC ITEMS REQUIRING STRUCTURAL SPECIAL INSPECTIONS AND STRUCTURAL TESTS AS PART OF THIS PROJECT.
7. REFER TO ARCHITECTURAL AND/OR MEP DRAWINGS FOR ADDITIONAL SPECIAL INSPECTION REQUIRED. DUDLEY ENGINEERING HAS LISTED THE STRUCTURAL SPECIAL INSPECTIONS AND TESTING WITHIN OUR SCOPE ONLY.
8. IN SOME JURISDICTIONS, THE AHJ REQUIRES THAT THE RDPIRC COMPLETE THEIR SPECIFIC STATEMENT OF SPECIAL INSPECTIONS FORM. IN THIS CASE, THE RDPIRC SHOULD USE THIS SHEET TO COMPLETE THE FORM FOR THE REQUIRED STRUCTURAL SPECIAL INSPECTIONS AND TESTS.
9. § 1704.2.5 SPECIAL INSPECTION OF FABRICATED ITEMS - WHERE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTIONS OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION, EXCEPT WHERE THE FABRICATOR HAS BEEN APPROVED TO PERFORM WORK WITHOUT SPECIAL INSPECTIONS IN ACCORDANCE WITH SECTION 1704.2.5.1.
   - A. § 1704.2.5.1 FABRICATOR APPROVAL - SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED ON REVIEW OF THE FABRICATOR'S WRITTEN FABRICATION PROCEDURES AND QUALITY CONTROL MANUALS THAT PROVIDE A BASIS FOR CONTROL OF MATERIALS AND WORKMANSHIP, WITH PERIODIC AUDITING OF FABRICATION AND QUALITY CONTROL PRACTICES BY AN APPROVED AGENCY OR THE BUILDING OFFICIAL. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE OWNER OR THE OWNER'S AUTHORIZED AGENT FOR SUBMITTAL TO THE BUILDING OFFICIAL AS SPECIFIED IN SECTION 1704.5 STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

STRUCTURAL DEFERRED SUBMITTALS:

1. STRUCTURAL DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH REQUIRE STRUCTURAL ENGINEERING THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION BUT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL AT A LATER DATE. DEFERRED SUBMITTALS SHALL BE SUBMITTED TO AND APPROVED BY THE RDPIRC, SER & BUILDING OFFICIAL PRIOR TO INSTALLATION OF ANY SAID WORK.
2. COMPLETE STRUCTURAL SHOP DRAWINGS FOR CONSTRUCTION OF EACH BUILDING COMPONENT NOT DESIGNED BY THE SER AND NOT SPECIFIED ON THE PROJECT CONSTRUCTION DOCUMENTS SHALL BE SEALED AND SIGNED BY A SSE WHO IS A REGISTERED DESIGN PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BEING CONSTRUCTED WHO IS QUALIFIED TO PERFORM SAID WORK. A SEAL BY A LICENSED PROFESSIONAL ENGINEER IS NOT REQUIRED FOR PRODUCTS WHICH HAVE BEEN TESTED AND CERTIFIED BY AN APPROVED AGENCY SUCH AS THE ICC, NOR FOR COMPONENTS WHICH ARE FABRICATED BY A FABRICATOR THAT IS CERTIFIED BY AN APPROVED AGENCY IN WHICH THE AGENCY SPECIFIED THAT SEALING OF THE SHOP DRAWINGS IS NOT REQUIRED (E.G. STEEL JOIST INSTITUTE IN REGARDS TO OPEN WEB STEEL JOISTS). THE CONTRACTOR SHALL INCLUDE ALLOWANCES FOR ALL ITEMS REQUIRED BY THE DEFERRED SUBMITTALS TO FORM A COMPLETE SYSTEM. IF THE CONTRACTOR BELIEVES THERE IS MISSING INFORMATION IN THE CONSTRUCTION DOCUMENTS THAT WILL NOT ALLOW THEM TO DEVELOP AN ADEQUATE ESTIMATE WITH ALLOWANCE FOR A DEFERRED SUBMITTAL, THEN THEY SHALL NOTIFY THE SER IN WRITING PRIOR TO ISSUING A BID.
3. THE SSE SHALL SPECIFICALLY INDICATE IN A COVER PAGE AT THE FRONT OF THE SHOP DRAWING THAT THEY ARE THE SSE IN RESPONSIBLE CHARGE FOR THE DEFERRED SUBMITTAL AND THAT THEY HAVE REVIEWED THE SHOP DRAWING TO ENSURE COMPLIANCE WITH THEIR DESIGN AND CALCULATIONS. PERFORMANCE SPECIFICATIONS HAVE BEEN PROVIDED IN THE CONSTRUCTION DOCUMENTS, HOWEVER THE SSE IS SOLELY RESPONSIBLE FOR THE DESIGN OF THESE ELEMENTS AND SHALL DO SO IN COMPLIANCE WITH ALL RELEVANT CODES AND PROJECT CONDITIONS.
4. CALCULATION PACKAGE: ALL DEFERRED SUBMITTALS WITH (*) SYMBOL SHALL BE ACCOMPANIED BY A CALCULATION PACKAGE FOR ALL OF THE COMPONENTS ALONG WITH A SEALED LETTER BY THE SSE ATTESTING THE FOLLOWING:
   - *"I [SPECIALTY STRUCTURAL ENGINEER] HAVE REVIEWED THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, SENT ANY CLARIFICATION QUESTIONS TO THE STRUCTURAL ENGINEER-OF-RECORD FOR REVIEW, PERFORMED ANALYSIS AND DESIGN ON THE [SPECIAL STRUCTURAL ENGINEERING SCOPE], PROVIDED THIS INFORMATION TO THE FABRICATOR AND HAVE REVIEWED THE SHOP DRAWINGS TO ENSURE THAT THE DESIGN HAS BEEN PROPERLY IMPLEMENTED AND MEETS ALL CRITERIA OF THE BUILDING CODE AND CONSTRUCTION DOCUMENTS."*
   - A. THE CALCULATION PACKAGE SHALL BE IN PDF FORMAT AND HAVE A COVER PAGE WITH BOOKMARKS AT EACH UNIQUE CALCULATION. THE PDF MUST BE SEARCHABLE.
   - A. SUPPLEMENTAL STATEMENT OF SPECIAL INSPECTIONS: ALL DEFERRED SUBMITTALS WITH (+) SYMBOL, REQUIRE THE SSE TO SUBMIT A SUPPLEMENTAL STATEMENT OF SPECIAL INSPECTIONS, REF §1704.3.1.
5. DEFERRED SUBMITTALS SHALL BE SUBMITTED IN PDF FORMAT THAT ALLOWS ADDING MARKUPS. IF THE PDF DOES NOT ALLOW MARKUPS, THE SUBMITTAL WILL BE RETURNED UNREVIEWED AS REVISE AND RESUBMIT.
6. ALL STRUCTURAL DEFERRED SUBMITTALS SHALL BE REVIEWED BY THE SER AND MARKED AS EITHER NO EXCEPTIONS OR EXCEPTION NOTED, PRIOR TO SUBMITTING TO THE "FOR CONSTRUCTION" VERSION TO THE AUTHORITY HAVING JURISDICTION (AHJ) AND PRIOR TO RELEASE FOR FABRICATION.
7. DEFERRED SUBMITTALS SHALL CLEARLY INDICATE ANY REQUIRED SPECIAL INSPECTIONS AND TESTING REQUIRED EITHER BY THE BUILDING CODE OR THE SSE FOR THEIR SCOPE OF WORK.
8. STRUCTURAL DEFERRED SUBMITTALS ON THIS PROJECT INCLUDE:
   - A. *+SUPPORT TO STRUCTURE FOR: MEP UTILITIES/EQUIPMENT, ETC.
   - B. QUONSET HUT SYSTEM AND ANCHORAGE TO STRUCTURE

REQUIRED VERIFICATION AND INSPECTION OF SOILS (TABLE 1705.6)

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	X	YES
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIALS	-	X	YES
PERFORM CLASSIFICATION AND TESTING OF COMPACTED MATERIALS	-	X	YES
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL. CONTINUOUS VERIFICATION REQUIRES A MINIMUM OF (1) TEST EVERY 2,000 SF, WITH A MINIMUM OF (3) TESTS PER LIFT, UNLESS MORE STRINGENT REQUIREMENTS ARE REQUIRED BY APPROVED GEOTECHNICAL REPORT AND/OR THE SOILS ENGINEER.	X	-	YES
PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THE SITE HAS BEEN PREPARED PROPERLY	-	X	YES

REQUIRED VERIFICATION AND INSPECTION OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS (TABLE 1705.8)

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT.	X	-	YES
VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.	X	-	YES
FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS IN ACCORDANCE WITH CONCRETE SPECIAL INSPECTIONS.	-	-	YES

REQUIRED VERIFICATION AND INSPECTION OF GRADING AND DRAINAGE FOR FOUNDATIONS ON EXPANSIVE SOILS

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REQUIRED
AFTER BUILDING CONSTRUCTION AND LANDSCAPING HAVE BEEN COMPLETED, FINAL GRADES SHALL BE VERIFIED TO DOCUMENT REQUIRED DRAINAGE	-	X	YES
AFTER BUILDING CONSTRUCTION AND LANDSCAPING HAVE BEEN COMPLETED, DOWNSPOUTS SHALL BE INSPECTED TO CONFIRM CONFORMANCE.	-	X	YES
GRADES AROUND THE STRUCTURE SHALL BE PERIODICALLY INSPECTED AND ADJUSTED AS PART OF THE BUILDING'S MAINTENANCE PROGRAM	-	X	YES
PLUMBING LEAK "HYRDROSTATIC" TEST PERFORMED BY A LICENSED PLUMBER. TEST TO OCCUR AFTER ROUGH PLUMBING INSTALL	-	X	YES
WHERE PAVING/FLATWORK ABUT THE FOUNDATION, A MAINTENANCE PROGRAM SHALL BE ESTABLISHED TO EFFECTIVELY SEAL AND MAINTAIN JOINTS AND PREVENT SURFACE WATER INFILTRATION.	-	X	YES

REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION (TABLE 1705.3)

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REQUIRED	REFERENCED STANDARD[a]
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS AND PLACEMENT. (REF NOTE 5 AND GENERAL NOTES FOR SPECIFIC INSPECTION TASKS)	X	-	YES	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706. b. INSPECT WELDING OF REINFORCEMENT FOR SPECIAL MOMENT FRAMES, BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS AND COUPLING BEAMS. c. INSPECT WELDED REINFORCEMENT SPLICES. d. INSPECT WELDING OF PRIMARY TENSION REINFORCEMENT IN CORBELS. e. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16". f. INSPECT ALL OTHER WELDS.	-	X	YES	AWS D1.4 ACI 318: 26.13.1.4 & 26.13.3
3. INSPECTION OF ANCHORS CAST IN CONCRETE	-	X	YES	ACI 318: 26.13.3.3
4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. SPECIAL INSPECTOR MUST BE PRESENT FOR FIRST INSTALLATION AT A MINIMUM				
a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	-	YES	ACI 318: 26.13.3.2
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.	-	X	YES	ACI 318: 26.13.3
5. VERIFYING USE OF REQUIRED MIX DESIGN		X	YES	ASTM C31, ASTM C172 ACI 318: 26.5, 26.12 IBC 1904.1, 1904.2
6. **PRIOR TO CONCRETE PLACEMENT**, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	YES	ASTM C31, ASTM C172 ACI 318: 26.5, 26.12
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.(REFERENCE NOTE 5B)	X	-	YES	ACI 318: 26.5
. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES. (REFERENCE NOTE 5C)	-	X	YES	ACI 318: 26.5.3-26.5.5
9. INSPECTION OF PRESTRESSED CONCRETE a. APPLICATION OF PRESTRESSING FORCES. b. GROUTING OF BONDED PRESTRESSING TENDONS.	X	-	NO	ACI 318: 26.10
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	-	X	NO	ACI 318: 26.9
11. For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category C, D, E or F, inspect such connections and reinforcement in the field for: a. Installation of the embedded parts. b. Completion of the continuity of reinforcement across joints. c. Completion of connections in the field.	X	-	NO	ACI 318: 26.13.1.3 ACI 550.5
12. Inspect installation tolerances of precast concrete diaphragm connections for compliance with ACI 550.5.	-	X	NO	ACI 318: 26.13.1.3
13. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES. BRACING AND/OR FORMS FROM BEAMS, WALLS, STRUCTURAL SLABS, ETC.	X	-	NO	ACI 318: 26.11.2
14. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	X	-	YES	ACI 318: 26.11.1.2(b)

a. WHERE APPLICABLE, SEE SECTION 1705.13.
b. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 26.13 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

1705.3.1 WELDING OF REINFORCING BARS
SPECIAL INSPECTIONS OF WELDING AND QUALIFICATIONS OF SPECIAL INSPECTORS FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.4 FOR SPECIAL INSPECTION AND OF AWS D1.4 FOR SPECIAL INSPECTOR QUALIFICATION.

1. **QUALIFICATIONS OF TESTING AGENCY / SPECIAL INSPECTORS:** THE SPECIAL INSPECTORS FROM THE TESTING AGENCY TASKED WITH PERFORMING THE VERIFICATION AND INSPECTION ITEMS LISTED ABOVE SHALL HAVE THE FOLLOWING CERTIFICATIONS FROM THE AMERICAN CONCRETE INSITUTE (ACI).
   - A. CONCRETE CONSTRUCTION SPECIAL INSPECTOR
   - B. CONCRETE FIELD TESTING TECHNICIAN — GRADE I
   - C. CONCRETE STRENGTH TESTING TECHNICIAN
   - D. CONCRETE LABORATORY TESTING TECHNICIAN — LEVEL 2
   - E. POST-INSTALLED CONCRETE ANCHOR INSTALLATION INSPECTOR (IF APPLICABLE TO THE PROJECT)
2. **MIX DESIGN:** THE TESTING LABORATORY SHALL REVIEW THE SUBMITTED MIX DESIGNS WHICH HAVE BEEN APPROVED BY THE SER FOR CONFORMANCE TO THE SPECIFICATIONS AND FOR SUITABILITY FOR USE IN THE PROJECT. THE SPECIFIED SLUMP SHALL BE INDICATED IN THE MIX DESIGN. THE SPECIFIED SLUMP IS THAT WHICH IS INDICATED IN THE APPROVED MIX DESIGNS.
3. THE FOLLOWING TESTS SHALL BE COMPLETED BY THE TESTING LABORATORY:
   - A. **DURING CONCRETE PLACEMENT**:
     - a. SLUMP SHALL BE TESTED PRIOR TO ADDING ANY WATER (RETEMPERING) CONTINUOUSLY RECORD THE AMOUNT OF ANY WATER ADDED AND NOTE IF IT EXCEEDS THE AMOUNT ALLOWED TO BE ADDED SHOWN IN THE APPROVED MIX DESIGN/TRUCK TICKET. IF THE AMOUNT OF WATER ALLOWED TO BE ADDED IS NOT INCLUDED, NOTIFY THE CONTRACTOR IMMEDIATELY SO THEY CAN NOTIFY THE BATCH PLANT THAT THESE MUST BE INCLUDED.
     - b. MOLD CONCRETE TEST CYLINDERS AS SPECIFIED BELOW.
     - c. PERFORM TESTS TO DETERMINE SLUMP, CONCRETE TEMPERATURE, UNIT WEIGHT, AND AIR ENTRAINMENT AS SPECIFIED BELOW.
     - d. RECORD INFORMATION FOR CONCRETE TEST REPORTS AS SPECIFIED BELOW.
     - e. PICK UP AND TRANSPORT TO LABORATORY CYLINDERS CAST THE PREVIOUS DAY.
       - THE TESTING LABORATORY IS RESPONSIBLE FOR PROVIDING INITIAL CURING FACILITIES ON-SITE IN ACCORDANCE WITH ASTM C 31, THE CONTRACTOR SHALL PROVIDE SPACE AND TEMPORARY POWER, IF REQUIRED.
   - B. **AFTER CONCRETE PLACEMENT**:
     - a. INVESTIGATION OF LOW STRENGTH CONCRETE TEST RESULTS:
       - THE REBOUND HAMMER MAY BE USED BUT IN ACCORDANCE WITH ASTM C805 IT CANNOT BE USED AS THE BASIS TO ACCEPT OR REJECT CONCRETE AND SHALL BE SUPPLEMNTED BY COMPRESSIVE STRENTH TESTS FROM CORES TO CREATE CORRELATION.
       - COST OF INVESTIGATIONS FOR LOW STRENGTH CONCRETE: THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH INVESTIGATIONS OF LOW-STRENGTH CONCRETE. IF THE CONTRACTOR HAS ANY RESERVATIONS REGARDING THE SAMPLING OR INSPECTION METHODS EMPLOYED BY THE TESTING LABORATORY, SUCH CONCERNS MUST BE PROMPTLY DOCUMENTED IN WRITING AND SIMULTANEOUSLY SUBMITTED TO THE OWNER, TESTING LABORATORY, AND ENGINEER OF RECORD FOR REVIEW AND RESOLUTION.
4. **STANDARDS FOR CONCRETE TESTS:**
   - A. **CONCRETE TEST CYLINDERS**: MOLD AND TEST CONCRETE CYLINDERS AS DESCRIBED BELOW:
     - a. **CYLINDER MOLDING AND TESTING:** CYLINDERS FOR STRENGTH TESTS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C 31 AND TESTED IN ACCORDANCE WITH ASTM C 39. CYLINDERS MAY BE EITHER 6" IN DIAMETER BY 12" OR 4" IN DIAMETER BY 8", HOWEVER, THE DIAMETER OF THE CYLINDER SHALL BE AT LEAST THREE TIMES THE NOMINAL MAXIMUM SIZE OF THE COARSE AGGREGATE IN THE MIX TESTED. ALL OF THE CYLINDERS FOR EACH CLASS OF CONCRETE SHALL BE OF THE SAME DIMENSION FOR ALL SETS OF THAT CLASS.
     - b. **FIELD SAMPLES:** FIELD SAMPLES FOR STRENGTH TESTS SHALL BE TAKEN IN ACCORDANCE WITH ASTM C 172 AT THE **POINT OF PLACEMENT**.
     - c. **QUANTITY OF CYLINDERS:** EACH SET OF TEST CYLINDERS SHALL CONSIST OF A MINIMUM OF (4) 4x8 or (3) 6x12 STANDARD TEST CYLINDERS. IF THE CONTRACTOR WISHES TO LOAD THE CONCRETE, STRIP FORMS, STRESS CABLES, ETC., THEN ADDITIONAL CYLINDERS SHALL BE TAKEN FOR 3, 7, ETC., DAY BREAKS.
     - d. **FREQUENCY OF TESTING:** A SET OF TEST CYLINDERS SHALL BE MADE ACCORDING TO THE FOLLOWING MINIMUM FREQUENCY GUIDELINES:
       - ONE SET FOR EACH CLASS OF CONCRETE TAKEN NOT LESS THAN ONCE A DAY.
       - SPREAD FOOTINGS: ONE SET FOR EACH 50 CUBIC YARDS OR FRACTION THEREOF.
       - FLOORS: ONE SET FOR EACH 60 CUBIC YARDS OR FRACTION THEREOF BUT NOT LESS THAN ONE SET FOR EACH 5,000 SQUARE FOOT OF FLOOR AREA.
       - ALL OTHER CONCRETE: A MINIMUM OF ONE SET FOR EACH 100 CUBIC YARDS OR FRACTION THEREOF BUT NOT LESS THAN ONE SET FOR EACH 5,000 SQUARE FOOT OF AREA FOR WALLS.
     - e. THE CYLINDERS SHALL BE NUMBERED, DATED, AND THE POINT OF CONCRETE PLACEMENT IN THE BUILDING RECORDED.
   - B. **ACCEPTANCE CRITERIA FOR CONCRETE STRENGTH:** THE STRENGTH LEVEL OF AN INDIVIDUAL CLASS OF CONCRETE SHALL BE CONSIDERED SATISFACTORY IF BOTH THE FOLLOWING REQUIREMENTS ARE MET:
     - a. THE AVERAGE OF ALL SETS OF THREE CONSECUTIVE STRENGTH TESTS EQUAL OR EXCEED THE REQUIRED F'C.
     - b. NO INDIVIDUAL STRENGTH TEST FALLS BELOW THE REQUIRED F'C BY MORE THAN 500 PSI.
     - c. A STRENGTH TEST SHALL BE DEFINED AS THE AVERAGE STRENGTH OF TWO 6" X 12" CYLINDER BREAKS OR THREE 4" X 8" CYLINDER BREAKS TESTED AT THE STRENGTH AGE INDICATED ON THE DRAWINGS FOR THAT CLASS OF CONCRETE.
5. **FIELD INSPECTION**: THE SCOPE OF THE WORK TO BE PERFORMED BY THE INSPECTOR ON THE JOBSITE SHALL BE AS FOLLOWS:
   - A. **BEFORE CONCRETE PLACEMENT:**
     - a. INSPECT CONCRETE REINFORCING - 100% OF THE REINFORCEMENT SHALL BE INSPECTED FOR CONFORMANCE WITH THE STRUCTURAL DRAWINGS & APPROVED REINFORCEMENT PLACING DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN THE TWO, THEN THE SER SHALL BE NOTIFIED TO CLARIFY INTENT.
     - b. INSPECT 100% OF BOLTS , EMBED PLATES AND ANCHOR RODS TO BE EMBEDDED IN CONCRETE FOR PROPER GRADE, SIZE, LENGTH, AND EMBEDMENT.
     - c. WHERE A MOISTURE RETARDER IS SPECIFIED, VERIFY THAT THE MOISTURE RETARDER IS PROVIDED, IS LAPPED/TAPED PROPERLY, AND IS NOT TORN OR PUNCTURED.
     - d. VERIFY THAT THERE IS NO STANDING WATER IN POUR AREA AND THAT ALL DEBRIS HAS BEEN REMOVED FROM THE AREA AND FROM THE FORMWORK.
   - B. **DURING CONCRETE PLACEMENT:** PROVIDE CONTINUOUS MONITORING TO:
     - a. VERIFY THAT THERE ARE NO COLD JOINTS.
     - b. VERIFY THAT THE CONCRETE IS PROPERLY CONSOLIDATED (VIBRATED).
     - c. VERIFY THAT THE CONTRACTOR IS USING PROPER APPLICATION TECHNIQUES.
     - d. RECORD IF THE CONTRACTOR IS SPRAYING WATER ONTO SURFACE OF CONCRETE DURING FINISHING.
   - C. **AFTER PLACEMENT**
     - a. VERIFY THAT CONTRACTION JOINTS (SAW-CUTS) ARE APPLIED PER THESE CONSTRUCTION DOCUMENTS, IF APPLICABLE.
     - b. RECORD THE METHOD OF CURING APPLIED AND WHETHER IT CONFORMS TO THE CONSTRUCTION DOCUMENTS. IF THE CONTRACTOR IS USING A CURING COMPOUND, RECORD THE PRODUCT AND APPLICATION RATE USED. CONFIRM IT HAS BEEN APPLIED IN ACCORDANCE WITH THE MFR. RECOMMENDATIONS.
6. THE APPROVED AGENCY FOR SPECIAL INSPECTIONS AND TESTING SHALL IMMEDIETLY REPORT ANY IRREGULARITIES THAT OCCUR IN THE CONCRETE AT THE JOB SITE OR TEST RESULTS TO THE CONTRACTOR, ARCHITECT, OWNER, AND ENGINEER. REPORTS WITHOUT IRREGULATIRES SHALL BE PROVIDED TO THE ENGINEER WITHIN 10-BUSINESS DAYS.
7. IF NOT DONE SO BY THE THE SPECIAL INSPECTOR, THE CONTARCTOR SHALL TABULATE THE STRENGTH TEST DATA FOR EACH MIX DESIGN AND SUBMIT TO THE ENGINEER.

Project: 25-00384
Release Date: 07/10/2026
Revisions:

No.	Description	Date
1	REV. 1	

Consultant:

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City of Brenham Henderson Park Basketball Court Pavilion
BRENHAM, TEXAS

Architect:
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STATE OF TEXAS
S. CHAVEZ-OKHUYSEN
157367
LICENSED PROFESSIONAL ENGINEER
07/10/2026

STATEMENT OF SPECIAL INSPECTIONS

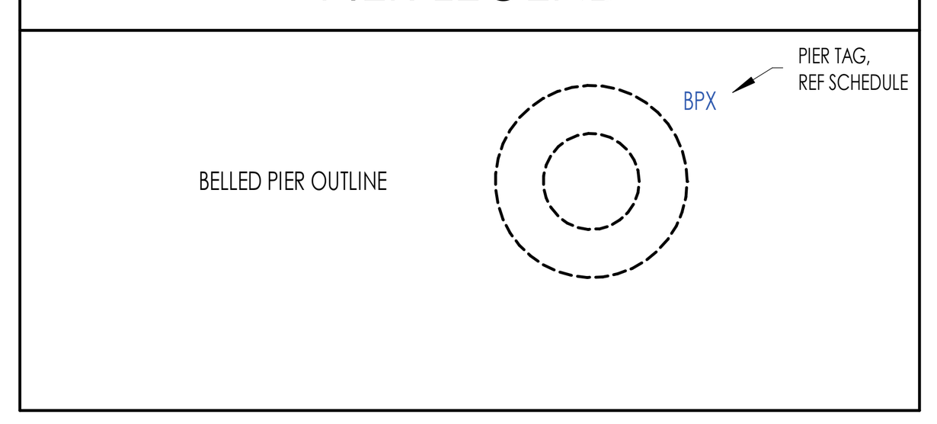
S0.3

......OF......

STRUCTURAL REFERENCE SHEETS

CONCRETE WALL PLAN: S1.1
DEEP FOUNDATION DETAILS: S3.2

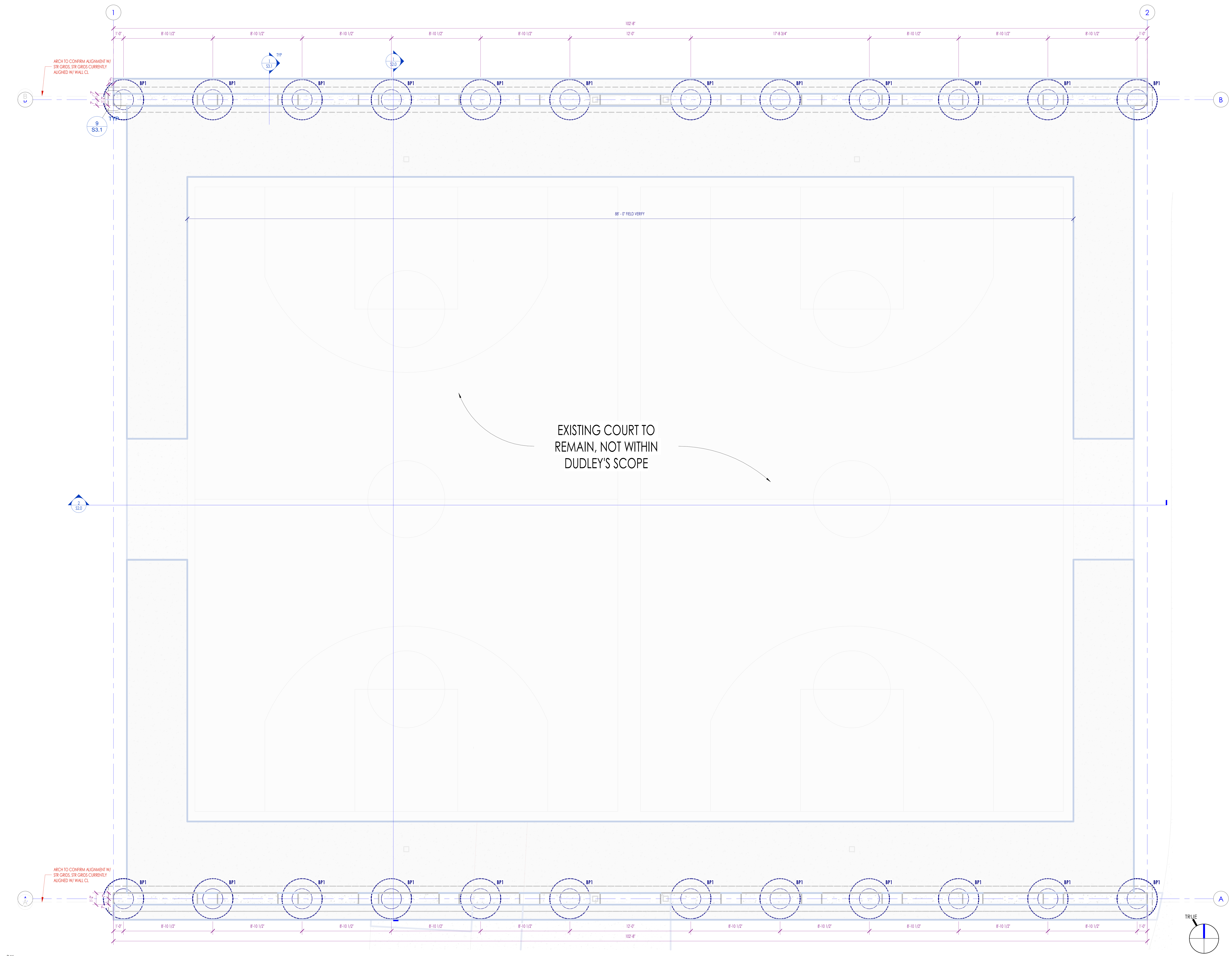
PIER LEGEND



PIER SCHEDULE	
PIER TAG	SHAFT DIAMETER/ BELL DIAMETER
BP1	24" / 48"

PIER SCHEDULE NOTES:

1. ALL PIERS SHALL BE EMBEDDED 10'-0" BELOW EXISTING GRADE.
2. ALL PIERS ARE TYPE P1, UNO.
3. THE TOP OF PIER IS EQUAL TO BOTTOM OF DEEPEST BEAM, WALL, PLINTH ETC. THAT IS SUPPORTED BY THE PIER.
   A. **THE CONTRACTOR SHALL COORDINATE BETWEEN THE LATEST CIVIL GRADING PLANS AND STRUCTURAL DRAWINGS TO DETERMINE THE TOTAL LENGTH OF THE PIERS AND THEIR REINFORCEMENT. THIS COORDINATION SHALL BE DONE PRIOR TO ISSUING REBAR PLACING/SHOP DRAWINGS FOR THE PIERS. SHOP DRAWINGS SUBMITTED WITHOUT THIS COORDINATION WILL BE RETURNED AS "REVISE & RESUBMIT".**
4. FOR TYPICAL PIER DETAIL REFERENCE 1 / S3.2.
5. UNLESS NOTED OTHERWISE, THE CENTERLINE OF PIERS SHALL BE LOCATED AT THE CENTER/INTERSECTING LINES OF SUPPORTED ELEMENTS. IF UNCLEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR CLARIFICATION.
6. IN ACCORDANCE WITH STANDARD GEOTECHNICAL BEST PRACTICES, A TEST PIER OUTSIDE THE EXTENTS OF THE STRUCTURE IS RECOMMENDED TO DETERMINE APPROPRIATE INSTALLATION PROCEDURES AND TO ENSURE SUCCESSFUL PIER INSTALLATION. CONTRACTOR TO VERIFY WITH THE PROJECT GEOTECHNICAL ENGINEER FOR THE RECOMMENDATIONS FOR A TEST PIER.



1 CONCRETE WALL PIER PLAN
1/4" = 1'-0"

Project: 25-00384
Release Date: 07/10/2026
Revisions:

No.	Description	Date

Consultant:
DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL

City of Brenham Henderson Park Basketball Court Pavilion
BRENHAM, TEXAS

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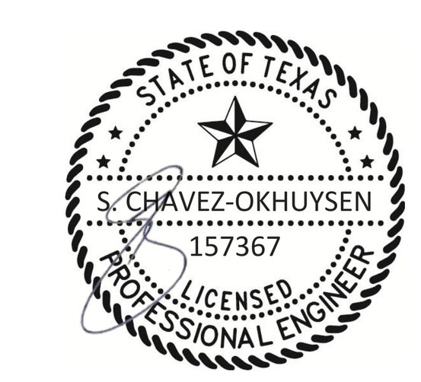


07/10/2026

DEEP FOUNDATIONS PLAN

S1.0

......OF......

STRUCTURAL REFERENCE SHEETS

CONCRETE DETAILS: S3.0
CONCRETE WALL DETAILS: S3.1
PIER DETAILS: S3.2
FLATWORK/ SIDWALK DETAILS: S4.0

PLAN NOTES

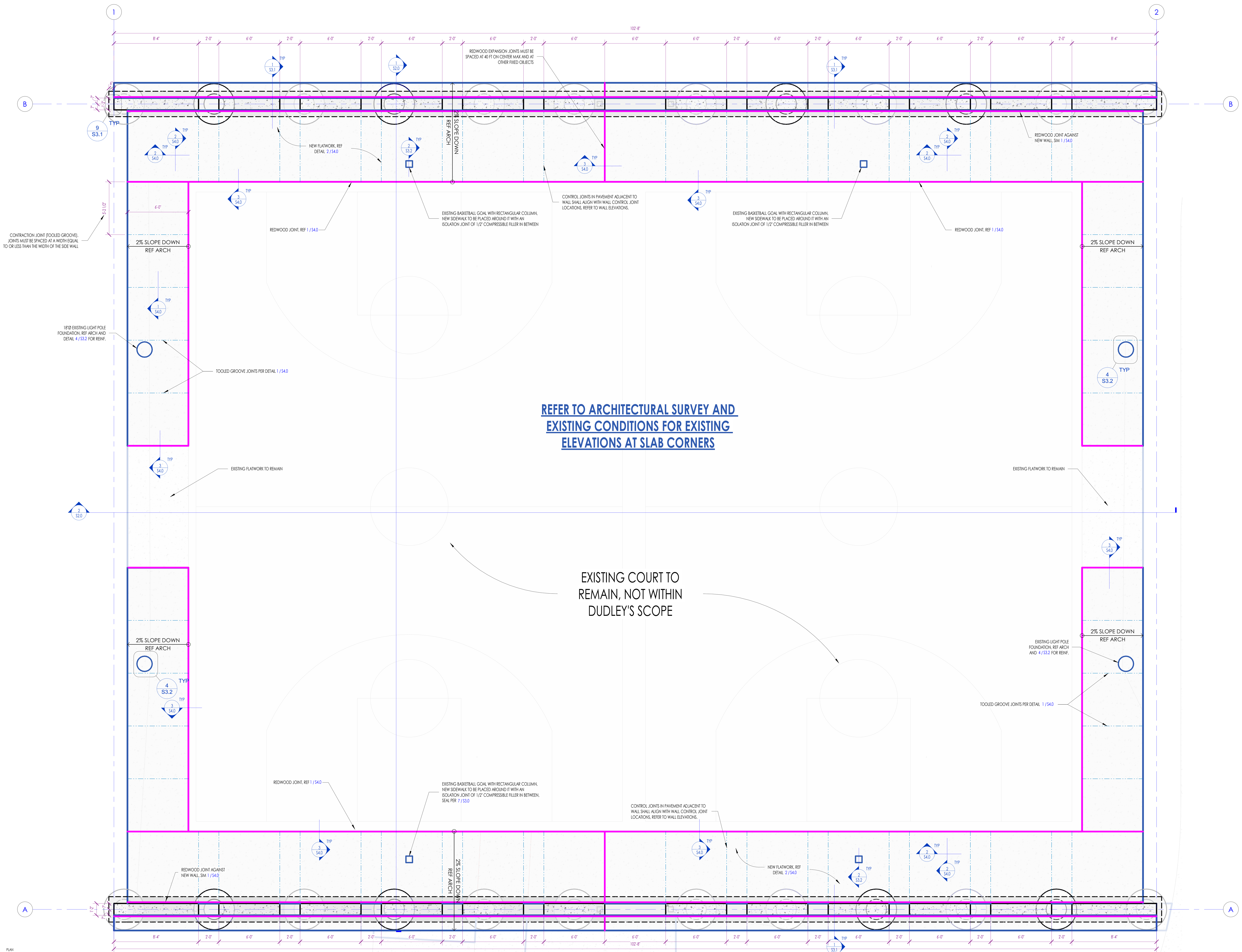
1. VERIFY ALL EDGE OF SLAB, LEDGE, ETC DIMENSIONS WITH FINAL ARCHITECTURE PLANS.
2. FORM DIMENSIONS: SLAB DROPS, SLOPES, ETC. ARE SHOWN AS AN AID TO THE CONTRACTOR ONLY. VERIFY EXACT DIMENSIONS AND LOCATIONS WITH ARCH/OWNER.
3. DIMENSIONS ARE TO CL OF GRADE BEAMS OR EDGE OF SLAB UNLESS NOTED OTHERWISE.
4. CONTRACTION (CONTROL) AND EXPANSION JOINTS ARE REQUIRED TO MITIGATE UNCONTROLLED CRACKS IN THE FLAT WORK. FOR THE REQUIRED MAXIMUM JOINT SPACING, DEPTH AND ADDITIONAL CRITERIA, REF DETAIL 1 / S4.0
5. FOR FLATWORK OR PAVEMENT ABUTTING EXISTING FOUNDATION, REF DETAIL 3 / S4.0
6. ANCHOR BOLT / HOLDOWNS: REFERENCE QUONSET HUT DEFERRED SUBMITTAL FOR ALL ANCHOR BOLT AND HOLDOWN SIZES AND SPACING/LOCATION REQUIREMENTS.
7. CONSTRUCTION JOINTS (COLD JOINTS) ARE ONLY WHERE SPECIFICALLY SHOWN ON THE PLANS.
8. REVIEW AND/OR ANALYSIS OF EQUIPMENT, MATERIAL STOCKPILING, ETC. TO BE PLACED ON THE STRUCTURE DURING CONSTRUCTION ARE NOT WITHIN THE SER'S BASIC SCOPE OF SERVICES. CONSTRUCTION ENGINEERING SERVICES CAN BE PROVIDED AS AN ADDITIONAL SERVICE OR THE CONTRACTOR CAN ENGAGE A SPECIALTY STRUCTURAL ENGINEER TO CONDUCT THE REVIEW/ANALYSIS. THE STRUCTURE HAS ONLY BEEN DESIGNED FOR THE LOADS INDICATED IN THE DESIGN CRITERIA SECTION AND/OR LIVE LOAD PLANS OF THESE GENERAL NOTES. ANY VEHICLES ON EXPOSED CONCRETE SLABS SHALL HAVE NON-MARKING TIRES OR TIRE COVERS TO PREVENT MARKING ON THE SLAB.

PLAN LEGEND

FLAT WORK PERIMETER
GRADE BEAM OUTLINE
CONTRACTION (CONTROL) JOINT
EXPANSION JOINT
SLOPE IN TOP SURFACE OF SLAB, REF ARCH FOR EXTENTS AND MAGNITUDE — SLOPE DOWN REF ARCH
EXPOSED CONCRETE
LIGHT BROOM FINISH (VERIFY/MATCH EXISTING) V.W. ARCH

CAST-IN-PLACE CONCRETE WALL PLAN NOTES:

1. REFER TO ELEVATION FOR LOCATIONS OF CONTRACTION (CONTROL) JOINTS REFERENCE DETAIL 5/S3.1
2. FOR VERTICAL CONSTRUCTION JOINTS IN THE WALL, REF DETAIL 3/S3.1
3. FOR END TERMINATION OF REINFORCEMENT REFERENCE DETAIL 4/S3.1



1 CONCRETE WALL & PAVEMENT PLAN
1/4" = 1'-0"

GRADE BEAM & FLATWORK SCHEDULE

FOUNDATION TYPE:	DRILLED PIERS, GRADE BEAM, & FLATWORK					
SLAB THICKNESS:	4"					
SLAB REINFORCEMENT:	#3 @ 18 O.C.E.W.					
DESIGN METHOD:	CITY OF BRENHAM PUBLIC INFRASTRUCTURE DESIGN MANUAL					
VAPOR RETARDER:	NOT REQUIRED					
BEAM ID[1]	DESCRIPTION	WIDTH	DEPTH	TOP BARS	BOTTOM BARS	STIRRUPS[2,6]
B1	TYPICAL BEAM	30"	30"	(3) - #6	(3) - #6	6@3", R@12"

NOTES:
1. BEAMS ARE TYPE B1 UNO.
2. LOCATE THE FIRST STIRRUP A MAXIMUM OF 3" FROM FACE OF SUPPORT.
3. FOR VERTICAL MOISTURE BARRIERS THE DEPTH PROVIDED ARE AS FOLLOWS: (BEAM CAGE DEPTH / MINIMUM EMBEDMENT BELOW FINAL GRADE)
4. N/R = NOT REQUIRED
5. ALLOWABLE GRADE BEAM SPLICE LOCATIONS - REFER TO DETAIL 2 / S3.0
   A. TOP BARS: MIDDLE THIRD BETWEEN PIERS
   B. BOTTOM BARS: DIRECTLY OVER GRADE BEAMS (STAGGERED, ONE BAR MAY BE SPLICED PER PIER)
   C. FACE BARS: MIDDLE THIRD BETWEEN PIERS
6. STIRRUP NOTES:
   A. ALL STIRRUPS SHALL BE NO. 4 BARS.
   B. STIRRUP SPACING (**N@Y**", **R@X**") INDICATE **N** STIRRUPS AT A SPACING OF **Y** STARTING FROM EACH SIDE OF THE BEAM SUPPORT WITH THE REMAINDER OF THE BEAM WITH STIRRUPS AT MAX X SPACING.

REFERENCE DRAWING(S):
SLAB DIMENSIONS SHOWN ARE BASED UPON THE FOLLOWING CAD (COMPUTER-AIDED DESIGN) REFERENCE FILE(S), BY OTHERS.
- FILE FORMAT: REVIT
- FILE NAME: Henderson Park Pavilion
- DATE OF FILE: 06/23/2026
- FILE AUTHOR: BBAx ARCHITECTS

SUBGRADE, BUILDING PAD, DRAINAGE, UTILITIES AND LANDSCAPING NOTES (PER GEOTECHNICAL REPORT):

THE EARTHWORK AND BUILDING PAD NOTES CONTAINED BELOW ARE INTENDED TO PROVIDE A SUMMARY OF THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT. THE CONTRACTOR SHALL REVIEW AND BE THOROUGHLY FAMILIAR WITH ALL RECOMMENDATIONS OF THE REPORT. OMISSIONS OR RESTATEMENTS DO NOT RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH THE GEOTECHNICAL REPORT. THE FOUNDATION DESIGN ASSUMES THAT THE FOUNDATION IS CONSTRUCTED WHEN THE SOIL AT THE SITE IS NEAR OR AT EQUILIBIRUM MOISTURE CONTENT. IF THE SITE IS CONSTRUCTED AT A TIME WHEN THE SITE MAY BE IN A CONDITION OF EXTREME DRYNESS/WETNESS FROM A PROLONGED DRY/WET PERIOD, THEN THE CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL ENGINEER FOR RECOMMENDATIONS TO ADJUST THE MOISTURE CONTENT IN THE BUILDING PAD TO ACHIEVE EQUILIBRIUM.

1. **SUBGRADE IMPROVEMENT:**
   A. PROVIDE ALL FILL NECESSARY TO MEET THE REQUIRED GRADING AND DRAINAGE SLOPES AND/OR TO REPLACE UNSUITABLE SOILS WITH SELECT FILL UP TO THE TOP OF BUILDING PAD ELEVATION, BUT NOT LESS THAN 1 FOOT THICK. SELECT FILL SHALL BE PLACED IN A UNIFORM THICKNESS, UNLESS OTHERWISE DIRECTED BY THE GEOTECHNICAL ENGINEER.
2. **DRAINAGE**
   A. ROOF DRAINAGE SHALL BE COLLECTED BY A SYSTEM OF GUTTERS & DOWNSPOUTS OR PIPING SYSTEM (INTERIOR DRAINS) AND DISCHARGED A MINIMUM DISTANCE OF 10' AWAY FROM THE FOUNDATION TO AN AREA WITH POSITIVE DRAINAGE AWAY FROM THE FOUNDATION, PREFERABLY TO A PAVED SURFACE WHERE WATER CAN DRAIN RAPIDLY AWAY FROM THE STRUCTURE. SIDEWALKS, PARKING AREAS, BUILDING ACCESS DRIVES, AND THE GENERAL GROUND SURFACE SHOULD BE SLOPED SO THAT WATER WILL DRAIN AWAY FROM THE STRUCTURE. WATER SHOULD NOT BE ALLOWED TO POND NEAR THE FOUNDATION(S).
   B. FINAL GRADES SHALL SLOPE A MINIMUM OF 5% (6") FOR THE FIRST 10 FEET AWAY FROM THE FOUNDATION IN ALL DIRECTIONS, WITH THE EXCEPTIONS BELOW. [NOTE: THIS SLOPE SHALL OCCUR IN THE SELECT FILL OR IN-SITU SOIL. MERELY SLOPING TOPSOIL IS NOT SUFFICIENT, SINCE THIS STRATA IS TYPICALLY PERVIOUS AND COULD LEAD TO A PERCHED GROUNDWATER CONDITION] REFER TO CIVIL DRAWINGS FOR ALL DRAINAGE REQUIREMENTS.
      a. EXCEPTIONS:
         - WHERE LOT LINES, WALLS, SLOPES OR OTHER PHYSICAL BARRIERS PROHIBIT 6 INCHES OF FALL WITHIN 10 FEET, A 5% SLOPE SHALL BE PROVIDED TO EITHER DRAINS OR SWALES TO ENSURE DRAINAGE AWAY FROM THE STRUCTURE.
           1. SWALES USE FOR THIS PURPOSE SHALL BE SLOPED NOT LESS THAN 2% WHERE LOCATED WITHIN 10' OF THE BUILDING FOUNDATION.
         - IMPERVIOUS SURFACES WITHIN 10 FEET OF THE BUILDING FOUNDATION SHALL BE SLOPED A MINIMUM OF 2% AWAY FROM THE BUILDING.
3. **LANDSCAPING**
   A. DO NOT USE METAL EDGING OR OTHER DAMMING DEVICES WITHIN FIVE FEET OF THE FOUNDATION. THE ROOTS OF TREES AND LARGE PLANTS REMOVE LARGE QUANTITIES OF WATER FROM THE SOIL. IF THESE TREES AND SHRUBS ARE NEAR THE FOUNDATION AND IF SUFFICIENT WATER IS NOT SUPPLIED, THE SOILS MAY SHRINK IF EXPANSIVE, CAUSING SUBSIDENCE IN THE FOUNDATION. DURING DRY PERIODS, ENOUGH WATER SHOULD BE SUPPLIED TO TREES TO MINIMIZE SHRINKING OF EXPANSIVE SOILS AROUND THEM. MOST OF THE IRRIGATION WATER SHOULD BE APPLIED WELL AWAY FROM THE FOUNDATION TO ATTRACT THE TREE ROOTS IN THAT DIRECTION. WHEN TREES MATURE TO THE POINT OF SHADING THE ENTIRE LOT, REGULAR PRUNING WILL BE NEEDED TO REDUCE THEIR WATER UPTAKE. LANDSCAPING (PLANTS, SHRUBS, FLOWERS, ETC.) SHOULD NOT TRAP WATER AGAINST THE FOUNDATION. PROVIDE A SLOPE IN SOILS BELOW LANDSCAPE BEDDING AND IN THE BEDDING AWAY FROM THE FOUNDATION. ALTERNATIVELY, PROVIDE SWALES AROUND AND THROUGH THE LANDSCAPING TO DRAIN WATER AWAY. PROVIDE UNIFORM GROUND COVER AROUND THE FOUNDATION. THIS WILL HELP KEEP THE MOISTURE EVAPORATION RATE UNIFORM. IN AREAS THAT ARE NOT PLANTED, USE MULCH. EXTEND THE GROUND COVER AT LEAST FIVE FEET FROM THE FOUNDATION.
   B. ANY/ALL TREES SHALL BE PLANTED AT A MINIMUM DISTANCE EQUIVALENT TO THE HEIGHT OF THE TREE OR THE DRIP LINE PLUS 10 FEET WHICHEVER IS GREATER.
4. **UTILITIES**
   A. CONNECTIONS FOR UTILITIES (PLUMBING, ELECTRICAL, GAS, ETC.) THAT ARE UNDERNEATH, GO THROUGH OR ARE ATTACHED TO THE FOUNDATION SHALL HAVE BE FLEXIBLE TO ACCOMMODATE FOUNDATION MOVEMENT OF AT LEAST 2". ALL DRAINAGE PIPING, AND GENERAL PLUMBING SYSTEMS ASSOCIATED WITH THE FOUNDATION OR IN PROXIMITY TO THE FOUNDATION SHALL BE LEAK TESTED FOLLOWING INSTALLATION AND ON AN ANNUAL BASIS.
5. **SITE PREPARATION**
   A. FOLLOW ALL REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT. NOTIFY THE GEOTECHNICAL ENGINEER FOR QUESTIONS OR TROUBLESHOOTING RELATED TO SITE PREPARATION. A QUALIFIED SOIL TECHNICIAN SHOULD MONITOR ALL EARTHWORK OPERATIONS.
   B. **SELECT FILL SOIL EXTENTS**: THE SELECT FILL SOILS... SHALL BE LIMITED TO THE FOOTPRINT OF THE FOUNDATION EXCEPT WHERE THERE IS IMPERVIOUS COVER (PAVEMENT, FLATWORK, SIDEWALK, ETC.) ABUTTING THE FOUNDATION IN WHICH CASE IT SHALL BE EXTENDED OUTSIDE THE FOUNDATION FOOTPRINT (5') OR TO THE EXTENTS OF THE IMPERVIOUS COVER, WHICHEVER IS LESS. IF OVERBUILD OF SELECT FILL IS REQUIRED WHERE THIS IS NOT IMPERVIOUS COVER, THEN THE CONTRACTOR SHALL INSTALL HORIZONTAL CLAY CAP TO COVER THE FILL OVERBUILD.
   C. THE CONTRACTOR SHALL INCLUDE AN ALLOWANCE FOR SUBGRADE STABILIZATION.
   D. THE FLOOR SLAB SHOULD BE PLACED AS SOON AS POSSIBLE AFTER THE BUILDING PAD IS PREPARED. IF THE BUILDING PAD IS LEFT EXPOSED TO RAINFALL, PERCHED GROUNDWATER CONDITIONS MAY DEVELOP WHICH WILL UNDERMINE THE INTEGRITY OF THE FLOOR SLAB. ALL TRENCHES (WATER, CABLE, ELECTRICAL) SHOULD BE PROPERLY BACKFILLED AND COMPACTED TO 95% OF THE MAXIMUM DRY DENSITIES. POSITIVE DRAINAGE SHOULD BE MAINTAINED ACROSS THE ENTIRE BUILDING PAD.
6. **STRUCTURAL FILL (SELECT FILL)**
   A. LOW SWELL POTENTIAL SELECT FILL SHOULD CONSIST OF COHESIVE SOILS FREE OF ORGANICS OR OTHER DELETERIOUS MATERIALS AND SHOULD HAVE A PLASTICITY INDEX OF __15 TO 30 INCLUSIVE__. SANDY CLAYS ARE RECOMMENDED FOR USE. THE LOW SWELL POTENTIAL SELECT FILL SHOULD BE CLEANED AND FREE OF ORGANIC MATTER OR OTHER DELETERIOUS MATERIAL. THE FILL SHOULD BE PLACED IN MAXIMUM 8-INCH LOOSE LIFTS AND COMPACTED TO A MINIMUM OF __95__ PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698 (STANDARD PROCTOR). THE MOISTURE CONTENT AT THE TIME OF COMPACTION SHOULD BE __-0%, +4%__ OF THE OPTIMUM VALUE AS DEFINED BY ASTM D 698. THE REFERENCED MOISTURE CONTENT AND DENSITY SHOULD BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
7. **SOIL MOISTURE**
   A. EXPANSIVE SOILS HEAVE AND SUBSIDE DUE TO CHANGES IN MOISTURE CONTENT. CHANGES IN MOISTURE CONTENT CAN CAUSE VERY LARGE CHANGES IN SOIL VOLUME WHEN GOING FROM A DRY TO A SATURATED CONDITION, AND VICE VERSA. THIS MOVEMENT DOES NOT MEAN THE FOUNDATION IS IMPROPERLY DESIGNED OR THAT IT HAS FAILED. THE FOUNDATION DESIGN ENGINEER CANNOT CONTROL THE MOISTURE CONTENT OF THE SOIL, BUT OFTEN THE OWNER/TENANT CAN. UNIFORMITY IS THE KEY: UNIFORM MOISTURE CONTENT IN THE SOIL, UNIFORMLY MAINTAINED IN ALL AREAS AROUND THE FOUNDATION. IF CHANGES IN MOISTURE CONTENT ARE UNIFORM, THEN MOVEMENT OF THE FOUNDATION WILL BE UNIFORM AND LESS DISTRESS WILL BE CREATED IN THE STRUCTURE. IF CHANGES IN MOISTURE CONTENT ARE NON-UNIFORM, THEN THERE MAY BE DIFFERENTIAL MOVEMENT IN THE FOUNDATION. DIFFERENTIAL MOVEMENT CAN CAUSE GREATER (AND MORE OBVIOUS) DISTRESS IN THE STRUCTURE. LEAKING POOLS, LEAKING PLUMBING LINES, LEAKING DRAINS, DRIPPING FAUCETS, DRIPPING AIR CONDITIONING CONDENSATE LINES, AND MISDIRECTED WATER FROM CLOGGED AND BROKEN GUTTERS AND DOWNSPOUTS CAN CAUSE LOCAL HIGH MOISTURE CONTENTS THAT CAN RESULT IN DIFFERENTIAL MOVEMENT IN AREAS OF EXPANSIVE SOILS. THESE CONDITIONS SHOULD BE REMEDIED AS SOON AS POSSIBLE. TREES IN OR NEAR THE FOOTPRINT OF THE FOUNDATION, EITHER REMOVED OR PLANTED DURING CONSTRUCTION, CAUSE THE MAJORITY OF FOUNDATION PROBLEMS REQUIRING REPAIR IN THIS AREA. TREES REMOVED DURING CONSTRUCTION TEND TO CAUSE HEAVE OF EXPANSIVE SOILS DURING THE FIRST FEW YEARS, WITH INITIAL DISTRESS OFTEN EVIDENT AT THE TIME OF MOVE-IN. TREES PLANTED DURING OR AFTER CONSTRUCTION TEND TO CAUSE SUBSIDENCE OF EXPANSIVE SOILS. HOWEVER, SIGNIFICANT SUBSIDENCE DISTRESS WILL USUALLY NOT OCCUR FOR TEN TO TWENTY YEARS AS THE TREES MATURE.
8. **CLIMATE**
   A. DURING PERIODS OF DRY WEATHER, THE SOIL AROUND THE FOUNDATION SHOULD BE IRRIGATED IF THE BUILDING IS LOCATED IN AN AREA WHERE EXPANSIVE SOILS ARE KNOWN TO OCCUR. THE MOST COMMONLY USED IRRIGATION SYSTEM IS ABOVEGROUND TIMED SPRINKLERS WITH A MANUAL OVERRIDE SO THEY CAN BE TURNED OFF IN RAINY WEATHER. AN AUTOMATIC BELOWGROUND IRRIGATION SYSTEM THAT SENSES THE MOISTURE CONTENT OF THE SOIL MAY ALSO BE USED. TEND TO KEEP THE IRRIGATION SYSTEM SET ON "MANUAL", AND ONLY USE IT IN DRIER PERIODS WHEN WILTING OF THE LAWN GRASSES AND OTHER VEGETATION OCCURS. THE IRRIGATION SHOULD BE DONE AT LEAST ONE TO TWO FEET AWAY FROM THE FOUNDATION, AND THEN LIGHTLY SO THAT TREE ROOTS ARE NOT ATTRACTED THERE. DO NOT ALLOW SPRINKLERS TO SPRAY WATER AGAINST THE STRUCTURE. IN EXTENDED DRY PERIODS, SHOULD THE SOIL CRACK AND PULL AWAY FROM THE FOUNDATION, DO NOT WATER DIRECTLY INTO THE GAP.

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City of Brenham Henderson Park Basketball Court Pavilion
BRENHAM, TEXAS

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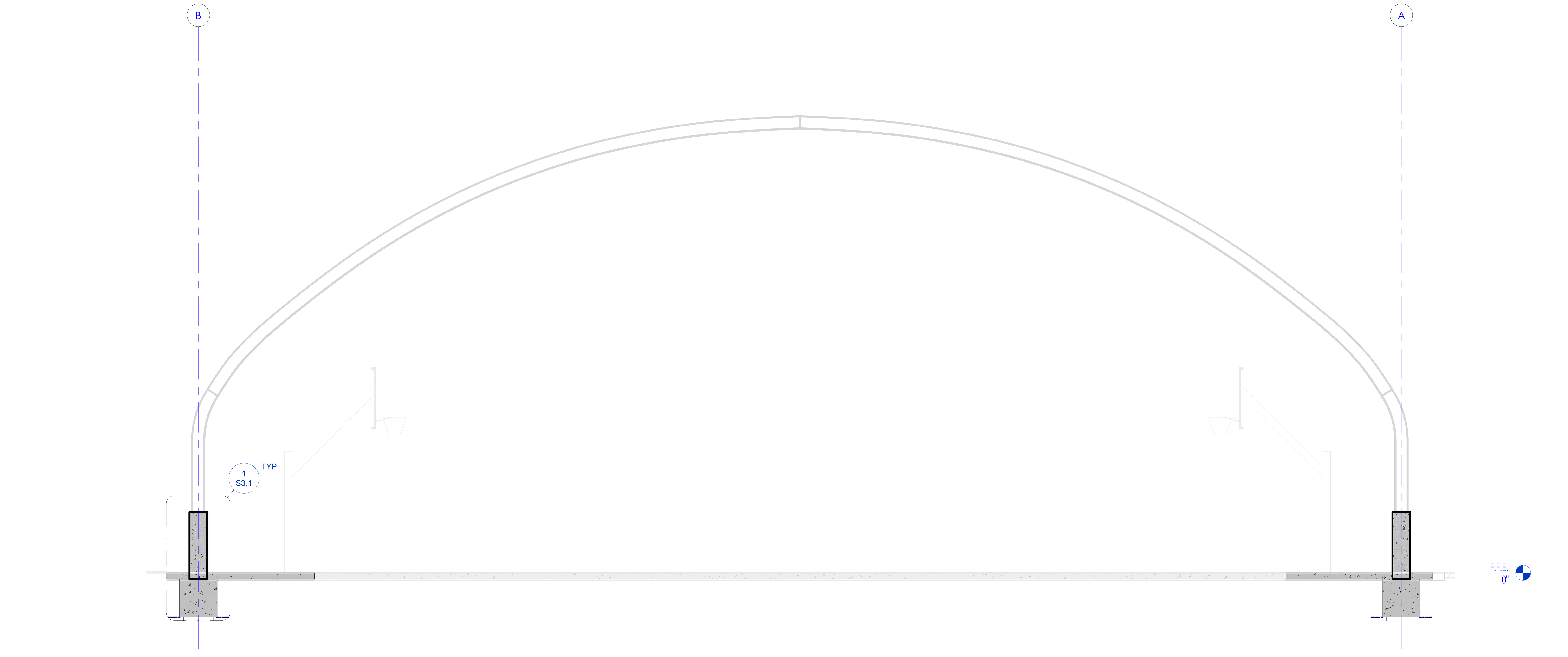
STATE OF TEXAS — S. CHAVEZ-OKHUYSEN — 157367 — LICENSED PROFESSIONAL ENGINEER
07/10/2026

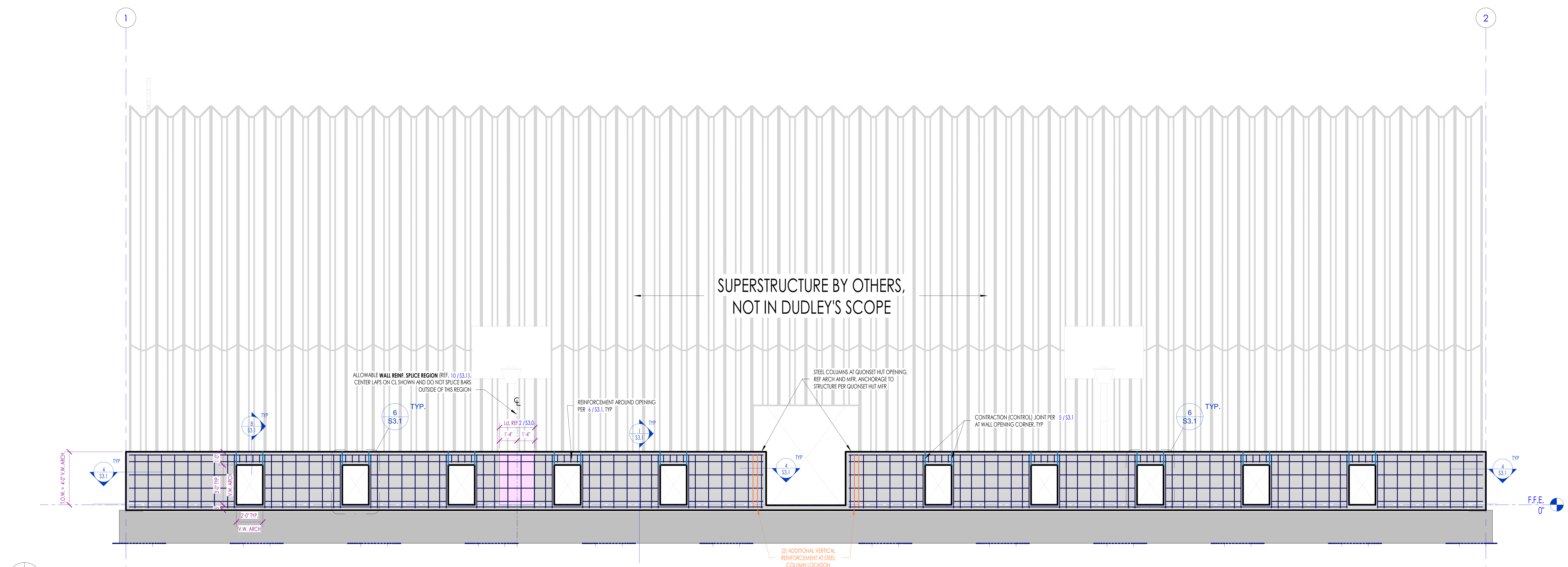
CONCRETE WALL PLAN

S1.1

......OF......



1 S2.0 / 1 S1.0 STRUCTURAL SECTION - CROSS SECTION THRU FULL HEIGHT WALL (REF. 1/A)
NOT TO SCALE



2 S2.0 / 1 S1.0 STRUCTURAL SECTION - LONGITUDINAL SECTION (REF. 2/A1)
NOT TO SCALE

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No.	Description	Date

Consultant:

DUDLEY
GEOTECHNICAL | STRUCTURAL | ENVIRONMENTAL

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

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07/10/2026

CONCRETE WALL SECTIONS

S2.0

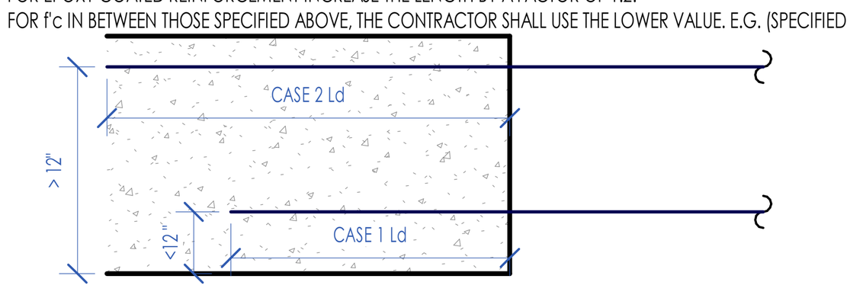
......OF......

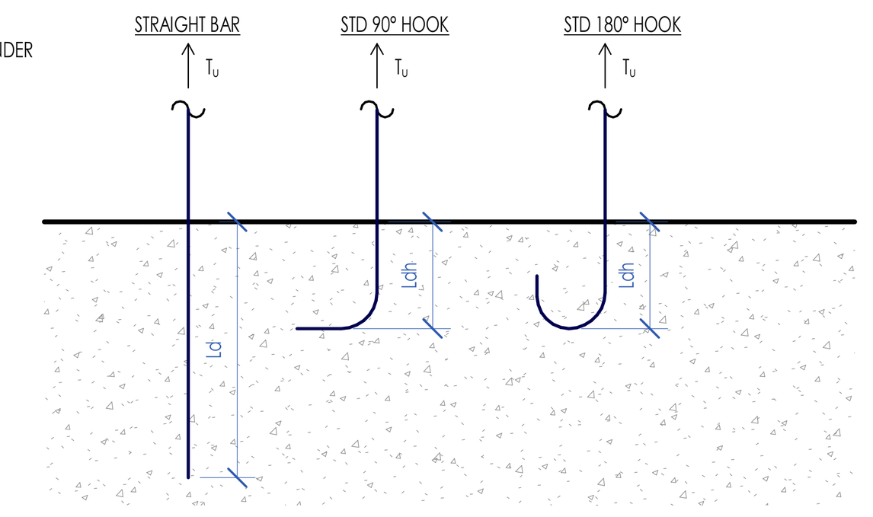
CASE 1: DEVELOPMENT LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 6,000
#3	0.375	16	14	13	12
#4	0.5	22	19	17	15
#5	0.625	27	24	21	19
#6	0.75	33	28	25	23
#7	0.875	48	42	37	34
#8	1.00	55	47	42	39
#9	1.128	62	54	48	44
#10	1.27	70	60	54	49
#11	1.41	77	67	60	55

CASE 2: DEVELOPMENT LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 6,000
#3	0.375	21	18	17	15
#4	0.5	28	25	22	20
#5	0.625	36	31	28	25
#6	0.75	43	37	33	30
#7	0.875	62	54	48	44
#8	1.00	71	62	55	50
#9	1.128	80	70	62	57
#10	1.27	90	78	70	64
#11	1.41	100	87	78	71

DEVELOPMENT LENGTHS OF STANDARD HOOKS IN TENSION, Ldh (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 6,000
#3	0.375	9	8	7	6
#4	0.5	11	10	9	8
#5	0.625	14	12	11	10
#6	0.75	17	15	13	12
#7	0.875	20	17	15	14
#8	1.00	22	19	17	16
#9	1.128	25	22	20	18
#10	1.27	28	25	22	20
#11	1.41	31	27	24	22

NOTES:
1. CASE 1 APPLIES TO REINFORCEMENT THAT HAS LESS THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT. ALL VERTICAL REINFORCEMENT FALLS UNDER CASE 1. BEAM BOTTOM BARS FALL UNDER CASE 1.
2. CASE 2 APPLIES TO REINFORCEMENT THAT HAS MORE THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT. BEAM TOP BARS FALL UNDER CASE 2.
3. CLEAR SPACING OF BARS BEING DEVELOPED MUST BE AT LEAST
4. 2db (DIA OF BAR) & CLEAR COVER AT LEAST db, INCREASE DEVELOPMENT LENGTH BY 1.5 IF OTHERWISE.
5. FOR EPOXY COATED REINFORCEMENT INCREASE THE LENGTH BY A FACTOR OF 1.2.
6. FOR f'c IN BETWEEN THOSE SPECIFIED ABOVE, THE CONTRACTOR SHALL USE THE LOWER VALUE. E.G. (SPECIFIED f'c = 3,500, THEN USE LENGTHS FOR 3,000 PSI)





NOTES:
1. THE HOOK SHALL BE LOCATED WITHIN THE CONFINED CORE OF A COLUMN OR BOUNDARY ELEMENT, WITH THE HOOK BENT INTO THE JOINT.
2. THE DEVELOPMENT LENGTH SHALL BE MULTIPLIED BY A FACTOR OF 1.2 FOR EPOXY-COATED REINFORCING BARS.
3. FOR f'c IN BETWEEN THOSE SPECIFIED ABOVE, THE CONTRACTOR SHALL USE THE LOWER VALUE. E.G. (SPECIFIED f'c = 3,500, THEN USE LENGTHS FOR 3,000 PSI)

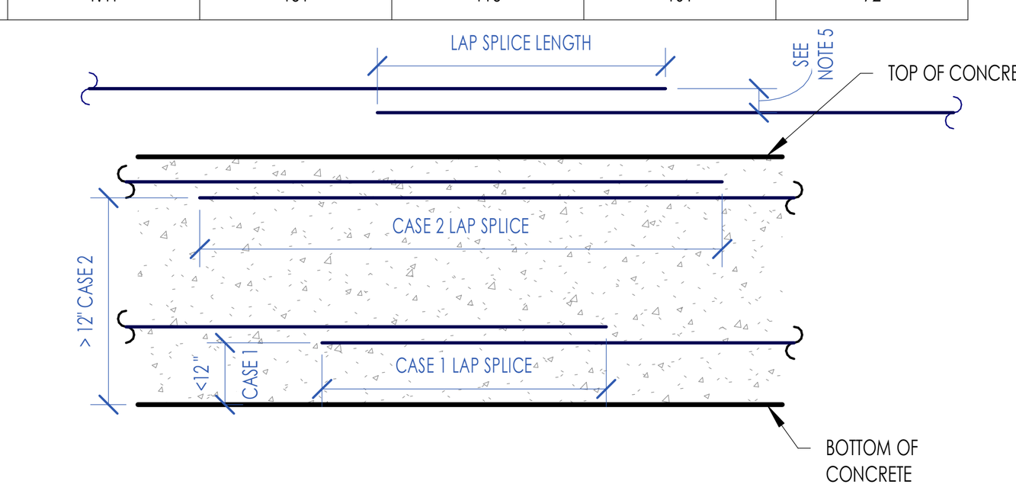
DEVELOPMENT LENGTH, Ld IS THE BONDED LENGTH REQUIRED TO ACHIEVE THE DESIGN STRENGTH OF A BAR (TO PRECLUDE THE BAR FROM SLIPPING OUT OF THE CONCRETE)

1 | S3.0 TYPICAL TENSION DEVELOPMENT LENGTH - NORMAL WEIGHT CONCRETE
NOT TO SCALE

CASE 1(≤12" CONCRETE BELOW): CLASS B SPLICE LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 6,000
#3	0.375	21	18	17	15
#4	0.5	28	25	22	20
#5	0.625	36	31	28	26
#6	0.75	43	37	33	30
#7	0.875	62	54	48	44
#8	1.00	71	62	55	50
#9	1.128	80	70	62	57
#10	1.27	90	78	70	64
#11	1.41	100	87	78	71

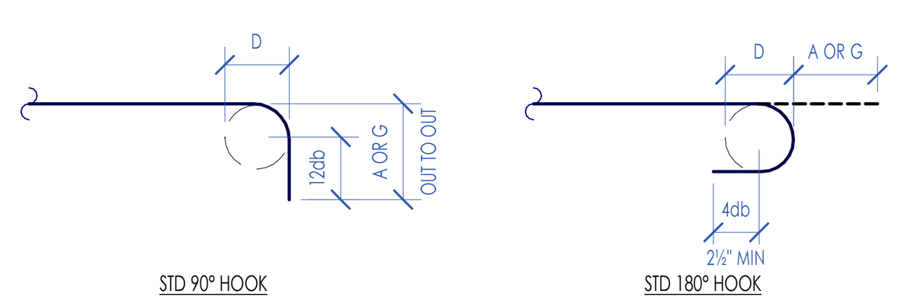
CASE 2 (>12" CONCRETE BELOW): CLASS B SPLICE LENGTHS OF REINFORCEMENT IN TENSION, Ld (IN) FY = 60,000 PSI NORMALWEIGHT CONCRETE, f'c (PSI)					
BAR SIZE	db (IN)	f'c = 3,000	f'c = 4,000	f'c = 5,000	f'c = 6,000
#3	0.375	28	24	22	20
#4	0.5	37	32	29	26
#5	0.625	46	40	36	33
#6	0.75	56	48	43	39
#7	0.875	81	70	63	57
#8	1.00	93	80	72	65
#9	1.128	104	90	81	74
#10	1.27	118	102	91	83
#11	1.41	131	113	101	92

NOTES:
1. CASE 1 APPLIES TO REINFORCEMENT THAT HAS LESS THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT. ALL VERTICAL REINFORCEMENT FALLS UNDER CASE 1. BEAM BOTTOM BARS FALL UNDER CASE 1.
2. CASE 2 APPLIES TO REINFORCEMENT THAT HAS MORE THAN 12" OF FRESH CONCRETE PLACED BELOW HORIZONTAL REINFORCEMENT. BEAM TOP BARS FALL UNDER CASE 2.
3. CLEAR SPACING OF BARS BEING DEVELOPED MUST BE AT LEAST 2db (DIA OF BAR) & CLEAR COVER AT LEAST db, INCREASE DEVELOPMENT LENGTH BY 1.5 IF OTHERWISE.
4. FOR EPOXY COATED REINFORCEMENT INCREASE THE LENGTH BY A FACTOR OF 1.2.
5. ADJACENT BARS THAT ARE TO BE SPLICED SHALL BE IN CONTACT AND TIED TOGETHER WHERE POSSIBLE. WHERE CONTACT IS NOT POSSIBLE, THE MAXIMUM OFFSET SHALL BE ONE-FIFTH THE REQUIRED LAP SPLICE LENGTH OR 6", WHICHEVER IS LESS.
6. UNLESS NOTED OTHERWISE, FOR BEAMS AND SLABS WITH A TOP AND BOTTOM MAT OF REINFORCEMENT, TOP BARS SHALL BE SPLICED WITHIN THE MIDDLE THIRD OF THE SPAN AND BOTTOM BARS SHALL BE SPLICE IN THE OUTER THIRD OF THE SPAN. REFER TO TYPICAL DETAILS FOR STAGGER REQUIREMENTS BETWEEN SPLICE LOCATIONS.
7. WHERE SPLICING BARS OF DIFFERENT SIZES, THE LAP LENGTH SHALL MATCH THAT REQUIRED FOR THE LARGE BAR.
8. FOR f'c IN BETWEEN THOSE SPECIFIED ABOVE, THE CONTRACTOR SHALL USE THE LOWER VALUE. E.G. (SPECIFIED f'c = 3,500, THEN USE LENGTHS FOR 3,000 PSI)

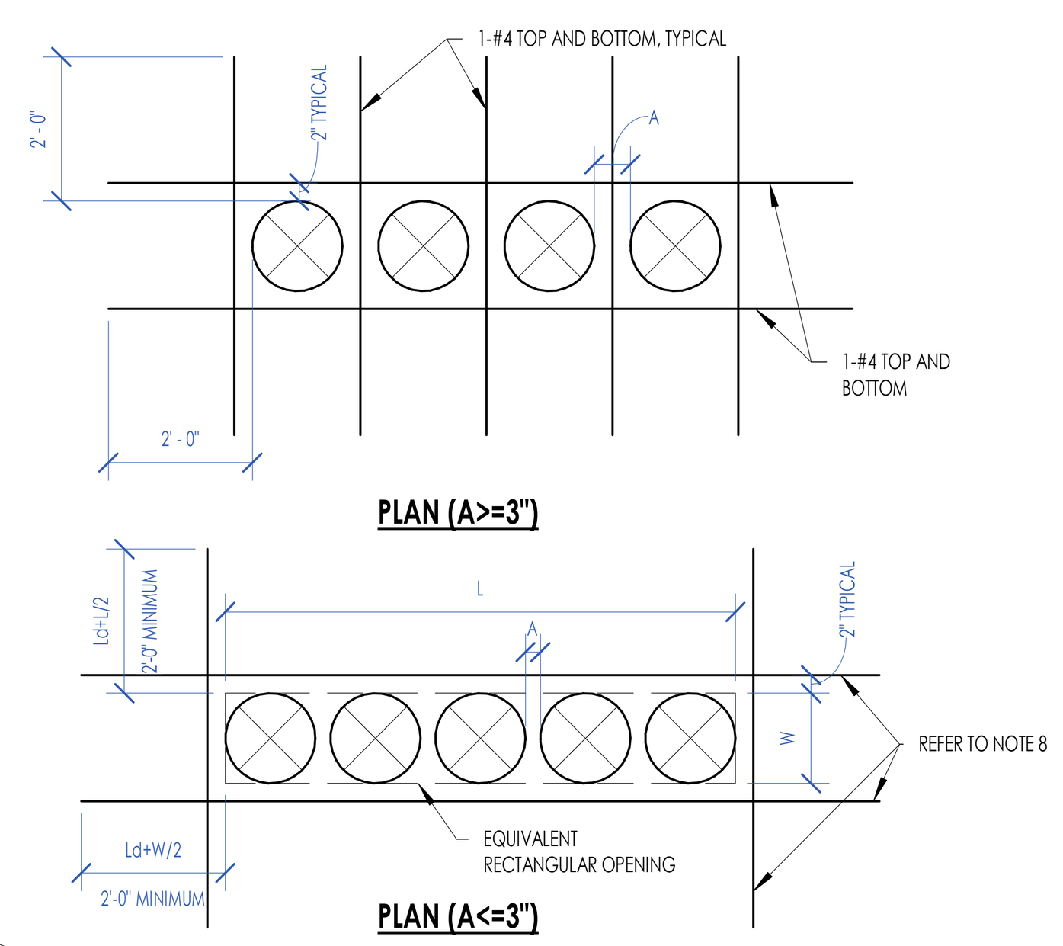


2 | S3.0 TYPICAL TENSION LAP SPLICE LENGTH
NOT TO SCALE

STANDARD END HOOK DIMENSIONS (IN)				
BAR SIZE	D	180° HOOKS		90° HOOKS
		A or G	J	A or G
#3	2 1/4	5	3	6
#4	3	6	4	8
#5	3 3/4	7	5	10
#6	4 1/2	8	6	12
#7	5 1/4	10	7	14
#8	6	11	8	16
#9	9 1/2	15	11 3/4	19
#10	10 3/4	17	13 1/4	22
#11	12	19	14 3/4	24



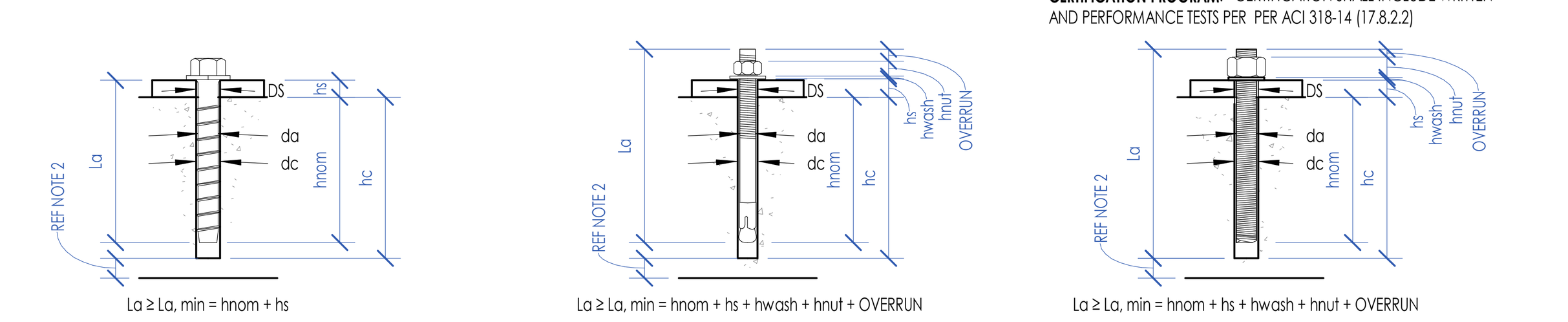
3 | S3.0 TYPICAL STANDARD END HOOK DIMENSIONS
NOT TO SCALE



NOTES:
1. WHERE CLEAR SPACING BETWEEN ADJACENT SLEEVES IS LESS THAN 3", THE SLEEVE GROUP SHALL BE TREATED AS AN EQUIVALENT RECTANGULAR OPENING WITH LENGTH "L" AND WIDTH "W" AS SHOWN
2. WHERE CLEAR SPACING BETWEEN ADJACENT SLEEVES IS GREATER THAN OR EQUAL TO 3", SCHEDULED SLAB BAR REINFORCEMENT SHALL BE OFFSET AS REQUIRED TO MISS SLEEVES.
3. REINFORCEMENT SHOWN IS IN ADDITION TO SCHEDULED SLAB REINFORCEMENT
4. SCHEDULED SLAB MESH REINFORCEMENT MAY BE CUT AS REQUIRED TO MISS PIPE SLEEVES
5. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR LOCATION AND SIZE OF SLEEVES
6. ISOLATED PIPE SLEEVES THAT ARE SMALLER THAN 5" AND DO NOT INTERRUPT REINFORCEMENT DO NOT REQUIRE THE USE OF THIS DETAIL
7. THIS DETAIL SHOULD NOT BE USED FOR OPENING GROUPS WITH DIAMETERS LARGER THAN 12". CONSULT STRUCTURAL ENGINEER FOR FRAMING OF SUCH CONDITIONS
8. PROVIDE HALF OF INTERRUPTED REINFORCEMENT PLUS ONE ADDITIONAL BAR OF SAME SIZE ON EACH SIDE OF EQUIVALENT RECTANGULAR OPENING. PROVIDE A MINIMUM OF 1-#4 TOP AND BOTTOM EACH OF OPENING

4 | S3.0 TYPICAL ADDITIONAL REINFORCEMENT AROUND PIPE SLEEVES
NOT TO SCALE

FOR A**DHESIVE ANCHORS** INSTALLED IN A **HORIZONTAL** ORIENTATION AND ALL **UPWARDLY INCLINED / VERTICAL** (INCLUDING SOFFIT INSTALLATIONS) ORIENTATION ANCHORS **SHALL BE PERFORMED BY PERSONNEL CERTIFIED BY ACI/CRSI "ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM."** CERTIFICATION SHALL INCLUDE WRITTEN AND PERFORMANCE TESTS PER PER ACI 318-14 (17.8.2.2)



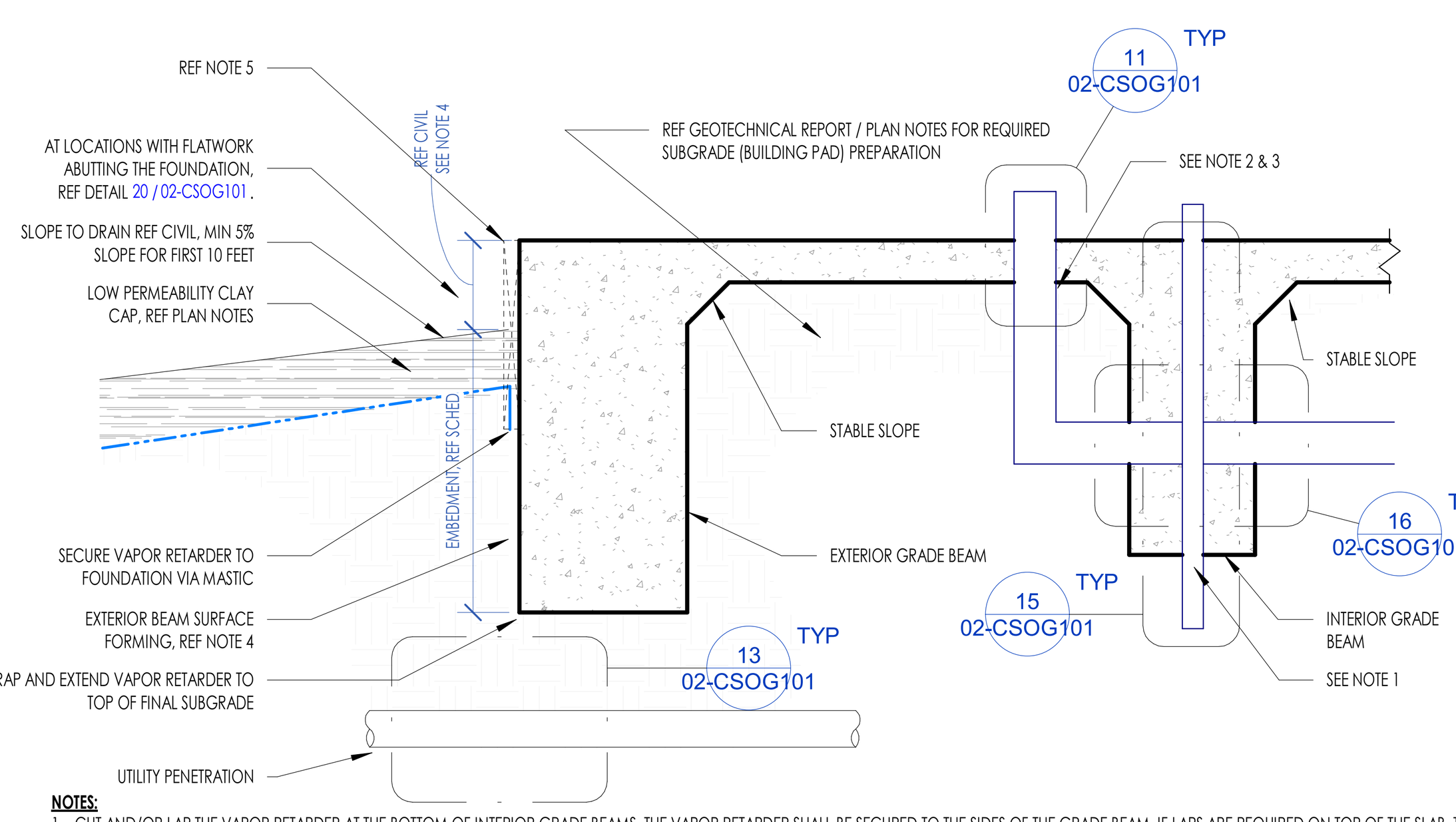
SCREW | **EXPANSION AND UNDERCUT** | **ADHESIVE**

CONTRACTOR AND INSTALLER NOTES:
1. ANCHOR RODS NOT IN A PERMANENTLY CONDITIONED SPACE SHALL BE HOT-DIP GALVANIZED OR OTHERWISE CORROSION RESISTANT.
2. DEPTH OF CONCRETE HOLE AT THE ANCHOR LOCATION SHALL NOT EXCEED THE THICKNESS OF CONCRETE MINUS 2*dc.
3. ONLY POST-INSTALLED ANCHOR PRODUCTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL BE USED WHERE SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PROVIDE SIGNED AND SEALED CALCULATIONS TO THE ENGINEER OF RECORD (EOR) FOR ANCHOR PRODUCTS SUBSTITUTED FOR THOSE INDICATED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE EOR PRIOR TO USING POST-INSTALLED ANCHORS
4. **ANCHOR LENGTHS SPECIFIED IN THE CONTRACT DOCUMENTS INDICATE THE NOMINAL EMBEDMENT DEPTH.** REFER TO THE ANCHOR TYPE FOR THE DEFINITION OF NOMINAL EMBEDMENT DEPTH "hnom". IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE CORRECT ANCHOR LENGTH "La" FOR ORDER BASED ON THE SPECIFIED NOMINAL EMBEDMENT DEPTH, ATTACHMENT THICKNESS AND OTHER ANCHOR CHARACTERISTICS NOTED.
5. MINIMUM ANCHOR LENGTH "La,min" IS DETERMINED AS SHOWN FOR EACH ANCHOR. ORDER AND INSTALL AN ANCHOR LENGTH EQUAL TO OR GREATER THAN THIS VALUE. INSTALLED ANCHOR LENGTHS SHALL NOT HAVE NOMINAL EMBEDMENT DEPTHS THAT EXCEED THEIR CORRESPONDING MINIMUM CONCRETE THICKNESS LIMITS. REFER TO ANCHOR'S ICC-ES EVALUATION SERVICE REPORT (ESR).
6. REFER TO THE ANCHOR'S ICC=ES EVALUATION SERVICE REPORT (ESR) FOR DRILL BIT TYPE AND DIAMETER, DEPTH OF HOLE TO BE DRILLED IN THE CONCRETE, AND MINIMUM EDGE DISTANCE AND SPACING.
7. FOLLOW THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII).
8. MINIMUM EDGE DISTANCE OF CONCRETE TO ACHIEVE REQUIRED ANCHOR STRENGTH SHALL BE DETERMINED PER MANUFACTURER, AND NOT BE LESS THAN 6*da (OR 8*da AND 10*da FOR TORQUE-CONTROLLED AND DISPLACEMENT-CONTROLLED ANCHORS, RESPECTIVELY)

DEFINITIONS:

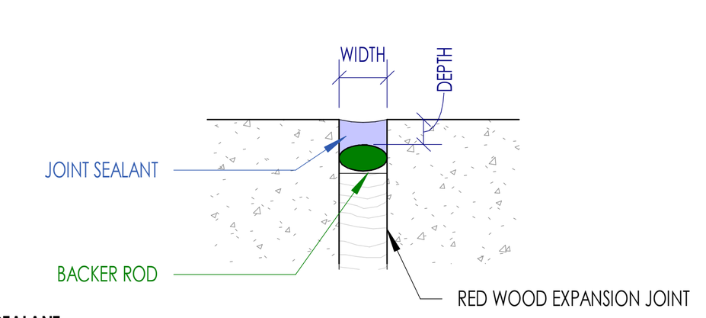
da =	DIAMETER OF ANCHOR (IN)
dc =	DIAMETER OF HOLE IN CONCRETE = DIAMETER OF DRILL BIT (IN)
ds =	DIAMETER OF HOLE IN STEEL ATTACHMENT (IN)
La,min =	MINIMUM LENGTH OF ANCHOR (IN)
La =	ORDERED LENGTH OF ANCHOR (IN)
hnom =	NOMINAL EMBEDMENT DEPTH (IN)
hc =	DEPTH OF HOLE IN CONCRETE (IN)
hs =	THICKNESS OF STEEL ATTACHMENT (IN)
hwash =	THICKNESS OF WASHER (IN)
hnut =	HEIGHT OF HEX NUT (IN)
OVERRUN =	1/4" UNLESS NOTED OTHERWISE

5 | S3.0 TYPICAL POST-INSTALLED ANCHOR INFORMATION
NOT TO SCALE



NOTES:
1. CUT AND/OR LAP THE VAPOR RETARDER AT THE BOTTOM OF INTERIOR GRADE BEAMS. THE VAPOR RETARDER SHALL BE SECURED TO THE SIDES OF THE GRADE BEAM. IF LAPS ARE REQUIRED ON TOP OF THE SLAB, THEY MUST BE TAPED PER MFR RECOMMENDATIONS.
2. ALL PIPE, DUCTING, REBAR, WIRE PENETRATIONS AND BLOCK OUTS SHOULD BE SEALED USING MFR RECOMMENDED WRAP, TAPE AND/OR MASTIC
3. THE FINISH FLOOR ELEVATION SHALL BE A MINIMUM OF 6" ABOVE FINAL GRADE (GROUND) UNLESS IMPERVIOUS COVER IS PROVIDED. THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 5% FOR A MINIMUM DISTANCE OF 10' (5% EQUATES TO 6" MIN DROP OVER 10') MEASURED PERPENDICULAR TO THE FACE OF THE FOUNDATION. IF PHYSICAL OBSTRUCTIONS OR LOT LINES PROHIBIT 10' OF HORIZONTAL DISTANCE, A 5% SLOPE SHALL BE PROVIDED TO AN APPROVED ALTERNATIVE SYSTEM OF DIVERTING WATER AWAY FROM THE FOUNDATION. SWALES USED FOR THIS PURPOSE SHALL BE SLOPED NOT LESS THAN 2% WHERE LOCATED WITHIN 10' OF THE BUILDING FOUNDATION. IMPERVIOUS SURFACES WITHIN 10' OF THE BUILDING FOUNDATION SHALL BE SLOPED NOT LESS THAN 2% (1.2" MIN OVER 5') AWAY FROM THE BUILDING. IMPERVIOUS SURFACE SHALL BE PERMITTED TO BE SLOPED LESS THAN 2% (1% MIN) WHERE THE SURFACE IS A DOOR LANDING OR RAMP. THE PROCEDURE USED TO ESTABLISH THE FINAL GROUND LEVEL ADJACENT TO THE FOUNDATION SHALL ACCOUNT FOR ADDITIONAL SETTLEMENT OF BACKFILL, FREEZE/THAW DUE TO FROST, AND HEAVE/SUBSIDENCE DUE TO EXPANSIVE SOIL. FLATWORK (SIDEWALK, PAVEMENT, STOOPS, ETC.) IS NOT WITHIN THE SCOPE OF THE STRUCTURAL ENGINEER-OF-RECORD, REFER TO CIVIL.
4. IF THE SOIL CANNOT MAINTAIN ITS VERTICAL FORM WITHIN A TOLERANCE OF ±1 INCH, IT MUST BE BOARD-FORMED. PROTRUSIONS ON THE EXTERIOR FACE OF THE GRADE BEAM EXCEEDING 1 INCH SHALL BE REMOVED TO BE FLUSH WITH THE VERTICAL PLANE TO MITIGATE THE RISK OF EXPANSIVE SOIL IMPOSING ADDITIONAL LOADS ON THE FOUNDATION.
5. PORTIONS OF THE EXTERIOR FACE OF THE BEAM THAT WILL BE EXPOSED ABOVE FINAL GRADE AND A MINIMUM OF 6" BELOW FINAL GRADE SHALL BE BOARD-FORMED WITH A SMOOTH FACE. A MINIMUM OF 11¼ (2X12) OF THE BEAM EXTERIOR FACE SHALL BE BOARD-FORMED.

6 | S3.0 TYPICAL SUBGRADE AND VAPOR RETARDER PREPARATION
NOT TO SCALE



NOTES - JOINT SEALANT
1. ADHERE TO ASTM D5893 - STANDARD SPECIFICATION FOR COLD-APPLIED, SINGLE-COMPONENT, CHEMICALLY CURING **SILICONE** JOINT SEALANT FOR PORTLAND CEMENT CONCRETE PAVEMENTS
   A. HORIZONTAL JOINTS - USE SELF-LEVINLING - (TxDOT SL-5 PER TABLE 1 OF DMS-6310)
      a. SHEP SILICONE SELECT SL | DOW - DOWSIL 890-SL SILICON JOINT SEALANT | Sikasil®-728 SL
   B. NON-HORIZONTAL JOINTS - USE NON-SAG - (TxDOT SL-4 PER TABLE 1 OF DMS-6310)
      a. SHEP SILICONE NS | Sikasil 728 NS
2. JOINT SEALANT GEOMETRY: MAINTAIN A 2:1 WIDTH:DEPTH RATIO OF THE JOINT SEALANT OR AS RECOMMENDED BY THE MFR. PROVIDE SLIGHLY CONCAVE SHAPE AT BOTH INTERIOR AND EXTERIOR OF JOINT.
3. INSTALL CLOSED CELL FOAM BACKER RODS AS REQUIRED FOR INSTALLATION OF THE JOINT SEALANT. THE DIAMETER OF THE BACKER ROD MUST BE AT LEAST 25% LARGER THAN THE JOINT WIDTH,
4. JOINT MAINTENANCE - INSPECT SEALANT AT JOINTS ANNUALLY, PERFORMING SPOT REPAIRS FOR MINOR ISSUES WITH COMPATIBLE SEALANT PER MANUFACTURER DATA, OR FULL REPLACEMENT (TYPICALLY 5-10 YEARS) IF EXTENSIVE DEGRADATION OCCURS.

7 | S3.0 TYPICAL JOINT SEALANT (CAULK) DETAIL
NOT TO SCALE

Project: 25-00384
Release Date: 07/10/2026
Revisions:

No.	Description	Date

Consultant:

DUDLEY

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

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Tel: (979) 836-0523
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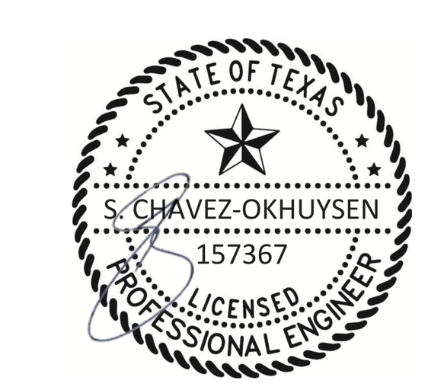
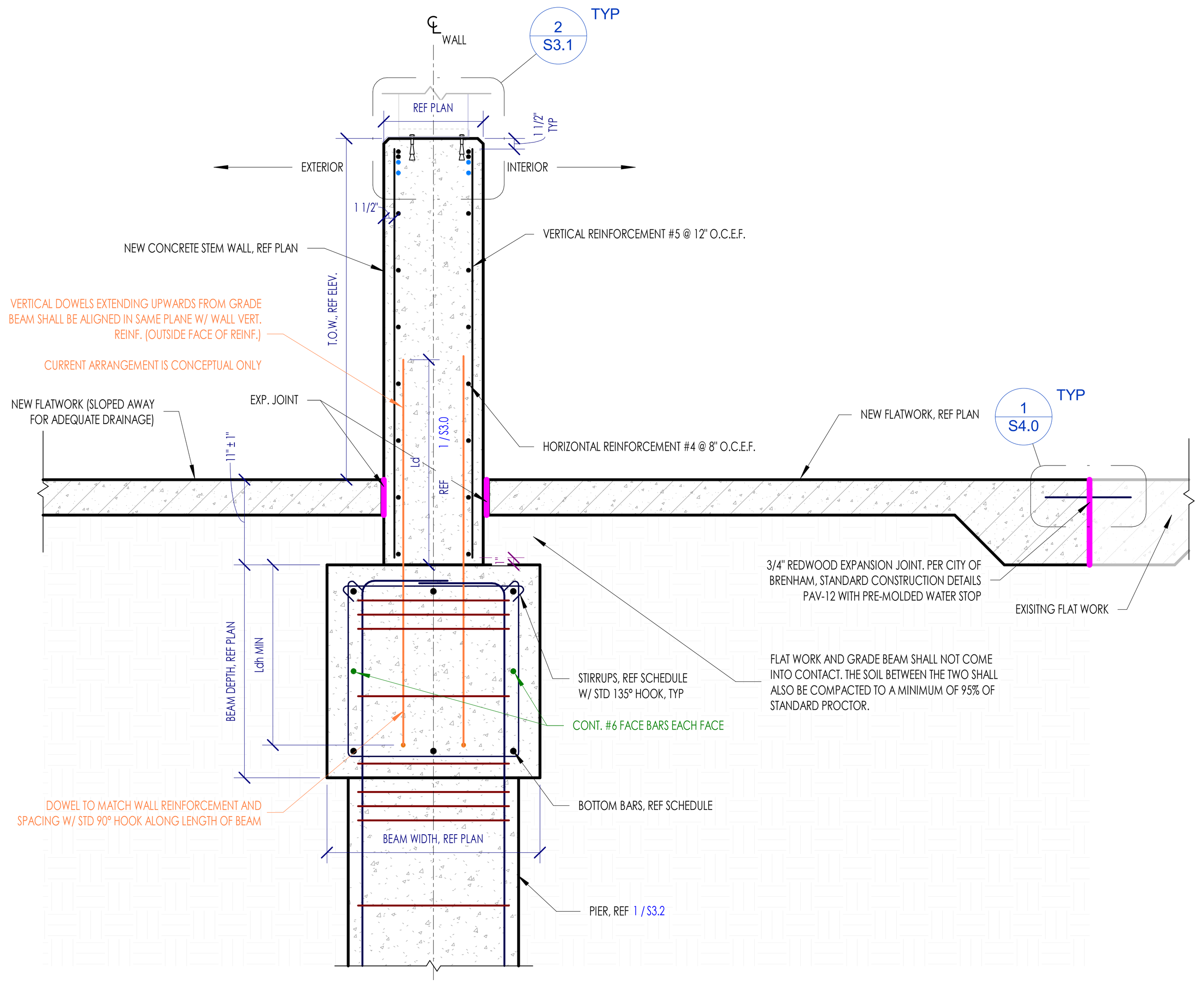


07/10/2026

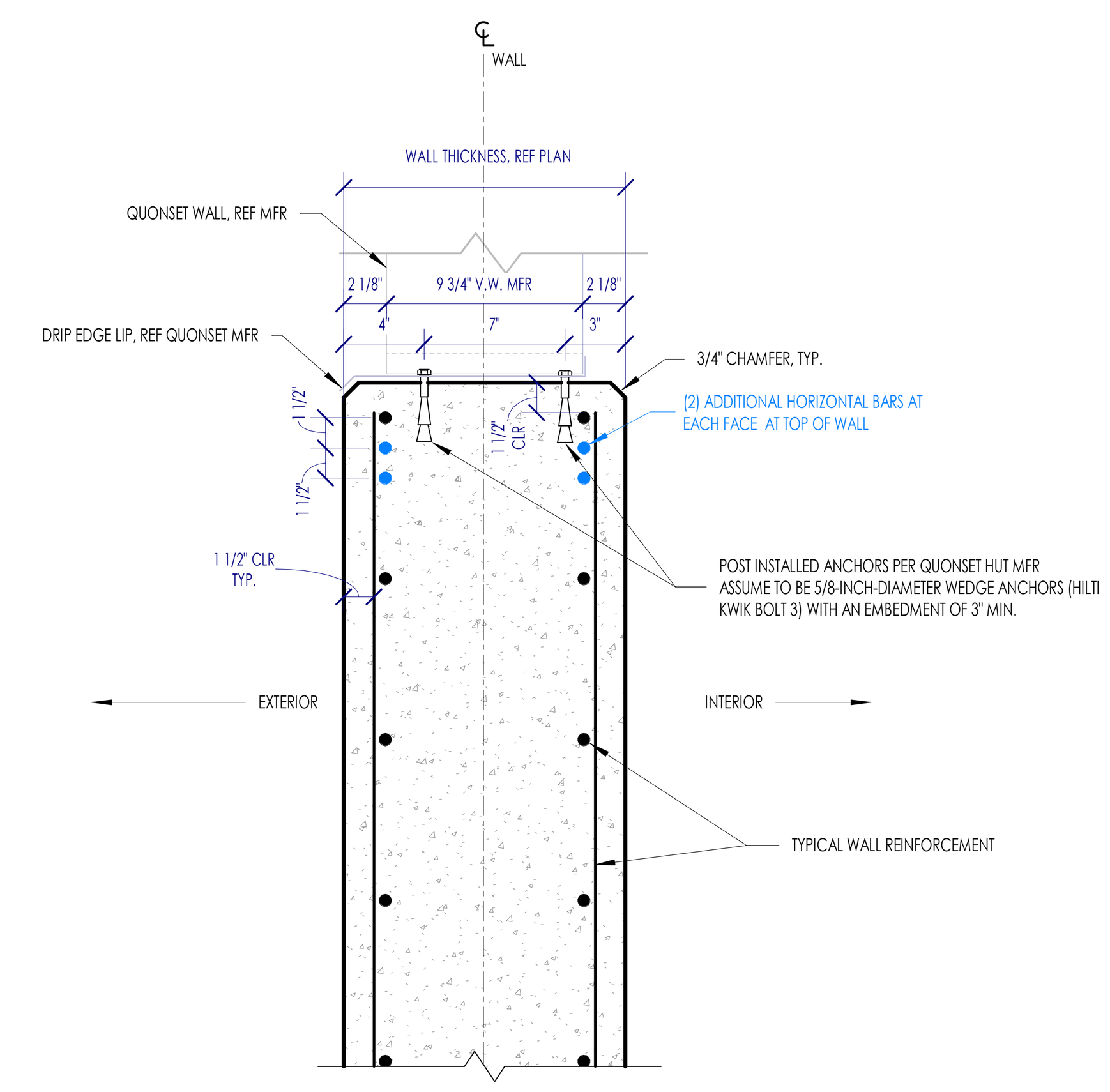
GENERAL CONCRETE DETAILS

S3.0

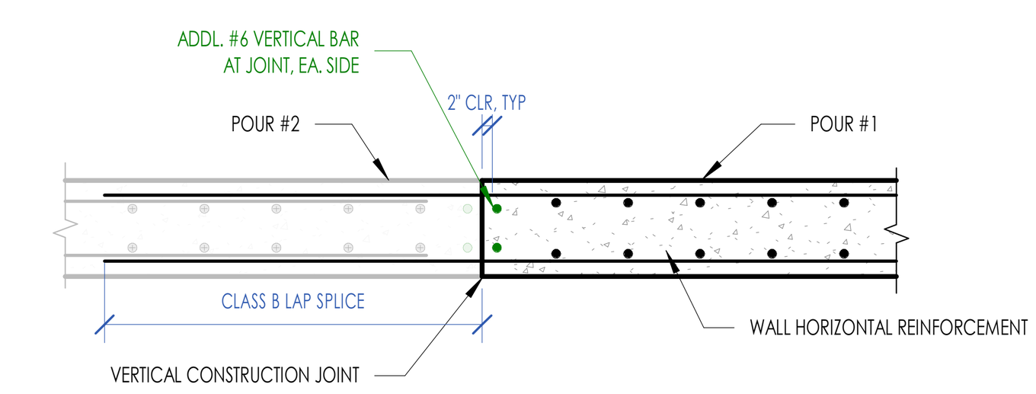
......OF......



1 S3.1 — TYPICAL CONCRETE WALL SECTION
NOT TO SCALE



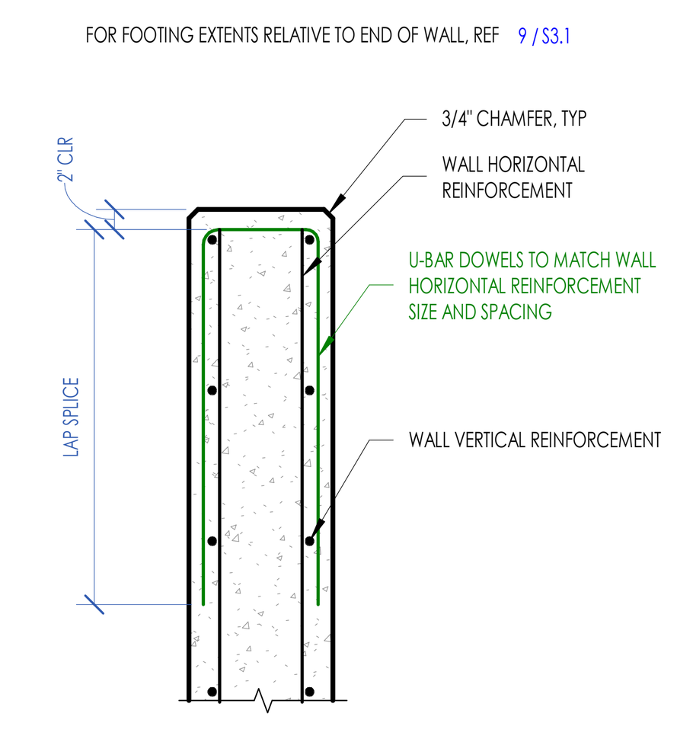
2 S3.1 — TOP OF WALL ATTACHMENT TO QUONSET HUT
NOT TO SCALE



DOUBLE LAYER OF REINFORCEMENT W.BAR EXTENSION

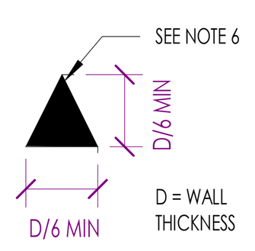
NOTES:
1. CONTRACTOR TO SUBMIT PROPOSED CONSTRUCTION JOINT PLAN TO ARCHITECT & STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO DETAILING REINFORCEMENT.
2. CONSTRUCTION JOINTS SHALL NOT BE LOCATED WITHIN 5'-0" OF CORNERS OR INTERSECTIONS.

3 S3.1 — TYPICAL VERTICAL CONSTRUCTION JOINT IN CONCRETE WALL - PLAN VIEW
NOT TO SCALE [3/4" = 1'-0"]

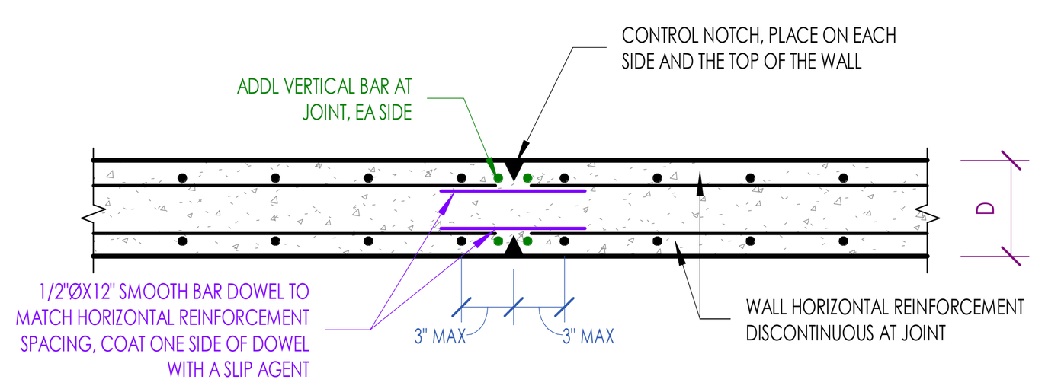


DOUBLE LAYER OF REINFORCEMENT

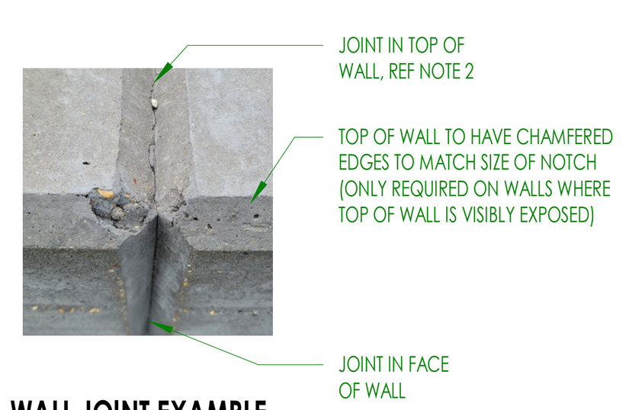
4 S3.1 — TYPICAL CONCRETE WALL END DETAIL - PLAN VIEW
NOT TO SCALE



CONTROL NOTCH



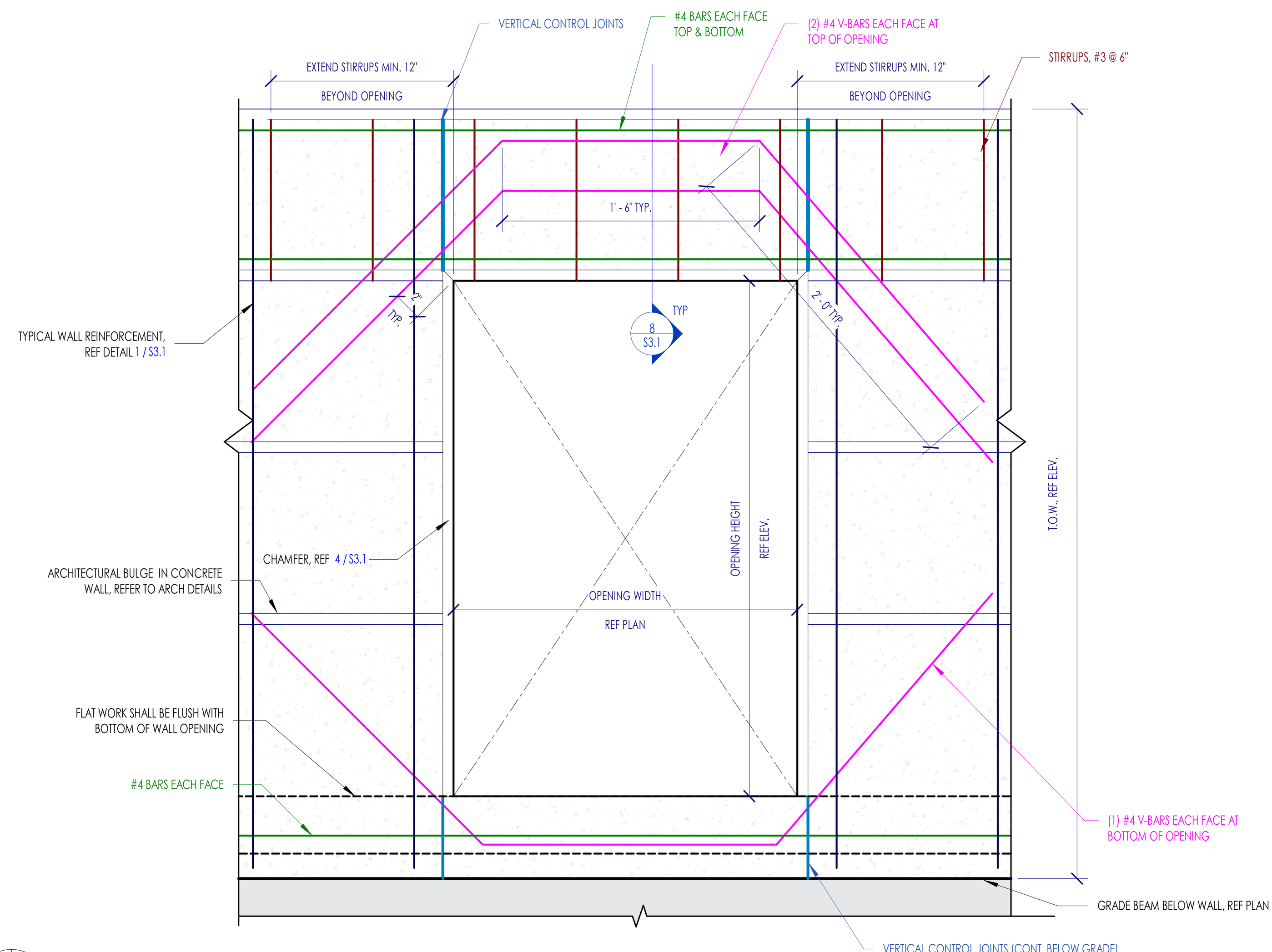
DOUBLE LAYER OF REINFORCEMENT



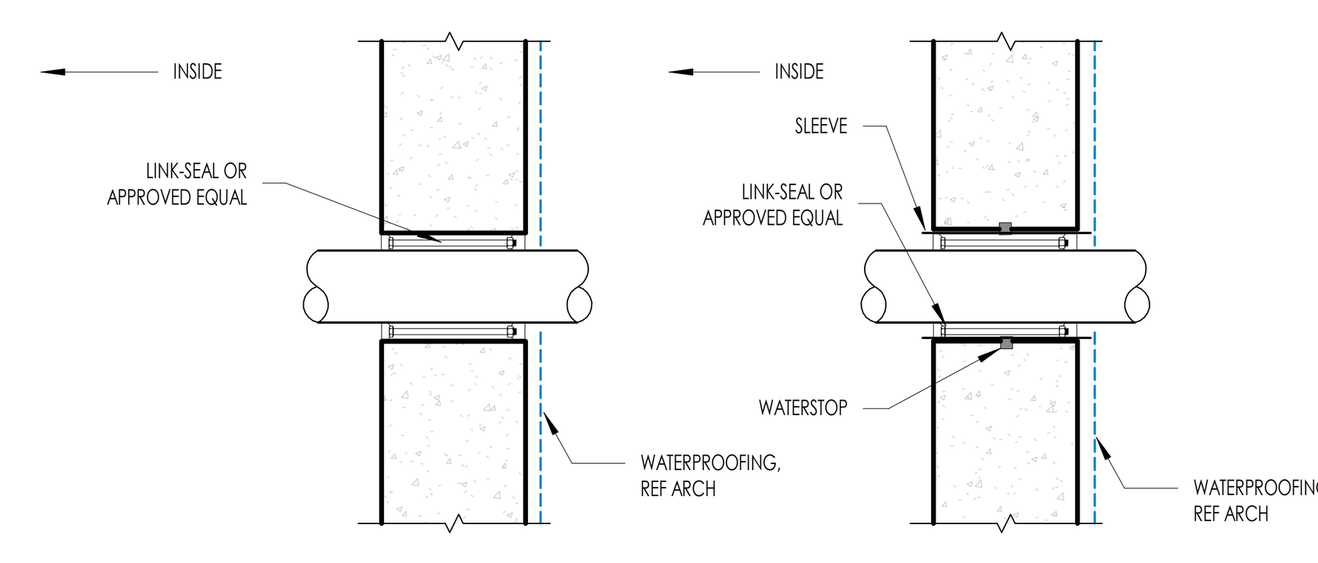
WALL JOINT EXAMPLE

NOTES:
1. CONTRACTOR TO SUBMIT PROPOSED CONTRACTION (CONTROL) JOINT PLAN TO ARCHITECT & STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO DETAILING REINFORCEMENT.
2. CONTRACTOR SHALL SUBMIT PROPOSED EXPANSION JOINT LOCATIONS IN PLAN VIEW PRIOR TO CONSTRUCTION.
3. AT WALLS, WHERE THE TOP OF WALL IS VISIBLY EXPOSED, THE TOP OF THE WALL MUST RECEIVE A NOTCHED OR GROOVED JOINT TO MATCH DEPTH OF CONTROL NOTCH.
4. CONTRACTION (CONTROL) JOINT LOCATION CRITERIA:
   A. SHEARWALLS, ELEVATOR AND STAIR SHAFTS SHALL NOT HAVE CONTRACTION (CONTROL) JOINTS
   B. CONTRACTION (CONTROL) JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING OF 25'-0".
   C. DO NOT LOCATE CONTRACTION (CONTROL) JOINTS WITHIN 5'-0" OF CORNERS OR INTERSECTIONS.
   D. A CONTRACTION (CONTROL) JOINT MUST BE LOCATED AT ANY CHANGE IN THICKNESS OR HEIGHT OF WALL.
   E. ANYTIME A COLUMN IS TO BE POURED MONOLITHICALLY WITH THE WALL, A CONTRACTION (CONTROL) JOINT MUST BE LOCATED ON EITHER SIDE OF THE COLUMN.
5. ANY ADJOINING SLAB, FLATWORK, ARCHITECTURAL FINISHES, ETC. SHALL HAVE CONTRACTION (CONTROL) JOINTS COINCIDING WITH THE CONTRACTION (CONTROL) JOINTS IN THE WALL.
6. CONTROL NOTCHES ARE TO BE REMOVED AFTER THE CURING PERIOD AND THE RESULTING SLOT INFILLED WITH ELASTOMERIC SEALANT.

5 S3.1 — TYPICAL VERTICAL CONTRACTION (CONTROL) JOINT IN CONCRETE WALL - PLAN VIEW
NOT TO SCALE [3/4" = 1'-0"]

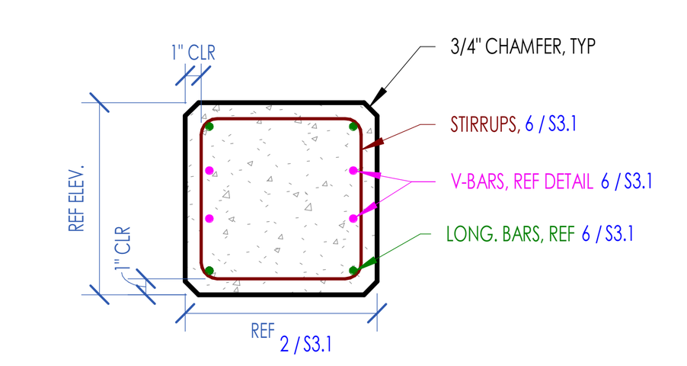


6 S3.1 — CONCRETE WALL OPENING
NOT TO SCALE

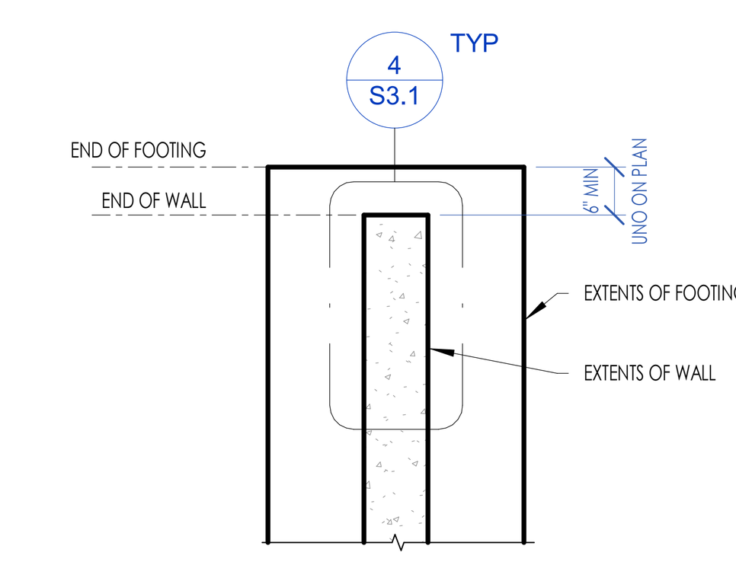


NOTES:
1. CORED PENETRATIONS
   A. IDENTIFY PIPE PENETRATION LOCATION WITH 1"Ø PLASTIC PIPE SLEEVE.
   B. PENETRATION OPENING Ø SHALL BE EQUAL TO THE PIPE OUTER DIAMETER + 2 TIMES LINK-SEAL THICKNESS.
   C. PROVIDE ADDITIONAL REINFORCEMENT AROUND PENETRATION PER TYPICAL DETAIL.
2. SLEEVED PENETRATION
   A. IDENTIFY PIPE PENETRATION LOCATION.
   B. PENETRATION OPENING Ø SHALL BE EQUAL TO PIPE Ø + 2 TIMES THE LINK-SEAL THICKNESS.
   C. WATERSTOP MUST BE PROVIDED CONTINUOUSLY AROUND SLEEVE.
   D. PROVIDE ADDITIONAL REINFORCEMENT AROUND PENETRATION OPENING PER TYPICAL DETAIL.

7 S3.1 — TYPICAL CONCRETE WALL UTILITY PENETRATION
NOT TO SCALE [3/4" = 1'-0"]

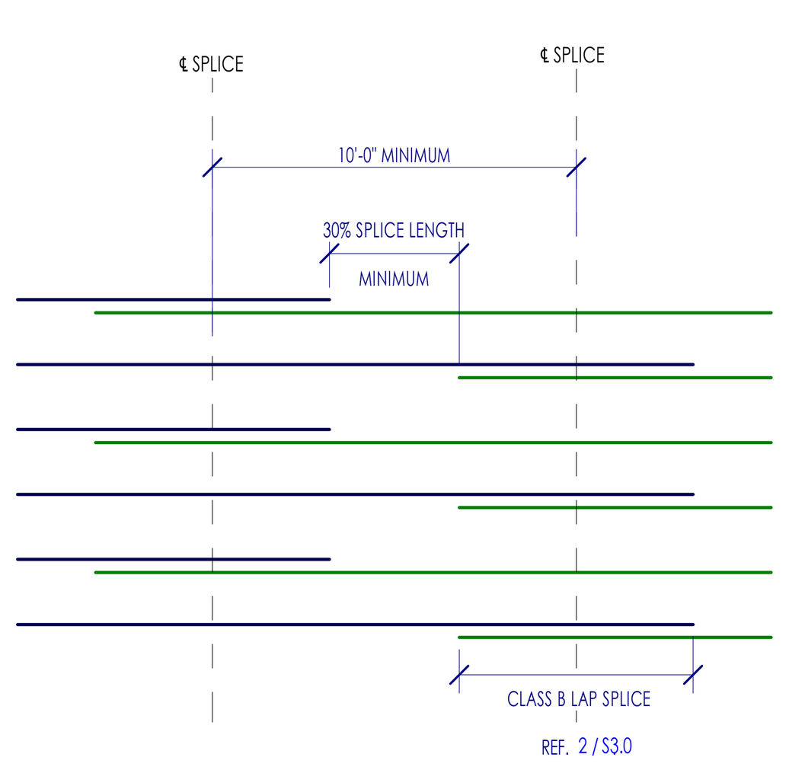


8 S3.1 — TYPICAL REINFORCEMENT AT OPENING
NOT TO SCALE



PLAN VIEW

9 S3.1 — TYPICAL FOOTING EXTENSION PAST END OF CONCRETE WALL
NOT TO SCALE



NOTES:
1. SPLICE BARS ONLY WHERE LENGTHS SHOWN ON DRAWINGS ARE GREATER THAN STOCK BAR LENGTHS (60'-0").
2. WHERE SPLICING IS REQUIRED, STAGGER ALL LAP SPLICES AS SHOWN. REFER TO "TYPICAL SLAB TENSION DEVELOPMENT AND LAP SPLICE LENGTHS."

10 S3.1 — TYPICAL WALL HORIZONTAL REINFORCEMENT STAGGERED LAP SPLICE
NOT TO SCALE [3/4" = 1'-0"]

Project: 25-00384
Release Date: 07/10/2026
Revisions:

No.	Description	Date

Consultant:
DUDLEY

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

Architect:
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STATE OF TEXAS
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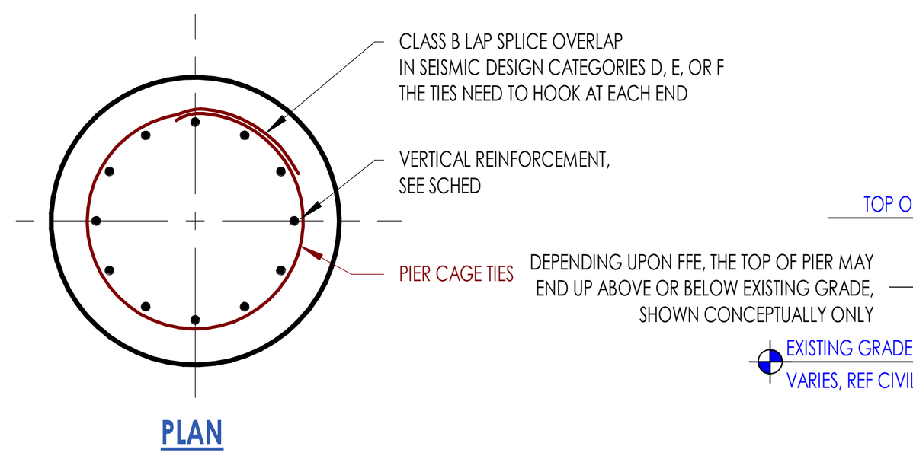
157367
LICENSED PROFESSIONAL ENGINEER
07/10/2026

CONCRETE WALL DETAILS

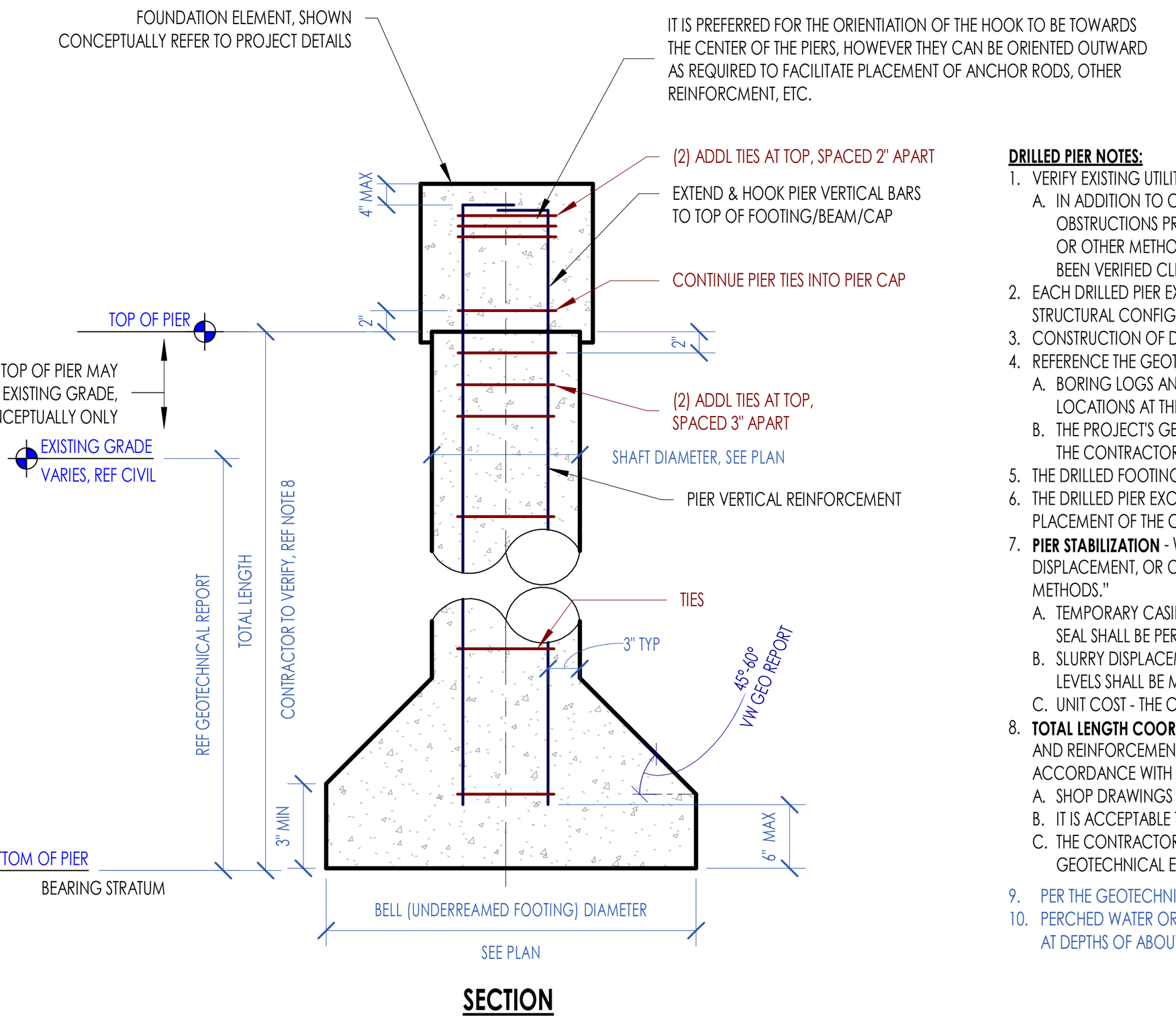
S3.1

......OF......



PLAN

SHAFT DIAMETER (INCHES)	VERTICAL REINFORCEMENT	TIES
24	(12) - #6	#3 @ 12" OC

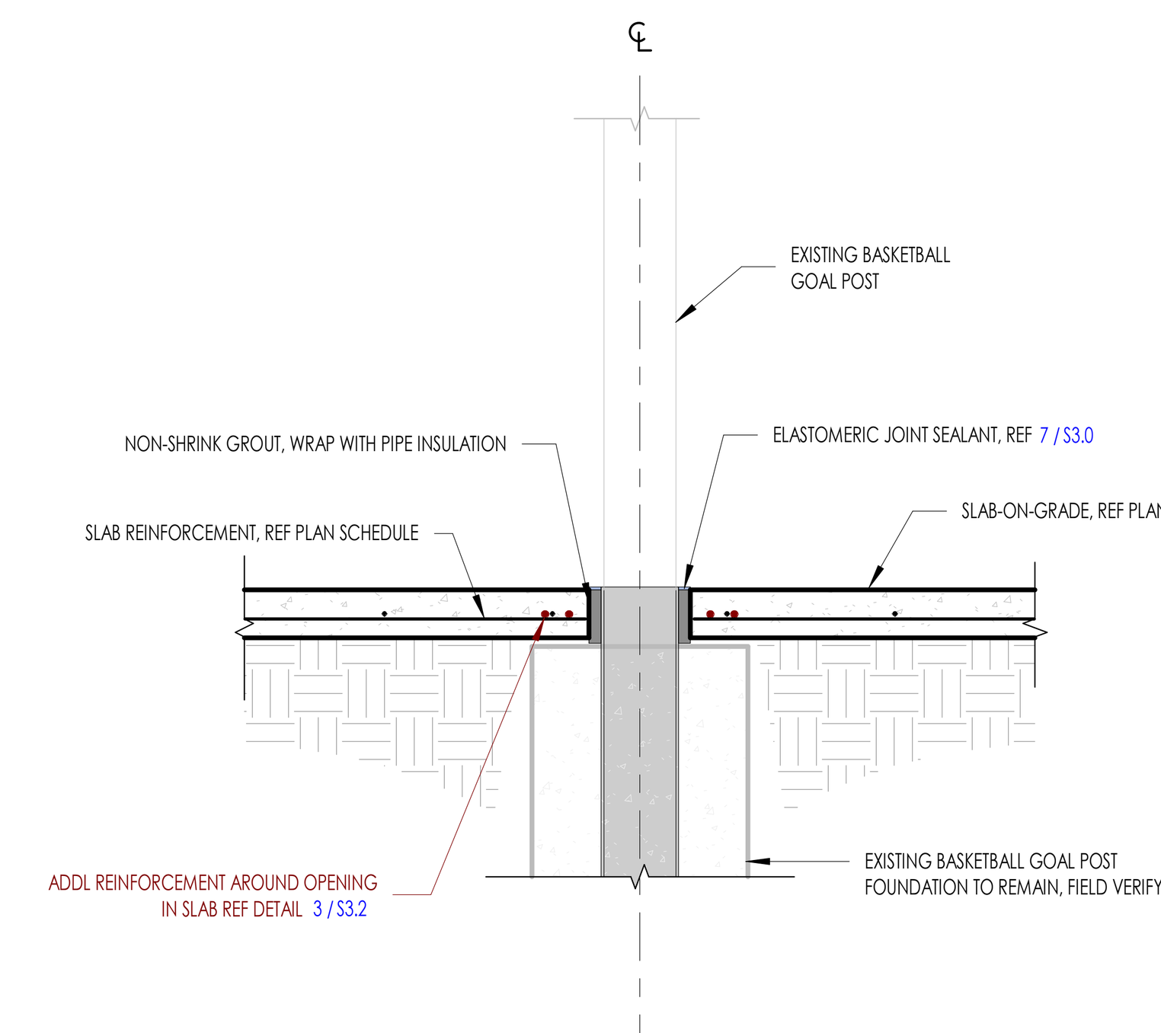


SECTION

DRILLED PIER NOTES:

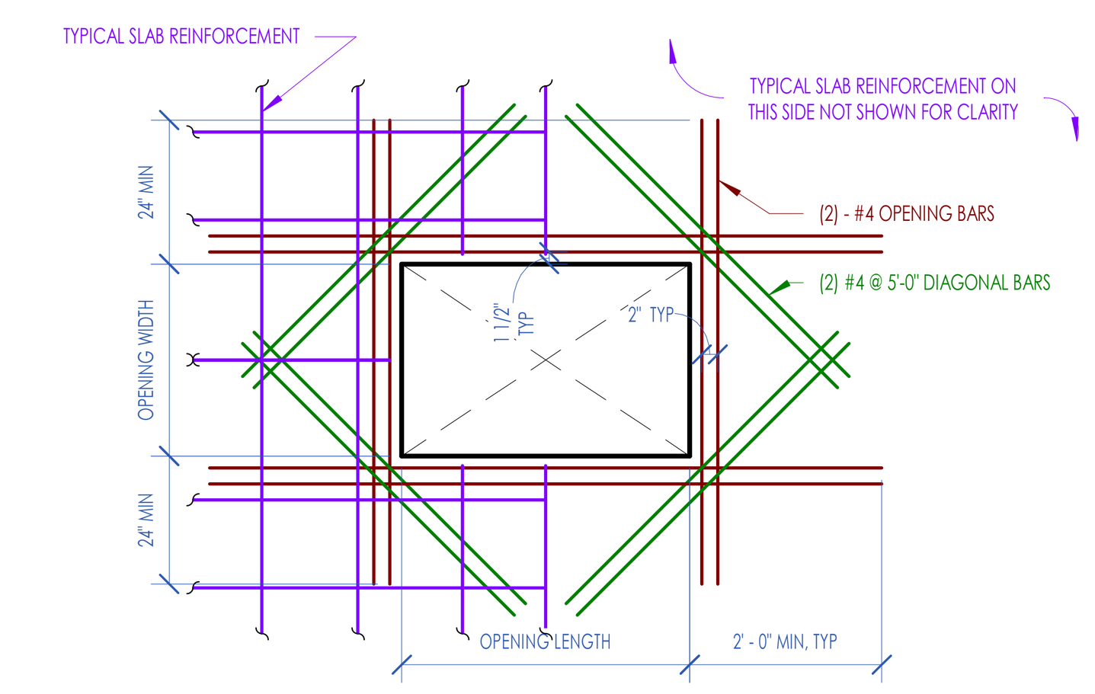
1. VERIFY EXISTING UTILITIES AND OBSTRUCTIONS PRIOR TO DRILLING
   A. IN ADDITION TO CONTACTING 811, THE CONTRACTOR SHALL CONDUCT ALL REASONABLE MEASURES TO LOCATE AND VERIFY EXISTING UTILITIES, STRUCTURES, FOUNDATIONS, AND OTHER SUBSURFACE OR SURFACE OBSTRUCTIONS PRIOR TO ANY DRILLING OR EXCAVATION OPERATIONS. SUCH MEASURES SHALL INCLUDE THE USE OF PRIVATE UTILITY LOCATE SERVICES, GROUND-PENETRATING RADAR (GPR) SCANS, POTHOLING, OR OTHER METHODS AS NECESSARY TO IDENTIFY ITEMS THAT MAY INTERFERE WITH OR BE DAMAGED BY THE PROPOSED WORK. THE CONTRACTOR SHALL NOT PROCEED WITH DRILLING UNTIL THE WORK AREA HAS BEEN VERIFIED CLEAR OF EXISTING UTILITIES AND OBSTRUCTIONS AND ANY POTENTIAL CONFLICTS HAVE BEEN REVIEWED WITH THE ENGINEER.
2. EACH DRILLED PIER EXCAVATION MUST BE EXAMINED BY A REPRESENTATIVE OF THE PROJECT GEOTECHNICAL ENGINEER WHO IS FAMILIAR WITH THE GEOTECHNICAL ASPECTS OF THE SOIL STRATIGRAPHY, THE STRUCTURAL CONFIGURATION, FOUNDATION DESIGN DETAILS AND ASSUMPTIONS PRIOR TO PLACING CONCRETE. REF THE GENERAL NOTES FOR MORE INFORMATION ON REQUIRED OBSERVATIONS.
3. CONSTRUCTION OF DRILLED PIERS SHALL FOLLOW ACI 336.1-01 (SPECIFICATION FOR THE CONSTRUCTION OF DRILLED PIERS) EXCEPT WHERE MODIFIED BY THESE CONSTRUCTION DOCUMENTS.
4. REFERENCE THE GEOTECHNICAL REPORT FOR COMPLETE SUBSURFACE CONDITIONS.
   A. BORING LOGS AND TEST DATA ARE NOT REPRESENTATIVE OF A COMPLETE DESCRIPTION OF THE SITE SUB-SURFACE CONDITION AS THEY ONLY DISPLAY WHAT WAS OBSERVED IN BORINGS AT THE INDICATED LOCATIONS AT THE TIME IT WAS DRILLED. THE CONTRACTOR SHALL INCLUDE REASONABLE TIME AND COST ALLOWANCES FOR VARIATIONS THAT AFFECT THE CONTRACTOR'S WORK.
   B. THE PROJECT'S GEOTECHNICAL ENGINEER SHALL SERVE AS THE ULTIMATE AUTHORITY IN DETERMINING THE NECESSARY BEARING DEPTH, AND SHALL REVIEW/APPROVE ALL INSTALLATION TECHNIQUES PROPOSED BY THE CONTRACTOR.
5. THE DRILLED FOOTING EXCAVATIONS SHOULD BE FREE OF LOOSE MATERIALS AND WATER PRIOR TO CONCRETE PLACEMENTS, AND CONCRETE SHOULD BE POURED IMMEDIATELY AFTER DRILLING THE HOLES.
6. THE DRILLED PIER EXCAVATIONS SHOULD BE INSPECTED TO ENSURE THAT ALL LOOSE MATERIAL GREATER THAN 3 INCHES DIMENSION AND ALL STANDING WATER OVER 6 INCHES DEPTH HAVE BEEN REMOVED PRIOR TO PLACEMENT OF THE CONCRETE. PRECAUTIONS SHOULD BE TAKEN DURING PLACEMENT OF THE REINFORCEMENT AND CONCRETE TO PREVENT ANY LOOSE EXCAVATED SOIL FROM ENTERING THE EXCAVATION.
7. **PIER STABILIZATION** - WHERE GROUNDWATER, GRANULAR SOILS, OR OTHER CONDITIONS REQUIRE STABILIZATION OF DRILLED PIER EXCAVATIONS, THE CONTRACTOR SHALL EMPLOY TEMPORARY CASING, SLURRY DISPLACEMENT, OR OTHER APPROVED MEANS TO PREVENT SLOUGHING AND GROUNDWATER INFLOW, IN ACCORDANCE WITH FHWA-NHI-10-016, “DRILLED SHAFTS: CONSTRUCTION PROCEDURES AND LRFD DESIGN METHODS.”
   A. TEMPORARY CASINGS - PROVIDE WATERTIGHT STEEL CASINGS OF ADEQUATE THICKNESS AND LENGTH TO PREVENT SOIL OR WATER INTRUSION AND MAINTAIN SHAFT STABILITY. THE USE OF SLURRY TO LUBRICATE OR SEAL SHALL BE PERMITTED ONLY WITH PRIOR APPROVAL OF THE PROJECT GEOTECHNICAL AND STRUCTURAL ENGINEERS.
   B. SLURRY DISPLACEMENT - WHERE USED, THE SLURRY SHALL BE MIXED, MAINTAINED, AND MONITORED PER FHWA-NHI-10-016 TO MAINTAIN POSITIVE FLUID HEAD AND SIDEWALL STABILITY. DRILLING SLURRY OR WATER LEVELS SHALL BE MAINTAINED AT LEAST 5 FEET ABOVE GROUNDWATER TO PREVENT INFLOW.
   C. UNIT COST - THE CONTRACTOR SHALL PROVIDE UNIT COSTS PER LINEAR FOOT FOR EACH PIER DIAMETER FOR CASED EXCAVATION, AND SLURRY DISPLACEMENT METHODS WHEN SUBMITTING THEIR BID.
8. **TOTAL LENGTH COORDINATION** - THE CONTRACTOR SHALL COORDINATE BETWEEN THE LATEST CIVIL GRADING PLANS, STRUCTURAL DRAWINGS, AND FIELD CONDITIONS TO ESTABLISH THE FINAL DRILLED PIER LENGTHS AND REINFORCEMENT PRIOR TO SUBMITTING REBAR PLACING/SHOP DRAWINGS. FINAL PIER TIP ELEVATIONS SHALL BE VERIFIED IN THE FIELD UNDER THE DIRECTION OF THE PROJECT GEOTECHNICAL ENGINEER IN ACCORDANCE WITH FHWA-NHI-10-016 “DRILLED SHAFTS: CONSTRUCTION PROCEDURES AND LRFD DESIGN METHODS.”
   A. SHOP DRAWINGS SUBMITTED WITHOUT THIS COORDINATION WILL BE RETURNED “REVISE AND RESUBMIT.”
   B. IT IS ACCEPTABLE TO FABRICATE PIER CAGES SLIGHTLY LONGER THAN REQUIRED AND TRIM FROM THE BOTTOM IN THE FIELD AS NEEDED TO MATCH FINAL ELEVATIONS.
   C. THE CONTRACTOR SHALL PROVIDE UNIT COSTS PER LINEAR FOOT FOR EACH PIER DIAMETER TO ACCOMMODATE FIELD-DETERMINED ADJUSTMENTS IN LENGTH OR CHANGES DIRECTED BY THE PROJECT GEOTECHNICAL ENGINEER.
9. PER THE GEOTECHNICAL REPORT, THE BEARING STRATUM VARIES BUT GENERALLY CONSISTS OF STIFF, FAT CLAYS OR MEDIUM DENSE, CLAYEY SANDS
10. PERCHED WATER OR GROUNDWATER WAS NOT ENCOUNTERED AT BOTH BORINGS DURING DRILLING; HOWEVER, GROUNDWATER WAS OBSERVED AT BOTH BORINGS IMMEDIATELY AFTER COMPLETION OF DRILLING AT DEPTHS OF ABOUT 20 FEET BELOW THE GROUND SURFACE. HISTORIC GROUNDWATER OBSERVATIONS AT THE PROJECT SITE DURING DRILLING HAVE BEEN AS SHALLOW AS 15 FEET (AUGUST 12, 2021).

1 | S3.2 — TYPICAL BELLED PIER DETAIL - RIGID CONNECTION TO FDN
NOT TO SCALE



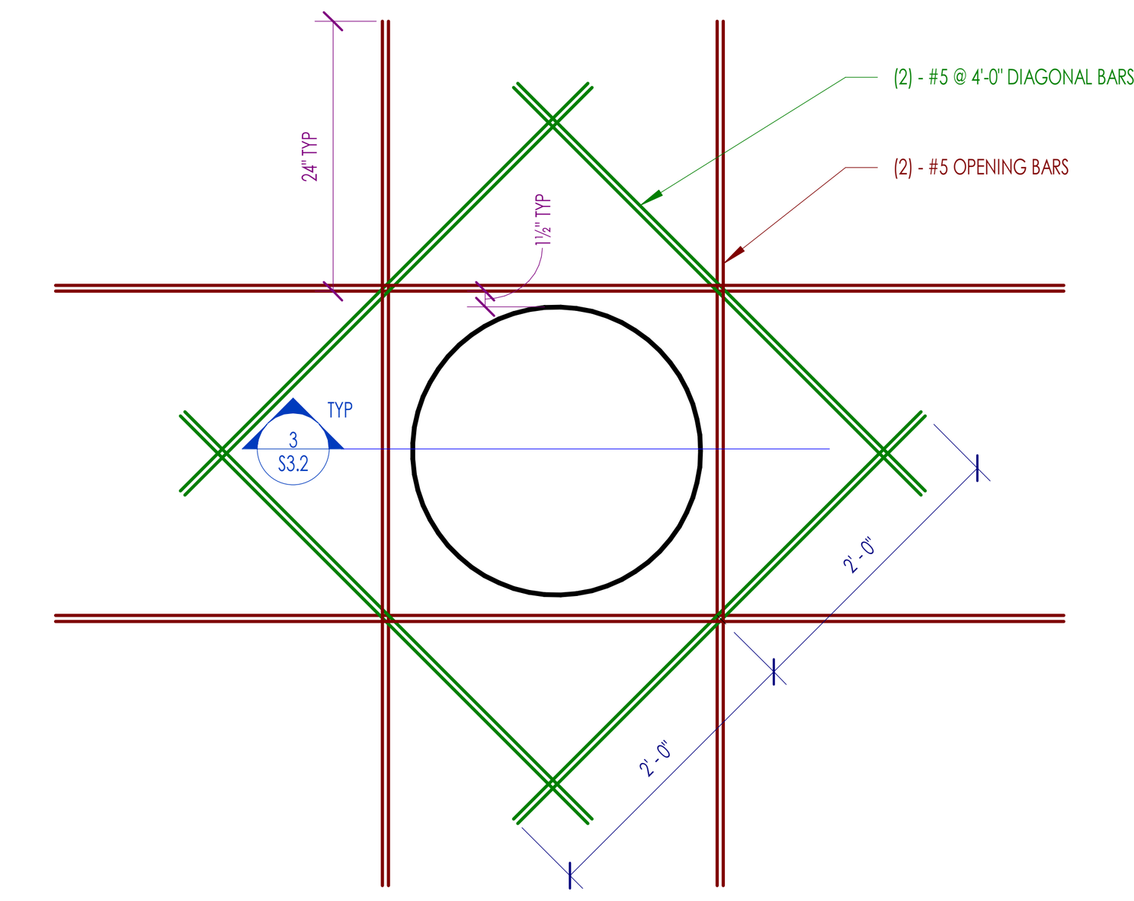
NOTES:
1. THE SLAB SHALL NOT COME INTO CONTACT WITH THE POST FOOTING AS THIS WILL CREATE A RESTRAINT TO SLAB SHRINKAGE AND THUS LEAD TO CRACKING.

2 | S3.2 | 1 | S1.1 — TYPICAL BASKETBALL POST IN SLAB
NOT TO SCALE



NOTES:
1. THIS DETAIL IS APPLICABLE TO RECTANGULAR, CIRCULAR AND OTHER SHAPE OPENINGS.
2. SLAB OPENINGS ARE ONLY ALLOWED WHERE SHOWN ON THE STRUCTURAL PLANS OR WHERE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER
3. WRAP WITH MIN. 1/2" THICK PIPE INSULATION AND SEAL TOP W/ ELASTOMERIC JOINT SEALANT PER 7 / S3.0

3 | S3.2 | 4 | S3.2 — TYPICAL REINFORCEMENT AT SLAB BLOCKOUT/PENETRATION /DRAIN/ OPENING
NOT TO SCALE



NOTES:
1. WRAP EXISTING LIGHT POLE IN MIN. 1/2" THICK PIPE INSULATION AND SEAL TOP W/ ELASTOMERIC JOINT SEALANT PER 7 / S3.0

4 | S3.2 | 1 | S1.1 — TYPICAL CIRCULAR SLAB PENETRATION GREATER THAN 12"Ø
NOT TO SCALE

THE FOLLOWING ARE EXCERPTS TAKE FROM ACI 336 "SPECIFICATION FOR THE CONSTRUCTION OF DRILLED PIERS". THESE EXCERPTS ARE PROVIDE AS A GUIDE FOR MINIMUM REQUIREMENTS ONLY. THE CONTRACTOR SHALL REFER TO THE ACI 336 IN ITS ENTIRETY FOR ALL REQUIREMENTS.

DEFINITIONS:

- **SLURRY DISPLACEMENT METHOD**—METHOD OF DRILLING, CONCRETING, OR DRILLING AND CONCRETING IN WHICH CONTROLLED SLURRY CONSISTING OF WATER, WITH OR WITHOUT ADDITIVES SUCH AS BENTONITE, ATTAPULGITE, OR POLYMER, IS USED TO STABILIZE THE HOLE; THE SLURRY MAY BE USED TO MAINTAIN THE STABILITY OF THE UNCASED DRILLED PIER HOLE TO ALLOW CONCRETE PLACEMENT WHEN WATER SEEPAGE INTO A DRILLED PIER HOLE IS TOO SEVERE TO PERMIT CONCRETING IN THE DRY, OR BOTH.
- **CASING**—A PERMANENT OR TEMPORARY STEEL CYLINDER USED TO RESIST EARTH AND WATER PRESSURES, TO SERVE AS A CONCRETE FORM,AND TO PROTECT PERSONNEL.
- **TREMIE METHOD**—PROCEDURE FOR PLACING CONCRETE UNDER-WATER OR SLURRY USING A WATERTIGHT STEEL PIPE OR TUBE TO PLACE CONCRETE WITHOUT WASHING OUT CEMENT FINES
- **DRY METHOD**—METHOD OF PIER INSTALLATION IN WHICH CONCRETE IS PLACED IN THE DRY AND WHERE CASING MAY BE USED TO MAINTAIN SIDEWALL STABILITY.

CONCRETE SLUMP REQUIREMENTS BASED UPON DRILL METHOD:

1. DRY, UNCASES OR PERMANENT CASING - 4 TO 6 INCHES
2. TEMPORARY CASING - 6 TO 8 INCHES
3. SLURRY DISPLACEMENT - 7 TO 9 INCHES

REQUIRED SUBMITTALS (MINIMUM - REFER TO ACI 336 FOR FULL LIST OF REQUIREMENTS):

1. **GENERAL**
   A. EXPERIENCE RECORD OF SUPERVISORY PERSONNEL AND DRILLERS.
   B. QUALITY-CONTROL PROGRAM.
   C. CONCRETE BATCH-PLANT TICKETS CONTAINING THE INFORMATION REQUIRED BY ASTM C 94.
   D. REPORTS OF AS-BUILT LOCATION, ALIGNMENT, ELEVATIONS, AND DIMENSIONS OF DRILLED PIERS, SPECIFICALLY IDENTIFYING THOSE PIERS THAT ARE NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
   E. ANY SPLICE REQUIREMENTS OTHER THAN THOSE IN THE CONTRACT DOCUMENTS.
   F. NOTIFICATION TO THE OWNER'S REPRESENTATIVE GEOTECHNICAL ENGINEER IN TIME TO PERMIT IN-PLACE INSPECTION OF THE COMPLETED EXCAVATION BEFORE PLACEMENT OF REINFORCING STEEL AND BEFORE PLACING CONCRETE.
   G. REPORTS OF MATERIAL QUANTITIES SUCH AS CONCRETE, REINFORCEMENT, AND SLURRY.
   H. CERTIFIED MILL TEST REPORTS FOR REINFORCING STEEL, INCLUDING BAR MARKINGS.
   I. LIST OF EQUIPMENT AND EQUIPMENT OPERATING PROCEDURES.
   J. SHOP DRAWINGS SHOWING LOCATION AND SIZE OF REINFORCING STEEL.
   K. PROPOSED CONCRETE MATERIALS AND MIXTURE PROPORTIONS CONFORMING TO THE REQUIREMENTS OF ACI 301.
   L. DETAILED FIELD PROCEDURES FOR PIER CONSTRUCTION, INCLUDING EXCAVATION, CONCRETING, SLURRY DISPLACEMENT METHOD AND CASING WITHDRAWAL, IF APPLICABLE.
   M. IF SPOIL, DRILLING FLUID, OR BOTH ARE TO BE DISPOSED OF OFF SITE, SUBMIT LETTERS OF APPROVAL FROM ALL GOVERNMENTAL AGENCIES WITH JURISDICTION OVER PROPOSED DISPOSAL SITES.
   N. WELDING PROCEDURES FOR REINFORCEMENT. (IF APPLICABLE)
      a. AWS WELDER CERTIFICATION FOR REINFORCEMENT.
2. **WHERE CASING IS REQUIRED**
   A. WELDING PROCEDURES FOR PERMANENT CASING.
   B. AWS WELDER CERTIFICATION FOR PERMANENT CASING.
   C. SIZE, WALL THICKNESS, TYPE OF STEEL, AND LENGTH OF PERMANENT AND TEMPORARY STEEL CASING.
   D. SIZE, LENGTH, MATERIAL, AND STRENGTH OF LINER.
3. **SLURRY DISPLACEMENT METHOD**
   A. TEST REPORT FROM THE SUPPLIER GIVING THE SLURRY TYPE AND ADMIXTURES AND THE PHYSICAL AND CHEMICAL PROPERTIES OF THE MIXED SLURRY TO THE OWNER'S REPRESENTATIVE GEOTECHNICAL ENGINEER.
   B. REPORTS OF IN-HOLE SLURRY TESTS DURING CONSTRUCTION.
   C. GRAPHICAL PLOT OF THEORETICAL CONCRETE VOLUME AND ACTUAL MEASURED VOLUME VERSUS DEPTH OR ELEVATION FOR EACH DRILLED PIER CONSTRUCTED BY THE SLURRY DISPLACEMENT METHOD.

Project: 25-00384
Release Date: 07/10/2026
Revisions:

No.	Description	Date
1	REV. 1	

Consultant:

DUDLEY

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

Architect:
BBAx Architects
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Tel: (979) 836-0523
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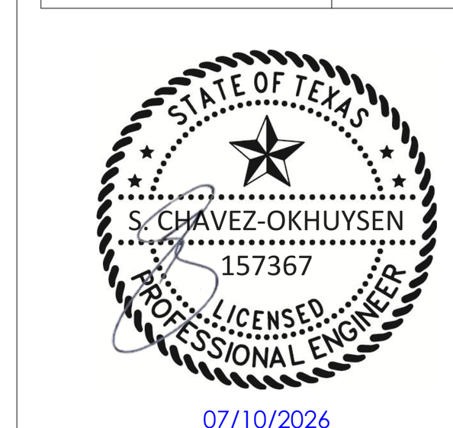
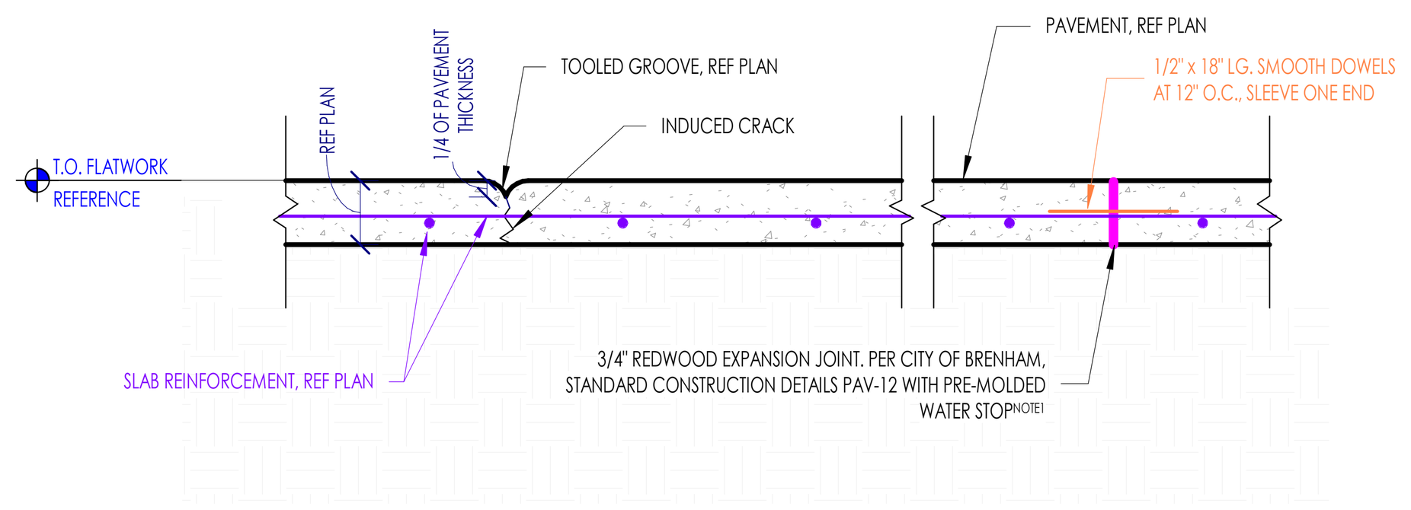


07/10/2026

DEEP FOUNDATION DETAILS

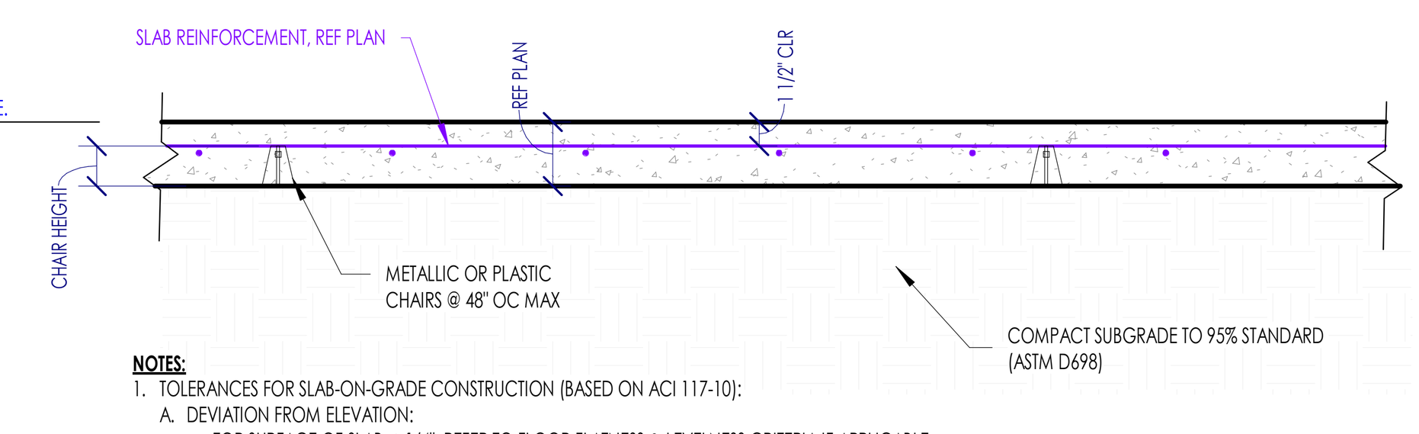


NOTES:
1. ACCEPTABLE PRODUCTS FOR PREMOLDED WATERSTOP INCLUDE: VINYLEX VX-SEAL, #VX-750; GREENSTREAK G-SEAL, #610; BOMETALS B-SEAL #PC-075200; OR APPROVED EQUIVALENT

1 | S4.0 | 1 | S1.1

TYPICAL FLATWORK CONTROL AND EXPANSION JOINT DETAIL

NOT TO SCALE [1" = 1'-0"]

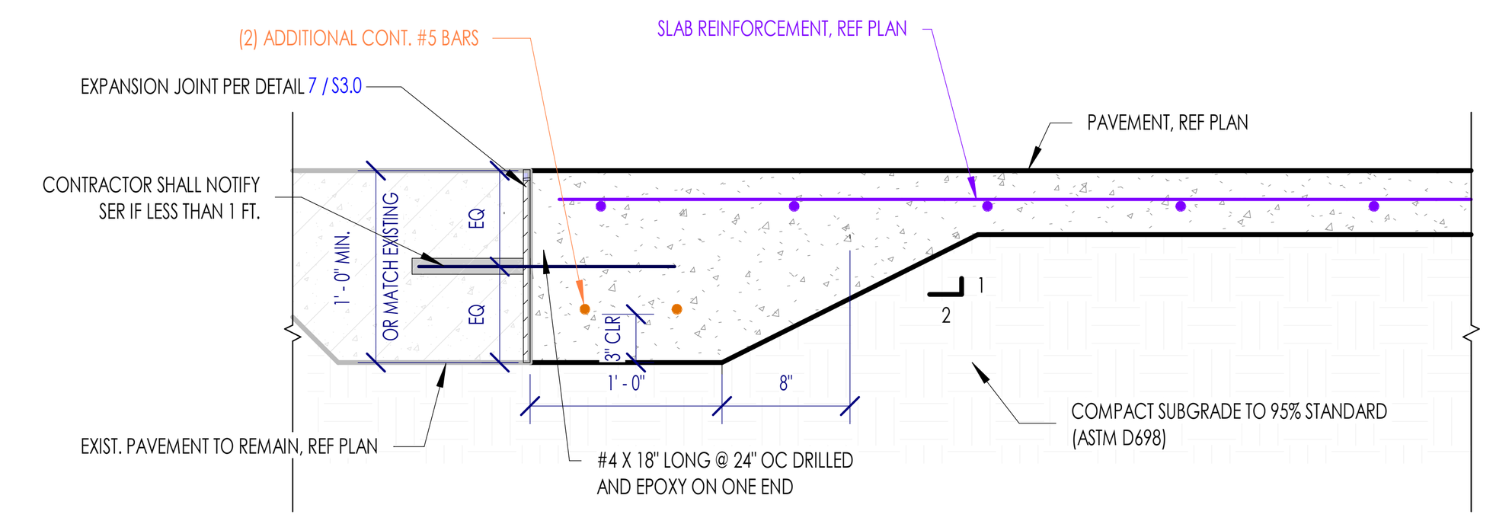


NOTES:
1. TOLERANCES FOR SLAB-ON-GRADE CONSTRUCTION (BASED ON ACI 117-10):
   A. DEVIATION FROM ELEVATION:
      a. TOP SURFACE OF SLAB: ± 1/4", REFER TO FLOOR FLATNESS & LEVELNESS CRITERIA IF APPLICABLE
      b. FINE GRADE OF SOIL IMMEDIATELY BELOW SLABS-ON-GROUND: +0", - 1/2"
         - DEVIATIONS IN ELEVATIONS OF FINE GRADE CAN LEAD TO RESTRAINT TO SHRINKAGE AND THUS ADDITIONAL CRACKING IN THE SLAB.
      c. THE CONTRACTOR SHALL ENGAGED A SURVEYOR TO PERFORM A ROD AND LEVEL SURVEY. MEASUREMENTS SHOULD BE TAKEN AT 20 FT INTERVALS IN EACH OF TWO PERPENDICULAR DIRECTIONS.
2. PLASTIC OR STEEL WIRE CHAIR ONLY (NO MASONRY) IN ACCORDANCE WITH CRSI
3. FOR TOOLED GROOVE JOINT JOINTS IN SLAB-ON-GRADE, REF 1 / S4.0
4. LAP SPLICES IN SLAB REINFORCEMENT SHALL BE STAGGERED A MINIMUM OF 5' APART

2 | S4.0 | 1 | S1.1

TYPICAL FLATWORK DETAIL

NOT TO SCALE [1" = 1'-0"]



3 | S4.0 | 1 | S1.1

TYPICAL FLATWORK W/ THICKENED TURNDOWN

NOT TO SCALE [1" = 1'-0"]

Project: 25-00384
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No.	Description	Date
1	REV. 1	

Consultant:

DUDLEY

Architect:

BBAx Architects
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Email: mailbox@bba-x.com

City of Brenham Henderson Park Basketball Court Pavilion

BRENHAM, TEXAS

STATE OF TEXAS
S. CHAVEZ-OKHUYSEN
157367
LICENSED PROFESSIONAL ENGINEER
07/10/2026

PAVEMENT DETAILS

S4.0

......OF......