STRUCTURAL - GENERAL NOTES

GENERAL REQUIREMENTS

GOVERNING CODE: The design and construction of this project is governed by the "International Building Code (IBC)", 2018 Edition, hereafter referred to as the IBC, as adopted and modified by the County of Idaho County, ID understood to be the Authority Having Jurisdiction (AHJ).

REFERENCE STANDARDS: Refer to Chapter 35 of 2018 IBC. Where other Standards are noted in the drawings, use the latest edition of the standard unless a specific date is indicated. Reference to a specific section in a code does not relieve the contractor from compliance with the entire standard.

<u>DEFINITIONS</u>: The following definitions cover the meanings of certain terms used in these notes:

"Architect/Engineer" - The Architect of Record and the Structural Engineer of Record.

- "Structural Engineer of Record" (SER) The structural engineer who is licensed to stamp & sign the structural documents for the project. The SER is responsible for the design of the Primary Structural System.
- "Submit for review" Submit to the Architect/SER for review prior to fabrication or construction.
- "Per Plan" Indicates references to the structural plans, elevations and structural general notes.

STRUCTURAL DETAILS: The structural drawings are intended to show the general character and extent of the project and are not intended to show all details of the work. Use entire detail sheets and specific details referenced in the plans as "typical" wherever they apply. Similarly, use details on entire sheets with "typical" in the name wherever they apply.

STRUCTURAL RESPONSIBILITIES: The structural engineer (SER) is responsible for the strength and stability of the primary structure in its completed form.

COORDINATION: The Contractor is responsible for coordinating details and accuracy of the work; for confirming and correlating all quantities and dimensions; for selecting fabrication processes; for techniques of assembly; and for performing work in a safe and secure manner.

MEANS, METHODS and SAFETY REQUIREMENTS: The contractor is responsible for the means and methods of construction and all job related safety standards such as OSHA and DOSH (Department of Occupational Safety and Health). The contractor is responsible for means and methods of construction related to the intermediate structural conditions (i.e. movement of the structure due to moisture and thermal effects; construction sequence; temporary bracing, etc).

BRACING/SHORING DESIGN ENGINEER: The contractor shall at their discretion employ an SSE, a registered professional engineer for the design of any temporary bracing and shoring.

TEMPORARY SHORING, **BRACING**: The contractor is responsible for the strength and stability of the structure during construction and shall provide temporary shoring, bracing and other elements required to maintain stability until the structure is complete. It is the contractor's responsibility to be familiar with the work required in the construction documents and the requirements for executing it properly.

CONSTRUCTION LOADS: Loads on the structure during construction shall not exceed the design loads as noted in DESIGN CRITERIA & LOADS below or the capacity of partially completed construction as determined by the Contractor's SSE for Bracing/Shoring.

CHANGES IN LOADING: The contractor has the responsibility to notify the SER of any architectural, mechanical, electrical, or plumbing load imposed onto the structure that differs from, or that is not documented on the original Contract Documents (architectural / structural / mechanical / electrical or plumbing drawings). Provide documentation of location, load, size and anchorage of all undocumented loads in excess of 400 pounds. Provide marked-up structural plan indicating locations of any new equipment or loads. Submit plans to the Architect/Engineer for review prior to installation.

NOTE PRIORITIES: Plan and detail notes and specific loading data provided on individual plans and detail drawings supplements information in the Structural General Notes.

DISCREPANCIES: In case of discrepancies between the General Notes, Specifications, Plans/Details or Reference Standards, the Architect/Engineer shall determine which shall govern. Discrepancies shall be brought to the attention of the Architect/Engineer before proceeding with the work. Should any discrepancy be found in the Contract Documents, the Contractor will be deemed to have included in the price the most expensive way of completing the work, unless prior to the submission of the price, the Contractor asks for a decision from the Architect as to which shall govern. Accordingly, any conflict in or between the Contract Documents shall not be a basis for adjustment in the Contract Price.

SITE VERIFICATION: The contractor shall verify all dimensions and conditions at the site. Conflicts between the drawings and actual site conditions shall be brought to the attention of the Architect/Engineer before proceeding with the work.

ADJACENT UTILITIES: The contractor shall determine the location of all adjacent underground utilities prior to earthwork, foundations, shoring, and excavation. Any utility information shown on the drawings and details is approximate and not necessarily complete.

ALTERNATES: Alternate products of similar strength, nature and form for specified items may be submitted with adequate technical documentation (proper test report, etc.) to the Architect/Engineer for review. Alternate materials that are submitted without adequate technical documentation or that significantly deviate from the design intent of materials specified may be returned without review. Alternates that require substantial effort to review will not be reviewed unless authorized by the Owner.

DESIGN CRITERIA AND LOADS

OCCUPANCY:	Risk Category of Building per 2018 IBC Table		11	
WIND DESIGN:	MAIN WIND FORCE RESISTING SYSTEM			
	Ultimate Design Wind Speed, V _{ULT} (MPH)		104	
	Exposure Category		С	
	Internal Pressure Coefficient	Cpi =	+/- 0.18	
	Topographic Factor	Kzt =	1.0	
	Wind Analysis procedure used:		Envelope	

<u>SEISMIC</u>	Seismic Design Category:	SDC =	c
<u>DESIGN</u> :			
	Seismic Importance Factor per ASCE 7-16 Table 1.5-2	! le =	1.0
	Spectral Response Acceleration (Short Period)	S _s =	0.295 g
	Spectral Response Acceleration (1-Second Period)	S ₁ =	0.103 g
	Spectral Design Response Coefficient (Short Period)	S _{DS} =	0.308 g
	Spectral Design Response Coefficient (1-Second Perio	od) S _{DI} =	0.164 g
	Seismic Analysis procedure used:		Equivalent Lateral Force (ELF)

SNOW LOAD: (1)	Flat Roof Snow Load, (PSF)	p , =	126 ⁽²⁾
	Snow Drift Loading required by Authority Having Jurisdiction?		No
	Snow Load Importance Factor	_s =	1.0 (3)
	Ground Snow Load, (PSF)	p _g =	150
	Snow Exposure Factor	C _e =	В
	Thermal Factor	C _t =	1.20

- 1) Snow Load is un-reducible and includes 5 psf rain-on-snow surcharge where ground snow load is greater than zero and 20 psf or less per ASCE 7-16 Section 7.10.
- 2) Snow Load Importance Factor per ASCE 7-16 Table 1.5-2.

SUBMITTALS

SUBMIT FOR REVIEW: SUBMITTALS of shop drawings, and product data are required for items noted in the individual materials sections and for *bidder designed* elements.

SUBMITTAL REVIEW PERIOD: Submittals shall be made in time to provide a minimum of TWO WEEKS or 10 WORKING DAYS for review by the Architect/Engineer prior to the onset of fabrication.

GENERAL CONTRACTOR'S PRIOR REVIEW: Prior to submission to the Architect/Engineer, the Contractor shall review the submittal for completeness. Dimensions and quantities are not reviewed by the SER, and therefore, must be verified by the General Contractor. Contractor shall provide any necessary dimensional details requested by the Detailer and provide the Contractor's review stamp and signature before forwarding to the Architect/Engineer.

SHOP DRAWING REVIEW: Once the contractor has completed their review, the SER will review the submittal for general conformance with the design concept and the contract documents of the building and will stamp the submittal accordingly. Markings or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The SER will return submittals in the form they are submitted in (either hard copy or electronic). For hard copy submittals, the contractor is responsible for submitting the required number of copies to the SER for review.

SHOP DRAWING DEVIATIONS: When shop drawings (component design drawings) differ from or add to the requirements of the structural drawings they shall be designed and stamped by the responsible SSE.

DEFERRED SUBMITTALS

Submit "Bidder-Designed" deferred submittals to the Architect and SER for review. The deferred submittals shall also be submitted to the city for approval, if required by the city.

Design of prefabricated, "bidder designed", manufactured, pre-engineered, or other fabricated products shall comply with the following requirements:

- 1) Design considers tributary dead, live, wind and earthquake loads in combinations required by
- 2) Design within the Deflection Limits noted herein and as specified or referenced in the IBC.
- 3) Design shall conform to the specifications and reference standards of the governing code. 4) Submittal shall include:
 - a. Calculations prepared, stamped and signed by the SSE demonstrating code conform-
 - b. Engineered component design drawings are prepared, stamped and signed by the SSE.
 - c. Product data, technical information and manufacturer's written requirements and Agency approvals as applicable. d. SSE may submit to the Architect/Engineer, a request to utilize relevant alternate design criteria of similar nature and generally equivalency which is recognized by the Code and

GENERAL CONTRACTOR'S PRIOR REVIEW: Once the contractor has completed their review of the SSE component drawings, the SER will review the submittal for general conformance with the design of the building and will stamp the submittal accordingly. Review of the Specialty Structural Engineer's (SSE) shop drawings (component design drawings) is for compliance with design criteria and compatibility with the design of the primary structure and does not relieve the SSE of responsibility for that design. All necessary bracing, ties, anchorage, proprietary products shall be furnished and installed per manufacturer's instructions or the SSE's design drawings and calculations. These elements include but are not limited to:

Pre-engineered Steel Structures (Metal Buildings)

INSPECTIONS, QUALITY ASSURANCE VERIFICATIONS AND TEST REQUIREMENTS

<u>INSPECTIONS</u>: Foundations, footings, under slab systems and framing are subject to inspection by the Building Official in accordance with IBC 110.3. Contractor shall coordinate all required inspections with the Building Official.

SPECIAL INSPECTIONS, VERIFICATIONS and TESTS: Special Inspections, Verifications and Testing shall be done in accordance with IBC Chapter 17, the STATEMENT AND SCHEDULES OF SPECIAL IN-SPECTIONS listed in these drawings.

STRUCTURAL OBSERVATION: per IBC Section 1704.6

Structural Observation is the visual observation of the structural system by a registered design professional for general conformance to the approved construction documents. It is not always required on a project, does not include or waive the responsibility for the special inspections and tests required by a Special Inspector per IBC Chapter 17, is not continuous, and does not certify conformance with the approved construction documents.

Structural Observation for this project is not required per IBC Section 1704.6.

CONTRACTOR RESPONSIBILITY: Prior to issuance of the building permit, the Contractor is required to provide the Authority Having Jurisdiction a signed, written acknowledgement of the Contractor's responsibilities associated with the above Statement of Special Inspections addressing the requirements listed in IBC Section 1704.4. Contractor is referred to IBC Sections 1705.12.5 and 1705.12.6 for architectural and MEP building systems that may be subject to additional inspections (based on the building's designated Seismic Design Category listed in the CRITERIA), including anchorage of HVAC ductwork containing hazardous materials, piping systems and mechanical units containing flammable, combustible or highly toxic materials, electrical equipment used for emergency or standby power, exterior wall panels and suspended ceiling sys-

SOILS AND FOUNDATIONS

REFERENCE STANDARDS: Conform to IBC Chapter 18 "Soils and Foundations."

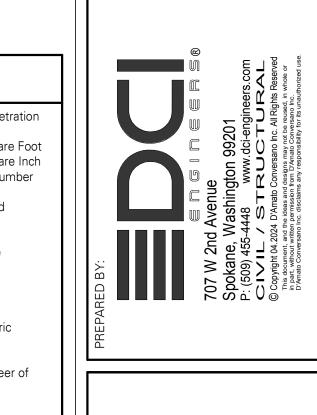
CONTRACTOR'S RESPONSIBILITIES: Contractor shall be responsible to review the Geotechnical Report and shall follow the recommendations specified therein including, but not limited to, subgrade preparations, pile installation procedures, ground water management and steep slope Best Management Practices."

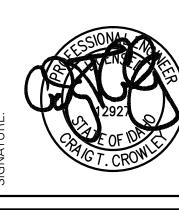
GEOTECHNICAL SUBGRADE INSPECTION: The Geotechnical Engineer shall inspect all sub-grades and prepared soil bearing surfaces, prior to placement of foundation reinforcing steel and concrete. Geotechnical Engineers shall provide a letter to the owner stating that soils are adequate to support the "Allowable Foundation Bearing Pressure(s)" shown below.

ESIGN SOIL VALUES:			
Allowable Foundation Bearing Pressure	1500	PSF	Assumed
Passive Lateral Pressure	250	PSF/FT	Assumed
Coefficient of Sliding Friction	0.35		Assumed

Flat Roof Snow Load, (PSF)	= 126 (2)				
Snow Drift Loading required by Authority Having Jurisdiction?	No		DRAWING	LEGEN	
Snow Load Importance Factor	= 1.0 ⁽³⁾				
Ground Snow Load, (PSF) p g	= 150	MARK	DESCRIPTION	MARK	DESCRIPTION
Snow Exposure Factor C e		F2.0	FOOTING SYMBOL (REFER TO SPREAD	I	INDICATES WIDE FLANGE COLUMN
Thermal Factor C t	= 1.20		FOOTING SCHEDULE) PILE CAP SYMBOL (REFER TO		INDICATES HOLLOW STRUCTURAL
is <u>un-reducible</u> and includes 5 psf rain-on-snow surcharge where gr r zero and 20 psf or less per ASCE 7-16 Section 7.10.	ound snow load is	(P1)	PILE CAP SCHEDULE)		SECTION (HSS) COLUMN OR TUBE STEEL (TS) COLUMN
Importance Factor per ASCE 7-16 Table 1.5-2.		1)	TILT-UP/PRECAST CONCRETE WALL CONNECTION SYMBOL (REFER TO CONNECTION DETAIL)	0	INDICATES HOLLOW STRUCTURAL SECTION (HSS) COLUMN OR STEEL PIPE COLUMN
		2W4	SHEAR WALL SYMBOL (REFER TO SHEAR WALL SCHEDULE)	⊠	INDICATES WOOD POST
VIEW: SUBMITTALS of shop drawings, and product data are required rials sections and for bidder designed elements.	I for items noted in	<u>0</u> RFI 00	REVISION TRIANGLE	•	INDICATES BUNDLED STUDS
IEW PERIOD: Submittals shall be made in time to provide a minimum 'S for review by the Architect/Engineer prior to the onset of fabrication.	of TWO WEEKS or	1	TILT-UP/PRECAST CONCRETE WALL PANEL NUMBER (REFER TO TILT-UP/ PRECAST CONCRETE WALL ELEVATIONS)		INDICATES CONCRETE COLUMN
RACTOR'S PRIOR REVIEW: Prior to submission to the Architect/Enginemittal for completeness. Dimensions and quantities are not reviewed verified by the General Contractor. Contractor shall provide any necessity.	d by the SER, and	$\langle 1 \rangle$	CMU WALL REINFORCING SYMBOL (REFER TO CMU WALL REINFORCING SCHEDULE)		INDICATES PRECAST CONCRETE COLUMN
by the Detailer and provide the Contractor's review stamp and signature gineer.		8"	CONTINUITY PLATE LENGTH (REFER TO TYPICAL DETAIL)	—	INDICATES MOMENT FRAME CONNECTION
REVIEW : Once the contractor has completed their review, the SER will formance with the design concept and the contract documents of the al accordingly. Markings or comments shall not be construed as relie	e building and will	DS	INDICATES DOUBLE SHEAR CONNECTION (REFER TO THE DOUBLE SHEAR PLATE CONNECTIONS DETAIL)	D—	INDICATES PARTIALLY RESTRAINED MOMENT FRAME CONNECTION
with the project plans and specifications, nor departures there from. Torm they are submitted in (either hard copy or electronic). For hard consible for submitting the required number of copies to the SER for revie	he SER will return opy submittals, the	ООТВ	INDICATES REINFORCING TYPE (REFER TO THE REINFORCING SCHEDULE)	├	INDICATES CANTILEVER CONNECTION
DEVIATIONS : When shop drawings (component design drawings) d f the structural drawings they shall be designed and stamped by the res	ffer from or add to	SR_	INDICATES NUMBER OF STUD RAIL REQUIRED AT COLUMN (REFER TO STUD RAIL DETAILS)	•—	INDICATES DRAG CONNECTION
IBMITTALS			ROOF/FLOOR DIAPHRAGM NAILING SYMBOL (REFER TO DIAPHRAGM NAILING SCHEDULE)	├ ├	INDICATES A LEDGER
ED ELEMENTS signed" deferred submittals to the Architect and SER for review. The litted to the city for approval, if required by the city.	deferred submittals	C1 COLUMN SIZE	STEEL/CONCRETE COLUMN - SYMBOL (REFER TO STEEL COLUMN SCHEDULE)		INDICATES WOOD OR STEEL STUD BEARING WALL LINE PER KEY ON SHEET
eated, "bidder designed", manufactured, pre-engineered, or other fabric lowing requirements:	•		ELEVATION SYMBOL (T/ REFERS	OR	INDICATES WOOD OR STEEL STUD SHEAR WALL LINE AND HOLD-DOW PER KEY ON SHEET
considers tributary dead, live, wind and earthquake loads in combine within the Deflection Limits noted herein and as specified or reference	d in the IBC.	3	STUD BUBBLE (INDICATES NUMBER OF STUDS REQUIRED IF EXCEEDS NUMBER SPECIFIED IN PLAN NOTE)	\$///// \$	INDICATES MASONRY/CMU WALL
n shall conform to the specifications and reference standards of the government tall shall include: Calculations prepared, stamped and signed by the SSE demonstrations.	•		INDICATES STEP IN FOOTING (REFER TO TYPICAL STEP IN FOOTING DETAIL)	Section reports	INDICATES CONCRETE/TILT-UP CONCRETE WALL
ance. Engineered component design drawings are prepared, stamped and seproduct data, technical information and manufacturer's written require approvals as applicable.		X SX.X	DETAILS OR SECTION CUT (DETAIL NUMBER/SHEET NUMBER)	ţ 	INDICATES BEARING WALL BELOW
SSE may submit to the Architect/Engineer, a request to utilize relevance criteria of similar nature and generally equivalency which is recognized acceptable to the Authority Having Jurisdiction. Submit adequate do	d by the Code and	00 \$0.0	DETAILS OR SECTION CUT IN PLAN VIEW (DETAIL NUMBER/SHEET NUMBER)	*	INDICATES EXISTING WALL
sign. RACTOR'S PRIOR REVIEW: Once the contractor has completed their		XX/SXX.XX	INDICATES LOCATION OF CONCRETE WALLS, SHEAR WALLS OR BRACED FRAME ELEVATIONS	 	POST-TENSION DEAD END (PLAN)
ps, the SER will review the submittal for general conformance with the he submittal accordingly. Review of the Specialty Structural Engineer' esign drawings) is for compliance with design criteria and compatibility	design of the builds (SSE) shop draw-		STRUCTURAL EXTENT SYMBOL SINGLE ARROW - END OF EXTENT		POST-TENSION STRESSING END (PL)
re and does not relieve the SSE of responsibility for that design. All oprietary products shall be furnished and installed per manufacturer's ings and calculations. These elements include but are not limited to:	necessary bracing,		DOUBLE ARROW - CONTINUOUS EXTENT ALONG THE ELEMENT LINE UNTIL THE ELEMENT IS INTERRUPTED	₹ 3	POST-TENSION PROFILE (PLAN) (IN INCHES)
ered Steel Structures (Metal Buildings)			INDICATES DIRECTION OF DECK SPAN	├-	INTERMEDIATE STRESSING (PLAN)
QUALITY ASSURANCE VERIFICATIONS AND TEST RE	OHIDEMENTS			ı	

L	Angle	EXCAV	Excavation	PJP	Partial Joint Penetration
AB	Anchor Bolt	FB	Factory-Built	PREFAB	Prefabricated
ADDL	Additional	FD	Floor Drain	PSF	Pounds per Square Foot
VDH	Adhesive	FDN	Foundation	PSI	Pounds Per Square Inch
ιLT	Alternate	FIN	Finish	PSL	Parallel Strand Lumber
RCH	Architectural	FLR	Floor	P-T	Post-Tensioned
or BOT	Bottom	FRP	Fiberglass Reinforced Plastic	PT	Pressure Treated
3/	Bottom Of	FRT	Fire Retardant Treated	R	Radius
LDG	Building	FTG	Footing	RD	Roof Drain
BLKG	Blocking	F/	Face of	REF	Refer/Reference
MU	Brick Masonry Unit	GA	Gage	REINF	Reinforcing
P	Baseplate	GALV	Galvanized	REQD	Required
r BBF	Buckling Restrained	GEOTECH	Geotechnical	RET	Retaining
NDF	=				_
D.O.	Braced Frame	GL	Glue Laminated Timber	SB	Site-Built
RG	Bearing	GWB	Gypsum Wall Board	SCBF	Special Concentric
ΓWN	Between	HDR	Header		Braced Frame
	Camber	HF	Hem-Fir	SCHED	Schedule
В	Castellated Beam	HGR	Hanger	SER	Structural Engineer of
'BORE	Counterbore	HD	Hold-down		Record
L or Œ	Centerline	HORIZ	Horizontal	SFRS	Seismic Force-
LT	Cross-Laminated Timber	HP	High Point		Resisting System
IP	Cast in Place	HSS = TS	(Hollow Structural Section)	SHTHG	Sheathing
 FS	Cold Formed Steel	IBC	International Building Code	SIM	Similar
J	Construction or	ID	Inside Diameter	SLBB	Short Leg Back-to-Back
-	Control Joint	IE	Invert Elevation	SMF	Special Moment Frame
JP	Complete Joint	IF	Inside Face	SOG	Slab on Grade
JF		INT		SP	
	Penetration		Interior		Southern Pine
LR	Clear	k	Kips	SPEC	Specification
LG	Ceiling	KSF	Kips Per Square Foot	SQ	Square
MU	Concrete Masonry Unit	LF	Lineal Foot	SR	Studrail
OL	Column	LL	Live Load	SF	Square Foot
ONC	Concrete	LLBB	Long Leg Back-to-Back	SST	Stainless Steel
ONN	Connection	LLH	Long Leg Horizontal	STAGG	Stagger/Staggered
ONST	Construction	LLV	Long Leg Vertical	STD	Standard
ONT	Continuous	LP	Low Point	STIFF	Stiffener
SINK	Countersink	LONGIT	Longitudinal	STL	Steel
TRD	Centered	LSL	Laminated Strand Lumber	STRUCT	Structural
IA	Diameter	LVL	Laminated Veneer Lumber	SWWJ	Solid Web Wood Joist
В	Drop Beam	MAS	Masonry	SYM	Symmetrical
BA	Deformed Bar Anchor	MAX	Maximum	T	Top
BL	Double	MECH	Mechanical	T/	Top Of
		MEP		T&B	
EMO	Demolish	IVIEP	Mechanical, Electrical,		Top & Bottom
EV	Development		Plumbing	TC AX LD	Top Chord Axial Load
F	Douglas Fir	MEZZ	Mezzanine	TCX	Top Chord Extension
IAG	Diagonal	MFR	Manufacturer	TDS	Tie Down System
IST	Distributed	MIN	Minimum	T&G	Tongue & Groove
) <u>L</u>	Dead Load	MISC	Miscellaneous	THKND	Thickened
Ν	Down	NIC	Not In Contract	THRD	Threaded
00	Ditto	NLT	Nail-Laminated Timber	THRU	Through
P	Depth/Deep	NTS	Not To Scale	TRANSV	Transverse
WG	Drawing	OC	On Center	TYP	Typical
Ξ)	Existing	OCBF	Ordinary Concentric Braced	UNO	Unless Noted Otherwis
-/ :A	Each	OODI	Frame	URM	Unreinforced Masonry
F	Each Face	OD	Outside Diameter	OTTIVI	Unit
		OF		VEDT	
L	Elevation		Outside Face	VERT	Vertical
LEC	Electrical	OPNG	Opening	W	Wide
LEV	Elevator	OPP	Opposite	W/	With
MBED	Embedment	OWSJ	Open Web Steel Joist	W/O	Without
EQ.	Equal	OWWJ	Open Web Wood Joist	WHS	Welded Headed Stud
QUIP	Equipment	PL	Plate	WP	Working Point
EW	Each Way	PAF	Powder Actuated Fastener	WWF	Welded Wire Fabric
XP	Expansion	PC	Precast	±	Plus or Minus
XP JT	Expansion Joint	PERP	Perpendicular	_	
XT	Exterior	PLWD	Plywood		
	LAtorioi		1 19 0000		





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GENERAL NOTES

SHEET NO.

<u>FOUNDATIONS</u> and <u>FOOTINGS</u>: Foundations shall bear on either on competent native soil or compacted structural fill as per the geotechnical report. Exterior perimeter footings shall bear not less than **30** inches below finish grade, unless otherwise specified by the geotechnical engineer and/or the building official.

FOOTING DEPTH: Tops of footings shall be as shown on plans with vertical changes as indicated with steps in the footings; locations of steps shown as approximate and shall be coordinated with the civil grading

<u>SLABS-ON-GRADE</u>: All slabs-on-grade shall bear on compacted structural fill or competent native soil per the geotechnical report. All moisture sensitive slabs-on-grade or those subject to receive moisture sensitive coatings/covering shall be provided with an appropriate capillary break and vapor barrier/retardant over the subgrade prepared and installed as noted in the geotechnical report, barrier manufacturer's written recommendations and coordinated with the finishes specified by the Architect.

CAST-IN-PLACE CONCRETE

REFERENCE STANDARDS: Conform to:

- (1) ACI 301-16 "Specifications for Structural Concrete"
- (2) IBC Chapter 19 "Concrete"
- (3) ACI 318-14 "Building Code Requirements for Structural Concrete"
- (4) ACI 117-10 "Specifications for Tolerances for Concrete Construction and Materials"

<u>FIELD REFERENCE</u>: The contractor shall keep a copy of ACI Field Reference manual, SP-15, "Standard Specifications for Structural Concrete (ACI 301) with Selected ACI and ASTM References."

CONCRETE MIXTURES: Conform to ACI 301 Section 4 "Concrete Mixtures" and IBC Section 1904.1.

<u>MATERIALS</u>: Conform to ACI 301 Section 4.2.1 "Materials" for requirements for cementitious materials, aggregates, mixing water and admixtures.

<u>SUBMITTALS</u>: Provide all submittals required by ACI 301 Section 4.1.2. Submit mix designs for each mix in the table below. Substantiating strength results from past tests shall not be older than 24 months per ACI 318 Section 26.4.3.1 (b).

TABLE OF MIX DESIGN REQUIREMENTS

Member Type/Location	Strength f'c (psi)	Test Age (days)	Nominal Maximum Aggregate	Exposure Class	Max W/C Ratio	Air Con- tent	Notes (1 to 9 Typical UNO)
Footings	3000	28	1"	-	ı	-	-
Interior Slabs on Grade	3000	28	1"	-	0.45	-	

Table of Mix Design Requirements Notes:

- (1) W/C Ratio: Water–cementitious material ratios shall be based on the total weight of cementitious materials. Maximum ratios are controlled by strength noted in the Table of Mix Design Requirements and durability requirements given in ACI 318 Section 19.3.
- (2) Cementitious Materials:
 - a. DCI encourages the reduction of cement content and/or the use of blended hydraulic cements. Where requirements of this section prohibit inclusion of any of these mixes, contact DCI for further coordination.
- b. The use of fly ash, other pozzolans, silica fume, or slag shall conform to ACI 318 Sections 19.3.2 and 26.4.2.2. Where supplementary cementitious material (SCM) exceeds 25% of total cementitious content, submit for SER approval.
- c. For concrete used in elevated floors, minimum cementitious-materials content shall conform to ACI 301 Table 4.1.2.9. Acceptance of lower cement content is contingent on providing support-
- ing data to the SER for review and acceptance.d. Cementitious materials shall conform to the relevant ASTM standards listed in ACI 318 Section 26.4.1.1.1(a).
- (3) Air Content: Conform to ACI 318 Section 19.3.3.1. Minimum standards for exposure class are noted in the table. If freezing and thawing class is not noted, air content given is that required by the SER.
- (4) Aggregates shall conform to ASTM C33.
- (5) Slump: Conform to ACI 301 Section 4.2.2.2. Slump shall be determined at point of placement.

Tolerance is $\pm 1-\frac{1}{2}$ %. Air content shall be measured at point of placement.

- (6) Chloride Content: Conform to ACI 318 Table 19.3.2.1.
- (7) Non- chloride accelerator: Non-chloride accelerating admixture may be used in concrete placed at ambient temperatures below 50°F at the contractor's option.
- (8) ACI 318, Section 19.3.1.1 exposure classes shall be assumed to be F0, S0, W0, and C0 unless different exposure classes are listed in the Table of Mix Design Requirements that modify these base requirements.
- (9) Structural design is based on strength of 2500 psi and therefore does not require special inspection. The 3000 psi compressive strength is specified for serviceability.

<u>FORMWORK & RESHORING:</u> Conform to ACI 301 Section 2 "Formwork and Form Accessories." Removal of Forms shall conform to Section 2.3.2 except strength indicated in Section 2.3.2.5 shall be 0.75 f' c.

MEASURING, MIXING, AND DELIVERY: Conform to ACI 301 Section 4.3.

HANDLING, PLACING, CONSTRUCTING AND CURING: Conform to ACI 301 Section 5. In addition, hot weather concreting shall conform to ACI 305R-10 and cold weather concreting shall conform to ACI 306R-

<u>CONSTRUCTION JOINTS</u>: Conform to ACI 301 Sections. 2.2.2.5 and 5.3.2.6. Construction joints shall be located and detailed as on the construction drawings. Submit alternate locations per ACI 301 Section 5.1.2.4 (a) for review and approval by the SER two weeks minimum prior to forming. Use of an acceptable adhesive, surface retardant, portland cement grout or roughening the surface is not required unless specifically noted on the drawings.

<u>EMBEDDED ITEMS</u>: Position and secure in place expansion joint material, anchors and other structural and non-structural embedded items before placing concrete. Contractor shall refer to mechanical, electrical, plumbing and architectural drawings and coordinate other embedded items.

<u>POST-INSTALLED ANCHORS to CONCRETE</u>: Anchor location, type, diameter and embedment shall be as indicated on drawings. Reference the POST INSTALLED ANCHORS section for applicable Post-Installed Anchor Adhesives. Anchors shall be installed and inspected in strict accordance with the applicable ICC-Evaluation Service Report (ESR). Special inspection shall be per the TESTS and INSPECTIONS section.

SHRINKAGE: Conventional and post-tensioned concrete slabs will continue to shrink after initial placement and stressing of concrete. Contractor and subcontractor shall coordinate jointing and interior material finishes to provide adequate tolerance for expected structural frame shrinkage and shall include, but not be limited to: curtain wall, dryvit, storefront, skylight, floor finish, and ceiling suppliers. Contact Engineer for expected range of shrinkage.

STRENGTH TESTING AND ACCEPTANCE:

- <u>Testing</u>: Obtain samples and conduct tests in accordance with ACI 301 Section 1.6.3.2. Additional samples may be required to obtain concrete strengths at alternate intervals than shown below.
- Cure 4 cylinders for 28-day test age, test 1 cylinder at 7 days, test 2 cylinders at 28 days, and hold 1 cylinder in reserve for use as the Engineer directs. After 56 days, unless notified by the Engineer to the contrary, the reserve cylinder may be discarded without being tested for specimens meeting 28-day strength requirements.

• The number of cylinders indicated above reference 6 by 12 in cylinders. If 4 by 8 in cylinders are to be used, additional cylinders must be cured for testing of 3 cylinders at test age per the table of mix design requirements.

Acceptance. Strength is satisfactory when:

- (1) The averages of all sets of 3 consecutive tests equal or exceed the specified strength.
- (2) No individual test falls below the specified strength by more than 500 psi.
- A "test" for acceptance is the average strength of two 6 by 12 in. cylinders or three 4 by 8 in. cylinders tested at the specified test age.

CONCRETE PLACEMENT TOLERANCE: Conform to ACI 117-10 for concrete placement tolerance

CONCRETE REINFORCEMENT

REFERENCE STANDARDS: Conform to:

- (1) ACI 301-16 "Standard Specifications for Structural Concrete", Section 3 "Reinforcement and Rein-
- forcement Supports."
 (2) ACI SP-66(04) "ACI Detailing Manual"
- (3) CRSI MSP-09, 28th Edition, "Manual of Standard Practice."
- (4) ANSI/AWS D1.4: 2005, "Structural Welding Code Reinforcing Steel."
- (5) IBC Chapter 19-Concrete.
- (6) ACI 318-14 "Building Code Requirements for Structural Concrete."(7) ACI 117-10 "Specifications for Tolerances for Concrete Construction and Materials"

<u>SUBMITTALS</u>: Conform to ACI 301 Section 3.1.2 "Submittals." Submit placing drawings showing fabrication dimensions and placement locations of reinforcement and reinforcement supports.

MATERIALS:

Reinforcing Bars	ASTM A615, Grade 60, deformed bars.
•	ASTM A706, Grade 60, deformed bars.
Smooth Welded Wire Fabric	ASTM A1064
Bar Supports	CRSI MSP-09, Chapter 3 "Bar Supports."
Tie Wire	16 gage or heavier, black annealed.

FABRICATION: Conform to ACI 301, Section 3.2.2. "Fabrication", and ACI SP-66 "ACI Detailing Manual."

<u>WELDING</u>: Bars shall not be welded unless authorized. When authorized, conform to ACI 301, Section 3.2.2.2. "Welding", AWS D1.4, and provide ASTM A706, grade 60 reinforcement.

PLACING: Conform to ACI 301, Section 3.3.2 "Placing." Placing tolerances shall conform to ACI 117.

<u>SPLICES</u>: Conform to ACI 301, Section 3.3.2.7, "Splices". Refer to "Typical Lap Splice and Development Length Schedule" for typical reinforcement splices. Splices indicated on individual sheets shall control over the schedule. Mechanical connections may be used when approved by the SER. For reinforcing within the lateral system and reinforcing connecting the diaphragm slab to the lateral system, mechanical splice strength is increased to develop 125 percent of the specified tensile strength of the splices bar.

<u>FIELD BENDING</u>: Conform to ACI 301 Section 3.3.2.8. "Field Bending or Straightening." Bar sizes #3 through #5 may be field bent cold the first time. Subsequent bends and other bar sizes require preheating. Do not twist bars. Bars shall not be bent past 45 degrees.

POST-INSTALLED ANCHORS INTO CONCRETE

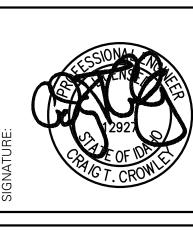
REFERENCE STANDARDS: Conform to:

- 1) IBC Chapter 19 "Concrete"
- 2) ACI 318-19 "Building Code Requirements for Structural Concrete"
- 3) IBC Chapter 21 "Masonry"
- 4) TMS 402-16 "Building Code Requirements for Masonry Structures"

POST-INSTALLED ANCHORS: Install only where specifically shown in the details or allowed by SER. All post-Installed anchors types and locations shall be approved by the SER and shall have a current ICC-Evaluation Service Report that provides relevant design values necessary to validate the available strength exceeds the required strength. Submit current manufacturer's data and ICC ESR report to SER for approval regardless of whether or not it is a pre-approved anchor. Anchors shall be installed in strict accordance to ICC-ESR and the manufacturer's printed installation instructions (MPII) in conjunction with edge distance, spacing and embedment depth as indicated on the drawings. The contractor shall arrange for a manufacturer's field representative to provide installation training for all products to be used, prior to the commencement of work. Only trained installer shall perform post installed anchor installation. A record of training shall be kept on site and be made available to the SER as requested. Adhesive anchors installed in horizontally or upwardly inclined orientation shall be performed by a certified adhesive anchor installer (AAI) as certified through ACI/CRSI or approved equivalent. Proof of current certification shall be submitted to the engineer for approval prior to commencement of installation. No reinforcing bars shall be damaged during installation of post-installed anchors. Special inspection shall be per the TESTS and INSPECTIONS section. Anchor type, diameter and embedment shall be as indicated on drawings.

- 1. <u>ADHESIVE ANCHORS:</u> The following Adhesive-type anchoring systems have been used in the design and shall be used for anchorage to CONCRETE, as applicable and in accordance with corresponding current ICC ESR report. Reference the corresponding ICC ESR report for required minimum age of concrete, concrete temperature range, moisture condition, light weight concrete, and hole drilling and preparation requirements. Drilled-in anchor embedment lengths shall be as shown on drawings, or not less than 7 times the anchor nominal diameter (7D). Adhesive anchors are to be installed in concrete aged a minimum of 21 days, unless otherwise specified in the ICC ESR report.
 - a. HILTI "HIT-HY 200" ICC ESR-3187 for anchorage to CONCRETE
 - a. HILTI "HIT-HY 200" ICC ESR-3187 for anchorage to CONCRETE
 b. SIMPSON "SET-XP" ICC ESR 2508 for anchorage to CONCRETE
- 2. <u>EXPANSION ANCHORS</u>: The following Expansion type anchors are pre-approved for anchorage to CONCRETE or MASONRY in accordance with corresponding current ICC ESR report:
 - a. HILTI "KB TZ2" ICC ESR-4266 for anchorage to CONCRETE
 - b. SIMPSON "STRONG-BOLT 2" ICC ESR-3037 for anchorage to CONCRETE
- 3. <u>SCREW ANCHORS</u>: The following Screw type anchor is pre-approved for anchorage to CONCRETE or MASONRY in accordance with corresponding current ICC ESR report:
 - a. SIMPSON "TITEN HD" ICC ESR-2713 for CARBON STEEL to CONCRETE
 - b. HILTI "KH-EZ" ICC ESR-3027 for anchorage to CONCRETE





DESCRIPTION

REVISIONS: NO. DATE

 Job No.:
 24041-0129

 Proj. Manager:
 TEH

 Drawn:
 KDL

 Reviewed:
 TEH

 Dwg. Chk.
 MJT

 Date:
 04/19/24

MPSTER COVER TY, ID 83525

SHEET TITLE:
GENERAL NOTES

SHEET NO.

SI.2

SPECIAL INSPECTIONS

The following Statement and Schedules of Inspections are those Special Inspections and Tests that shall be performed for this project. Special Inspectors shall reference these plans and IBC Chapter 17 for all special inspection requirements.

The owner shall retain an "approved agency" per IBC 1703 to provide special inspections for this project. Special Inspectors shall be qualified persons per IBC 1704.2.1.

Special inspection reports shall be provided on a weekly basis. Submit copies of all inspection reports to the Architect/Engineer and the Authority Having Jurisdiction for review. In addition to special inspection reports and tests, submit reports and certificates noted in IBC 1704.5 to the Authority Having Jurisdiction. Final special inspection reports will be required by each special inspection firm per IBC 1704.2.4.

STATEMENT OF SPECIAL INSPECTIONS:

This statement of Special Inspections has been written with the understanding that the Building Official

- Review and approve the qualifications of the Special Inspectors
- Monitor the special inspection activity on the project site to assure that Special Inspectors are qualified and performing their duty as state within this statement.
- Review all Special Inspection Reports submitted to them by the Special Inspector - Perform inspections as required by IBC Section 110.3.

The following Special Inspections are applicable to this project: - Special Inspections for Standard Buildings (per IBC 1705.1)

- REQUIRED Special Inspections for Seismic Resistance (per IBC 1705.12) **NOT REQUIRED**
- (per IBC 1705.13) NOT REQUIRED - Testing for Seismic Resistance - Special Inspections for Wind Resistance (per IBC 1705.11) NOT REQUIRED

SPECIAL INSPECTION OF SHOP FABRICATED GRAVITY LOAD-BEARING MEMBERS AND ASSEMBLIES:

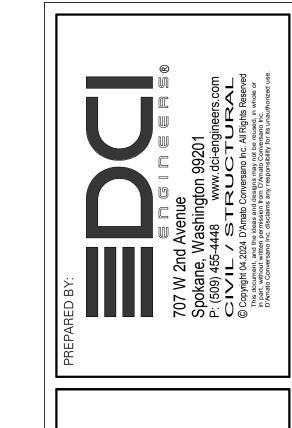
Special Inspection of shop fabricated Gravity Load Bearing Members & Assemblies shall be verified by the Special Inspector as stated in Section 1704.2.5.

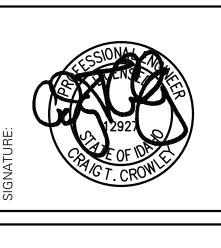
POST-INSTALLED ANCHORS TO CONCRETE AND MASONRY: shall comply with IBC Section 1703. Inspections shall be in accordance with the requirements set forth in the approved ICC Evaluation Report and as indicated by the design requirements specified on the drawings. Refer to the POST INSTALLED ANCHORS section of these notes for anchors that are the basis of the design. Special inspector shall verify anchors are as specified in the POST INSTALLED ANCHORS section of these notes or as otherwise specified on the drawings. Substitutions require approval by the SER and require substantiating calculations and current 2018 IBC recognized ICC Evaluation Services (ES) Report. Special Inspector shall document in their Special Inspection Report compliance with each of the elements required within the applicable ICC Evaluation Services (ES) Re-

SCHEDULES OF SPECIAL INSPECTIONS:

TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

REGULED OF EGIAL ING. EGITORG AND TEGTO OF GOILG					
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION			
Verify materials below shallow foundations are adequate to achieve the design bearing capacity	-	X			
Verify excavations are extended to proper depth and have reach proper material	-	X			
Perform classification and testing of compacted fill materials	-	Х			
Verify use of proper materials, densities and list thickness during placement and compaction of compacted fill	X	-			
Prior to placement of com- pacted fill, inspect subgrade and verify that site has been prepared properly	-	X			

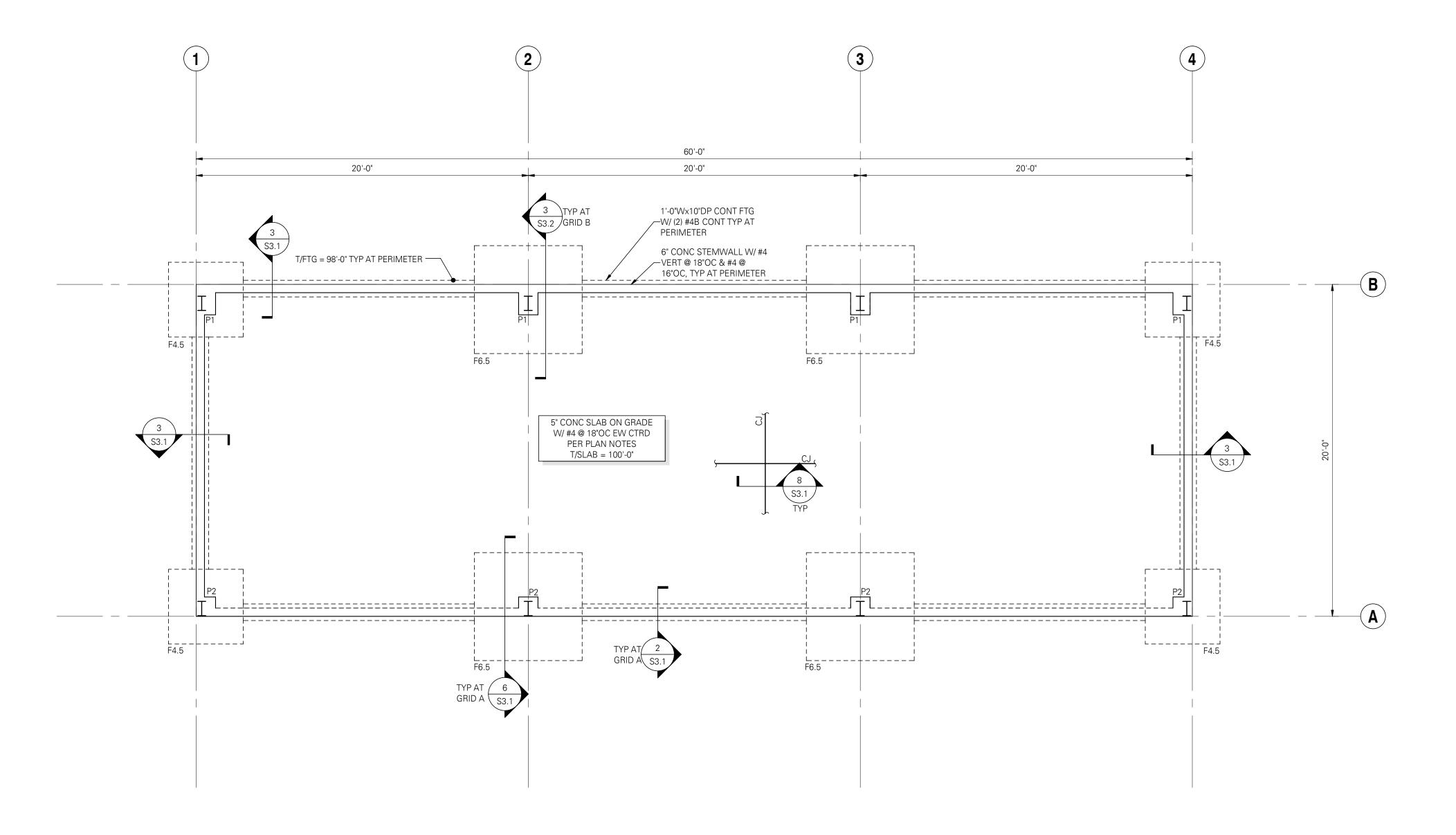




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SHEET TITLE:
SPECIAL INSPECTIONS

SI.3



FOUNDATION PLAN NOTES:

- 1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S1.1, S1.2 AND S1.3.
- 2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE PREFAB METAL BUILDING DRAWINGS.
- 3. CONTRACTOR SHALL LOCATE AND VERIFY WITH OTHERS PRIOR TO POURING CONCRETE AT ALL DOOR OPENINGS IN FOUNDATION WALLS.
- 4. TOP OF SLAB (T/SLAB) ELEVATION ASSUMED 100'-0". PROVIDE FREE-DRAINING GRANULAR FILL.
- 5. ALL FOOTINGS AND SLABS TO BEAR ON COMPETENT NATIVE SOIL AND/OR STRUCTURAL FILL. SUBGRADE PREPARATION, STRUCTURAL FILL, FOOTING DRAINS AND OTHER REQUIREMENTS AS NOTED IN THE STRUCTURAL GENERAL NOTES.
- 6. CJ INDICATES CONTROL JOINT PER PLAN.
- 7. TYPICAL DETAILS PER:

4/S3.1 STANDARD HOOKS AND BAR BENDS 5/S3.1 PLAN - TYPICAL CORNER REINFORCING AT CONCRETE FOOTINGS 9/S3.1 TYPICAL PIPE AND TRENCH LOCATIONS AT CONCRETE STEMWALL/FOOTING

11/S3.1 PLAN - TYPICAL CORNER REINFORCING AT CONCRETE WALLS

12/S3.1 TYPICAL LAP SPLICE SCHEDULE

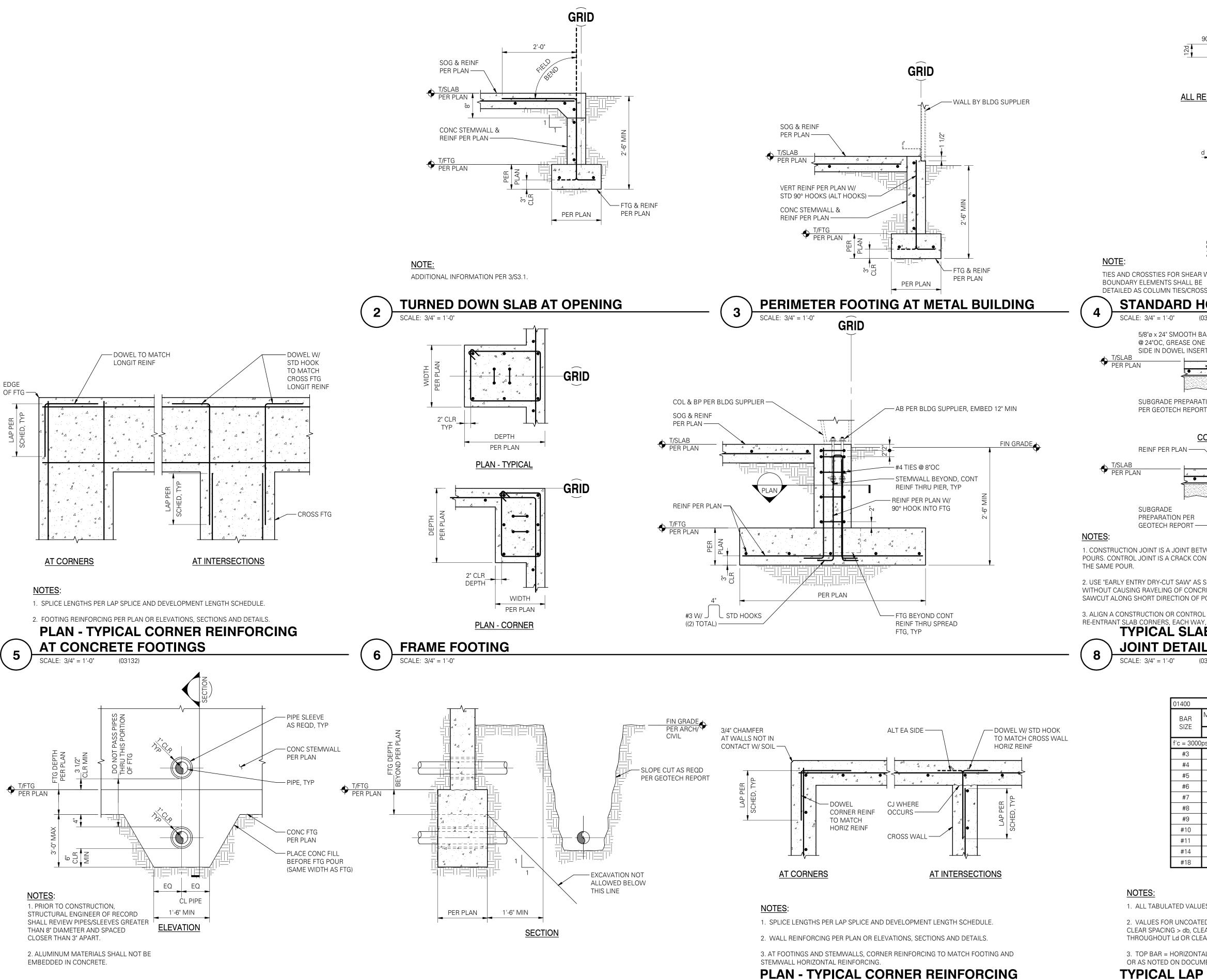
PIER SCHEDULE						
TYPE	WIDTH	DEPTH	REINFORCING	COMMENTS		
P1	1'-2"	1'-10"	(6) #5 VERT			
P2	1'-2"	1'-2"	(4) #5 VERT			

SPREAD FOOTING SCHEDULE							
SIZE							
WIDTH	DEPTH	REINFORCING	COMMENTS				
4'-6"	1'-0"	(4) #5B EW					
6'-6"	1'-0"	(6) #5B EW					
	WIDTH 4'-6"	WIDTH DEPTH 4'-6" 1'-0"	WIDTH DEPTH REINFORCING 4'-6" 1'-0" (4) #5B EW				

FOUNDATION PLAN

SHEET NO.

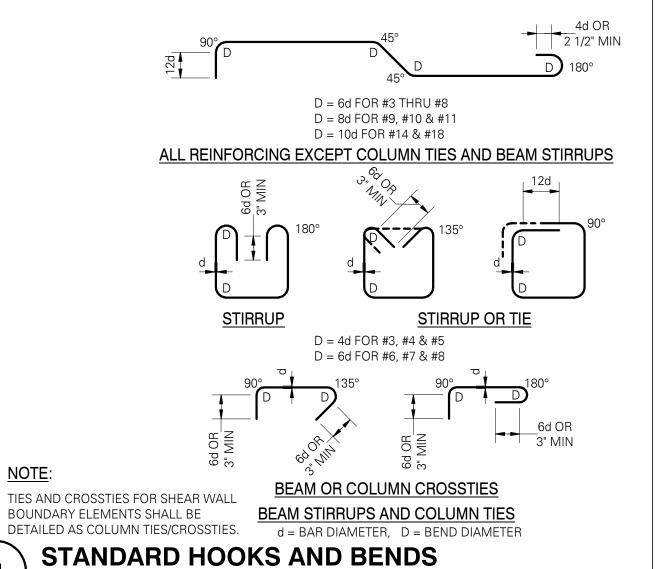
SHEET TITLE:
FOUNDATION PLAN

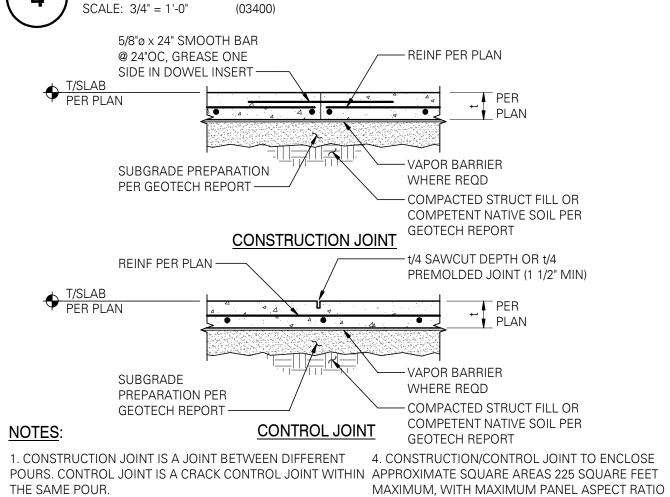


AT CONCRETE WALLS

EDGE

TYPICAL PIPE AND TRENCH LOCATIONS AT CONCRETE STEMWALL/FOOTING





OF 1.3 TO 1.0. 2. USE "EARLY ENTRY DRY-CUT SAW" AS SOON AS POSSIBLE WITHOUT CAUSING RAVELING OF CONCRETE EDGES. 5. CONTRACTOR TO SUBMIT SAWCUT ALONG SHORT DIRECTION OF POUR FIRST. CONSTRUCTION/CONTROL JOINT PLAN TO STRUCTURAL ENGINEER OF RECORD FOR

REVIEW/APPROVAL. 3. ALIGN A CONSTRUCTION OR CONTROL JOINT WITH RE-ENTRANT SLAB CORNERS, EACH WAY, TYPICAL

TYPICAL SLAB ON GRADE **JOINT DETAILS WITH REINFORCING**

01400	GRADE 60 REINFORCING				
BAR SIZE	MISCELLANEOUS BARS		TO (see	HOOKEI BARS	
SIZE	Ld	Splice	Ld	Splice	Ldh
f'c = 3000	psi				
#3	17	22	22	28	9
#4	22	29	29	38	11
#5	28	36	36	47	14
#6	33	43	43	56	17
#7	48	63	63	81	20
#8	55	72	72	93	22
#9	62	81	81	105	25
#10	70	91	91	118	28
#11	78	101	101	131	31
#14	93	N/A	121	N/A	38
#18	124	N/A	161	N/A	50

- 1. ALL TABULATED VALUES ARE IN INCHES.
- 2. VALUES FOR UNCOATED REINFORCING AND NORMAL WEIGHT CONCRETE WITH CLEAR SPACING > db, CLEAR COVER > db AND MINIMUM STIRRUPS OR TIES THROUGHOUT Ld OR CLEAR SPACING > 2db AND CLEAR COVER > db.
- 3. TOP BAR = HORIZONTAL BAR WITH MORE THAN 12" OF FRESH CONCRETE BELOW OR AS NOTED ON DOCUMENTS AS "TOP BAR".

TYPICAL LAP SPLICE AND **DEVELOPMENT LENGTH SCHEDULE** SHEET TITLE: FOUNDATION DETAILS

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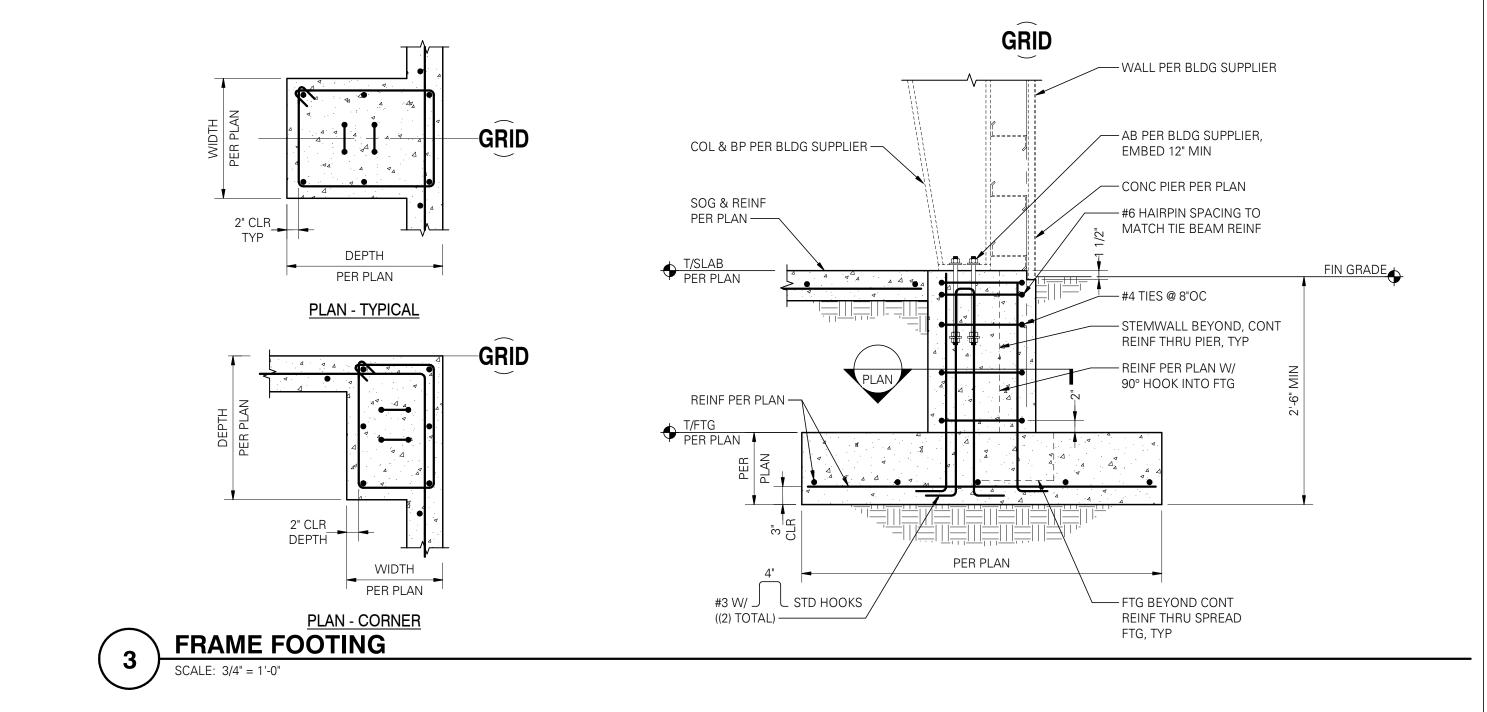
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SHEET NO.

S3





83525

DUMPSTER \Box

SHEET TITLE:
FOUNDATION
DETAILS

SHEET NO. S3.2