GREAT LAKES CHEESE

2200 ENTERPRISE AVENUE
LA CROSSE, WI 54603

RELEASED FOR: PLAN COMMISSION REVIEW

RELEASED: MAY 23, 2018

DRAWING LIST

	SHEET NO.	SHEET TITLE	REV. DATE
●	S0.000	TITLE SHEET	05/23/2018
●	S0.001	GENERAL NOTES	05/23/2018
●	S0.002	GENERAL NOTES	05/23/2018
●	S1.001	FOUNDATION PLAN	05/23/2018
●	S1.101	SLAB PLAN	05/23/2018
●	S1.201	ROOF FRAMING PLAN	05/23/2018
●	S2.001	TYPICAL CONCRETE DETAILS	05/23/2018
●	S2.002	TYPICAL CONCRETE DETAILS	05/23/2018
●	S2.003	TYPICAL CONCRETE DETAILS	05/23/2018
●	S2.101	CONCRETE SECTIONS	05/23/2018
●	S3.001	TYPICAL STEEL DETAILS	05/23/2018
●	S3.101	STEEL SECTIONS	05/23/2018
●	S4.001	TYPICAL MASONRY DETAILS	05/23/2018
●	S4.002	TYPICAL MASONRY DETAILS	05/23/2018
●	S10.001	SPECIFICATIONS	05/23/2018
●	S10.002	SPECIFICATIONS	05/23/2018
●	S10.003	SPECIFICATIONS	05/23/2018
●	S10.004	SPECIFICATIONS	05/23/2018
●	S10.005	SPECIFICATIONS	05/23/2018
●	S10.006	SPECIFICATIONS	05/23/2018

● DENOTES DRAWINGS INCLUDED WITH RELEASE / PACKAGE.

GENERAL NOTES

A. ANY DISCREPANCY WITHIN THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OR CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF ANY WORK. NO WORK SHALL BE DONE UNTIL DISCREPANCY HAS BEEN RESOLVED.

B. ALL CONSTRUCTION METHODS AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES.

C. ALL DIMENSIONS ARE TO FACE OF WALL, FACE OF STUDS, CENTERLINE OF BEAMS AND COLUMNS, OR FACE OF CONCRETE UNLESS OTHERWISE NOTED.

D. THE FIGURED DIMENSIONS ON THE DRAWINGS OR NOTES INDICATING DIMENSIONS SHALL BE USED INSTEAD OF MEASUREMENTS OF THE DRAWINGS BY SCALE, AND SHALL BE STRICTLY COMPLIED WITH.

E. WHEREVER A DETAIL IS REFERENCED AND DEVELOPED FOR A SPECIFIC CONDITION, SAME OR SIMILAR DETAIL SHALL APPLY TO IDENTICAL OR SIMILAR CONDITIONS ELSEWHERE ON THE PROJECT EVEN THOUGH NOT SPECIFICALLY REFERENCED.

F. CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS, DIMENSIONS, BUILDING LOCATIONS, CURBS, FLOW LINES, EXISTING CONDITIONS AND POINTS OF CONNECTIONS TO UTILITIES, ETC. IN THE EVENT OF CONFLICT, CONTACT THE ENGINEER OR CONSTRUCTION MANAGER FOR INSTRUCTION PRIOR TO PROCEEDING.

G. CONTRACTOR SHALL CONFORM TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.

H. ALL MATERIALS AND METHODS SHALL COMPLY WITH CITY, STATE, AND FEDERAL REQUIREMENTS. ALL SYSTEMS SHALL BE APPROVED SYSTEMS AS DESIGNATED BY CITY, STATE, AND FEDERAL STANDARDS.

I. SHOULD ANY OF THE DETAILED INSTRUCTIONS SHOWN ON THE PLANS CONFLICT WITH THE GENERAL STRUCTURAL NOTES, THE SPECIFICATIONS, OR WITH EACH OTHER - THE STRICTEST PROVISIONS SHALL GOVERN.

ABBREVIATIONS

AB	ANCHOR BOLT	JG	JOIST GIRDER	W	WALL
AFF	ABOVE FINISHED FLOOR	JT	JOINT	W	WIDE FLANGE
ALUM	ALUMINUM			W	WEST
ARCH	ARCHITECTURAL	K	1,000 POUNDS	W/	WITH
		KIP	1,000 POUNDS	WF	WALL FOOTING
B/	BOTTOM OF			WF	HISTORICAL WIDE FLANGE
BFB	BOTTOM FLANGE BRACE	L	ANGLE	W/O	WITHOUT
BLDG	BUILDING	LBS	POUNDS	WP	WORK POINT
BM	BEAM	LLH	LONG LEG HORIZONTAL	WT	WEIGHT
BRG	BEARING	LLV	LONG LEG VERTICAL	WT	STRUCTURAL TEE
		LOC	LOCATION	WWF	WELDED WIRE FABRIC
C	STRUCTURAL CHANNEL	LP	LOW POINT		
CANT	CANTILEVER			YD	YARD
C/C	CENTER TO CENTER	M	STRUCTURAL M SHAPE		
CFMF	COLD-FORMED METAL FRAMING	MSN	MASONRY	±	PLUS/MINUS
CJ	CONTROL JOINT	MAX	MAXIMUM	+/-	PLUS/MINUS
CJ	CONSTRUCTION JOINT	MC	STRUCTURAL CHANNEL	℄	CENTERLINE
CL	CENTERLINE	MECH	MECHANICAL	∠	ANGLE
CLR	CLEAR	MEP	MECHANICAL, ELECTRICAL, PLUMBING	>	GREATER THAN
CM	CONSTRUCTION MANAGER	MIN	MINIMUM	<	LESS THAN
CMU	CONCRETE MASONRY UNIT	MISC	MISCELLANEOUS	>=	GREATER THAN OR EQUAL
COL	COLUMN	MNFR	MANUFACTURER	<=	LESS THAN OR EQUAL
CONC	CONCRETE	MTL	METAL	Ø	DIAMETER
COND	CONDITIONS			°	DEGREE
CONN	CONNECTION	N	NORTH	℄	PLATE
CONT	CONTINUOUS	N/S	NORTH/SOUTH	&	AND
CONST	CONSTRUCTION	NA	NOT APPLICABLE	@	AT
COORD	COORDINATE	NIC	NOT IN CONTRACT		
CSJ	CONSTRUCTION JOINT	NO	NUMBER		
CTJ	CONTROL JOINT	NOM	NOMINAL		
CY	CUBIC YARD	NS	NEAR SIDE		
		NTS	NOT TO SCALE		
DBL	DOUBLE				
DEMO	DEMOLISH OR DEMOLITION	OC	ON CENTER		
DETL	DETAIL	OD	OUTSIDE DIAMETER		
DIA	DIAMETER	OH	OVERHEAD		
DIAG	DIAGONAL	OPP	OPPOSITE		
DIM	DIMENSION	OPNG	OPENING		
DWG	DRAWING	OPWT	OPERATING WEIGHT		
E	EAST	PAF	POWDER ACTUATED FASTENER		
EE	EACH END	PC	PRECAST CONCRETE		
E/W	EAST/WEST	PEMB	PRE-ENGINEERED METAL BUILDING		
EA	EACH	PERP	PERPENDICULAR		
EF	EACH FACE	PL	PLATE		
EJ	EXPANSION JOINT	PLF	POUNDS PER LINEAR FOOT		
EL	ELEVATION	PSI	POUNDS PER SQUARE INCH		
ELEC	ELECTRICAL	PSF	POUNDS PER SQUARE FOOT		
EOD	EDGE OF DECK	PT	POINT		
EOJ	EDGE OF JOIST	PTW	PRESSURE TREATED WOOD		
EOR	ENGINEER OF RECORD	P	PIPE (SCHEDULE 40)		
EOS	EDGE OF SLAB	PX	PIPE (SCHEDULE 80)		
EQ	EQUAL	PXX	PIPE (SCHEUDLE 120)		
EW	EACH WAY				
EX	EXISTING	REINF	REINFORCING OR REINFORCED		
EXP	EXPANSION	REQ'D	REQUIRED		
EXT	EXTERIOR	RF	RETAINING WALL FOOTING		
FD	FLOOR DRAIN	S	STRUCTURAL S SHAPE		
FDN	FOUNDATION	S	SOUTH		
FF	FINISHED FLOOR	SCH	SCHEDULE		
FIN	FINISH OR FINISHED	SECT	SECTION		
FLR	FLOOR	SF	SQUARE FOOT		
FOB	FACE OF BUILDING	SF	STEP FOOTING		
FOC	FACE OF CONCRETE	SL	SLOPED		
FOS	FACE OF STUDS	SLH	SHORT LEG HORIZONTAL		
FOW	FACE OF WALL	SLV	SHORT LEG VERTICAL		
FT	FOOT	SPEC	SPECIFICATIONS		
FTG	FOOTING	SQ	SQUARE		
FS	FAR SIDE	SS	STAINLESS STEEL		
		STD	STANDARD		
GA	GAGE	STL	STEEL		
GALV	GALVANIZE	SY	SQUARE YARD		
GC	GENERAL CONTRACTOR	SYM	SYMMETRICAL		
GL	GIRT LINE				
		T/	TOP OF		
HC	HOLLOW CORE	T&B	TOP AND BOTTOM		
HORZ	HORIZONTAL	TEMP	TEMPORARY		
HP	HIGH POINT	THRU	THROUGH		
HSS	HOLLOW STRUCTURAL SECTION	T&G	TONGUE AND GROOVE		
HT	HEIGHT	TYP	TYPICAL		
ID	INSIDE DIAMETER	UN	UNLESS NOTED		
IMP	INSULATED METAL PANEL	UNO	UNLESS NOTED OTHERWISE		
INFO	INFORMATION	UON	UNLESS OTHERWISE NOTED		
IN	INCH				
INT	INTERIOR	VR	VAPOR RETARDER		
		VERT	VERTICAL		
JST	JOIST	VIF	VERIFY IN FIELD		

DESIGN TEAM

DENNIS GROUP
Plan • Design • Engineer • Build • Start-Up

STRUCTURAL

CONSTRUCTION MANAGER

ARCHITECT / DESIGNER

MECHANICAL / HVAC

PLUMBING

FIRE PROTECTION

ELECTRICAL

REFRIGERATION

CIVIL

A	05.23.2018	TJM	MCF	PLAN COMMISSION REVIEW
RELEASE	DATE	BY	APP.	RELEASED FOR: ,

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LA CROSSE, WISCONSIN 54603

STRUCTURAL
TITLE SHEET

DENNIS GROUP
Plan • Design • Engineer • Build • Start-Up
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DESIGN CRITERIA:

BUILDING CODE:
- INTERNATIONAL BUILDING CODE 2009
- ASCE 7-05
- FM GLOBAL

DEAD LOADS:
- WASTEWATER BUILDING = 20 PSF + 10 PSF PROCESS COLLATERAL
- ODOR CONTROL BUILDING = 20 PSF

LIVE LOADS:
- ROOF = 20 PSF (NON-REDUCIBLE)

SNOW LOADS:
- GROUND SNOW LOAD, Pg = 40 PSF
- FLAT ROOF SNOW LOAD, Pf = 34 PSF
- SNOW EXPOSURE FACTOR, Ce = 1.0
- SNOW LOAD IMPORTANCE FACTOR, Is = 1.1 PER FM GLOBAL
- THERMAL FACTOR, Ct = 1.1 PER FM GLOBAL

WIND LOADS:
- MWFRS BASIC WIND SPEED, V = 90 MPH
- WIND IMPORTANCE FACTOR, Iw = 1.0
- WIND EXPOSURE CATEGORY = B

FM GLOBAL WALL COMPONENTS AND CLADDING (PSF, 1.0W)

ZONE / AREA	10 SQFT	20 SQFT	50 SQFT	100 SQFT	500 SQFT
4 - INTERIOR	30.6 / -33.2	29.3 / -31.8	27.5 / -30.0	26.1 / -28.7	23.0 / -25.5
5 - EDGE	30.6 / -40.9	29.3 / -38.1	27.5 / -34.6	26.1 / -31.8	23.0 / -25.5

FM GLOBAL ROOF COMPONENTS AND CLADDING (PSF, 1.0W)

ZONE / AREA	10 SQFT	20 SQFT	50 SQFT	100 SQFT	500 SQFT
1 - INTERIOR	13.6 / -33.5	12.8 / -32.6	11.6 / -31.5	10.8 / -30.6	10.8 / -30.6
2 - EDGE	13.6 / -56.2	12.8 / -50.2	11.6 / -42.3	10.8 / -36.3	10.8 / -36.3
3 - CORNER	13.6 / -84.6	12.8 / -70	11.6 / -50.8	10.8 / -36.3	10.8 / -36.3

SEISMIC LOADS:
- OCCUPANCY CATEGORY = II
- SEISMIC IMPORTANCE FACTOR, Ie = 1.0
- SPECTRAL RESPONSE ACCELERATION, Ss = 0.104g
- SPECTRAL RESPONSE ACCELERATION, S1 = 0.044g
- SITE CLASS = D (ASSUMED)
- SPECTRAL RESPONSE COEFFICIENT, SDS = 0.111g
- SPECTRAL RESPONSE COEFFICIENT, SD1 = 0.070g
- SEISMIC DESIGN CATEGORY = B
- SEISMIC FORCE RESISTING SYSTEM:
  - ORDINARY REINFORCED MASONRY SHEAR WALLS
- SEISMIC RESPONSE COEFFICIENT, Cs = 0.035
- RESPONSE MODIFICATION FACTOR, R = 2.0
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

GENERAL NOTES:

1. THIS STRUCTURE HAS BEEN DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE CONSTRUCTION OF THE BUILDING HAS BEEN COMPLETED. THE STABILITY OF THE STRUCTURE PRIOR TO COMPLETION IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. THIS RESPONSIBILITY EXTENDS TO ALL RELATED ASPECTS OF THE CONSTRUCTION ACTIVITY INCLUDING, BUT NOT LIMITED TO, ERECTION METHODS, ERECTION SEQUENCE, TEMPORARY BRACING, FORMS, SHORING, USE OF EQUIPMENT, AND SIMILAR CONSTRUCTION PROCEDURES. REVIEW OF THE CONSTRUCTION BY THE ENGINEER IS FOR CONFORMANCE WITH DESIGN ASPECTS ONLY, NOT TO REVIEW THE CONTRACTOR'S CONSTRUCTION PROCEDURES. LACK OF COMMENT ON THE PART OF THE ENGINEER WITH REGARD TO CONSTRUCTION PROCEDURES IS NOT TO BE INTERPRETED AS APPROVAL OF THOSE PROCEDURES.
2. SHORING NOTE: THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING, PROVIDING AND INSTALLING ALL TEMPORARY SHORING THAT IS REQUIRED TO SUPPORT INSTABILITIES OF EXISTING STRUCTURE (INCLUDING NON-LOAD BEARING WALLS, LOAD BEARING WALLS, FOUNDATIONS AND EXISTING ROOF AND FLOOR STRUCTURES) DURING CONSTRUCTION AND DUE TO THE REMOVAL OF EXISTING SUPPORTING WALLS AND EXISTING FRAMING MEMBERS FOR INSTALLATION OF NEW FRAMING AND FOUNDATIONS. SHORING SHALL BE FULLY INSTALLED AND STABLE PRIOR TO REMOVAL OF EXISTING STRUCTURAL ELEMENTS.
3. THIS STRUCTURE UTILIZES MASONRY SHEAR WALLS TO PROVIDE LATERAL STABILITY, THEREFORE, TEMPORARY BRACING, GUYS, ETC., MUST BE MAINTAINED UNTIL ALL MASONRY WALLS HAVE BEEN ERECTED AND ATTACHED TO THE STEEL FRAMING.
4. JOBSITE SAFETY AND CONSTRUCTION PROCEDURES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. REVIEW OF THE CONSTRUCTION BY THE ENGINEER IS FOR CONFORMANCE WITH DESIGN ASPECTS ONLY, NOT TO REVIEW THE CONTRACTOR'S PROVISIONS FOR JOB SITE SAFETY. LACK OF COMMENT BY THE ENGINEER IS NOT TO BE INTERPRETED AS APPROVAL OF THOSE ASPECTS OF WORK.
5. ONE BLACK-LINE PRINT OF ALL ERECTION AND DETAIL SHOP DRAWINGS FOR STEEL REINFORCING BARS, STRUCTURAL PRECAST CONCRETE, STRUCTURAL STEEL, STEEL JOISTS, COLD FORMED STEEL FRAMING, AND STEEL DECK INDICATING THE FABRICATOR, MANUFACTURER, FINISH, LAYOUT, AND ALL ACCESSORIES MUST BE SUBMITTED TO AND BE CHECKED BY THE CONTRACTOR AND SUBCONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE SUBMISSION TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
6. TESTING AND INSPECTION REQUIREMENTS OF STEEL REINFORCING BARS, MASONRY, CONCRETE, STRUCTURAL STEEL, JOISTS, STEEL DECK, AND OTHER WORK THAT IS DESCRIBED IN THE "STATEMENT OF SPECIAL INSPECTIONS REQUIREMENTS". THE CONTRACTOR SHALL REVIEW THE "STATEMENT OF SPECIAL INSPECTIONS REQUIREMENTS" AND COORDINATE THE SCHEDULING OF INSPECTIONS WITH THE SPECIAL INSPECTOR. UNINSPECTED WORK THAT REQUIRED INSPECTIONS MAY BE REJECTED SOLELY ON THAT BASIS.
7. IF FAULTY CONSTRUCTION PROCEDURES, OR MATERIAL, RESULT IN DEFECTIVE WORK THAT REQUIRES ADDITIONAL ENGINEERING TIME TO DEVISE CORRECTIVE MEASURES, PROFESSIONAL FEES MAY BE CHARGED TO THE CONTRACTOR AT THE STANDARD HOURLY RATE OF ADDITIONAL SERVICES. SUCH FEES MAY BE WITHHELD FROM THE GENERAL CONTRACTOR'S PAYMENT.
8. LOADS, OPENINGS AND STRUCTURE IN ANY WAY RELATED TO REQUIREMENTS OF OTHER (NON-STRUCTURAL) DISCIPLINES ARE SHOWN FOR BIDDING PURPOSES ONLY. HOWEVER, THESE PLANS DO NOT SHOW THE FULL SCOPE OF OPENINGS, IN ROOFS, FLOORS AND WALLS. FOR SIZE AND LOCATION OF ALL OPENINGS, SEE ARCHITECTURAL, AND MECHANICAL DRAWINGS. DO NOT SCALE OPENINGS. THE CONTRACTOR SHALL OBTAIN FROM THE HEATING AND VENTILATING, ELECTRICAL, PLUMBING AND OTHER TRADES THE FINAL APPROVED SIZE AND LOCATION OF ALL OPENINGS, EQUIPMENT AND WORK TO BE PROVIDED FOR THEIR TRADE FOR ROOFS, FLOORS AND WALLS, WHETHER SHOWN OR NOT SHOWN ON STRUCTURAL DRAWINGS. EXCESS COST RELATED TO VARIATION IN REQUIREMENTS OR EQUIPMENT ARE NOT TO BE BORNE BY THE OWNER.
9. MECHANICAL EQUIPMENT WEIGHTS USED IN DESIGN OF SUPPORTING ELEMENTS ARE INDICATED ON THE DRAWINGS. CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO INSTALLATION OF EQUIPMENT IF ACTUAL WEIGHT EXCEEDS WEIGHT SHOWN ON DRAWINGS.
10.
11. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH ARCHITECTURAL DRAWINGS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.
12. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS NOTED "±" THAT ARE INDICATED ON THE DRAWINGS.
13. THESE DRAWINGS ARE SUPPLEMENTED BY A DETAILED TECHNICAL SPECIFICATION. THE NOTES SHOWN UNDER CERTAIN CATEGORIES OF WORK ARE INTENDED TO SUMMARIZE BASIC REQUIREMENTS.
14. THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING BUILDING INSPECTOR INSPECTIONS. THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE PER BUILDING DEPARTMENT REQUIREMENTS.
15. CONTRACTOR SHALL VERIFY AND ACCEPT FIELD CONDITIONS PRIOR TO COMMENCING WORK.
16. ALL WORK SHALL COMPLY WITH THE DRAWINGS AND SPECIFICATION AND WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS.
17. DO NOT SCALE DRAWINGS.

CONCRETE NOTES:

1. CURRENT EDITIONS OF THE FOLLOWING SPECIFICATIONS AND STANDARDS WILL APPLY UNLESS OTHERWISE MODIFIED IN THE DRAWINGS OR SPECIFICATIONS:
   - A. ACI 301 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
   - B. ACI 315 MANUAL OF STANDARD PRACTICE FOR DETAILING REINF. CONC. STRUCTURES.
   - C. ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
   - D. ACI 347 GUIDE TO FORMWORK FOR CONCRETE
   - E. CRSI PLACING REINFORCING BARS.
2. ALL CONCRETE SHALL BE THE SPECIFIED WEIGHT AND DEVELOP A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS:

CLASS	LOCATION	WEIGHT	STRENGTH	MAX W/C RATIO	SLUMP	AIR CONTENT
I	INTERIOR FOUNDATIONS, INTERIOR WALLS, INTERIOR PIERS, MUD SLABS	NORMAL	3,000 PSI	0.45	4" ±1"	OPTIONAL
II	EXPOSED & PERIMETER FOUNDATIONS, WALLS, PIERS, AND ALL OTHER EXTERIOR CONCRETE	NORMAL	4,500 PSI	0.40	4" ±1"	SEE CHART
III	WALL CURBING	NORMAL	4,000 PSI	0.38	2"	SEE CHART
IV	LEAN CONCRETE	LEAN	2,500 PSI		4" ±1"	OPTIONAL
V	INTERIOR SLABS ON GRADE	NORMAL	4,000 PSI	0.52	4" ±1"	1.5% MAX
VI	INTERIOR SLABS ON DECK	NORMAL	4,000 PSI	0.52	4" ±1"	1.5% MAX
VII	STAIR PAN FILL	NORMAL	3,500 PSI		4" ±1"	

   REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION AND REQUIREMENTS

3. ALL CONCRETE EXPOSED TO FREEZING AND THAWING SHALL BE AIR ENTRAINED IN ACCORDANCE WITH THE FOLLOWING TABLE:

NOMINAL MAXIMUM AGGREGATE SIZE (INCHES)	TARGET AIR CONTENT, PERCENTAGE (%)
3/8	7½
1/2	7
3/4	6
1	6
1 1/2	5½
2	4
3	3½"

   TOLERANCE FOR AIR CONTENT SHALL BE ± 1.5%. AIR CONTENT SHALL BE MEASURED IN ACCORDANCE WITH ASTM C231. THE FREQUENCY OF AIR CONTENT TESTS SHALL CORRESPOND WITH THE FREQUENCY OF THE COMPRESSIVE STRENGTH TESTS.

4. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
5. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WITH A MINIMUM YIELD STRENGTH OF 75 KSI AND SHALL BE PROVIDED IN FLAT SHEETS. LAP ONE MESH SIZE AT SIDES AND ENDS, AND WIRE TOGETHER.
6. WELDING OF REINFORCING WILL NOT BE PERMITTED.
7. ALL BAR SPLICES SHALL BE CLASS B TENSION LAP SPLICES IN ACCORDANCE WITH ACI318.
8. THE FOLLOWING CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

LOCATION OF REINFORCEMENT	COVER (INCHES)
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3
CONCRETE EXPOSED TO EARTH OR WEATHER:	
#6 THRU #18 BARS	2
#5 BARS AND SMALLER	1½
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	
SLABS, WALLS, JOISTS:	
#14 AND #18 BARS	1½
#11 BARS AND SMALLER	¾
BEAMS, COLUMNS:	
PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS	1½

9. ALL REINFORCING AND EMBEDDED ITEMS SHALL BE PLACED AND FIXED INTO REQUIRED POSITION BY CARRIERS, TIES, RODS, ETC.,PRIOR TO PLACING CONCRETE.
10. CONCRETE SHALL BE TESTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI 301.
11. DEFECTIVE WORK SHALL BE REPAIRED IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI 301, AND TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.
12. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A ¾ INCH BY ¾ INCH CHAMFER UNLESS NOTED.
13. COLD WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE REPORT BY ACI COMMITTEE 306.
14. HOT WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE REPORT BY ACI COMMITTEE 305.
15. EXPANSION JOINT MATERIAL SHALL COMPLY WITH ASTM D-1751.
16. CONTRACTOR SHALL SUBMIT REINFORCING SHOP DRAWINGS FOR REVIEW. (ALLOW 14 DAYS FOR ENGINEER REVIEW)
17. CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGN FOR REVIEW (ALLOW 14 DAYS FOR ENGINEER REVIEW). MIX DESIGN SHALL BE BASED ON PREVIOUS FIELD EXPERIENCE OR TRIAL ADMIXTURES PER ACI REQUIREMENTS. SUBMITTAL SHALL CLEARLY INDICATE METHODOLOGY AND INCLUDE APPLICABLE TEST INFORMATION.
18. CONTRACTOR SHALL SUBMIT COMPLETE PRODUCT DATA SUBMITTALS AND SPECIFICATIONS FOR ALL MATERIALS USED IN CONJUNCTION WITH COMPLETING THIS SCOPE OF WORK (ALLOW 14 DAYS FOR ENGINEER TO REVIEW). ALL MATERIALS MUST RECEIVE APPROVAL FROM THE ARCHITECT/ENGINEER PRIOR TO ORDERING, FABRICATING AND/OR INSTALLATION, OTHERWISE LABOR AND MATERIALS ARE AT CONTRACTOR RISK.
19. GROUT SHALL BE NONMETALLIC, SHRINKAGE-RESISTANT GROUT CONFORMING TO ASTM C1107, GRADE B OR C, FACTORY-PACKAGED, NON-METTALLIC AGGREGATE GROUT, NON-CORROSIVE, NON-STAINING, MIXED WITH WATER TO CONSISTENCY SUITABLE FOR APPLICATION AND A 30-MINUTE WORKING TIME.ALL GROUT SHALL BE NON-SHRINK FIVE STAR GROUT BY FIVE STAR INC. OR AN APPROVED EQUAL.
20. ALL BACKFILL TO BE OF SUITABLE MATERIAL, PROPERLY COMPACTED, IN COMPLIANCE WITH THE SUBSURFACE INVESTIGATION REPORT AND APPROVED BY THE SOIL ENGINEER.
21. FORM-WORK SHALL CONFORM TO ACI 347. FORM-WORK SHALL BE MORTAR TIGHT, SUFFICIENTLY RIGID AND STRONG TO PREVENT SAGGING OR SPRINGING BETWEEN SUPPORTS AND TO MAINTAIN TRUE POSITION AND SHAPE DURING AND AFTER PLACING OF CONCRETE, WITHOUT WAVES, BULGES, OR OTHER DEFECTS IN FINISHED CONCRETE SURFACES. ALL FORMS SHALL BE COATED WITH A NON-STAINING FORM RELEASE AGENT COMPOUND BEFORE THE REINFORCEMENT IS PLACED. FORMS SHALL BE THOROUGHLY CLEANED AND RECOATED WITH FORM RELEASE AGENT BEFORE RE-USE.
22. PROVIDE ALL NECESSARY CONCRETE CURING PROCEDURES INCLUDING PROTECTION AND WATERING, AS INDICATED IN SPECIFICATIONS.
23. THE CONTRACTOR IS REQUIRED TO ATTEND A PRE-CONSTRUCTION MEETING TO COORDINATE WITH THE OWNER/CONSTRUCTION MANAGER.THE MEETING DATE/TIME WILL BE SET UP BY THE OWNER/CONSTRUCTION MANAGER.
24. ALL WORK SHALL COMPLY WITH THE CONTRACT DOCUMENTS, AND WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS.
25. THE CONTRACTOR SHALL FURNISH ANY CONCRETE PUMPING AS MAY BE NECESSARY TO COMPLETE THIS SCOPE OF WORK.
26. CONTRACTOR SHALL INSTALL EMBEDDED ITEMS AS FURNISHED UNDER SEPARATE CONTRACT. EMBEDDED ITEM LOCATIONS AND ELEVATIONS ARE TO BE VERIFIED BY CONTRACTOR.
27. THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL BUILDING DEPARTMENT FOR ALL REQUIRED INSPECTIONS.THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE PER BUILDING DEPARTMENT REQUIREMENTS.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE INDEPENDENT TESTING AND INSPECTION AGENCY FOR ALL REQUIRED INSPECTIONS. THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE PER INDEPENDENT TESTING AND INSPECTION AGENCY REQUIREMENTS.
29. THE CONTRACTOR SHALL COORDINATE ALL SITE UTILITIES THAT ENTER THE BUILDING WITH SITE CONTRACTOR, PLUMBING CONTRACTOR, ELECTRICAL CONTRACTOR, AND SPECIFICATIONS.
30. THE CONTRACTOR SHALL RETAIN THE SERVICES OF AN INDEPENDENT TESTING AGENCY TO ESTABLISH THE REQUIRED MIX DESIGNS AS INDICATED BY THE SPECIFICATIONS.

SLAB NOTES:

1. REFER TO CONCRETE NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS. ALL NOTES REFERRING TO "CONTRACTOR" ARE APPLICABLE TO THE SLAB CONTRACTOR.
2. ALL SLOPING CONCRETE SLABS MUST BE FREE DRAINING, WITHOUT PUDDLES AND FREE OF “BIRD BATHS.” NO STANDING WATER WILL BE ACCEPTABLE AFTER THE SLAB HAS BEEN DOUSED WITH WATER. AFTER SLABS ARE PLACED, A WATER TEST WILL BE PERFORMED ON THE SLABS. THE CONTRACTOR WILL HAVE TO REPLACE, AT THE CONTRACTOR'S EXPENSE, ANY AREAS OF THE SLAB THAT DO NOT DRAIN PROPERLY.
3. ALL REQUIREMENTS AND RECOMMENDATIONS STATED IN THE GEOTECHNICAL REPORT ARE TO BE CONSIDERED PART OF THE PROJECT REQUIREMENTS.
4. VAPOR BARRIER/RETARDER SHALL BE STEGO WRAP (10 MIL) VAPOR BARRIER/RETARDER BY STEGO INDUSTRIES OR AN APPROVED EQUAL AND SHALL BE IN CONFORMANCE WITH ASTM E 1745, SEE SPECIFICATIONS.
5. PROVIDE BITUMASTIC PROTECTION COATING FOR ALL STRUCTURAL STEEL BELOW GRADE.
6. CONTRACTOR TO PROVIDE ENGINEER WITH A PLAN DRAWING OF ALL CONSTRUCTION JOINTS IN SLABS. THE SUBDIVISION OF SLABS BY CONSTRUCTION JOINTS AS DETAILED BY CONTRACTOR'S DRAWING MUST BE APPROVED BY ENGINEER BEFORE CONTRACTOR PROCEEDS WITH SLAB INSTALLATIONS. (ALLOW 14 DAYS FOR ENGINEER REVIEW)
7. EVERY EFFORT SHALL BE MADE TO MINIMIZE CRACKING OF THE CONCRETE SLABS-ON-GRADE.
8. DE-WATER EXCAVATED AREAS AS NECESSARY TO ENSURE SAFE AND PROPER INSTALLATION OF SLABS.
9. COORDINATE ALL SLAB PLACEMENTS WITH PLUMBING, ELECTRICAL CONTRACTORS AND CONSTRUCTION MANAGER.
10. CONTACT ARCHITECT PRIOR TO PLACEMENT OF HOUSEKEEPING PADS TO CONFIRM THAT PAD DIMENSIONS ARE APPROPRIATE FOR EACH LOCATION INDICATED ON FLOOR PLANS. THE PAD DIMENSIONS MAY BE AMENDED BASED ON EVOLVING DESIGN AND EQUIPMENT PURCHASES. PROVIDE BASE QUOTATION BASED ON SCOPE INDICATED ON DRAWINGS.
11. BUILDING PAD SHALL BE ROUGH GRADED BY THE SITE CONTRACTOR TO WITHIN MINUS 4"(±1¼") OF BOTTOM OF SLAB THICKNESS AS INDICATED ON THE CONCRETE SLAB SCHEDULE. PER THE SPECIFICATIONS, THE SLAB CONTRACTOR IS TO PROVIDE AND COMPACT A MINIMUM OF 4" SUB-BASE MATERIAL. THE SLAB CONTRACTOR WILL NEED TO FINE GRADE THE BUILDING PAD AREAS BASED UPON FLOOR SLOPES AS SHOWN ON DRAWINGS. ALL NET SPOILS SHALL BE STOCK PILED ON SITE OR REMOVED FROM THE SITE ACCORDING TO OWNERS DIRECTION. WORK SHALL CONFORM TO DRAWINGS, SPECIFICATIONS AND THE GEOTECHNICAL ENGINEERING ANALYSIS AND SITE CONTRACTOR CONSTRUCTION TOLERANCES.
12. THE SLAB CONTRACTOR SHALL FURNISH, PLACE AND INSTALL ALL CONCRETE REINFORCING STEEL, VAPOR BARRIERS/RETARDERS, JOINT FILLERS, WELDED WIRE FABRIC, SEALERS, FLOOR SLAB TREATMENTS, HARDENERS, INSULATION, AND ALL APPURTENANCES, AS INDICATED ON THE CONTRACT DOCUMENTS.
13. THE SLAB CONTRACTOR SHALL FORM AND PLACE ALL REINFORCED AND NON-REINFORCED, GRADE AND ELEVATED INTERIOR CONCRETE FLOOR SLABS, AS INDICATED ON THE CONTRACT DOCUMENTS. PROVIDE ALL POUR STOPS NECESSARY AT DOORS AND WALLS.
14. THE SLAB CONTRACTOR SHALL FORM AND PLACE ALL CONCRETE SLABS WITH A CONCRETE MIX ACHIEVING THE DESIGN STRENGTH AT 28 DAYS PER SPECIFICATIONS.
15. THE SLAB CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION AND CONTROL JOINTS AS SHOWN ON THE DRAWINGS AND AS DETAILED IN SPECIFICATIONS. SAW CUTS / SOFF-CUTS ARE TO BE PERFORMED THE SAME DAY AS SLAB POUR AS INDICATED ON DRAWINGS AND IN SPECIFICATIONS. PROVIDE AND INSTALL JOINT SEALER IN ALL CONTROL AND CONSTRUCTION JOINTS, SEE APPROVED MATERIALS IN SPECIFICATIONS FOR TYPE AND LOCATION OF JOINT SEALER REQUIRED.
16. THE SLAB CONTRACTOR SHALL REPAIR ALL UNCONTROLLED SHRINKAGE CRACKS OR REPLACE AREA AT CONTRACTOR'S EXPENSE.
17. THE SLAB CONTRACTOR SHALL HAVE PAD CERTIFIED BY A LICENSED LAND SURVEYOR PRIOR TO COMMENCING SLAB SCOPE OF WORK. ANY DEFICIENCIES IN BASE ELEVATION SHALL BE SATISFIED PRIOR TO MOBILIZATION.

FOUNDATION NOTES:

1. REFER TO CONCRETE NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS. ALL NOTES REFERRING TO "CONTRACTOR" ARE APPLICABLE TO THE FOUNDATION CONTRACTOR.
2. FOUNDATIONS HAVE BEEN DESIGNED TO REST ON INORGANIC, UNDISTURBED SOIL OR COMPACTED STRUCTURAL FILL HAVING A BEARING VALUE OF 4,000 PSF AS RECOMMENDED IN THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY CHOSEN VALLEY TESTING (C.V.T) AND DATED SEPTEMBER 24, 2015. SUCH BEARING STRATA IS ANTICIPATED AT THE BOTTOM OF FOOTING ELEVATIONS NOTED ON THE FOUNDATION PLAN. ALL BEARING STRATA SHALL BE REVIEWED BY A GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE IN ORDER TO VERIFY THE BEARING VALUE.
3. SEE ABOVE REFERENCED GEOTECHNICAL REPORT FOR STRUCTURAL FILL MATERIAL SPECIFICATION. RECOMMENDATIONS FOR THE PREPARATION OF SOIL BEARING SURFACES STATED IN THE GEOTECHNICAL REPORT ARE TO BE CONSIDERED PART OF THE PROJECT REQUIREMENTS.
4. ALL REQUIREMENTS AND RECOMMENDATIONS STATED IN THE GEOTECHNICAL REPORT ARE TO BE CONSIDERED PART OF THE PROJECT REQUIREMENTS.
5. EXISTING UTILITIES: LOCATE EXISTING UNDERGROUND UTILITIES IN AREAS OF EXCAVATION WORK. PROVIDE ADEQUATE MEANS OF SUPPORT AND PROTECTION DURING EARTHWORK OPERATIONS.
6. THE BOTTOM OF EXTERIOR FOOTINGS NOT ON SOLID ROCK SHALL BE AT LEAST 3'-0" BELOW FINISHED GRADE.
7. ALL SOIL SURROUNDING AND UNDER FOOTINGS SHALL BE PROTECTED FROM FREEZING AND FROST ACTION DURING THE COURSE OF CONSTRUCTION.
8. STEP FOOTINGS WHERE ELEVATIONS CHANGE AT A MAXIMUM SLOPE OF ONE VERTICAL ON TWO HORIZONTAL AND PLACE LOWER FOOTINGS FIRST.
9. KEEP FOUNDATION EXCAVATIONS FREE OF WATER AT ALL TIMES.
10. DE-WATER EXCAVATED AREAS AS NECESSARY TO ENSURE SAFE AND PROPER INSTALLATION OF FOOTINGS/FOUNDATIONS. ANY AND ALL OVER EXCAVATIONS REQUIRED FOR OBTAINING PROPER COMPACTION DUE TO ADVERSE WEATHER CONDITIONS WILL BE THE REQUIREMENT OF THE CONTRACTOR.
11. USE LEAN CONCRETE (F'C=1500 PSI) OR CONTROLLED COMPACTED FILL FOR OVER-EXCAVATION OF FOOTINGS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LIMITING POURS TO MINIMIZE SHRINKAGE CRACKING. IN GENERAL, WALLS SHALL NOT BE POURED IN CONTINUOUS LENGTHS EXCEEDING THE LESSER OF WALL LENGTH TO HEIGHT RATIO OF 1, OR 20 FEET WITHOUT PROVIDING CONSTRUCTION JOINTS OR CONTROL JOINTS. CONTROL JOINTS SHALL ALSO BE PROVIDED WHERE CHANGES IN WALL HEIGHT AND WALL THICKNESS OCCUR. THE LOCATION AND CONFIGURATION OF JOINTS EXPOSED TO VIEW SHALL BE COORDINATED WITH THE ARCHITECT.
13. PROVIDE FULL HEIGHT, FORMED 3/4" DEEP X 1-1/2" WIDE V-SHAPED VERTICAL CONTROL JOINTS IN EXPOSED CONCRETE FOUNDATION WALLS. CUT ALTERNATING HORIZONTAL REINFORCING STEEL IN FOUNDATION FACE AT V-SHAPED CONTROL JOINTS. CONTROL JOINTS TO BE SPACED A MAXIMUM OF 20 FEET ON CENTER, OR AS INDICATED ON DRAWINGS. REVIEW PROPOSED CONTROL JOINT LAYOUT WITH ARCHITECT PRIOR TO COMMENCEMENT OF CONCRETE PLACEMENT.
14. BREAK OFF FOUNDATION SNAP TIES AND PATCH TIE POCKMARKS IN AREAS WHERE FOUNDATION WILL BE THE ABOVE-GRADE, FINISHED SURFACE. EXPOSED FOUNDATION WALLS SHALL BE A SMOOTH SURFACE AND FREE OF ALL DEFECTS AFTER FORMS HAVE BEEN REMOVED. UTILIZE MEANS TO ACHIEVE CLEAN, SMOOTH AESTHETIC THAT IS ACCEPTED BY ARCHITECT AND CONSTRUCTION MANAGER
15. AN INDEPENDENT SOILS AND CONCRETE TESTING COMPANY WILL BE HIRED BY THE CONSTRUCTION MANAGER/OWNER FOR ALL PHASES OF THE FOUNDATION INSTALLATION. A FULL-TIME REPRESENTATIVE FROM THE INDEPENDENT TESTING LABORATORY WILL BE PRESENT TO OBSERVE PLACEMENT AND FINISHING OPERATIONS. PERFORM ALL SLUMP TESTING, AND PREPARE AND CURE CYLINDERS FOR THE COMPRESSIVE TEST OF ALL CONCRETE. THE SOILS TESTING WILL BE PER REQUIREMENTS OF THE SUBSURFACE INVESTIGATION REPORT AND CONCRETE TESTING WILL BE PER THE ACI REQUIREMENTS. ALL COSTS ASSOCIATED WITH FIELD TESTING WILL BE THE RESPONSIBILITY OF THE CONSTRUCTION MANAGER/OWNER. COSTS ASSOCIATED WITH RETESTING WORK DETERMINED TO BE UNACCEPTABLE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS TO COOPERATE WITH THE TESTING COMPANY FOR ALL PHASES OF THE FOUNDATION INSTALLATION.
16. THE FOUNDATION CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEYING ALL WORK REQUIRED TO LOCATE AND INSTALL ALL FOOTINGS AND FOUNDATIONS. AN INDEPENDENT SURVEYOR RETAINED BY THE FOUNDATION CONTRACTOR SHALL STAKE OUT SITE TO ESTABLISH NEW BUILDING CORNER LOCATIONS, CONTROL JOINTS AND FINISHED FLOOR ELEVATION BENCHMARK FOR ALL TRADES. THE FOUNDATION CONTRACTOR TO VERIFY BUILDING CORNERS FOR ACCURACY TO ESTABLISH INTERIOR COLUMN LOCATIONS, EXTERIOR FINISHED GRADES AND INTERIOR FINISHED FLOORS PRIOR TO COMMENCEMENT OF WORK. THE FOUNDATION CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW SURVEY STAKES AND BENCHMARKS THROUGHOUT THEIR CONSTRUCTION PERIOD.
17. THE FOUNDATION CONTRACTOR SHALL PROVIDE ALL EXCAVATION AND BACKFILL AS REQUIRED TO INSTALL ALL CAST-IN-PLACE CONCRETE FOOTINGS (WALL & COLUMN) AND FOUNDATIONS AS SHOWN ON THE CONTRACT DOCUMENTS. THE EXCAVATION, HAULING, REMOVAL, ETC. OF THESE ADDITIONAL SPOILS SHALL BE THE RESPONSIBILITY (INCLUDING ALL COSTS AND EXPENSES) OF THE FOUNDATION CONTRACTOR. NO SPOILS SHALL REMAIN UPON JOB COMPLETION. WORK SHALL CONFORM TO THE GEO-TECHNICAL REPORT.
18. THE FOUNDATION CONTRACTOR SHALL FURNISH AND INSTALL ALL CAST-IN-PLACE CONCRETE FOOTINGS, SUMPS/PITS, WALLS AND PIERS COMPLETE WITH REINFORCING STEEL AS INDICATED ON THE CONTRACT DOCUMENTS. CONTRACTOR IS TO FURNISH AND INSTALL ALL LABOR, EQUIPMENT AND MATERIAL TO COMPLETE THE FOUNDATIONS SCOPE OF WORK. THIS IS TO INCLUDE, BUT NOT BE LIMITED TO, ANY RELATED/REQUIRED MATERIALS, E.G.: REINFORCING STEEL, CONCRETE, FORMS, RELEASE AGENTS, ETC.
19. THE FOUNDATION CONTRACTOR SHALL FURNISH AND INSTALL PERIMETER FOUNDATION INSULATION FROM TOP OF FOOTING TO BOTTOM OF SLAB ELEVATION AT INTERIOR FACE OF WALL, IN ACCORDANCE WITH CONTRACT DOCUMENTS.
20. THE FOUNDATION CONTRACTOR SHALL FURNISH AND INSTALL BITUMINOUS DAMP-PROOFING AT-EXTERIOR OF FOUNDATION WALL TO 6" BELOW FINISH GRADE ELEVATION, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
21. THE FOUNDATION CONTRACTOR SHALL BACKFILL PERIMETER FOUNDATION WALL AND PREPARE SUB-GRADE AS INDICATED ON DRAWINGS FOR FINAL GRADING, PAVING OR SLAB CONSTRUCTION. FILL SHALL BE INSTALLED IN COMPLIANCE WITH THE GEOTECHNICAL ENGINEERING ANALYSIS, TO FINAL ELEVATION. FINAL PREPARATION OF PAVING AND EXTERIOR CONCRETE SLAB SUB-GRADE AND FINAL SITE GRADE SHALL BE COMPLETED UNDER SEPARATE CONTRACT.
22. THE FOUNDATION CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL GRADING WORK ASSOCIATED WITH FOUNDATION EXCAVATIONS, TO BRING ADJACENT AREAS INTO COMPLIANCE WITH SUB-GRADE CONSTRUCTION TOLERANCE.
23. THE FOUNDATION CONTRACTOR SHALL REPAIR ALL UNCONTROLLED SHRINKAGE CRACKS OR REPLACE AREA AT CONTRACTOR'S EXPENSE

RELEASE	DATE	BY	APP.	RELEASED FOR . . .
A	05.23.2018	TJM	MCF	PLAN COMMISSION REVIEW

GREAT LAKES CHEESE
2200 ENTERPRISE AVENUE
LA CROSSE, WISCONSIN 54603

GREAT LAKES CHEESE

STRUCTURAL
GENERAL NOTES

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MASONRY NOTES:

1. THE FOLLOWING SPECIFICATIONS AND STANDARDS SHALL APPLY UNLESS OTHERWISE MODIFIED ON THE DRAWINGS:
    - ACI 530-02/ASCE 5-02/TMS 402-02 - BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
    - ACI 530.1-02/ASCE 6-02/TMS 602-02 - SPECIFICATIONS FOR MASONRY STRUCTURES.
2. MATERIALS:
    - CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C90, TYPE N-1 WITH A MINIMUM ULTIMATE COMPRESSIVE STRENGTH 1,900 PSI ON THE NET AREA OF THE UNITS.
    - MORTAR SHALL CONFORM TO ASTM C270, TYPE S PORTLAND CEMENT.
    - GROUT SHALL CONFORM TO ASTM C476.
    - REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60. REINFORCING BARS TO BE LAPPED 48 BAR DIAMETERS AT SPLICES. REINFORCEMENT TO BE SECURED AGAINST DISPLACEMENT AT SPACING NOT EXCEEDING 192 BAR DIAMETERS.
    - JOINT REINFORCING SHALL BE STANDARD LADUR TYPE (9 GAUGE RODS) BY DUR-O-WAL INC. OR AN APPROVED EQUAL CONFORMING TO ASTM A951. PLACE JOINT REINFORCING IN EVERY SECOND COURSE (16" O.C.). LAP REINFORCING 6 INCHES AT SPLICES. PROVIDE PREFABRICATED CORNER JOINT REINFORCING AT ALL CORNERS. JOINT REINFORCING SHALL BE MILL GALVANIZED (0.10 OZ PSF) FOR INTERIOR WALLS AND HOT DIP GALVANIZED (1.50 OZ PSF) FOR EXTERIOR WALLS.
3. THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY, f'm, SHALL BE 1500 PSI (MINIMUM).
4. CMU AND/OR BUILDING BRICK SHALL BE INSTALLED IN A RUNNING BOND PATTERN.
5. PROVIDE #4 REINFORCING BARS IN GROUT FILLED CELLS OR BOND BEAMS AROUND ALL MASONRY OPENINGS (M.O.). EXTEND REINFORCING AROUND MASONRY OPENINGS AT LEAST 24 INCHES BEYOND THE OPENING.
6. ALL CELLS WITH REINFORCING BARS SHALL BE GROUTED SOLID.
7. ALL GROUTING OF MASONRY WALLS SHALL BE BY LOW-LIFT GROUTING METHOD (MAXIMUM LIFT HEIGHT 5'-0"), UNLESS CLEAN-OUTS AND INSPECTIONS ARE PROVIDED
8. FULLY BED UNITS IN ALL SHEARWALLS INCLUDING CROSS WEBS.
9. COVER THE TOPS OF ALL MASONRY CONSTRUCTION TO PROTECT AGAINST PRECIPITATION.
10. COLD WEATHER CONSTRUCTION REQUIREMENTS IN ACCORDANCE WITH ACI 530.1, SECTION 1.8C SHALL BE ENFORCED WHEN AMBIENT TEMPERATURES ARE BELOW 40° FAHRENHEIT.
11. HOT WEATHER CONSTRUCTION TECHNIQUES, ACI 530.1, SECTION 1.8D SHALL BE ENFORCED WHEN AMBIENT TEMPERATURES AREA ABOVE 100° FAHRENHEIT OR 90° FAHRENHEIT IF THE WIND SPEED EXCEEDS 8 MPH.
12. THE STRUCTURAL PLANS DO NOT SHOW THE FULL EXTENT OF MASONRY LINTELS THAT MAY BE REQUIRED FOR DOORS, WINDOWS, DUCTS, LOUVERS, ETC. FOR THOSE OPENINGS THAT REQUIRE MASONRY LINTELS AND ARE NOT SHOWN ON THE STRUCTURAL PLANS, SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND SIZE OF OPENINGS. DO NOT SCALE OPENINGS. FOR MASONRY LINTEL SIZE FOR CORRESPONDING MASONRY OPENING SIZE, SEE "TYPICAL MASONRY LINTELS IN NON-LOAD BEARING-WALLS DETAIL".
13. UNLESS OTHERWISE SHOWN ON ARCHITECTURAL OR STRUCTURAL DRAWINGS PROVIDE VERTICAL CONTROL JOINTS THROUGH CONCRETE MASONRY UNIT WALLS FOR FULL WALL HEIGHT AS FOLLOWS:
    - DISTANCE BETWEEN JOINTS SHOULD NOT EXCEED THE LESSER OF LENGTH TO HEIGHT RATIO OF 1.5, OR 25 FEET.
    - AT CHANGES IN WALL HEIGHT.
    - AT CHANGES IN WALL THICKNESS - INCLUDING PIPE AND DUCT CHASES AND PILASTERS.
    - AT AND ABOVE EXPANSION JOINTS IN FOUNDATIONS AND FLOORS.
    - AT AND BELOW EXPANSION JOINTS IN ROOFS AND FLOORS THAT BEAR ON THE WALL.
    - FOR OPENINGS, DO NOT LOCATE CONTROL JOINTS WITHIN 32 INCHES OF OPENINGS.
    - ADJACENT TO CORNERS OF WALLS OR AT WALL INTERSECTIONS WITHIN A DISTANCE EQUAL TO HALF THE CONTROL JOINT SPACING.

LINTEL NOTES:

1. LINTELS IN ALL NON-LOAD BEARING WALLS SHALL BE PER MASONRY TYPICAL DETAILS UNLESS OTHERWISE NOTED.
2. WHERE STEEL LINTELS ARE INDICATED: FOR LINTELS OVER DOORS, WINDOWS, DUCTS, AND MISCELLANEOUS OPENINGS IN 4", 8" AND 12" CMU AND FOR BRICK, USE FOR EACH 4" OF MASONRY:

SECTION SIZE	MAXIMUM MASONRY OPENING	BEARING (EACH END)
L3$\frac{1}{2}$x4x$\frac{5}{16}$ (LLV)	3'-6"	6"
L3$\frac{1}{2}$x5x$\frac{5}{16}$ (LLV)	5'-0"	6"
L3$\frac{1}{2}$x6x$\frac{5}{16}$ (LLV)	6'-0"	8"
L3$\frac{1}{2}$x6x$\frac{3}{8}$ (LLV)	8'-0"	8"
W8x31 + PL$\frac{5}{16}$"	9'-0"	8"
W8x35 + PL$\frac{5}{16}$"	12'-0"	8"
PLATES INDICATED SHALL HAVE A WIDTH 1" LESS THAN THE WALL THICKNESS.		

3. FILL FIRST COURSE DIRECTLY UNDER BEARING WITH GROUT FOR 16" LENGTH.
4. NOT ALL LINTELS ARE SHOWN ON STRUCTURAL DRAWINGS, REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF OPENINGS.
5. WHEN OPENINGS OCCUR IN BEARING WALLS OR THE HEIGHT OF MASONRY ABOVE THE LINTEL IS LESS THAN THE OPENING WIDTH OR WHEN A CONTROL JOINT IS LOCATED DIRECTLY ABOVE OR WITHIN 16" OF THE JAMB OPENING AND DRAWINGS DO NOT OTHERWISE INDICATE A SPECIFIC LINTEL DESIGN, CONSULT WITH THE ARCHITECT TO CONFIRM LINTEL REQUIREMENTS.
6. LINTELS OVER ADJACENT OPENINGS WITH PIERS BETWEEN LESS THAN 2'-8" WIDE SHALL BE CONTINUOUS OVER PIERS. MASONRY UNITS OF SUCH PIERS SHALL BE FILLED WITH GROUT FOR FULL STORY HEIGHT.
7. CONNECT LINTEL TO STRUCTURAL STEEL COLUMNS WHEN THERE IS LESS THAN 16" OF MASONRY BETWEEN THE MASONRY OPENING AND THE OUTERMOST FACE OF COLUMN.
8. ALL STEEL LINTELS SHALL BE HOT-DIPPED GALVANIZED.

STRUCTURAL STEEL NOTES:

1. ALL DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS:
    - ANSI/AISC 360 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.
    - ANSI/AISC 303 CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
    - AISC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS.
    - AWS D1.1 STRUCTURAL WELDING CODE-STEEL OF THE AMERICAN WELDING SOCIETY.
2. MATERIALS:
    - ALL STRUCTURAL STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992 GR. 50.
    - ALL STRUCTURAL STEEL CHANNELS, ANGLES AND PLATES SHALL CONFORM TO ASTM A36.
    - ALL HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 GR. C (FY=50 KSI).
    - ALL ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GR. 36 UNLESS OTHERWISE NOTED AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM 123.
    - ALL HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM F3125 / GRADE A325 (MIN).
    - WELDING ELECTRODES SHALL BE ASTM E7OXX, LOW HYDROGEN ELECTRODES UNLESS OTHERWISE NOTED.
    - ALL PIPE SHALL CONFORM TO ASTM A53 GRADE B
    - ALL SHEAR CONNECTORS SHALL BE 3/4" DIAM., ASTM A108
3. STEEL CONTRACTOR SHALL SUBMIT STEEL SHOP DRAWINGS FOR REVIEW. (ALLOW 14 DAYS FOR ENGINEER REVIEW)
4. STEEL CONTRACTOR SHALL SUBMIT COMPLETE PRODUCT DATA SUBMITTALS, SPECIFICATIONS FOR ALL MATERIALS USED IN CONJUNCTION WITH COMPLETING THIS SCOPE OF WORK. ALL MATERIALS MUST RECEIVE APPROVAL FROM THE ARCHITECT/ENGINEER PRIOR TO ORDERING, FABRICATING AND/OR INSTALLATION, OTHERWISE LABOR AND MATERIALS ARE AT CONTRACTOR RISK. (ALLOW 14 DAYS FOR ENGINEER REVIEW)
5. CONTRACTOR SHALL DESIGN ALL CONNECTIONS NOT SPECIFICALLY DETAILED ON DRAWINGS FOR FORCES (SHEAR, MOMENT AND AXIAL) SHOWN ON PLANS AND SUBMIT THESE DESIGN CALCULATIONS FOR REVIEW BY THE ENGINEER OF RECORD. CALCULATIONS SHALL BE PREPARED BY A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE STATE AND BEAR THAT ENGINEERS SIGNATURE/SEAL.
6. CONNECTION FORCES SHOWN ARE FACTORED LOADS. WHERE BEAM SHEAR REACTIONS ARE NOT SHOWN, DESIGN CONNECTIONS TO DEVELOP 50% OF THE AISC MAXIMUM TOTAL UNIFORM LOAD.
7. ALL WIND GIRT CONNECTIONS SHALL UTILIZE SLIP CRITICAL CONNECTIONS WITH OVERSIZED HOLES AND BE DESIGNED FOR A 10 KIP HORIZONTAL REACTION (FACTORED) UNLESS OTHERWISE NOTED.
8. BEAM SHEAR CONNECTIONS SHALL BE STANDARD FRAMED CONNECTIONS AS SHOWN IN THE AISC MANUAL OF STEEL CONSTRUCTION, UNLESS OTHERWISE NOTED. STANDARD CONNECTIONS SHALL HAVE NOT LESS THAN TWO BOLTS IN EACH LEG OF EACH CONNECTION ANGLE OR EQUIVALENT SHOP WELD, UNLESS OTHERWISE NOTED.
9. SHOP CONNECTIONS MAY BE WELDED OR BOLTED. FIELD CONNECTIONS SHALL BE BOLTED UNLESS OTHERWISE NOTED.
10. BOLTED CONNECTIONS SHALL BE MADE USING $\frac{3}{4}$" DIAMETER ASTM F3125 GRADE A325(MIN.) HIGH STRENGTH BOLTS (MECHANICALLY GALVANIZED) IN BEARING TYPE CONNECTIONS WITH THREADS IN THE SHEAR PLANE UNLESS OTHERWISE NOTED.
11. MINIMUM WELD SIZE SHALL BE $\frac{3}{16}$" UNLESS OTHERWISE NOTED.
12. MINIMUM THICKNESS OF CONNECTION MATERIALS SHALL BE $\frac{3}{8}$" UNLESS OTHERWISE NOTED.
13. ALL INTERIOR STEEL MEMBERS SHALL BE CLEANED IN ACCORDANCE WITH THE SSPC SP-3 (POWER TOOL CLEANING) TO REMOVE OIL, GREASE, DIRT, AND ANY OTHER CONTAMINANTS COMPLETELY FROM THE CLEANED SURFACE. ALL STEEL SHALL BE SUPPLIED AS "SHOP PRIMED" AS DEFINED ON THE DRAWINGS. PRIMER SHALL BE TNEMEC PERIME PRIME SERIES 394, AS MANUFACTURED BY TNEMEC COMPANY, INC. OF KANSAS CITY, MO, OR AN APPROVED EQUAL. PRIMER SHALL APPLIED TO A MINIMUM DRY FILM THICKNESS OF 3 MILS. ALL SURFACES DAMAGED DURING SHIPPING, ERECTION, OR BY FIELD WELDING SHALL BE REPAIRED IN ACCORDANCE WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS.
14. NO OPENINGS SHALL BE CUT IN STRUCTURAL MEMBERS UNLESS SHOWN ON THE DRAWING.
15. PROVIDE 1/4" CLOSURE PLATE WITH SEAL WELD AT ENDS OF ALL HSS MEMBERS, UNLESS OTHERWISE NOTED.
16. FABRICATOR SHALL HOLD A CURRENT AISC "BUILDING QMS" CERTIFICATION (BU), BASED ON THE AISC "CERTIFICATION STANDARD FOR STEEL BUILDING STRUCTURES".
17. AN INDEPENDENT TESTING COMPANY WILL BE HIRED BY THE OWNER OR CONSTRUCTION MANAGER FOR ALL FIELD AND SPECIAL INSPECTIONS AS WELL AS TESTING OF BOLT TORQUE AND WELDS FOR ALL PHASES OF THE STEEL ERECTION. THE CONTRACTOR IS TO COOPERATE WITH THE TESTING COMPANY AND RE-MEDIATE ANY FAILED TEST AREAS. COMPENSATION TO THE TESTING COMPANY FOR RE-TEST OF FAILED AREAS WILL BE BORNE BY THE CONTRACTOR, AS WELL AS ALL COSTS ASSOCIATED WITH THE REWORK IDENTIFIED IN THIS SCOPE AND TECHNICAL SPECIFICATIONS.
18. CONTRACTOR IS REQUIRED TO ATTEND PRE-ERECTION MEETINGS TO COORDINATE WITH THE OWNER/CONSTRUCTION MANAGER. THE MEETING DATE/TIME WILL BE SET UP BY THE OWNER/CONSTRUCTION MANAGER
19. THE STEEL CONTRACTOR SHALL PROVIDE FABRICATION AND ERECTION OF ALL STRUCTURAL STEEL COLUMNS, BEARING PLATES, STRUCTURAL STEEL BEAMS, GIRDERS, CONNECTOR PLATES, BRACING, GIRTS, CHANNEL, TUBE STEEL, PLATE, SAG RODS, PLATES, BARS, FASTENERS (HIGH STRENGTH BOLTS, WELDING AND OTHER AS SPECIFIED), STEEL TUBING AND DIAGONAL BRACING AS INDICATED IN THE DRAWINGS AND SPECIFICATIONS. INCLUDE ALL ROOF EDGE ANGLES AND FRAMED MECHANICAL ROOF OPENINGS.
20. THE STEEL CONTRACTOR SHALL PROVIDE FABRICATION AND ERECTION OF ALL OPEN WEB STEEL ROOF JOISTS, JOIST GIRDERS, CROSS BRACE BRIDGING, ATTACHED SEATS, LOOSE BEARING PLATES, ANCHORS AND ACCESSORIES REQUIRED FOR SITE PLACEMENT AS INDICATED IN THE DRAWINGS AND SPECIFICATIONS.
21. THE STEEL CONTRACTOR SHALL FURNISH AND INSTALL ALL STEEL ROOF DECK AND ACCESSORIES INCLUDING CLOSURES AND ROOF SUMP PANS AS REQUIRED FOR A COMPLETE INSTALLATIONS, SUPPORT ANGLES FOR ROOF OPENINGS, AND REQUIRED EDGE ANGLES. ALL METAL ROOF DECKING SHALL BE FASTENED VIA POWER ACTUATED FASTENERS OR SCREWS ONLY AND NOT WELDED TO SUPPORTING STRUCTURE.
22. THE STEEL CONTRACTOR SHALL FURNISH AND INSTALL STEEL SUPPORT FRAMING FOR ALL ROOF TOP EQUIPMENT. REFER TO PROCESS/MECHANICAL DRAWINGS FOR WEIGHTS AND LAYOUT OF EQUIPMENT.
23. THE STEEL CONTRACTOR SHALL FURNISH AND INSTALL STEEL SUPPORT FRAMING FOR ALL ROOF TOP EQUIPMENT THAT IS HUNG FROM ROOF. REFER TO PROCESS/MECHANICAL DRAWINGS FOR WEIGHTS AND LAYOUT OF EQUIPMENT.
24. THE STEEL CONTRACTOR SHALL TOUCH-UP FOR ALL FIELD WELDS, AREAS LEFT UNPAINTED IN THE SHOP, AND DAMAGED AREAS AS REQUIRED TO MAINTAIN COVERED PAINTED SURFACE FOR ALL STEEL INCLUDING METAL ROOF DECK.
25. THE STEEL CONTRACTOR SHALL PROVIDE ALL CRANES, LIFTS AND ANY OTHER RELATED/REQUIRED EQUIPMENT REQUIRED TO ERECT THE STRUCTURAL STEEL SYSTEM AND TO COMPLETE THE SCOPE OF WORK.
26. THE STEEL CONTRACTOR SHALL PROVIDE SAFETY EDGE CABLE AND SUPPORTS AT ALL EDGES THAT ARE AT OR IN EXCESS OF 5 FEET ABOVE ADJACENT GRADE. CONTRACTOR IS TO REMOVE ALL SAFETY EDGE CABLE AND SUPPORTS, WHEN APPROPRIATE TO CONSTRUCTION PROGRESS.
27. THE STEEL CONTRACTOR SHALL PROVIDE ANY TEMPORARY COLUMNS / BRACING REQUIRED FOR INSTALLATION.
28. THE STEEL CONTRACTOR SHALL COORDINATE WITH THE LOCAL BUILDING DEPARTMENT FOR ALL REQUIRED INSPECTIONS. THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE PER BUILDING DEPARTMENT REQUIREMENTS.

METAL DECK NOTES:

1. ALL DESIGN, DETAILING, FABRICATION, AND ERECTION OF METAL DECK SHALL CONFORM TO THE FOLLOWING STANDARDS:
    - AISI NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS.
    - STEEL DECK INSTITUTE (SDI) DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS.
    - STEEL DECK INSTITUTE (SDI) MANUAL OF CONSTRUCTION WITH STEEL DECK.
2. METAL ROOF DECK (TYPICAL)
    - METAL ROOF DECK SHALL BE 1$\frac{1}{2}$ INCHES DEEP, 18 GAUGE, GALVANIZED (G60), WIDE RIB, TYPE "B" DECK AS MANUFACTURED BY VULCRAFT OR AN APPROVED EQUAL.
    - ALL DECK SHALL BE FASTENED TO SUPPORTING STEEL WITH POWDER ACTUATED FASTENERS OR SCREWS ONLY AND NOT WELDED TO THE SUPPORTING STRUCTURE. FASTENERS SHALL BE HILTI X-ENP-19 OR HILTI HSN-24, TO SUIT BASE MATERIAL THICKNESS.
    - REFER TO DRAWINGS FOR DECK ATTACHMENT PATTERNS. AT PERIMETERS AND GIRDERS, FASTENERS SHALL BE SPACED PER SIDE LAP CONNECTIONS.
    - END LAPS SHALL BE A MINIMUM OF 2" AND SHALL OCCUR OVER A SUPPORT. MINIMUM END BEARING SHALL BE 1-1/2".
    - DECKING ACCESSORIES SHALL NOT BE PERMITTED IN AREAS OF HIGH SHEAR.
3. GENERAL DECK NOTES
    - THE STEEL DECK SHALL BE SUPPLIED IN MINIMUM LENGTHS AS REQUIRED TO PROVIDE A "3-SPAN" CONDITION. END CLOSURES, ROOF SUMPS, CLOSURES AT PENETRATIONS, AND ALL OTHER ACCESSORIES NECESSARY FOR A COMPLETE INSTALLATION ARE REQUIRED.
    - STEEL DECK MUST BE PROTECTED BEFORE AND AFTER ERECTION AND ALL DEBRIS CLEANED FROM ITS SURFACE WHERE CONCRETE WILL BE POURED OR ROOFING IS TO BE PLACED.
    - DECK SHALL BE INSTALLED IN THE ORIENTATION AS SHOWN ON FRAMING PLAN.

STEEL JOIST NOTES:

1. OPEN WEB STEEL JOISTS SHALL BE DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE CURRENT SPECIFICATION OF THE STEEL JOIST INSTITUTE.
2. JOISTS SHALL BE SUPPLIED WITH ALL ATTACHMENT DEVICES, BRIDGING, AND SIMILAR ACCESSORIES REQUIRED FOR STRICT CONFORMANCE WITH THE STEEL JOIST INSTITUTE'S SPECIFICATIONS. JOIST ERECTION SHALL BE IN STRICT CONFORMANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS. ALL OF THE ABOVE INFORMATION SHALL BE SHOWN ON THE SHOP DRAWINGS.
3. JOISTS SHALL BE DESIGNED TO SUPPORT A MINIMUM 500 NO. (1.0*DL) CONCENTRATED BEND CHECK LOAD PLACED ANYWHERE ON THE TOP OR BOTTOM CHORD WITHOUT THE NEED FOR ADDITIONAL WEB REINFORCING. THIS BEND CHECK LOAD IS IN ADDITION TO ALL OTHER SPECIFIED LOADING.
4. JOISTS SHALL BE FIELD WELDED TO THEIR SUPPORTING MEMBERS BY A CERTIFIED WELDER AS DEFINED BY THE AMERICAN WELDING SOCIETY.
5. JOISTS AT ALL COLUMN LINES SHALL BE FIELD BOLTED TO THE COLUMN AND HAVE THEIR LOWER CHORDS EXTENDED AND CONNECTED TO THE COLUMN. BOLTS SHALL BE INSTALLED TO A SNUG-TIGHT CONDITION.
6. JOISTS EXCEEDING 40'-0" IN LENGTH SHALL BE FIELD BOLTED TO THE SUPPORTING MEMBER WITH A MINIMUM OF TWO BOLTS. BOLTS SHALL BE INSTALLED TO A SNUG-TIGHT CONDITION.
7. EXTEND JOISTS 1 INCH PAST CENTERLINE OF SUPPORTING MEMBER WHERE POSSIBLE. ON MASONRY WALLS 12 INCHES OR MORE IN THICKNESS, THE MINIMUM BEARING LENGTH SHALL BE 6 INCHES, UNLESS OTHERWISE NOTED.
8. DESIGN OF JOISTS AND JOIST BRIDGING SHALL ACCOUNT FOR A NET UPLIFT LOAD (COMBINED WIND AND DEAD LOADS) AS INDICATED ON THE DRAWINGS.
9. BRIDGING SHALL BE AS SHOWN AND NOT LESS THAN CALLED FOR BY THE SJI SPECIFICATION, AS NOTED IN NOTE 1.
10. ADJACENT JOISTS OF THE SAME DEPTH SHALL HAVE WEB MEMBERS IN LINE TO PERMIT PASSAGE OF MECHANICAL DUCTS.
11. JOIST MANUFACTURER SHALL DESIGN SPECIAL JOISTS, DESIGNATED "SP", FOR LOAD AND DEFLECTION CRITERIA SHOWN ON THE DRAWINGS, JOIST MANUFACTURER SHALL COORDINATE AND VERIFY WEIGHT, SIZE AND LOCATION OF MECHANICAL EQUIPMENT AND ANY OTHER ATTACHED EQUIPMENT/APPURTENANCE WITH THE GENERAL AND MECHANICAL CONTRACTORS.
12. "K" SERIES JOISTS:
    - WELD ALL JOISTS TO SUPPORTING STEEL WITH 1 1/2" OF 3/16" FILLET WELD EACH SIDE OF BEARING, UNLESS OTHERWISE NOTED.
    - PROVIDE 5" DEEP BEARING ENDS ON JOISTS WHICH SHARE A COMMON BEARING GIRDER WITH "LH" JOISTS.
13. "LH" & "DLH" SERIES JOISTS:
    - WELD ALL JOISTS TO SUPPORTING STEEL WITH 2" OF 1/4" FILLET WELD EACH SIDE OF BEARING, UNLESS OTHERWISE NOTED.

STATEMENT OF SPECIAL INSPECTION REQUIREMENTS

SOILS AND FOUNDATIONS	
SHALLOW FOUNDATIONS	CONTINUOUS
CONTROLLED STRUCTURAL FILL	CONTINUOUS
CAST-IN-PLACE CONCRETE (SPEC SECTION 033000)	
MIX DESIGN	PERIODIC
MATERIAL CERTIFICATION	PERIODIC
REINFORCEMENT INSTALLATION	CONTINUOUS
ANCHORS AND EMBEDS	PERIODIC
CONCRETE PLACEMENT	CONTINUOUS
CONCRETE SAMPLING AND TESTING	PERIODIC
CURING AND PROTECTION	PERIODIC
STRENGTH VERIFICATION	PERIODIC
MASONRY (SPEC SECTION 042000)	
MATERIAL CERTIFICATION	PERIODIC
MIXING OF MORTAR AND GROUT	PERIODIC
MORTAR JOINTS	PERIODIC
REINFORCEMENT INSTALLATION	PERIODIC
GROUTING OPERATIONS	CONTINUOUS
WEATHER PROTECTION	PERIODIC
MASONRY STRENGTH EVALUATION	PERIODIC
ANCHORS AND TIES	PERIODIC
STRUCTURAL STEEL (SPEC SECTION 051200)	
REQUIREMENTS WITH AND ASTERISK (*) MAY BE WAIVED IF THE FABRICATION FACILITY IS A MEMBER OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC).	
*PLANT CERTIFICATION	PERIODIC
*MATERIAL CERTIFICATION	PERIODIC
BEARING-TYPE BOLTING	PERIODIC
SLIP-CRITICAL BOLTING	CONTINUOUS
MINOR WELDING	PERIODIC
MAJOR WELDING	CONTINUOUS
SHEAR CONNECTIONS	CONTINUOUS
STRUCTURAL DETAILS	PERIODIC
JOIST BRIDGING AND BRACING	PERIODIC
METAL DECK (SPEC SECTION 053100)	
MEMBER PROPERTIES	PERIODIC
ERECTED MEMBERS	PERIODIC

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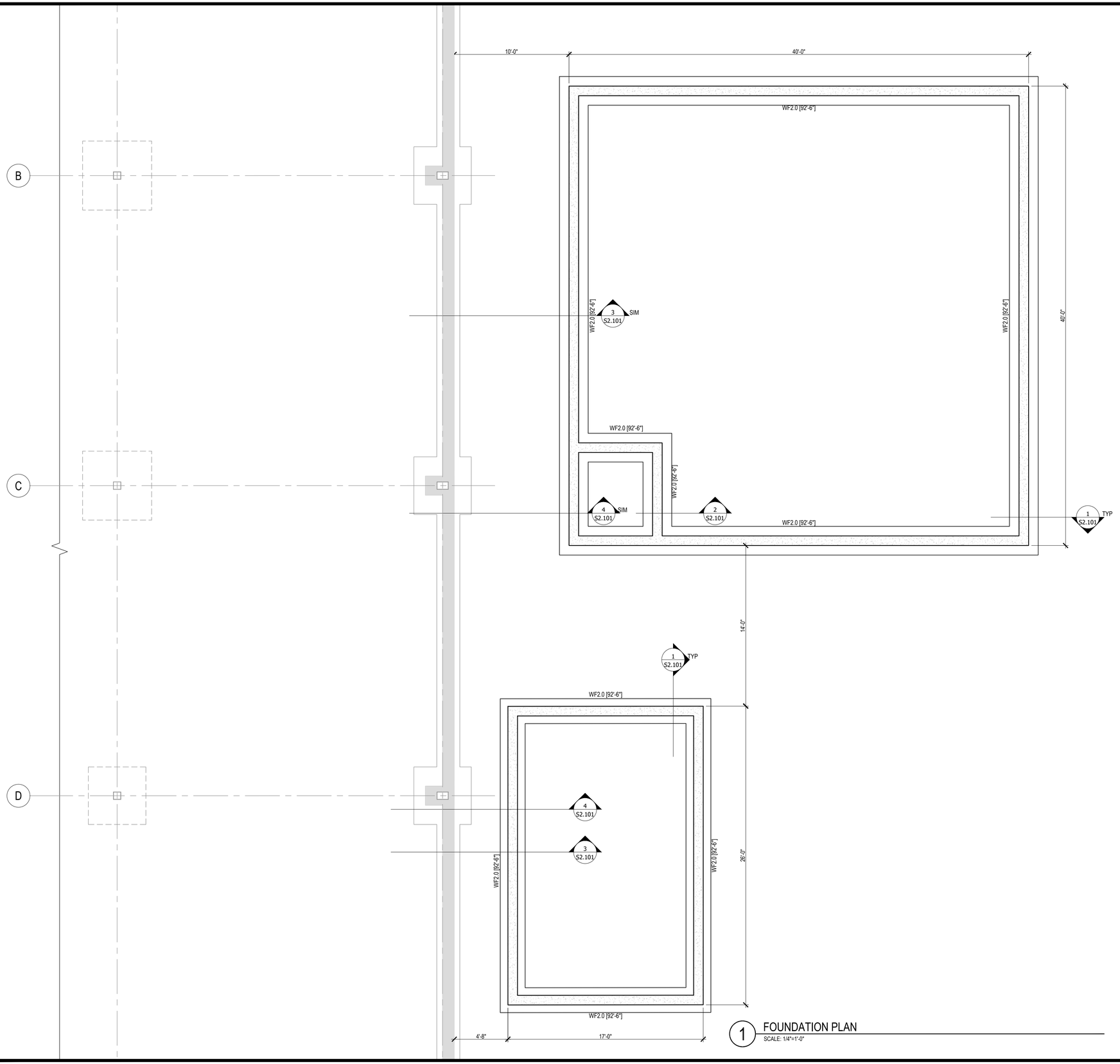

1 FOUNDATION PLAN
SCALE: 1/4"=1'-0"

FOUNDATION PLAN NOTES:

1. TOP OF CONCRETE SLAB ON GRADE ELEVATION = REFERENCE ELEVATION = 96'-0", UNLESS OTHERWISE NOTED.
2. THE FOUNDATIONS HAVE BEEN DESIGNED TO REST ON INORGANIC, UNDISTURBED STIFF SOIL OR COMPACTED GRANULAR FILL HAVING A BEARING VALUE OF 4,000 PSF. ALL BEARING STRATA SHALL BE REVIEWED BY THE SOIL ENGINEER PRIOR TO PLACING CONCRETE IN ORDER TO VERIFY THE BEARING VALUE.
3. KEEP FOUNDATION EXCAVATIONS FREE OF WATER AT ALL TIMES.
4. USE LEAN CONCRETE (f'c=1500 PSI) OR COMPACTED CRUSHED STONE FOR OVER-EXCAVATION OF FOOTINGS.
5. COORDINATE ALL PITS, TRENCHES, POCKETS, SLEEVES, PADS, PENETRATIONS AND INSERTS IN CONCRETE WALLS AND SLABS WITH ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS. FOR UNDERSLAB PIPING, SEE PLUMBING DRAWINGS.
6. FOR GENERAL NOTES, SEE DRAWING S0.001 & S0.002.

LEGEND:

- "SF" = APPROXIMATE LOCATION OF STEPS IN FOOTINGS ON PLAN. COORDINATE LOCATION AND ELEVATION WITH SITE GRADING, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. FOR DETAILS, SEE DRAWING S2.003.
- WF-## [X'-X"] = WALL FOOTING TYPE & TOP OF FOOTING ELEVATION. SEE FOOTING SCHEDULE AND DETAIL ON DRAWING S2.001.
- INDICATES MASONRY WALL
- INDICATES CAST IN PLACE CONCRETE WALL

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FOUNDATION PLAN

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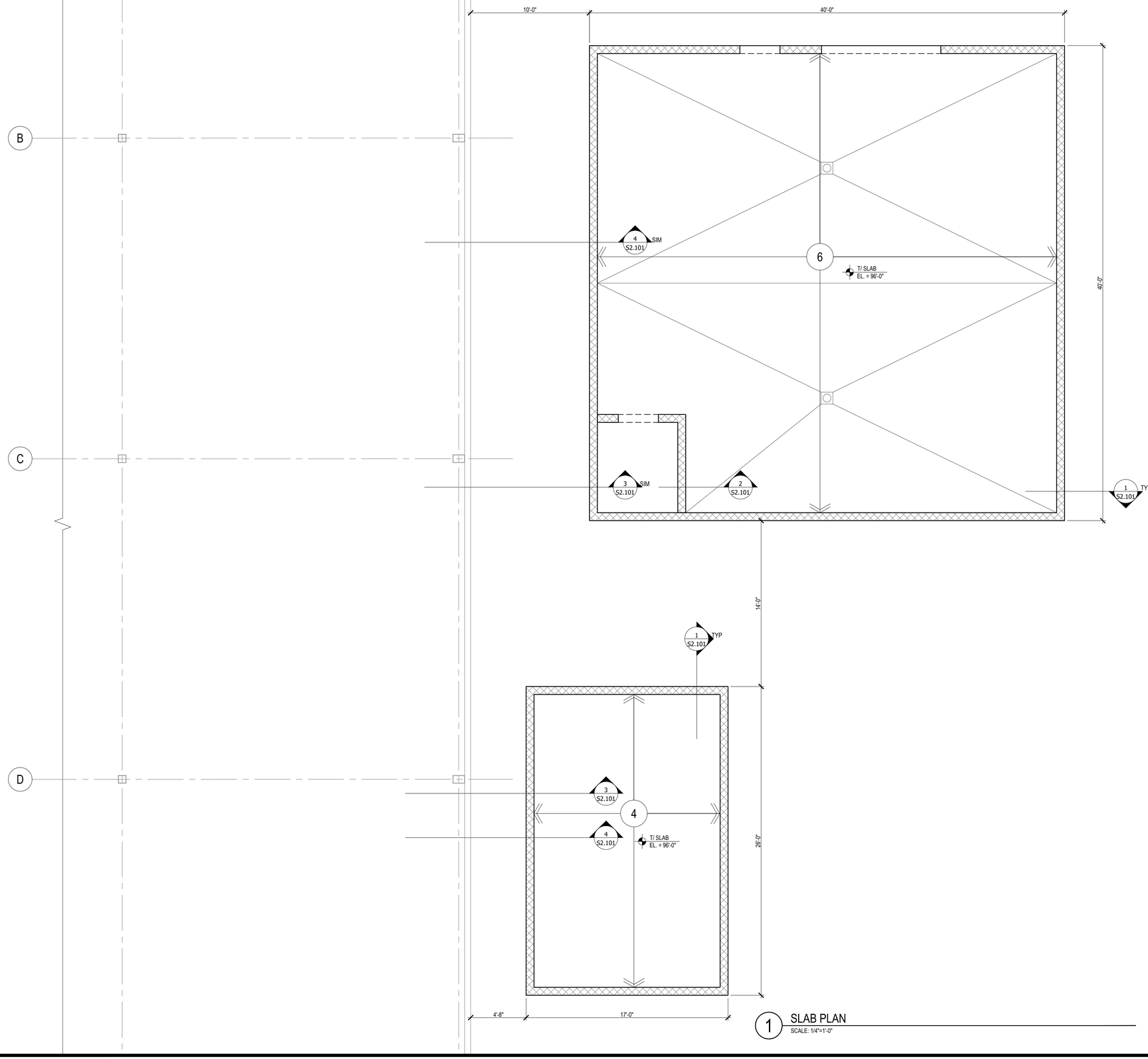

1 SLAB PLAN
SCALE: 1/4"=1'-0"

SLAB PLAN NOTES:

1. TOP OF CONCRETE SLAB ON GRADE ELEVATION = REFERENCE ELEVATION = 96'-0" HP, UNLESS OTHERWISE NOTED.
2. FLOOR CONSTRUCTION: REFER TO LEGEND, THIS SHEET, AND SLAB SCHEDULE ON SHEET S2.002
3. PROVIDE ARMORED EDGE CONSTRUCTION JOINTS AS INDICATED HERE OR IN THE ARCHITECTURAL DRAWINGS.
4. COORDINATE ALL PITS, TRENCHES, POCKETS, SLEEVES, PADS, PENETRATIONS, DEPRESSIONS, FLOOR SLOPES, AND CONCRETE INSERTS WITH ARCHITECTURAL, PLUMBING, ELECTRICAL, AND MECHANICAL DRAWINGS.
5. FOR FLOOR DRAWINGS, TRENCH DRAINS, CLEAN OUTS, AND SLOPED FLOOR AREAS, REFER TO ARCHITECTURAL AND PLUMBING DRAWINGS. ANY FLOOR SLOPES OR DRAIN LOCATIONS SHOWN HERE ARE SCHEMATIC ONLY AND SHOWN FOR REFERENCE ONLY.
6. CONTRACTOR SHALL SUBMIT FULL CONTROL JOINT LAYOUT FOR APPROVAL PRIOR TO POURING SLABS.
7. FOR GENERAL NOTES, SEE DRAWING S0.001 & S0.002.

LEGEND:

- FD — INDICATES FLOOR DRAIN.
- SL — INDICATES FLOOR SLOPE
- CJ — INDICATES APPROXIMATE LOCATION OF SLAB CONTROL JOINTS. SEE TYPICAL SLAB DETAILS FOR ADDITIONAL INFORMATION. PROVIDE SAWCUT CONTROL JOINTS AT ALL SLABS WITH JOINT SPACING NOT EXCEEDING 15 FEET IN EACH ORTHOGONAL DIRECTION
- (X) — INDICATES SLAB TYPE - SEE SCHEDULE

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SLAB PLAN

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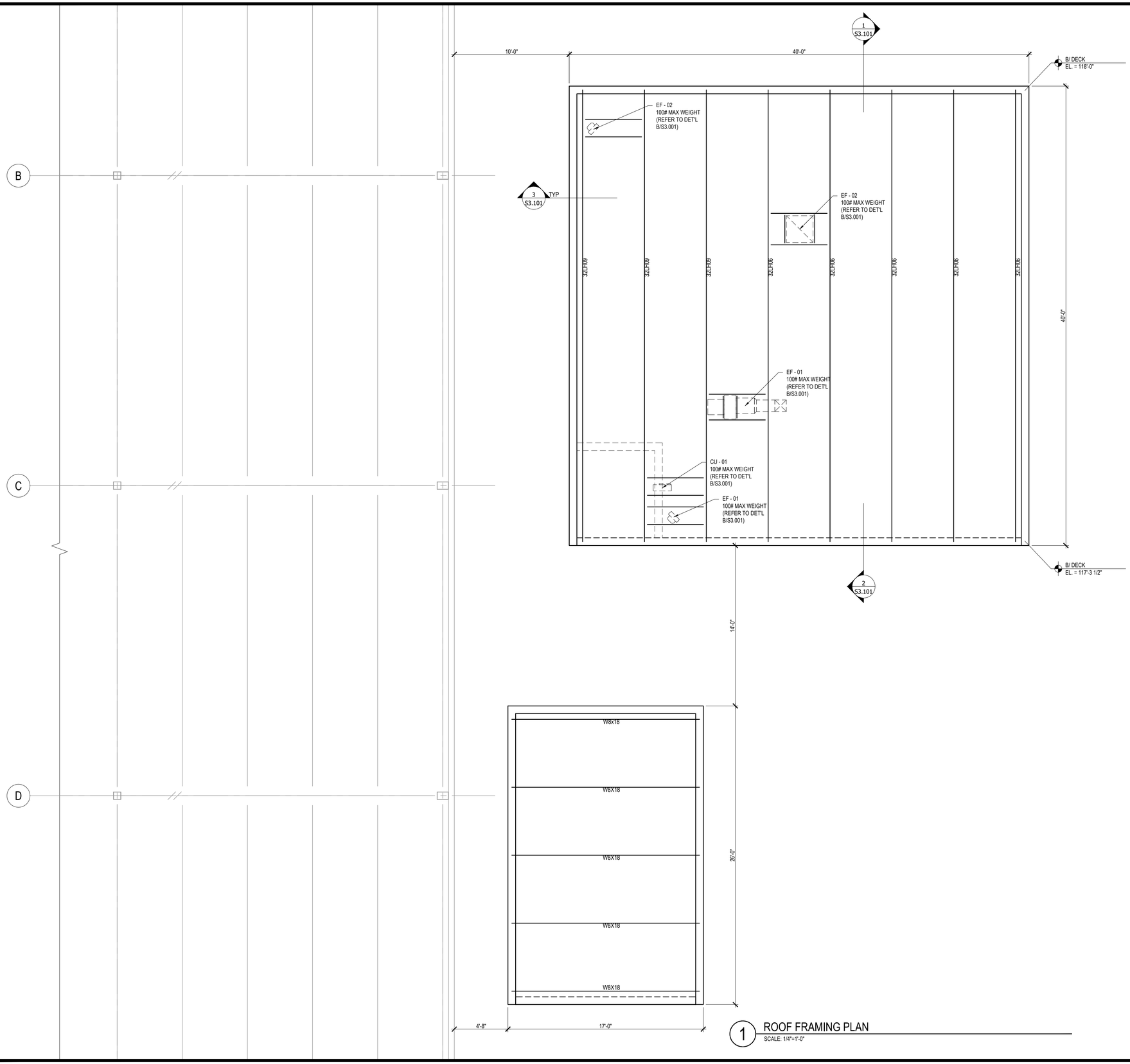

1 ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"

ROOF FRAMING PLAN NOTES:

1. FOR GENERAL NOTES, SEE DRAWING S0.001 & S0.002.
2. FOR TYPICAL STEEL FRAMING DETAILS, SEE DRAWING S3.001 & S3.002.
3. ROOF METAL DECK CONSTRUCTION: SEE GENERAL NOTES.
4. ROOF DECK SLOPES. UNDERSIDE OF METAL DECK WORK POINT ELEVATIONS SHOWN THUS [XXX'-XX"].
5. ALL FRAMING SHALL BE EQUALLY SPACED BETWEEN COLUMN LINES, UNLESS NOTED OTHERWISE.
6. RTU AND OPENING SUPPORT STEEL, SEE TYPICAL DETAILS *NOTE: COORDINATE ANGLE SUPPORT WITH MECHANICAL UNIT CURB LOCATIONS.
7. THESE PLANS DO NOT SHOW THE FULL SCOPE OF OPENINGS; COORDINATE SIZE AND LOCATIONS OF ALL ROOF PENETRATIONS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. PROVIDE FRAMING AS INDICATED IN TYPICAL DETAIL. DO NOT SCALE OPENINGS.
8. MECHANICAL EQUIPMENT WEIGHTS USED IN DESIGN OF SUPPORTING ELEMENTS ARE INDICATED ON THE DRAWINGS. CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO INSTALLATION OF EQUIPMENT IF ACTUAL WEIGHT EXCEEDS WEIGHT SHOWN ON DRAWINGS.

LEGEND:

xxK STEEL BEAM (XX) xxK
(xx) a=xxK (xx)

- (XX) — INDICATES NUMBER OF COMPOSITE SHEAR STUDS. (IF NOT SHOWN BEAM IS NON COMPOSITE)
- xxK — INDICATES SHEAR REACTION (KIPS) (FACTORED)
- a=xxK — INDICATES BEAM AXIAL T/C REACTION (KIPS) (FACTORED) AT EACH BEAM END
- (xx) — INDICATES MOMENT REACTION (KIP-FT) (FACTORED). MOMENT FORCES INDICATED ARE REVERSIBLE.
  - FC = FULL BEAM CAPACITY
  - FP = FULL PENETRATION WELD FLANGE TO COLUMN. SEE DETAIL 4/S3.00
  - FBS = 5/16" FILLET WELD BOTH SIDES OF EACH FLANGE TO COLUMN
- "C=X" — POSITIVE (UPWARD) CAMBER IN STEEL BEAM.
- CANT — INDICATES CANTILEVER (DESIGN CONNECTION FOR BEAM CAPACITY, UON)
- BFB — INDICATES BOTTOM FLANGE BRACE. REFER TO TYPICAL STEEL DETAILS
- INDICATES DECK SPAN DIRECTION
- BC — PROVIDE JOIST BOTTOM CHORD EXTENSION AND VERTICAL STABILIZER PLATE IN ACCORDANCE WITH OSHA REQUIREMENTS
- INDICATES MASONRY WALL BELOW

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ROOF FRAMING PLAN

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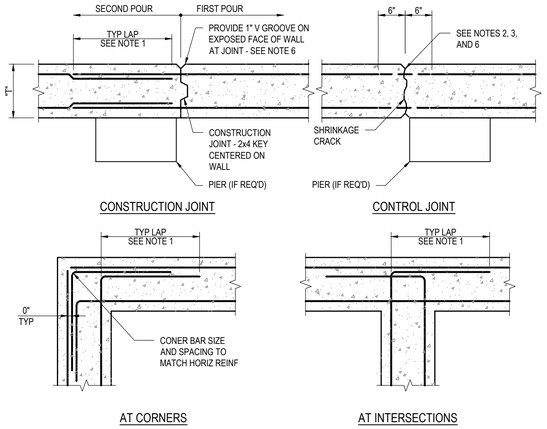
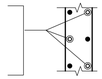


NOTES:

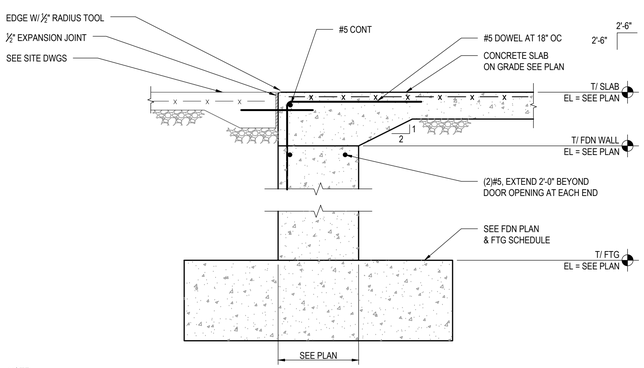
1. ALL BAR SPLICES SHALL BE CLASS "B" LAP SPLICES WITH 56 BAR DIAMETERS MINIMUM.
2. PROVIDE CONSTRUCTION/CONTROL JOINTS AT THE MAXIMUM SPACING OF 20 FEET. CONTROL JOINTS SHALL ALSO BE PROVIDED WHERE CHANGES IN WALL HEIGHT AND WALL THICKNESS OCCUR. VERIFY LOCATION OF CONTROL JOINTS WITH ARCH. PROVIDE CONSTRUCTION/CONTROL JOINTS AT FACE OF PIERS UNLESS OTHERWISE NOTED ON PLAN.
3. AT CONTROL JOINT, PROVIDE BEVEL JOINT "T"/10 INTO WALL SURFACE BOTH SIDES. STOP ALTERNATING HORIZONTAL REINFORCING BARS 6" SHORT OF CONTROL JOINT.



4. SEE APPROPRIATE SECTION FOR WALL REINFORCEMENT.
5. VERTICAL REINFORCING AND/OR SUPPORT BARS NOT SHOWN FOR CLARITY.
6. PROVIDE CAULKING AT JOINT IF REQ'D. SEE ARCH DRAWINGS.

A TYPICAL CONCRETE WALL CONSTRUCTION DETAIL

SCALE: NTS S-CONC-002

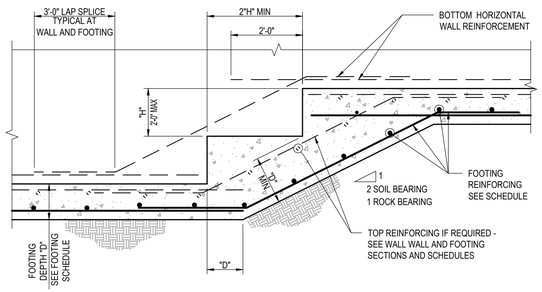


NOTE:

SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND EXTENT OF EXTERIOR DOORS

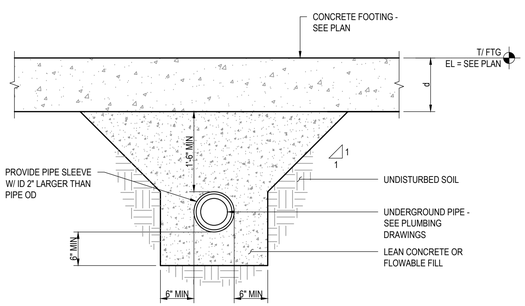
B TYPICAL FOUNDATION WALL DETAIL AT EXTERIOR DOORS

SCALE: NTS S-CONC-013



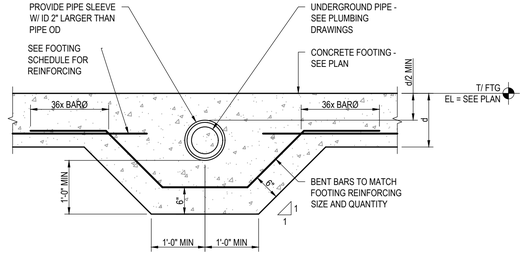
C TYPICAL STEPPED WALL FOOTING DETAIL

SCALE: NTS S-CONC-004



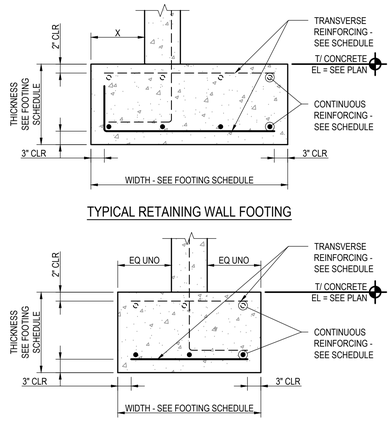
D TYPICAL PIPE UNDER FOOTING DETAIL

SCALE: NTS S-CONC-014



E TYPICAL PIPE SLEEVE THROUGH FOOTING DETAIL

SCALE: NTS S-CONC-005



WALL FOOTING SCHEDULE

(ALLOWABLE BEARING PRESSURE: 4,000 PSF)

MARK	WIDTH	THICKNESS	BOTTOM REINFORCING		TOP REINFORCING		X	NOTES
			CONT	TRANS	CONT	TRANS		
WF2.0	2'-0"	1'-0"	(3) - #5	#4 @ 12" O.C.	-	-	-	

REMARKS:

1. REFER TO FOOTING DETAILS AND FOUNDATION NOTES IN USING THIS SCHEDULE

F TYPICAL WALL FOOTING DETAIL AND SCHEDULE

SCALE: NTS S-CONC-006

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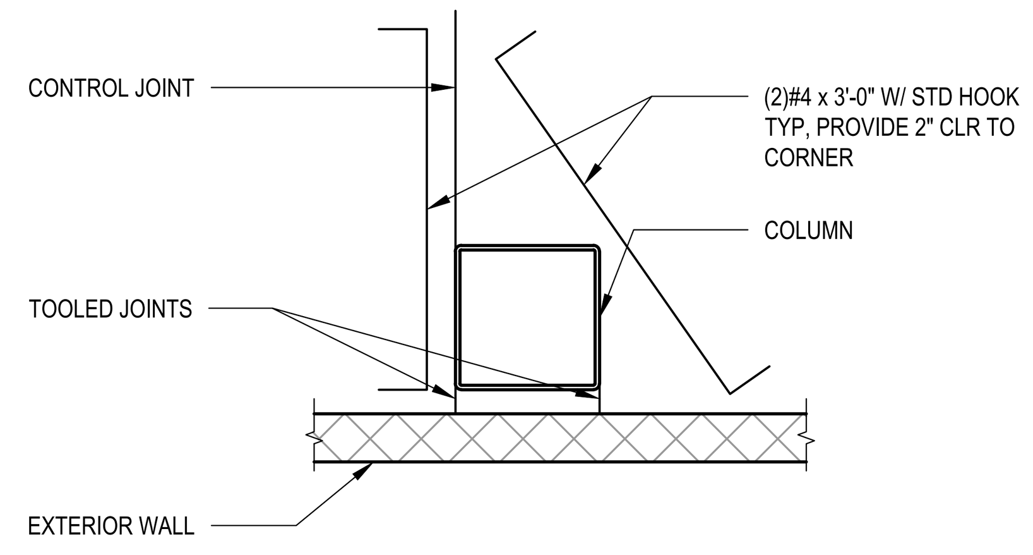
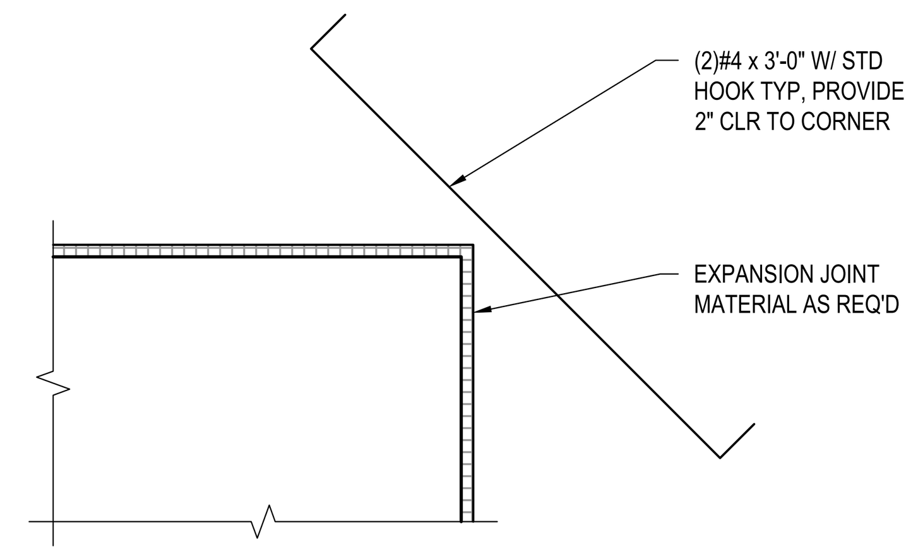


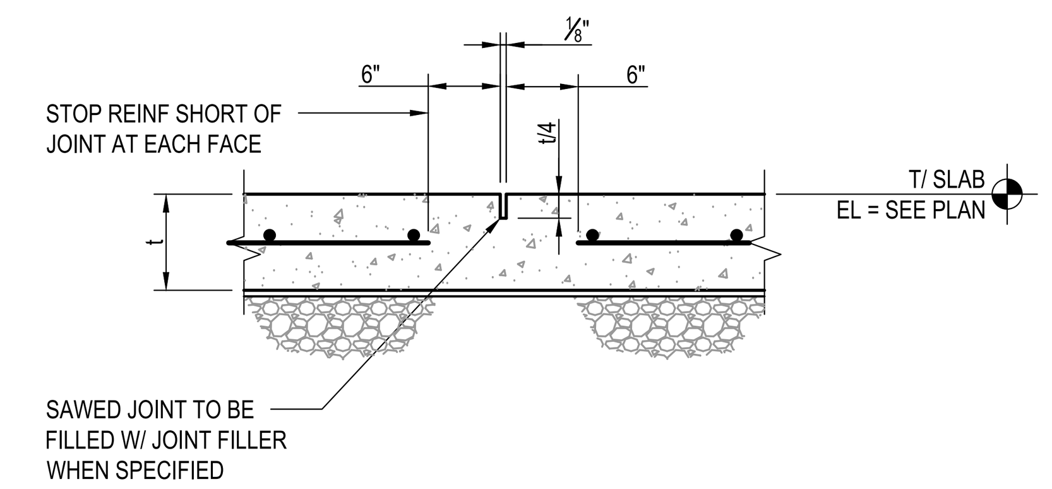
A — TYPICAL CONTROL JOINT DETAIL AT EXTERIOR WALL

SCALE: NTS S-SLAB-003



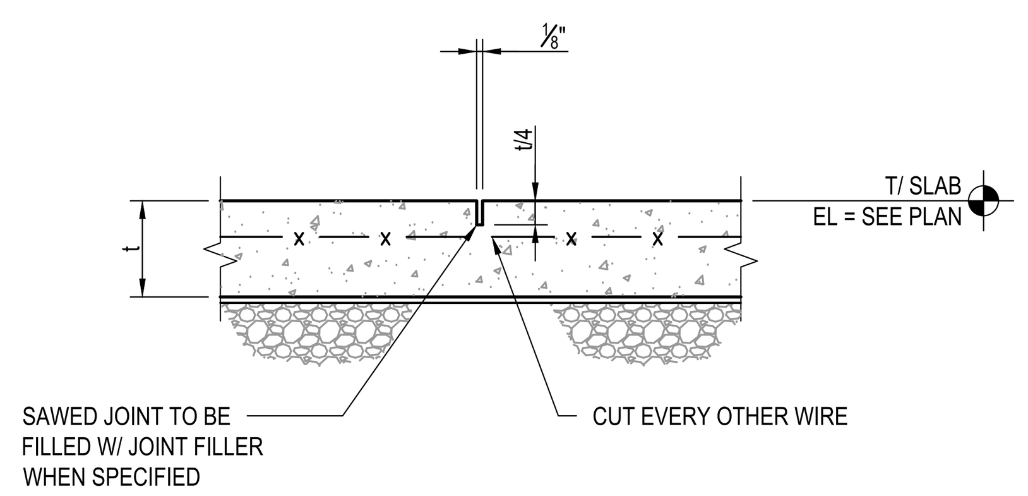
B — SLAB CONTROL JOINT DETAIL AT REENTRANT CORNER

SCALE: NTS S-SLAB-004



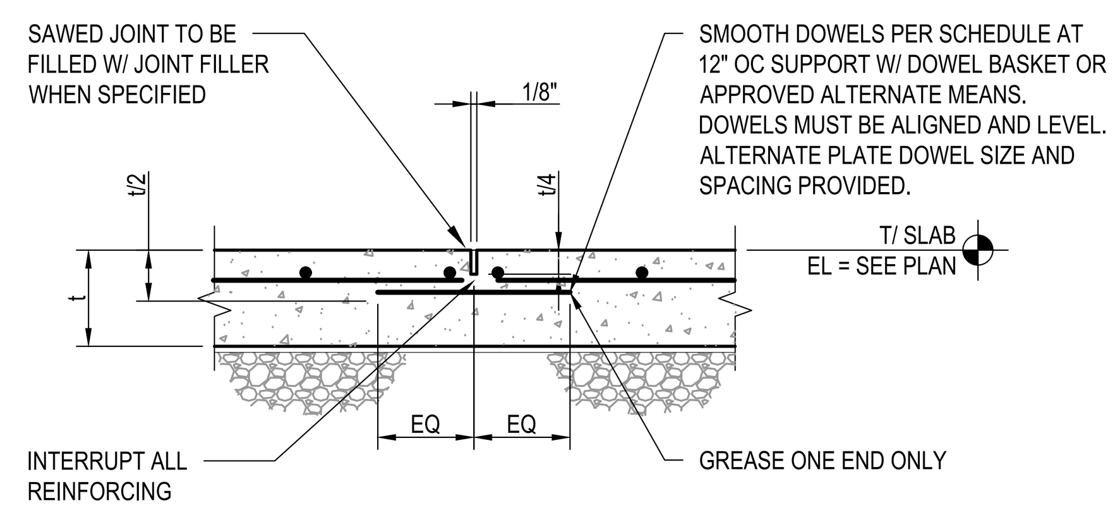
C — TYPICAL CONTROL JOINT DETAIL W/REBAR

SCALE: NTS S-SLAB-005



D — TYPICAL CONTROL JOINT DETAIL W/ WWF

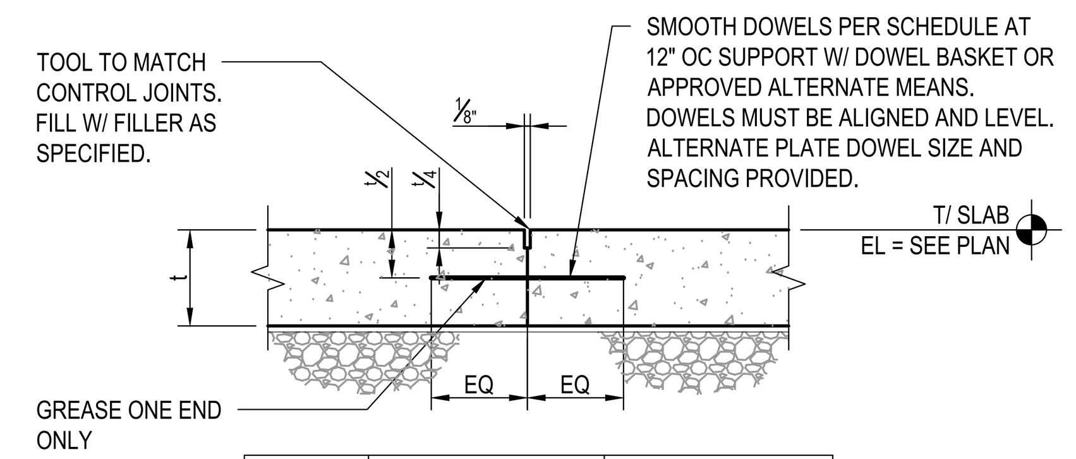
SCALE: NTS S-SLAB-006



SLAB "T"	ROUND DOWEL SIZE	PLATE DOWEL SIZE
6"	¾"Ø x 16"	¼" x 4.5" AT 18" OC
8"	1" x 18"	⅜" x 4.5" AT 18" OC

E — TYPICAL DOWELED CONTROL JOINT DETAIL

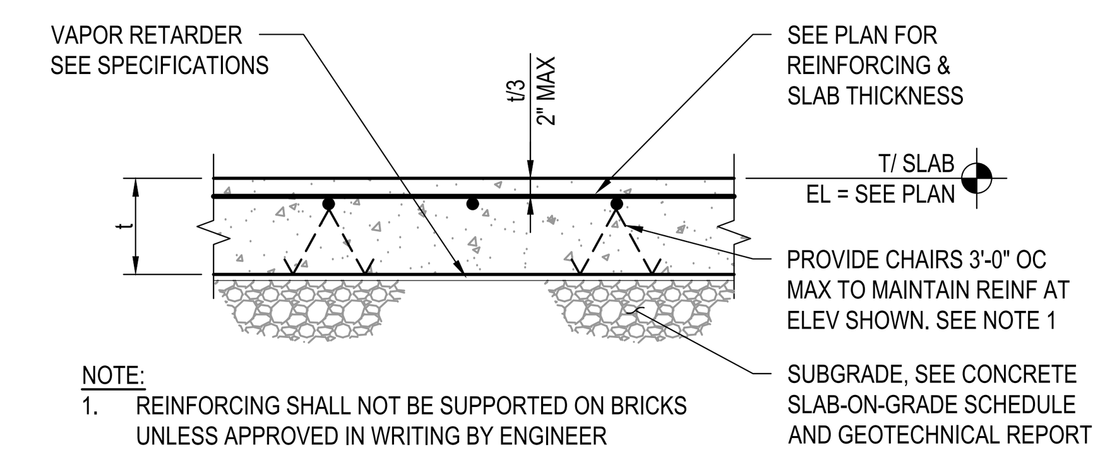
SCALE: NTS S-SLAB-008



SLAB "T"	ROUND DOWEL SIZE	PLATE DOWEL SIZE
6"	¾"Ø x 16"	¼" x 4.5" AT 18" OC
8"	1" x 18"	⅜" x 4.5" AT 18" OC

F — TYPICAL CONSTRUCTION JOINT DETAIL

SCALE: NTS S-SLAB-007



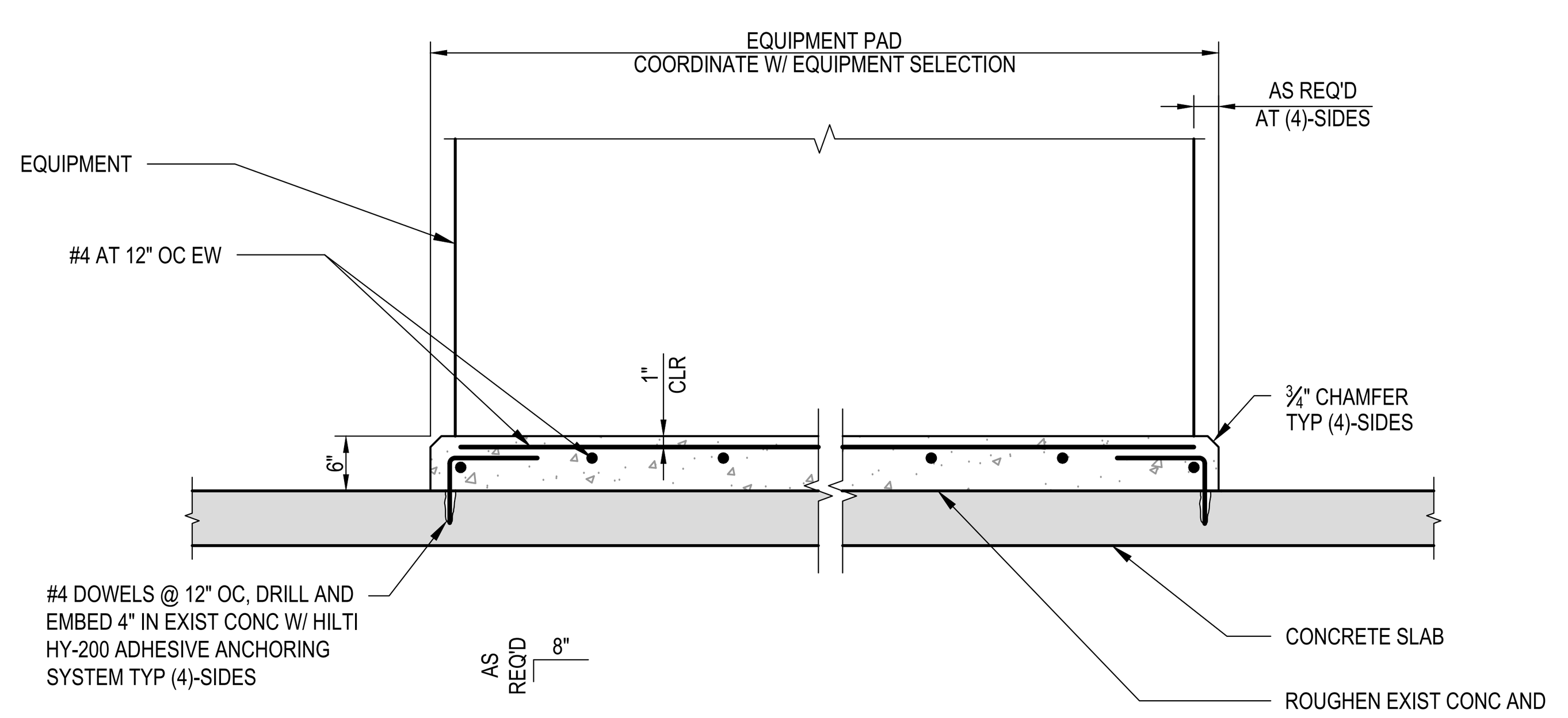
NOTE:
1. REINFORCING SHALL NOT BE SUPPORTED ON BRICKS UNLESS APPROVED IN WRITING BY ENGINEER
2. LAP MESH REINFORCING AT LEAST ONE MESH SPACING AND WIRE TIE TOGETHER.
3. LAP BAR REINFORCING PER SCHEDULE STAGGER LAPS OF ALTERNATING BARS.

G — TYPICAL SLAB-ON-GRADE DETAIL

SCALE: NTS S-SLAB-009

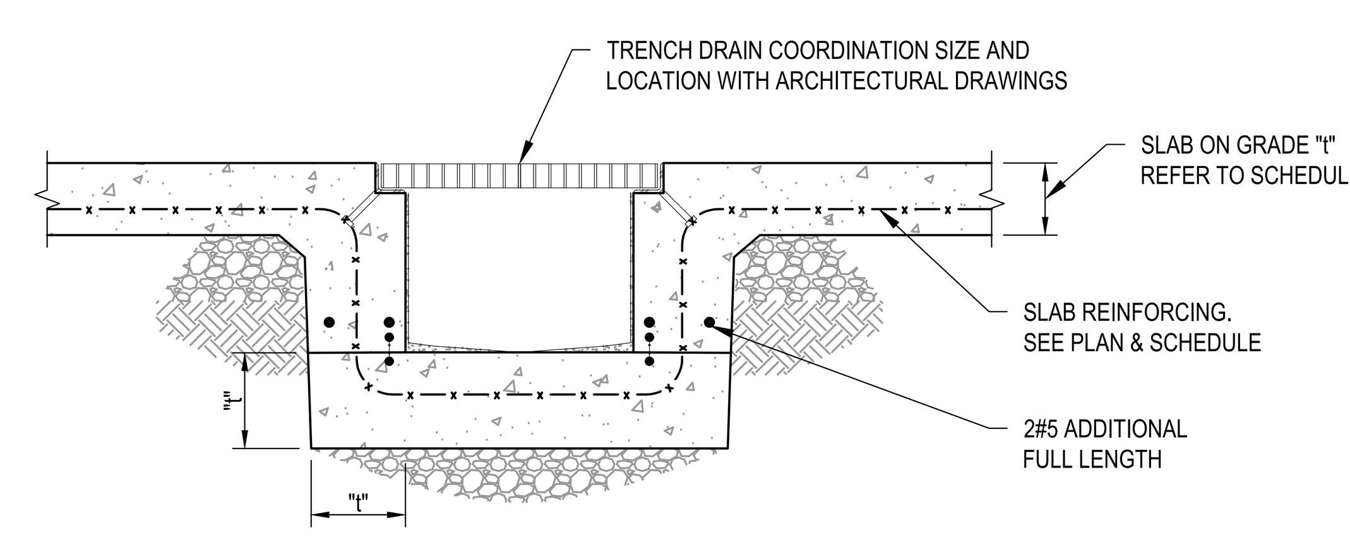
CONCRETE SLAB-ON-GRADE SCHEDULE

TYPE	DESCRIPTION	CURING AND SEALING	FINISH REQUIREMENTS	JOINTS/JOINT TREATMENT	CONCRETE CLASS
4	4" THICK SLAB ON GRADE, REINFORCED WITH 6x6 W1.4xW1.4 WOVEN WIRE FABRIC (WWF) OVER 10 MIL VAPOR BARRIER AND 4" COMPACTED GRAVEL	CHEMICAL CURE W/ CURE AND SEALING COMPOUND. APPLY SECOND COAT.	Ff 25/Fl 20	CONSTRUCTION JOINTS - DETAIL "D" ON S2.002 FILL WITH POLYURETHANE	CLASS V
6	6" THICK SLAB ON GRADE, REINFORCED WITH 6x6 W2.0xW2.0 WOVEN WIRE FABRIC (WWF) OVER 10 MIL VAPOR BARRIER AND 4" COMPACTED GRAVEL	CHEMICAL CURE W/ CURE AND SEALING COMPOUND. APPLY SECOND COAT.	Ff 25/Fl 20	CONSTRUCTION JOINTS - DETAIL "D" ON S2.002 FILL WITH SEMI-RIGID EPOXY	CLASS V



H — TYPICAL CONCRETE PAD

SCALE: NTS S-SLAB-012



I — TYPICAL TRENCH DRAIN DETAIL

SCALE: NTS S-SLAB-013

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TYPICAL CONCRETE DETAILS

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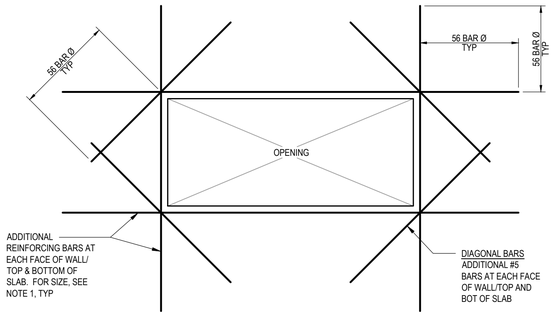


NOTES:

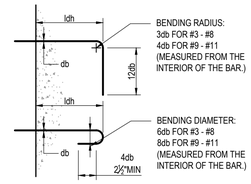
1. AT WALLS, ADDITIONAL REINFORCING SIZE SHALL MATCH HORIZONTAL AND VERTICAL REINFORCING. AT SLABS USE #4 BARS.
2. THE DETAIL IS SIMILAR AT ALL CIRCULAR OPENINGS.
3. COORDINATE ALL OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

A TYPICAL SLAB-ON-GRADE/WALL PENETRATION REINFORCING DETAIL

SCALE: NTS S-CONC-012

HOOKED REINFORCEMENT TENSION DEVELOPMENT LENGTH SCHEDULE

BAR SIZE	TENSION DEVELOPMENT LENGTH (ldh) INCHES		
	f'c (psi)	f'c (psi)	f'c (psi)
	3000	4000	4500
#3	9	8	7
#4	11	10	9
#5	14	12	12
#6	17	15	14
#7	20	17	16
#8	22	19	18
#9	25	22	21
#10	28	24	23
#11	31	27	26



REMARKS:

1. TABULATED DEVELOPMENT LENGTHS ARE BASED ON REINFORCING YIELD STRENGTH F_Y = 60 KSI AND NORMAL WEIGHT CONCRETE.
2. ALL TABULATED VALUES ARE MINIMUM LENGTHS. IN CASE OF CONFLICT WITH THE PLANS, SECTIONS OR DETAILS USE THE LONGER LENGTH.
3. FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.
4. FOR EPOXY COATED REINFORCING, MULTIPLY TABULATED VALUES BY 1.2

STRAIGHT REINFORCEMENT DEVELOPMENT AND SPLICE LENGTH SCHEDULE

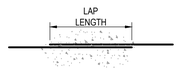
BAR SIZE	TENSION DEVELOPMENT LENGTH (ld) INCHES						COMPRESSION DEVELOPMENT LENGTH (ld) INCHES			TENSION LAP LENGTH - INCHES						COMPRESSION LAP LENGTH - INCHES
	TOP BARS			OTHER BARS			ALL BARS			TOP BARS			OTHER BARS			ALL BARS
	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)	f'c (psi)
	3000	4000	4500	3000	4000	4500	3000	4000	4500	3000	4000	4500	3000	4000	4500	>3000
#3	22	19	18	17	15	14	9	8	7	28	24	23	22	19	18	12
#4	29	25	24	22	19	18	11	10	9	37	32	31	29	25	24	15
#5	36	31	29	28	24	23	14	12	12	47	40	38	36	31	29	19
#6	43	37	35	33	29	27	17	15	14	56	48	46	43	37	35	23
#7	63	54	51	48	42	40	20	17	16	81	71	67	63	54	51	27
#8	72	62	59	55	48	45	22	19	18	93	81	76	72	62	59	30
#9	81	70	66	62	54	51	25	22	21	105	91	86	81	70	66	34
#10	91	79	74	70	61	57	28	24	23	118	102	96	91	79	74	39
#11	101	87	87	78	67	63	31	27	26	131	113	107	101	87	82	43

REMARKS:

1. ALWAYS USE TENSION DEVELOPMENT LENGTH AND TENSION LAP SPLICE LENGTH VALUES EXCEPT WHEN THE PLANS OR DETAILS NOTE SPECIFICAL COMPRESSION LENGTHS.
2. TABULATED DEVELOPMENT AND LAP SPLICE LENGTHS ARE BASED ON REINFORCING YIELD STRENGTH F_Y=60 KSI. NORMAL WEIGHT CONCRETE AND CLASS B LAPS.
3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF FRESH CONCRETE CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
4. WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED IN TENSION, SPLICE LENGTH SHALL BE THE LARGER OF ld OF LARGER BAR AND TENSION SPLICE LENGTH OF THE SMALLER BAR.
5. ALL TABULATED VALUES ARE MINIMUM LENGTHS. IN CASE OF CONFLICT WITH THE PLANS SECTIONS OR DETAILS, USE THE LONGER LENGTH.
6. WELDED AND/OR MECHANICAL SPLICES MAY BE USED AT THE GENERAL CONTRACTOR'S OPTION PROVIDED THAT THE SPLICE IS CAPABLE OF DEVELOPING AT LEAST 125 PERCENT OF THE YIELD STRENGTH OF THE LARGER BAR IN TENSION, THE GENERAL CONTRACTOR SHALL USE WELDED AND/OR MECHANICAL SPLICES WHERE LAP SPLICED WOULD CREATE BAR CONGESTION THAT WOULD INTERFERE WITH THE PLACING AND FINISHING OF THE CONCRETE. SPLICES IN "TENSION-TIE" MEMBERS SHALL BE FULL WELDED FOR MECHANICAL SPLICES. WHERE WELDED AND/OR MECHANICAL SPLICES ARE TO BE USED, THE GENERAL CONTRACTOR SHALL SUBMIT FULL DATA ON THE PROPOSED MATERIALS, PROCEDURES AND INSTALLATION INSTRUCTIONS TO THE ENGINEER FOR REVIEW AS A SHOP DRAWING SUBMISSION.
7. ALL STRAIGHT BAR DEVELOPMENTS AND SPLICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318. ALL WELDED SPLICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AWS D1.4.
8. FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.
9. FOR EPOXY COATED REINFORCING, MULTIPLY TABULATED VALUES BY 1.2

DEVELOPMENT

REFER TO "HOOKED REINFORCEMENT TENSION DEVELOPMENT LENGTH SCHEDULE" WHEN THE STRAIGHT DEVELOPMENT LENGTH IN TENSION CANNOT BE ACCOMMODATED IN THE CONCRETE SECTION



LAP SPLICE

LAP SPLICES IN ADJACENT BARS SHALL BE STAGGERED A MINIMUM OF 24 INCHES. WELDED OR MECHANICAL SPLICES IN ADJACENT BARS SHALL BE STAGGERED A MINIMUM OF 30 INCHES

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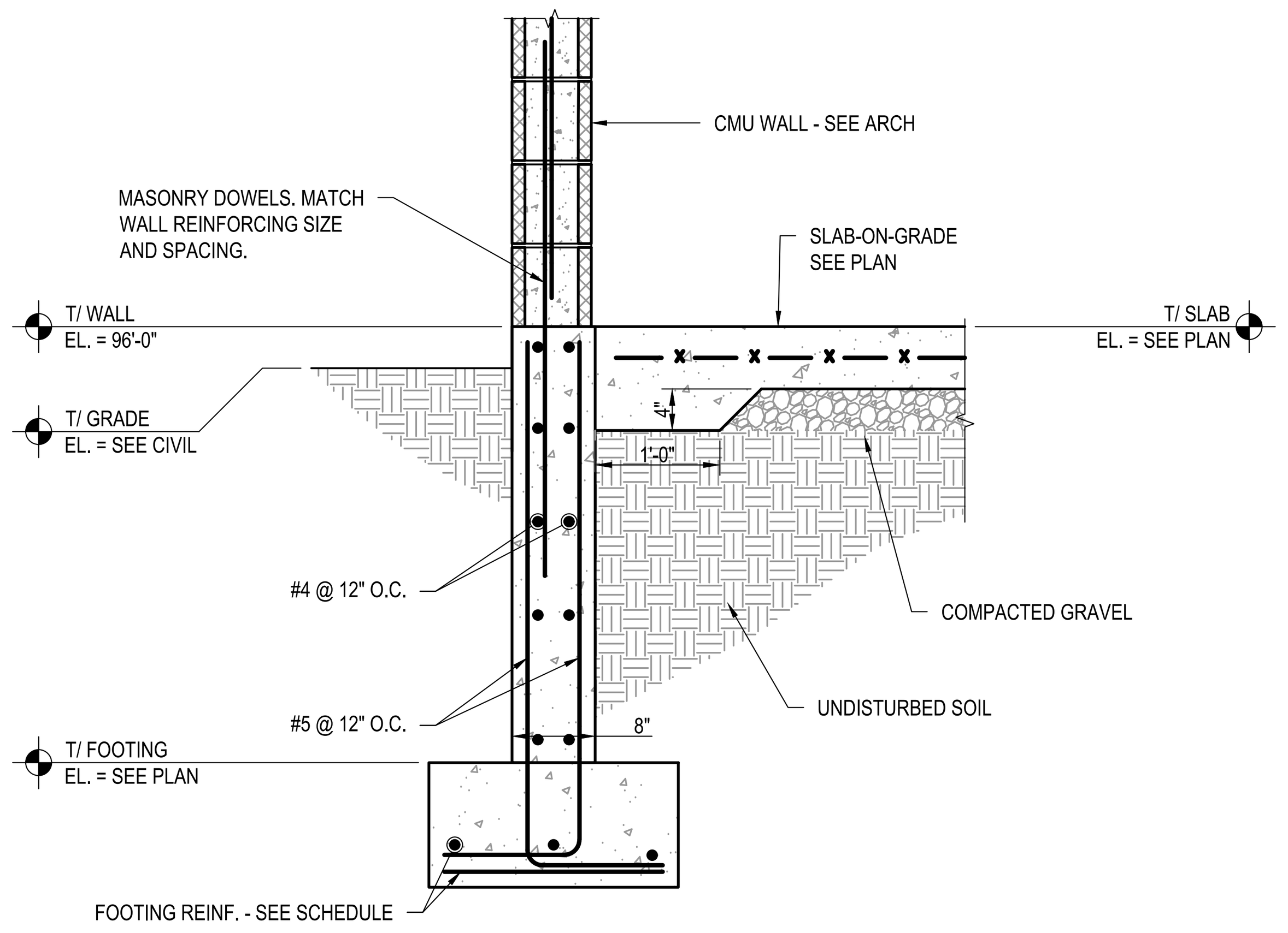
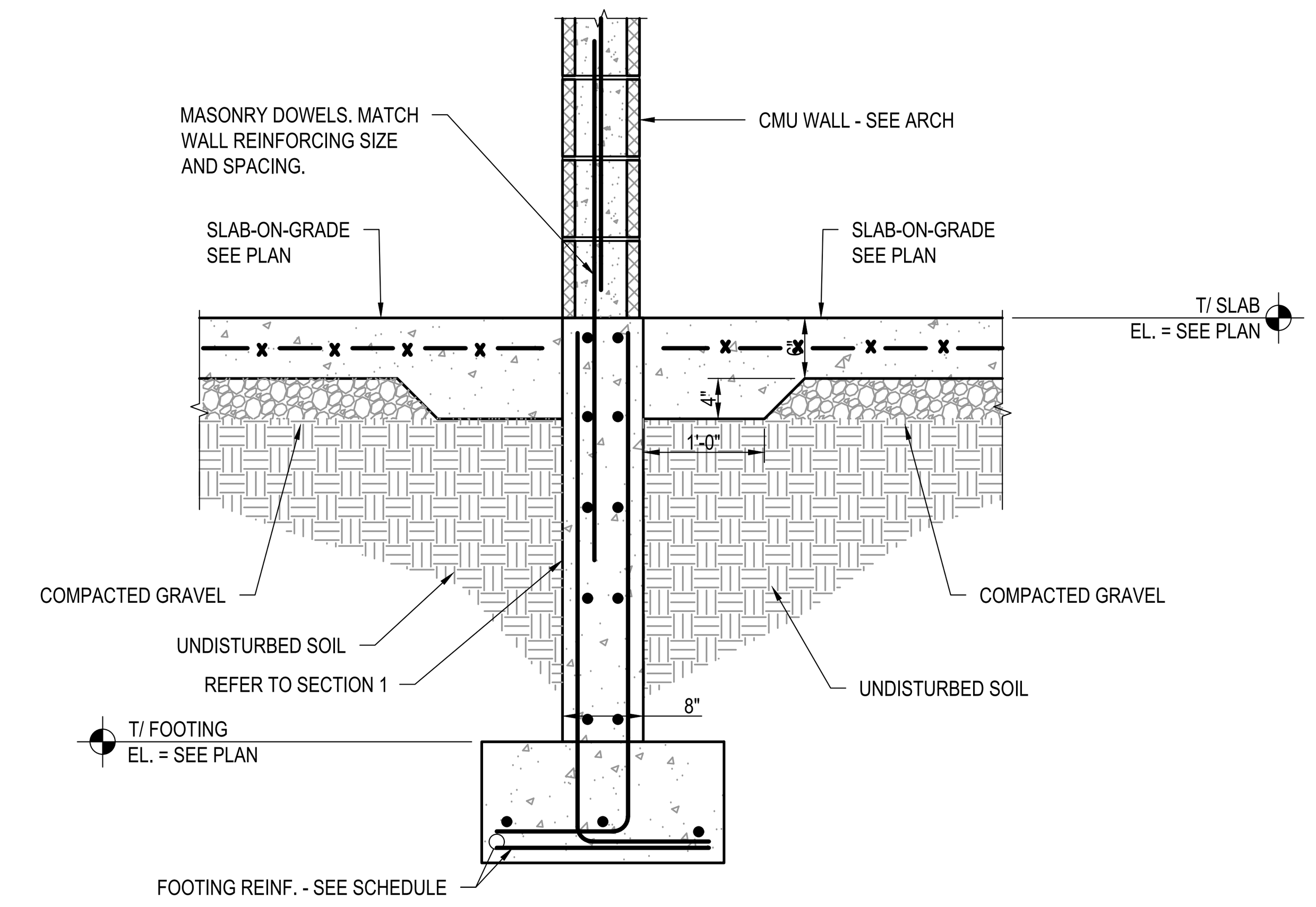


1 SECTION
SCALE: 3/4" = 1'-0"



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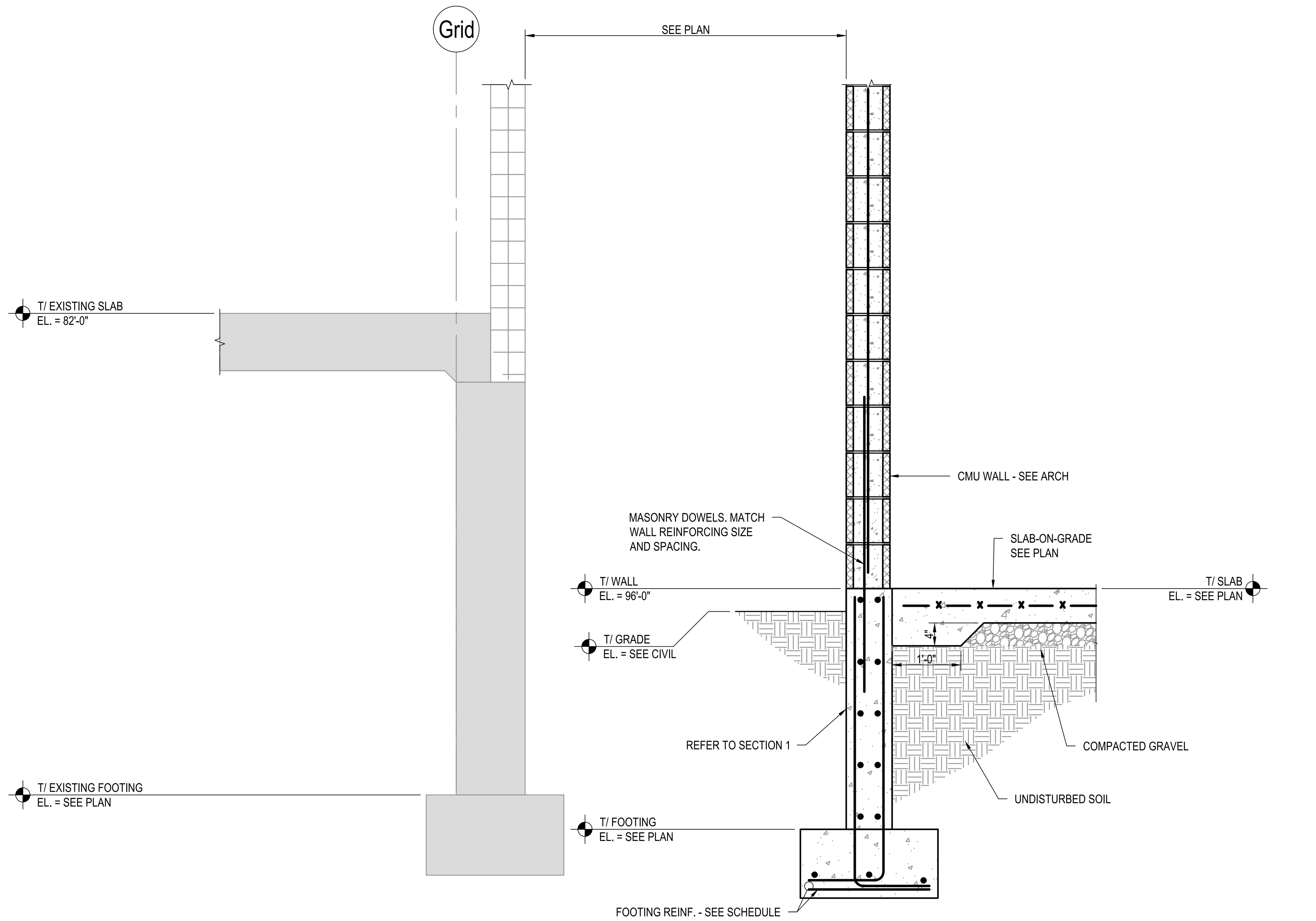
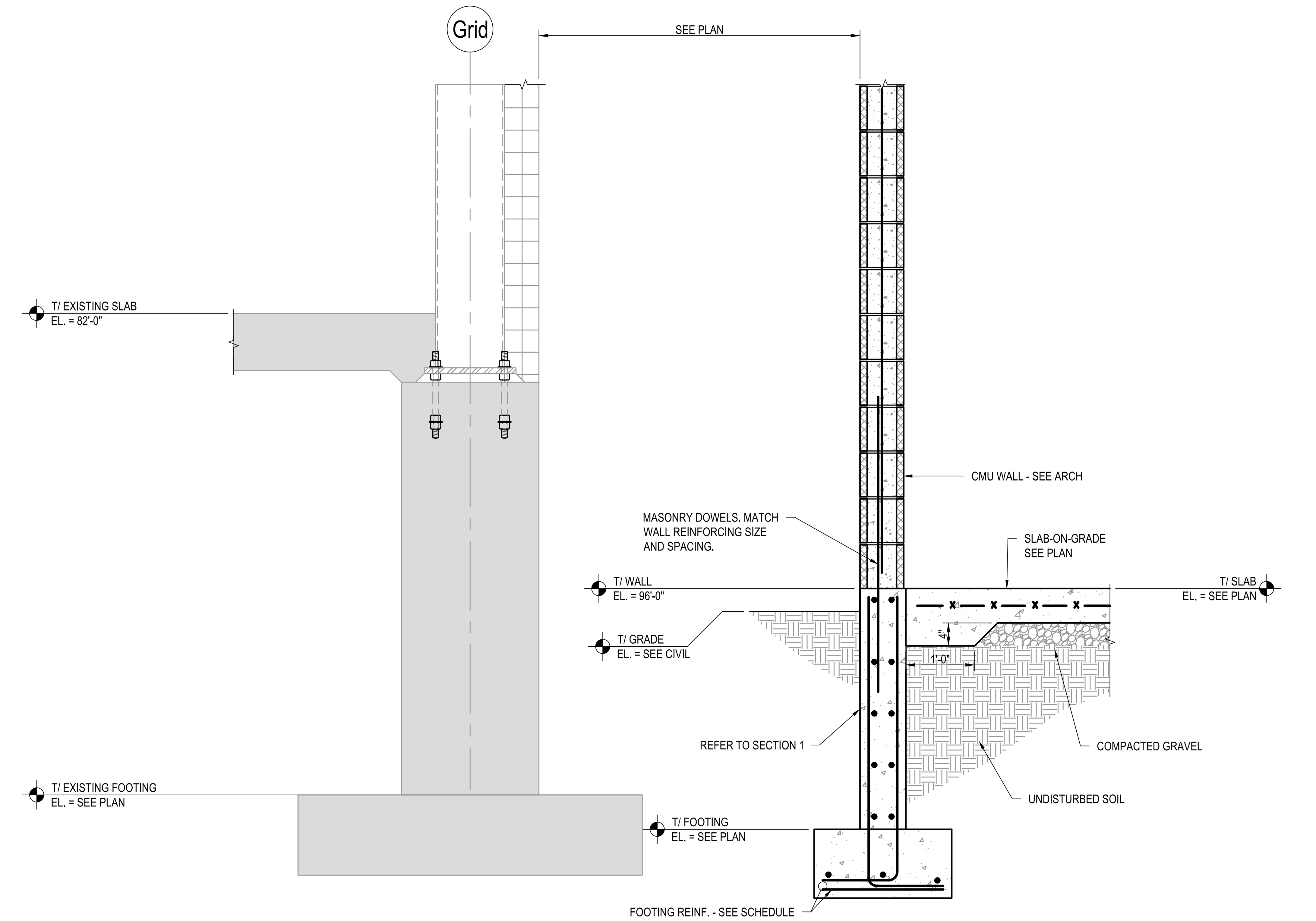


3 SECTION
SCALE: 3/4" = 1'-0"



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

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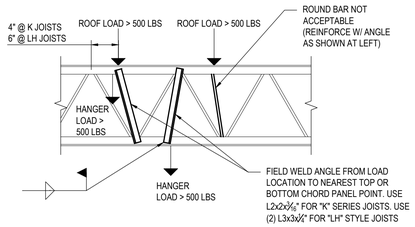
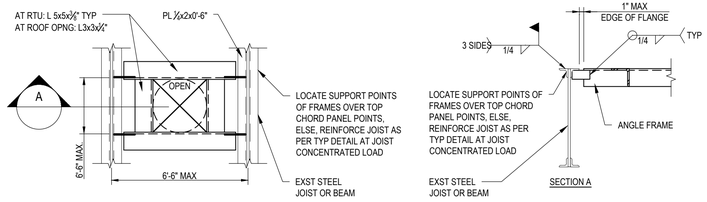


NOTE:

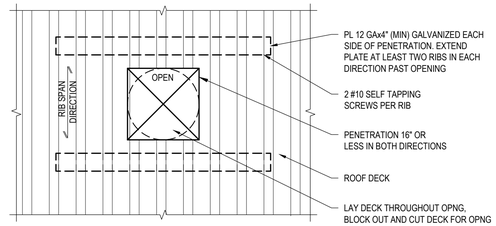
MODIFICATION IS TYP FOR ALL JOISTS SUPPORTING LOAD FROM TOP OR BOTTOM CHORD BETWEEN PANEL PTS VERIFY LOC & NO OF LOADS W/ ARCH, MEP DWGS.

TYPICAL DETAIL AT JOIST CONCENTRATED LOADS

A — SCALE: NTS — S-STEEL-001



AT RTU & ROOF OPENING GREATER THAN 1' - 4" IN SIZE



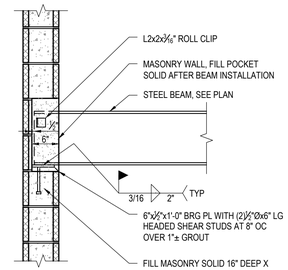
ROOF OPENING DETAIL 6" TO 1' - 4"

NOTE:

SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF ALL ROOF PENETRATIONS. REINFORCING NOT REQUIRED FOR OPENINGS LESS THAN 6". DO NOT SCALE OPENINGS.

TYPICAL RTU SUPPORT/ROOF OPENING FRAMING DETAIL

B — SCALE: NTS — S-STEEL-003



TYPICAL STEEL BEAM BEARING ON CMU DETAIL

C — SCALE: NTS — S-STEEL-007

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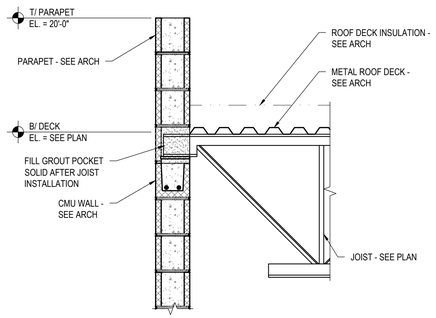

1 SECTION

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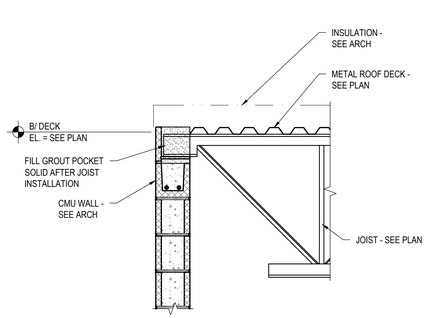
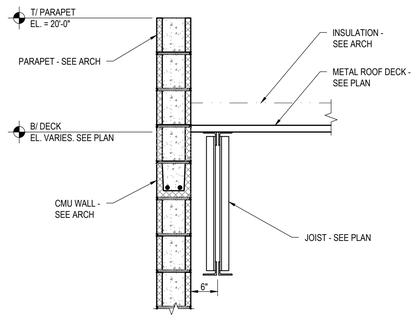


2 SECTION

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



3 SECTION

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

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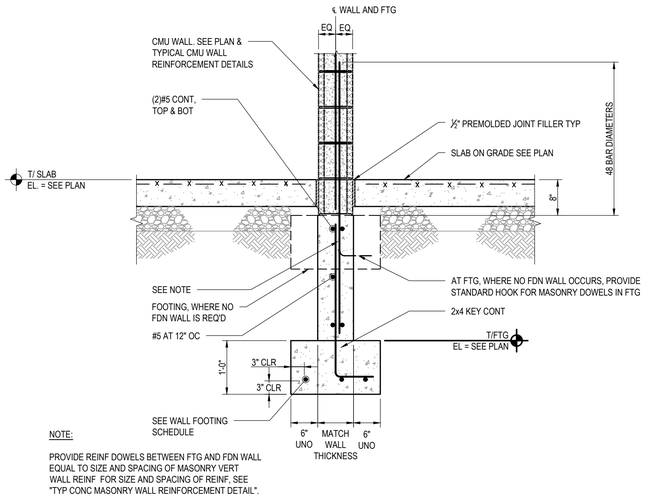


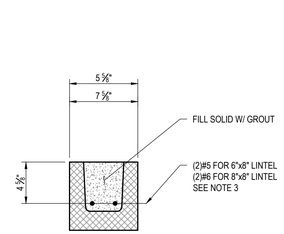
NOTE:

PROVIDE REINF DOWELS BETWEEN FTG AND FDN WALL EQUAL TO SIZE AND SPACING OF MASONRY VERT WALL REINF FOR SIZE AND SPACING OF REINF, SEE "TYP CONC MASONRY WALL REINFORCEMENT DETAIL".

A TYPICAL FOUNDATION WALL DETAIL AT CMU SHEAR WALL

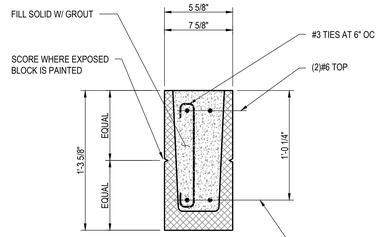
SCALE: NTS

S-MASONRY-001



6"x8" AND 8"x8" LINTEL

FOR MO TO 8'-8"
8" BEARING (MIN) EACH END
SEE LINTEL NOTES



6"x16" AND 8"x16" LINTEL

FOR MO TO 10'-8"
12" BEARING (MIN) EACH END
SEE LINTEL NOTES

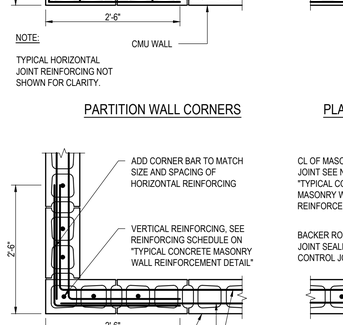
NOTES:

1. AT EACH SIDE OF WALL OPENINGS, PROVIDE VERT REINF FULL HEIGHT AS PER "TYPICAL CONCRETE MASONRY WALL REINFORCEMENT DETAIL"
2. SEE MASONRY GENERAL NOTES FOR INFO REGARDING MASONRY LINTELS NOT SHOWN ON STRUCTURAL PLANS AND INFO. REGARDING TEMPORARY SUPPORT.
3. EXTEND REINFORCING BARS PAST OPENINGS AS PER "TYPICAL CONCRETE MASONRY WALL REINFORCEMENT DETAIL".

B TYPICAL MASONRY LINTELS IN NON-LOAD BEARING WALLS DETAILS

SCALE: NTS

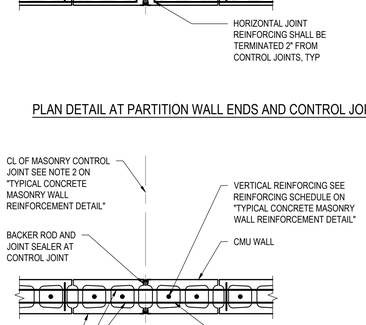
S-MASONRY-004



NOTE:

TYPICAL HORIZONTAL JOINT REINFORCING NOT SHOWN FOR CLARITY.

PARTITION WALL CORNERS



PLAN DETAIL AT PARTITION WALL ENDS AND CONTROL JOINTS

SHEAR WALL CORNERS

PLAN DETAIL AT SHEAR WALL ENDS AND CONTROL JOINTS

NOTE:

1. SEE ARCH DWGS FOR LOCATIONS OF CONTROL JOINTS. DO NOT LOCATE CONTROL JOINTS WITHIN 32" OF MASONRY OPNGS

C TYPICAL MASONRY WALL PLAN DETAILS

SCALE: NTS

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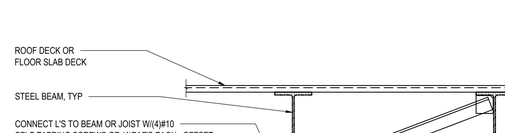

NOTE "A": 12 GA ANGLE 1'-0" LG AT 2'-8" OC EACH SIDE OF WALL STAGGERED AT 1'-4" OC CONNECT TO DECK FLUTES W/(6)- FASTENERS PER ANGLE (No10 SELF-TAPPING SCREWS TO ROOF DECK OR 0.177"Ø PAF'S TO CONC FLOOR AND DECK).

CMU WALL AT UNDERSIDE OF DECK

SEE NOTES BELOW

CMU WALL AT STEEL BEAM OR JOIST

NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR SIZE, LENGTH, AND LOCATION OF INTERIOR CMU PARTITION WALLS.
2. BRACING AT TOP OF WALL IS NOT REQUIRED BETWEEN INTERSECTING CMU WALLS SPACED LESS THAN 10 FEET FOR 4" WALL, 14 FEET FOR 6" WALLS, 17 FEET FOR 8" WALLS, AND 21 FEET FOR 12" WALLS.

D TYPICAL BRACING DETAIL AT TOP OF PARTITION WALL

SCALE: NTS

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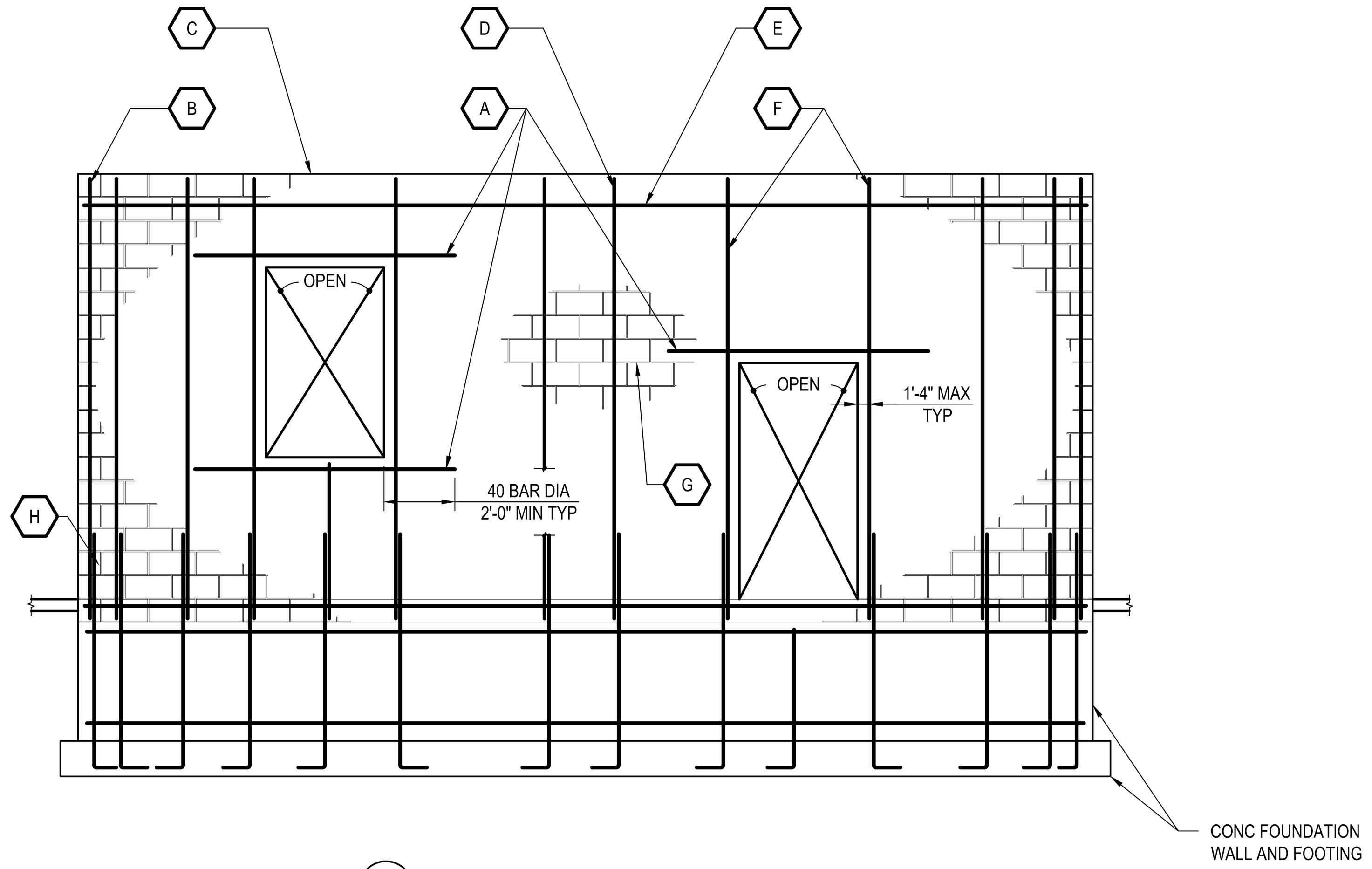
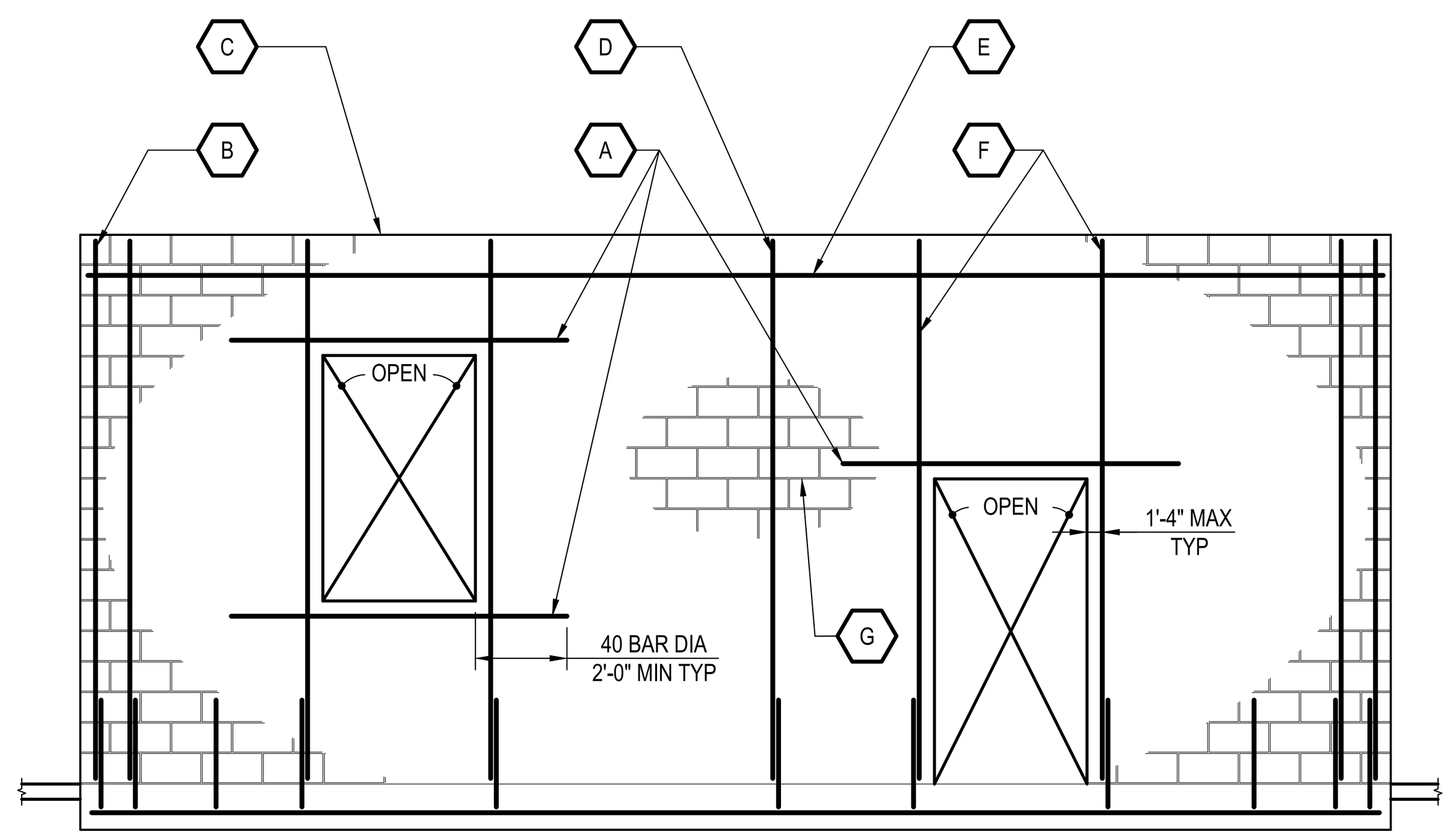
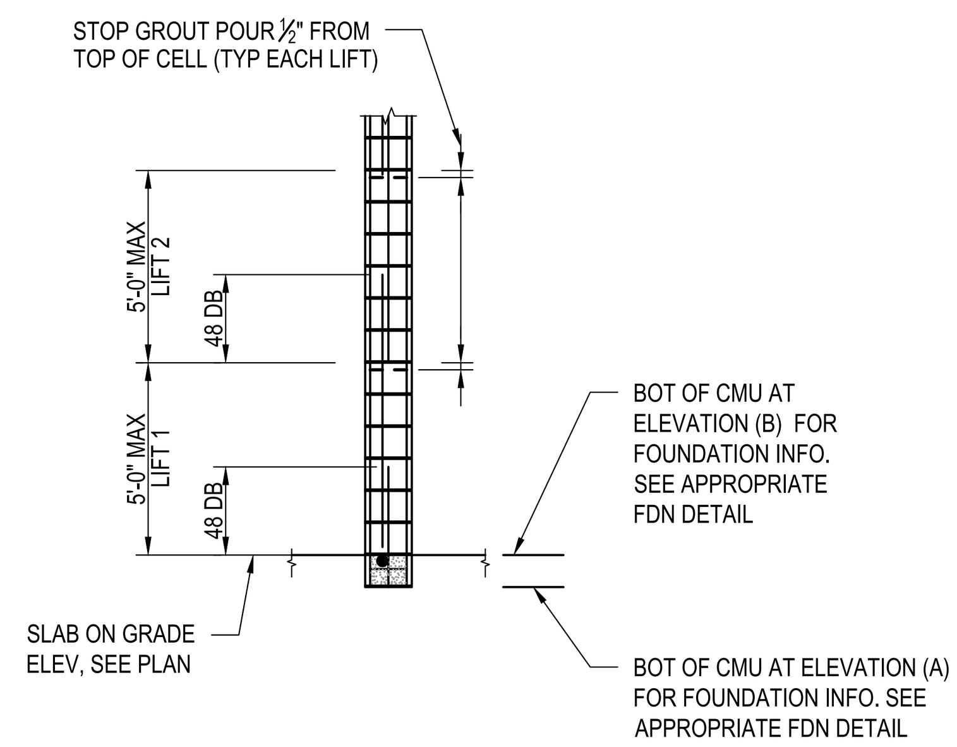


A ELEVATION AT SHEAR WALLS



B ELEVATION AT PARTITION WALLS & EXTERIOR VENEER WALLS



SECTION - LOW LIFT WALL GROUTING DETAIL

FOR ADDITIONAL GROUTING REQUIREMENTS, SEE MASONRY NOTES

KEYNOTES

A	(2)#4 HORIZ REINF GROUTED SOLID IN BOND BEAM COURSE TYP, ABOVE AND BELOW ALL OPENINGS. FOR HORIZONTAL REINFORCING IN MASONRY LINTELS SEE "TYPICAL MASONRY LINTEL IN NON-LOAD BEARING WALL DETAIL"
B	VERT FULL HEIGHT REINF IN SOLID GROUT, TYP, AT WALL ENDS, CORNERS, AND EACH SIDE OF CJ'S, SEE REINFORCEMENT SCHEDULE.
C	CMU WALL. FOR SIZE, SEE PLANS AND REINFORCEMENT SCHEDULE.
D	TYP, VERTICAL REINF, SEE REINFORCEMENT SCHEDULE (UNO BY SECTION). FILL CELLS CONTAINING REINF SOLID W/ GROUT.
E	(2)#4 HORIZ REINF AT TOP OF WALL GROUTED SOLID IN BOND BEAM COURSE. PLACE REINF ONE COURSE LOWER WHERE WALL ABUTS FLOOR ABOVE.
F	VERT FULL HEIGHT REINF IN SOLID GROUT, TYP, AT BOTH SIDES OF ALL WALL OPENINGS, SEE REINFORCEMENT SCHEDULE.
G	HORIZ JOINT REINF, SEE GENERAL NOTES.
H	PROVIDE REINFORCING DOWELS BETWEEN FDN AND MASONRY WALL EQUAL TO SIZE AND SPACING OF MASONRY VERT WALL REINFORCING (MAX SPACING = 4'-0" OC). REINFORCING DOWELS SHALL EXTEND INTO MASONRY WALLS AND SHALL BE LAPPED 48 BAR DIAMETER

REINFORCEMENT SCHEDULE

WALL DESCRIPTION	WALL ELEVATION TYPE	VERTICAL REINFORCEMENT
8" CMU EXTERIOR SHEARWALLS	A	D - #5 AT 32" OC B - (2)#5 AT 8" OC F - (2)#5 AT 8" OC
8" CMU INTERIOR PARTITION WALLS	A	D - #4 AT 120" OC B - (1)#4 F - (1)#4

REMARKS:
1. SEE WALL ELEVATIONS A AND B FOR PLACEMENT OF REINF AND ADDITIONAL REQUIREMENTS
2. ALL WALLS SHALL HAVE HORIZ JOINT REINFORCEMENT AS PER MASONRY NOTES

NOTES:

1. FOR CMU WALL LOCATIONS AND EXTENT, SEE ARCH DWGS.
2. SEE ARCH DWGS FOR LOCATIONS OF CONTROL JOINTS. DO NOT LOCATE CONTROL JOINTS WITHIN 32" OF MASONRY OPENINGS.
3. ALL CMU CELLS CONTAINING VERTICAL REINFORCEMENT SHALL BE GROUTED SOLID. ALL GROUTED CELLS SHALL BE MECHANICALLY VIBRATED IN ACCORDANCE WITH ACI 530. IN ADDITION, AFTER 10 MINUTES, MECHANICALLY VIBRATE GROUTED CELLS A SECOND TIME.
4. BOND BEAM AT SLOPING STEEL BEAMS/ROOFS/CEILINGS: ELEVATION OF CONTINUOUS BOND BEAM MUST VARY WITH SLOPING STEEL BEAM/ROOF/CEILING. WHERE BOND BEAM CHANGES COURSES, RUN BOND BEAM IN BOTH COURSES FOR A MINIMUM OF 6'-0"

A TYPICAL CONCRETE MASONRY WALL REINFORCEMENT DETAIL

SCALE: NTS

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PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. CONSTRUCTION DRAWINGS, SPECIFICATIONS AND PROVISIONS OF THE CONTRACT INCLUDING GENERAL AND SUPPLEMENTAL CONDITIONS AND OTHER DIVISION 1 SPECIFICATION SECTIONS, ARE HEREBY MADE A PART OF THIS SECTION AS FULLY AND COMPLETELY AS IF REPEATED HEREIN.

1.02 ITEMS REQUIRED BUT NOT SPECIFIED

A. IF AN ITEM OR MATERIAL OF THIS TRADE IS INDICATED ON THE DRAWINGS BUT NOT SPECIFICALLY LISTED IN THIS SECTION, PROVIDE SUCH ITEM OR MATERIAL AT A STANDARD OF QUALITY EQUAL TO THE STANDARD ESTABLISHED FOR THE BALANCE OF THE WORK SPECIFIED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.03 EXECUTION, CORRELATION AND INTENT

A. IN CASE OF AN INCONSISTENCY BETWEEN DRAWINGS AND SPECIFICATIONS, OR WITHIN EITHER DOCUMENT NOT CLARIFIED BY ADDENDUM, THE BETTER QUALITY OR GREATER QUANTITY OF WORK IS TO BE PROVIDED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.04 DESCRIPTION

A. BASIC SPECIFICATION: PERFORM WORK OF THIS SECTION ACCORDING TO ACI 301-99, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", EXCEPT AS SPECIFICALLY MODIFIED HEREIN. NUMBERS IN PARENTHESES (0.00) INDICATE A RELATED PARAGRAPH OF ACI 301.

B. WORK INCLUDED: ALL CAST-IN-PLACE CONCRETE FOUNDATION WORK SHOWN ON THE DRAWINGS AND REQUIRED BY THESE SPECIFICATIONS. ALLOW FOR THE INSTALLATION OF CAST-IN ITEMS FURNISHED UNDER OTHER SECTIONS.
1. CONCRETE COLUMN AND WALL FOOTINGS, INCLUDING EXCAVATION.
2. CONCRETE COLUMN PIERS AND FOUNDATION WALLS, INCLUDING EXCAVATION AND COMPACTED BACKFILL.
3. INSTALLING EMBEDDED ITEMS, ADHESIVE TYPE COLUMN ANCHOR BOLTS, PROVIDED BY OTHERS.
4. GROUTING OF COLUMN BASE PLATES.
5. COATING PORTION OF STRUCTURAL STEEL COLUMNS AND BASE PLATES BELOW FLOOR WITH BITUMINOUS COATING.
6. GRADING WORK ASSOCIATED WITH FOUNDATION EXCAVATIONS TO BRING ADJACENT AREAS INTO COMPLIANCE WITH SUBGRADE CONSTRUCTION TOLERANCE.
7. FOUNDAITON INSULATION.

C. WORK NOT INCLUDED:
1. INTERIOR SLABS ON GRADE & SLABS ON METAL DECK (SPECIFIED IN 033100).
2. FIELD INSPECTION AND TESTING SERVICES.

D. COOPERATE WITH OTHER TRADES WHO WILL PROVIDE AND INSTALL ITEMS OF WORK (SLEEVES, PIPING, CONDUIT, INSERTS, ETC.) TO BE CAST IN THE CONCRETE. PLACE NO CONCRETE UNTIL ALL SUCH ITEMS ARE IN PLACE.

E. INSPECTION AND TESTING SERVICES REQUIRED BY THIS SECTION TO ESTABLISH MIX DESIGNS ARE TO BE PERFORMED BY AN AGENCY RETAINED BY THE CONTRACTOR (1.6.3). INSPECTION AND TESTING SERVICES REQUIRED BY THIS SECTION FOR ALL FIELD SAMPLING AND TESTING REQUIRED ARE TO BE PERFORMED BY AN AGENCY RETAINED BY THE OWNER/CONSTRUCTION MANAGER (1.6.4).

1.05 QUALITY ASSURANCE

A. REFERENCE STANDARDS: COMPLY WITH THE FOLLOWING ACI PUBLICATIONS EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE SHOWN OR SPECIFIED:
1. ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE.
2. ACI 318, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.

1.06 SUBMITTALS

A. SUBMIT A MIX DESIGN FOR EACH CLASS OF CONCRETE REQUIRED (1.6.3). CONCRETE PROPORTIONS SHALL BE ESTABLISHED ON THE BASIS OF PREVIOUS FIELD EXPERIENCE OR TRIAL MIXTURES (4.2.3).

B. SUBMIT SHOP DRAWINGS FOR ALL REINFORCING. INDICATE STRENGTH, SIZE, AND DETAILS OF ALL BAR REINFORCING, AND STYLE AND SPECIFICATION OF ALL WELDED WIRE FABRIC (3.1.1).

C. SUBMIT PRODUCT LITERATURE FOR ADMIXTURES AND CURING COMPOUNDS PROPOSED FOR USE.

D. SUBMIT REPORTS OF ALL REQUIRED TESTING AND INSPECTION.

1.07 FIELD REFERENCE MANUALS

A. PROVIDE AT LEAST ONE COPY OF THE ACI FIELD REFERENCE MANUAL, SP-15, AND ONE COPY OF CRSI'S "PLACING REINFORCING BARS", IN THE FIELD OFFICE AT ALL TIMES (1.4.3).

PART 2 - PRODUCTS

2.01 MATERIALS

A. CEMENT (4.2.1.1): PORTLAND CEMENT, ASTM C150, TYPE I. TYPE II OR III (HIGH EARLY STRENGTH) MAY BE USED WITH WRITTEN APPROVAL AND AT THE CONTRACTOR'S EXPENSE. ALL CEMENT FOR CONCRETE EXPOSED TO VIEW TO BE FROM THE SAME MILL.

B. WATER: POTABLE.

C. AGGREGATES: ASTM C33, (4.2.1.2). USE SIZE NO. 57 FOR ALL CLASSES.

D. ADMIXTURES (WHERE REQUIRED OR PERMITTED):
1. WATER-REDUCING: ASTM C494, TYPE A OR D (4.2.1.4).
2. MID-RANGE WATER-REDUCING ADMIXTURE: ASTM C494, TYPE A (4.2.1.4).
3. AIR-ENTRAINING: ASTM C260.
4. HIGH-RANGE WATER-REDUCING ADMIXTURE (SUPERPLASTICIZER): ASTM C494, TYPE F OR G (4.2.1.4).
5. NON-CHLORIDE, NON-CORROSIVE ACCELERATOR: ASTM C494, TYPE C OR E (4.2.1.4).
6. CALCIUM CHLORIDE IS NOT PERMITTED (4.2.2.6).
7. USE OF ADMIXTURES OTHER THAN THOSE LISTED WILL BE PERMITTED ONLY WHEN APPROVED PRIOR TO BID.

E. REINFORCING (3.2.1):
1. RECYCLED CONTENT OF STEEL PRODUCTS: PROVIDE PRODUCTS WITH AN AVERAGE RECYCLED CONTENT OF STEEL PRODUCTS SO POSTCONSUMER RECYCLED CONTENT PLUS ONE-HALF OF PRECONSUMER RECYCLED CONTENT IS NOT LESS THAN 25 PERCENT
2. DEFORMED BARS: ASTM A615, A616, A617, OR A706. MINIMUM YIELD STRENGTH TO BE 60 KSI.

F. PERIMETER INSULATION: POLYSTYRENE RIGID BOARD INSULATION BY DOW CHEMICAL FORMS THE BASIS OF DESIGN. COMPARABLE MATERIALS BY OWENS CORNING AND TENNECO ARE ACCEPTABLE:
1. RIGID INSULATION: "STYROFOAM SQUARE EGE (SE)"
2. THERMAL VALUE: R = 5.0 PER INCH.
3. COMPRESSIVE STRENGTH: 25 PSI MINIMUM.
4. THICKNESS: 2 INCHES UNLESS NOTED.
5. COMPLIANCE: ASTM C-578, TYPE IV.

G. BELOW GRADE BITUMINOUS COATING ON STRUCTURAL STEEL:
1. SSPC PAINTING SYSTEM 9.01, COLD APPLIED ASPHALT MASTIC.

2.02 MIXES

THE FOLLOWING CLASSES OF CONCRETE ARE REQUIRED (4.2.2.8):

TYPE	F'c(28 DAY)	WEIGHT	MAX. WATER CEMENT RATIO	AIR CONTENT
CLASS I FOUNDATIONS, INTERIOR WALLS, INTERIOR PIERS, MUD SLABS	3000 PSI	NORMAL	0.45	-
CLASS II EXPOSED FOUNDATION, WALLS, PIERS, AND ALL OTHER EXTERIOR CONCRETE	4,500 PSI	NORMAL	0.40	5 - 7% MAX.
CLASS III WALL CURBING	4,000 PSI	NORMAL	0.38	5 -7% MAX.
CLASS IV LEAN	1500 PSI		-	OPTIONAL
CLASS V INTERIOR SLABS ON GRADE	(SEE SPECIFICATION 033100)			
CLASS VI INTERIOR SLABS ON DECK	(SEE SPECIFICATION 033100)			
CLASS VII STAIR PAN FILL	3500 PSI	NORMAL	-	-

1. SLUMP: 5" MAXIMUM, EXCEPT FOR CLASS III SLUMP SHALL NOT EXCEED 2". IF A SUPERPLASTICIZER IS USED, INITIAL SLUMP TO BE 2" TO 3", INCREASED TO 8" MAXIMUM AFTER ADDITION (AT THE JOB SITE) OF THE SUPERPLASTICIZER.
2. MIXES TO BE PUMPED ARE TO BE SO IDENTIFIED ON THE MIX DESIGN SUBMITTAL. ALL PUMPED MIXES AND CLASS III ARE TO HAVE A MID-RANGE OR HIGH-RANGE WATER REDUCER.
3. ALL ADMIXTURES (OTHER THAN SUPERPLASTICIZER) ARE TO BE ADDED AT THE BATCH PLANT. SUPERPLASTICIZERS, DESIGNED FOR ADDITION TO THE MIX AT THE PLANT, MAY BE ADDED AT THE BATCH PLANT WITH VERIFICATION FROM THE STRUCTURAL ENGINEER AND VERIFICATION THAT THE WATER-TO-CEMENT RATIO HAS NOT BEEN EXCEEDED..
4. CLASS III AND VII SHALL HAVE MAXIMUM 3/8" AGGREGATE (#8) SIZE

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. VERIFY THAT FOOTING EXCAVATIONS ARE FREE OF WATER AND ICE, ARE OF THE REQUIRED DIMENSIONS, AND HAVE BEEN APPROVED BY THE SOILS ENGINEER, PRIOR TO PLACING CONCRETE (5.3.1).

B. DETERMINE FIELD CONDITIONS BY ACTUAL MEASUREMENT.

C. NOTIFY ENGINEER AND TESTING LABORATORY NOT LESS THAN 24 HOURS IN ADVANCE OF PLACING CONCRETE. PLACE CONCRETE ONLY WHEN TESTING LABORATORY PERSONNEL ARE PRESENT, UNLESS THIS REQUIREMENT IS SPECIFICALLY WAIVED IN WRITING BY THE OWNER.

3.02 FORMWORK

A. FOOTINGS MAY BE CAST AGAINST EARTH CUTS WHEN SOIL CONDITIONS PERMIT.

B. REMOVAL OF FORMS AND SHORING:
1. REMOVE NO FORMS WITHIN 24 HOURS AFTER PLACEMENT.
2. SHORING IS TO REMAIN IN PLACE UNTIL CONCRETE REACHES ITS DESIGN STRENGTH. WINDSOR PENETROMETER IS TO BE USED TO VERIFY IN-PLACE STRENGTH IF FORMS ARE REMOVED PRIOR TO 28 DAYS AFTER CASTING CONCRETE.

C. CHAMFER EXPOSED CORNERS AND EDGES OF PERMANENTLY EXPOSED CONCRETE, UNLESS NOTED OTHERWISE.

3.03 JOINTING

A. EXPOSED CONCRETE FOUNDATION WALLS:
1. LOCATE CONTROL (CONTRACTION) JOINTS IN THE EXPOSED FACE OF FOUNDATION WALLS, AS SHOWN ON THE DRAWINGS. IN THE ABSENCE OF INFORMATION ON DRAWINGS, LOCATE AT A MAXIMUM SPACING OF 20'-0

3.04 FINISHES

A. CAST-IN-PLACE CONCRETE WALLS SHALL HAVE A SMOOTH FORM FINISH (5.3.3.3.B).
1. CLASS A, 1/8 INCH FOR SMOOTH-FORMED FINISHED SURFACES, WHERE EXPOSED TO VIEW.
2. CLASS C, 1/2 INCH FOR ROUGH-FORMED FINISHED SURFACES, UNLESS NOTED

3.05 CURING AND PROTECTION

A. TEMPERATURE:
1. WHEN AIR TEMPERATURE DURING PLACEMENT IS LESS THAN 40 DEGREES, OR WILL BE WITHIN 24 HOURS, TEMPERATURE OF CONCRETE AS PLACED IS TO BE BETWEEN 50 AND 70 DEGREES (55 AND 75 DEGREES FOR SECTIONS LESS THAN 12 INCHES THICK) AND A NON-CHLORIDE ACCELERATOR SHALL BE USED. MAINTAIN CONCRETE TEMPERATURE WITHIN THESE LIMITS FOR THE FULL CURING PERIOD OF 7 DAYS. (4.2.2.7 AND 5.3.1.6).
2. WHEN AIR TEMPERATURE DURING PLACEMENT IS GREATER THAN 80 DEGREES, A WATER-REDUCING RETARDER SHALL BE USED.

B. CURING:
1. CURE CONCRETE IN ACCORDANCE WITH 5.3.6.

3.06 FIELD QUALITY CONTROL

A. OBTAIN CONCRETE FOR REQUIRED TESTS AT POINT OF PLACEMENT. IF CONCRETE IS PUMPED, OBTAIN CONCRETE FOR TESTS AT DISCHARGE END. (1.6.4.3)

B. FOR EACH CONCRETE CLASS OTHER THAN LEAN CONCRETE, PERFORM ONE STRENGTH TEST FOR EACH 50 YARDS OR FRACTION THEREOF, FOR ONE DAY PLACEMENT OF UP TO 300 YARDS (1.6.4.2.D). PERFORM ONE STRENGTH TEST FOR EACH 100 YARDS OR FRACTION THEREOF, FOR ONE DAY PLACEMENTS OF GREATER THAN 300 YARDS.

C. DETERMINE SLUMP FOR EACH STRENGTH TEST (1.6.4.3.F).

D. DETERMINE AIR CONTENT FOR EACH STRENGTH TEST OF CLASS II & CLASS III CONCRETE (1.6.4.2.H).

E. DETERMINE CONCRETE TEMPERATURE FOR EACH STRENGTH TEST (1.6.4.2.G).

F. DO NOT PLACE CONCRETE WHEN SLUMP, AIR CONTENT, OR TEMPERATURE VARY FROM ALLOWABLE. .

G. MAINTAIN RECORDS OF ALL TESTS, INDICATING EXACT LOCATION OF THE STRUCTURE REPRESENTED BY EACH TEST.

H. TEST CYLINDERS SHALL BE STORED AT THE JOBSITE FOR THE FIRST 20 HOURS, PLUS OR MINUS 4 HOURS, IN A PROTECTED LOCATION, WITH THE TEMPERATURE MAINTAINED BETWEEN 60 AND 80 DEGREES, OR RESULTS SHALL BE CONSIDERED UNACCEPTABLE.

I. ALL FIELD TESTING AND INSPECTIONS SHALL BE PERFORMED BY AN ACI CONCRETE FIELD TESTING TECHNICIAN GRADE 1, OR EQUIVALENT (16.2).

END OF SECTION

033100 INDUSTRIAL FLOOR SLABS

PART 1 - GENERAL

1.01 ITEMS REQUIRED BUT NOT SPECIFIED

A. IF AN ITEM OR MATERIAL OF THIS TRADE IS INDICATED ON THE DRAWINGS BUT SPECIFICALLY LISTED IN THIS SECTION, PROVIDE SUCH ITEM OR MATERIAL AT A STANDARD OF QUALITY EQUAL TO THE STANDARD ESTABLISHED FOR THE BALANCE OF THE WORK SPECIFIED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.02 EXECUTION, CORRELATION, AND INTENT

A. IN CASE OF AN INCONSISTENCY BETWEEN DRAWINGS AND SPECIFICATIONS, OR WITHIN EITHER DOCUMENT NOT CLARIFIED BY ADDENDUM, THE BETTER QUALITY OR GREATER QUANTITY OF WORK IS TO BE PROVIDED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.03 DESCRIPTION

A. BASIC SPECIFICATION: PERFORM WORK OF THIS SECTION ACCORDING TO ACI 301_10, "SPECIFICATIONS FOR STRUCTURAL CONCRETE", EXCEPT AS SPECIFICALLY MODIFIED HEREIN. NUMBERS IN PARENTHESES (0.00) INDICATE A RELATED PARAGRAPH OF ACI 301.

B. WORK INCLUDED: ALL INTERIOR CAST_IN_PLACE CONCRETE SLABS AS SHOWN ON THE DRAWINGS AND REQUIRED BY THESE SPECIFICATIONS. ALLOW FOR THE INSTALLATION OF CAST_IN ITEMS FURNISHED UNDER OTHER SECTIONS.

C. ALL WORK OF THIS SECTION SHALL BE CONSIDERED A SINGLE SOURCE RESPONSIBILITY, AND SHALL BE WHOLLY PROVIDED AND PERFORMED ONLY BY CONCRETE SUBCONTRACTORS. SINGLE SOURCE RESPONSIBILITY SHALL INCLUDE ACCEPTANCE OF THE SUBGRADE.

D. PROVIDE ASSISTANCE TO THE OWNER'S TESTING LABORATORY TO VERIFY THE ACCURACY OF SUBGRADE PRIOR TO CONCRETE PLACEMENT. SEE SUBGRADE AND FLOOR SLAB THICKNESS TOLERANCE REQUIREMENTS.

E. COOPERATE WITH OTHER TRADES WHO WILL PROVIDE AND INSTALL ITEMS OF WORK (SLEEVES, PIPING, CONDUIT, INSERTS, ETC.) TO BE CAST IN THE CONCRETE. PLACE NO CONCRETE UNTIL ALL SUCH ITEMS ARE IN PLACE.

F. INSPECTION AND TESTING SERVICES REQUIRED TO ESTABLISH MIX DESIGNS ARE TO BE PERFORMED BY AN AGENCY RETAINED BY THE CONTRACTOR (1.6.2). OTHER SERVICES REQUIRED BY THIS SECTION ARE TO BE PERFORMED BY AN AGENCY RETAINED BY THE CONSTRUCTION MANAGER (1.6.3). THE CONTRACTOR SHALL PROVIDE SPACE AND SOURCE OF ELECTRICAL POWER ON THE PROJECT SITE FOR FACILITIES TO BE USED FOR INITIAL CURING OF CONCRETE TEST SPECIMENS AS REQUIRED BY ASTM C31 / C31M (1.6.2.2.D). THE OWNER'S TESTING AGENCY SWILL CONDUCT CONCRETE STRENGTH TESTS DURING CONSTRUCTION BY MAKING AND CURING TEST SPECIMENS IN ACCORDANCE WITH ASTM C39/C39M AND TESTING THEM ACCORDINT TO ASTM C39/C39M (1.6.3.2.E). THE OWNER'S TESTING AGENCY SHALL PROVIDE THE FACILITIES FOR CURING CONCRETE TEST SPECIMENS.

G. RELATED WORK SPECIFIED ELSEWHERE: THE GENERAL PROVISIONS OF THE CONTRACT APPLY TO THE WORK OF THIS SECTION, AS THOUGH REPRODUCED HEREIN. CAREFULLY EXAMINE ALL OTHER SECTIONS AND ALL DRAWINGS FOR RELATED WORK.

1.04 QUALITY ASSURANCE

A. REFERENCE STANDARDS (LATEST EDITION): COMPLY WITH THE FOLLOWING ACI PUBLICATIONS EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE SHOWN OR SPECIFIED:
1. ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE.
2. ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY.
3. SP-66, ACI DETAILING MANUAL
4. ACI 302.1R, GUIDE TO CONCRETE FLOOR AND SLAB CONSTRUCTION
5. ACI 117, SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS AND COMMENTARY.
6. ACI 223R, GUIDE FOR THE USE OF SHRINKAGE-COMPENSATING CONCRETE.
7. "PLACING REINFORCING BARS", CRSI
8. ACI 305.1 SPECIFICATION FOR HOT WEATHER CONCRETING.
9. ACI 306.1 STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING.
10. ACI 308.1 SPECIFICATION FOR CURING CONCRETE
11. LEED REFERENCE GUIDE FOR BUILDING DESIGN AND CONSTRUCTION (LEED V4) US GREEN BUILDING COUNCIL

B. A PRE-CONSTRUCTION MEETING TO ESTABLISH QUALITY CONTROL SHALL BE SCHEDULED BY THE CONSTRUCTION MANAGER, AT LEAST 10 WORKING DAYS PRIOR TO THE SCHEDULED DATE OF CONCRETE PLACEMENT FOR THE FIRST SECTION OF FLOOR SLAB. THE MEETING SHALL BE FOR THE PURPOSE OF REVIEWING, IN DETAIL, THE DESIGN OF CONCRETE MIXES; HOW THE CONCRETE FLOORS WILL BE PLACED, FINISHED, CURED, AND PROTECTED; AND PLACEMENT SCHEDULES. THE CONTRACTOR SHALL INVITE A RESPONSIBLE REPRESENTATIVE OF ALL FIELD PERSONNEL AND MATERIAL SUPPLIERS DIRECTLY INVOLVED WITH THE PLACEMENT AND FINISHING OF THE SLAB TO BE PRESENT SO THAT THEY CAN ESTABLISH A PROCEDURE WHICH WILL ENABLE THEM TO MEET THE FULL INTENT OF THE PROJECT SPECIFICATIONS. ATTENDANCE BY THE CONCRETE SUPPLIER, THE CONCRETE SUBCONTRACTOR, AND THE OWNER'S TESTING LABORATORY IS MANDATORY. THE STRUCTURAL ENGINEER AND ARCHITECT SHOULD ALSO BE PRESENT. IT SHALL BE ASCERTAINED DURING THE MEETING THAT ALL PARTIES ARE FAMILIAR WITH THE REQUIREMENTS APPLICABLE TO THEM, AND ANY POTENTIAL DIFFICULTIES WITH THESE REQUIREMENTS SHALL BE RESOLVED. MINUTES OF THIS MEETING SHALL BE PREPARED BY THE GENERAL CONTRACTOR, AND SUBMITTED WITHIN 3 WORKING DAYS TO ALL PRESENT, AND TO THE CONSTRUCTION MANAGER.

C. INSTALLER QUALIFICATIONS: A QUALIFIED INSTALLER WHO EMPLOYS ON PROJECT PERSONNEL QUALIFIED AS ACI-CERTIFIED FLATWORK TECHNICIAN AND FINISHER AND A SUPERVISOR WHO IS AN ACI-CERTIFIED CONCRETE FLATWORK TECHNICIAN.

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

E. TESTING AGENCY QUALIFICATIONS: AN INDEPENDENT AGENCY, ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, QUALIFIED ACCORDING TO ASTM C 1077 AND ASTM E 329 FOR TESTING INDICATED, AS DOCUMENTED ACCORDING TO ASTM E 548.
1. PERSONNEL CONDUCTING FIELD TESTS SHALL BE QUALIFIED AS ACI CONCRETE FIELD TESTING TECHNICIAN, GRADE 1, ACCORDING TO ACI CP-01 OR AN EQUIVALENT CERTIFICATION PROGRAM.
2. PERSONNEL PERFORMING LABORATORY TESTS SHALL BE ACI-CERTIFIED CONCRETE STRENGTH TESTING TECHNICIAN AND CONCRETE LABORATORY TESTING TECHNICIAN - GRADE I. TESTING AGENCY LABORATORY SUPERVISOR SHALL BE AN ACI-CERTIFIED CONCRETE LABORATORY TESTING TECHNICIAN - GRADE II.

1.05 SUBMITTALS

A. COORDINATE WITH THE CONSTRUCTION MANAGER TO ENSURE THAT THE MIX DESIGNS ARE ESTABLISHED AND SUBMITTED TO THE ENGINEER FOR APPROVAL. ALLOW SUFFICIENT TIME TO ESTABLISH MIX DESIGNS, SO AS NOT TO UNDULY AFFECT THE SCHEDULE. SUBMIT FOR APPROVAL A MIX DESIGN FOR ALL CLASSES OF CONCRETE (1.6.2). CONCRETE PROPORTIONS SHALL BE ESTABLISHED ON THE BASIS OF PREVIOUS FIELD EXPERIENCE OR TRIAL MIXTURES (4.2.3).

B. SUBMIT SHOP DRAWINGS FOR ALL REINFORCING. INDICATE STRENGTH, SIZE, AND DETAILS OF ALL BAR REINFORCING, AND STYLE AND SPECIFICATION OF ALL WELDED WIRE FABRIC (3.3.1).

C. SUBMIT PRODUCT LITERATURE FOR THE FOLLOWING:
1. ADMIXTURES
2. CURING COMPOUNDS AND SEALERS.
3. JOINT FILLERS
4. VAPOR BARRIER
5. UNDERSLAB INSULATION
6. JOINT DOWELS

D. SUBMIT REPORTS OF ALL REQUIRED TESTING AND INSPECTION.

E. SUBMIT TEST DATA FOR AGGREGATES PROPOSED FOR USE, INCLUDING AGGRGATE GRADATIONS, INDICATING SOURCE AND COMPLIANCE WITH SPECIFICATION REQUIREMENTS. DATE OF TEST TO BE NO MORE THAN 90 DAYS PRIOR TO SUBMITTAL. RESUBMIT IN ADVANCE OF ANY PROPOSED CHANGE IN SOURCE.

F. SUBMIT A PROPOSED SCHEDULE OF POURS AND A DRAWING INDICATING THE PROPOSED SEQUENCE OF FLOOR SLAB PLACEMENT. CONSTRUCTION JOINTS AND CONTROL/CONTRACTION JOINTS SHALL BE INDICATED THEREON.

G. SUBMIT PROPOSED MATERIAL FOR SUBGRADE DRAINAGE FILL AND BASE MATERIALS, INDICATING SOURCE AND GRADATION.

H. CERTIFICATION OF EXPERIENCE: SUBMIT, ON REQUEST ONLY, WRITTEN DESCRIPTION OF PERSONNEL, PROJECTS, AND EQUIPMENT WHICH DOCUMENT THE EXPERIENCE AND QUALIFICATIONS REQUIRED OF THE FLOOR SLAB CONTRACTOR. UPON REQUEST, SUBMIT ACI CERTIFICATES FOR CONCRETE FLATWORK FINISHERS AND/OR SPECIALTY COMMERCIAL/INDUSTRIAL FLATWORK FINISHERS TO VERIFY PERSONNEL QUALIFICATIONS.

1.06 FIELD REFERENCE MANUALS

A. PROVIDE AT LEAST ONE COPY OF THE ACI FIELD REFERENCE MANUAL, SP_15 (1.3.3), AND ONE COPY OF CRSI'S "PLACING REINFORCING BARS", IN THE FIELD OFFICE AT ALL TIMES (1.4.3).

PART 2 - PRODUCTS

2.01 MATERIALS

A. CEMENT (4.2.1.1, 11.2.1.1):
1. PORTLAND CEMENT, ASTM C150, TYPE I OR II. ALL CEMENT TO BE FROM THE SAME MILL. ASTM C150 TYPE III, HIGH EARLY STRENGTH CEMENT SHALL NOT BE USED.
2. EXPANSIVE PORTLAND CEMENT, ASTM C845, TYPE E-1 (K) (10.1.1); OR ASTM C150 TYPE I OR II WITH EXPANSIVE TYPE-K COMPONENT.

B. WATER: POTABLE.

C. AGGREGATES: NORMAL WEIGHT CONFORMING TO ASTM C33. USE A SINGLE SOURCE OF UNIFORM QUALITY THROUGHOUT THE WORK
1. CLASS 5 (INDUSTRIAL) AND 6 (HEAVY INDUSTRIAL) FLOORS: FOR SLABS 5-1/2" THICK OR THICKET, USE SIZE NO 467 COARSE AGGREGATE (1 ½" MAXIMUM SIZE) (11.2.1.2.A). FOR 4" THICK SLABS, USE 1" NOMINAL MAXIMUM COARSE AGGREGATE (NO 57 COARSE AGGREGATE)
   a. THE COMBINED AGGREGATE PARTICLE DISTRIBUTION SHALL BE ANALYZED USING THE "COARSENESS FACTOR CHART' (FIGURE 8.9.2.2) IN ACI 301.1R-15 "GUIDE TO CONCRETE FLOOR AND SLAB CONSTRUCTION". THE COMBINED COARSE AND FINE AGGREGATE CHALL FALL IN ZONE II.
   b. ADJUSTED WORKABILITY FACTOR SHALL BE BETWEEN 32% AND 42%. THE COARSE FACTOR SHALL BE BETWEEN 55% AND 75%.
   c. SUBMIT PROPOSED AGGREGATE GRADATION WITH MIX DESIGN.

D. GROUND GRANULATED BLAST-FURNACE, GGBF, SLAG: ASTM C989 (4.2.1.1.E).

E. FLY ASH: ASTM C618, TYPE C OR F (4.2.1.1.D).

F. ADMIXTURES (WHERE REQUIRED, PERMITTED AND APPROVED BY ENGINEER):
1. WATER_REDUCING ADMIXTURE: THE ADMIXTURE SHALL CONFORM TO ASTM C494, TYPE A (4.2.1.4). THE FOLLOWING ARE ACCEPTABLE:
   a. EUCON WR 75 BY THE EUCLID CHEMICAL CO.
   b. POZZOLITH 80 BY BASF (MASTER BUILDERS)CONST. CHEMICALS
   c. PLASTOCRETE 161 BY SIKA CHEMICAL CORP.
   d. DARACEM 55, 65 BY W.R. GRACE CO.
   e. WRDA SERIES BY W.R. GRACE CO.
2. WATER REDUCING, RETARDING ADMIXTURE: THE ADMIXTURE SHALL CONFORM TO ASTM C_494, TYPE D (4.2.1.4). THE FOLLOWING ARE ACCEPTABLE:
   a. EUCON RETARDER_75 BY EUCLID CHEMICAL CO.
   b. POZZOLITH 100XR BY BASF (MASTER BUILDERS)
   c. PLASTIMENT BY SIKA CHEMICAL CORP.
   d. DARATARD-17 BY W.R. GRACE CO.
3. HIGH RANGE WATER REDUCING ADMIXTURE (SUPERPLASTICIZER): THE ADMIXTURE SHALL CONFORM TO ASTM C_494, TYPE F OR G (4.2.1.4). THE FOLLOWING ARE ACCEPTABLE:
   a. EUCON 37 BY EUCLID CHEMICAL CO.
   b. SIKAMENT 300 BY SIKA CHEMICALS CORP.
   THE FOLLOWING ARE ACCEPTABLE FOR ADDITION TO THE MIX AT THE BATCH PLANT:
   c. DARCEM SERIES BY W.R. GRACE CO.
   d. RHEOBUILD 1000 BY BASF (MASTER BUILDERS)
4. ACCELERATING ADMIXTURES: THE ADMIXTURE SHALL CONFORM TO ASTM C-494 TYPE C OR E (4.2.1.4). THE FOLLOWING ARE ACCEPTABLE:
   a. ACCELGUARD 80 BY EULID CHEMICAL CO.
   b. POZZOLITH, POZZUTEC BY BASF (MASTER BUILDERS)
   c. PLASTOCRETE 161FL, PLATOCRETE 161HE, SIKAST NC, SIKASET BY SIKA CHEMICAL CORP
   d. DARASET SERIES, GILCO, LUBRICON, POLARSET, DCI BY WR GRACE
5. CALCIUM CHLORIDE: CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 0.05% CHLORIDE IONS ARE NOT PERMITTED (4.2.2.5, 11.2.1.3.A).
6. .AIR ENTRAINING ADMIXTURES ARE PROHIBITED IN CONCRETE MIXTURES FOR USE IN SLABS TO RECEIVE A HARD-TROWLED FINISH (11.2.1.3.B)
7. CERTIFICATION: WRITTEN CONFORMANCE TO ABOVE MENTIONED REQUIREMENTS WILL BE REQUIRED FROM THE ADMIXTURE MANUFACTURER PRIOR TO MIX DESIGN REVIEW BY THE ENGINEER.
8. UPON REQUEST ONLY, PROVIDE A QUALIFIED FULL_TIME REPRESENTATIVE TO ASSURE PROPER USE OF ADMIXTURES.
9. USE OF ADMIXTURES OTHER THAN THOSE LISTED WILL BE PERMITTED ONLY WHEN APPROVED PRIOR TO MIX DESIGN APPROVAL.

G. REINFORCING (3.2.1):
1. DEFORMED BARS: ASTM A615 OR A706. MINIMUM YIELD STRENGTH TO BE 60 KSI.
2. WELDED WIRE FABRIC: ASTM A185/A185M. WHERE THIS IS USED, PROVIDE IN SHEET FORM (NOT ROLLS).
3. REINFORCING SUPPORTS ARE REQUIRED FOR ALL REINFORCING IN SLABS ON GRADE. SUPPORTS SHALL BE OF SUFFICIENT QUALITY AND STRENGTH TO HOLD REINFORCEMENT AT THE PROPER ELECATION WHILE PLACING CONCRETE.
4. FIBER REINFORCEMENT: PROVIDE ONE OF THE FOLLOWING WHERE REQUIRED:
   a. FORTA CR - 1 ½ LONG, 1.5#/CY BY FORTA CORP.
   b. FIBERMESH - GRADED SIZE, 1.5#/CY BY FIBERMESH CORP.

H. PREMOLDED EXPANSION JOINT FILLER: ASTM D1751 (2.2.1.4).

I. VAPOR BARRIER/RETARDER (11.2.4): MEMBRANE SHALL MEET THE FOLLOWING PROPERTIES:
1. CONFORM TO ASTM E1745 "STANDARD SPECIFICATION OF PLASTIC WATER VAPOR RETARDERS USED IN CONTACT WITH SOIL OR GRANULAR FILL UNDER CONCRETE SLABS", MEET OR EXCEED CLASS A.
2. MINIMUM THICKNESS OF VAPOR RETARDER SHALL BE 10 MILS.
3. PERMEANCE RATING: ASTM E-96 OR ASTM F1249; 0.01 PERMS OR LESS.
4. SEAM/TRANSITION TAPE: TAP WITH PRESSURE SENSITIVE ADHESIVE OR DOUBLE SIDED ADHESIVE. MINIMUM 4" WIDE. CONSTRUCT PIP BOOTS FROM VAPOR RETARDER MATERIAL AND PRESSURE SENSITIVE TAPE PER MANUFACTURERS RECOMMENDATIONS.
5. WHERE SPECIFIED, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
   a. STEGO WRAP (10 MIL) VAPOR BARRIER; STEGO INDUSTRIES, SAN JUAN CAPISTRANO, CALIFORNIA.
   b. VAPOR GUARD; REEF INDUSTRIES, HOUSTON, TEXAS

J. CONTROL JOINT DOWELS (11.2.6)
1. SMOOTH ROUND DOWELS CUT FROM HOT ROLLED BAR PER ASTM A36 TO WITHIN 3/16" OF SPECIFIED LENGTH.
2. DOWELS SHALL BE SET IN DOWEL BASKETS WITH SIDE FRAME SUPPORTS FABRICATED FROM ¼ DIAMETER COLD DRAWN WIRE
3. DOWELS SHALL BE WELDED ON ONE END, INTO THE SIDE FRAMES.
4. EIGHT GAGE WIRES WILL BE WELDED, ACROSS THE SIDE FRAMES AT APPROXIMATELY 3'-0" O/C TO KEEP THE ASSEMBLY STABLE DURING SHIPPING AND INSTALLATION.
5. THE FINISHED ASSEMBLY SHALL HOLD THE DOWELS STRAIGHT AND LEVEL TO WITHIN 1/8" OF THE MID-DEPTH OF THE SLAB.
6. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, PLATE DOWELS SHALL BE DOUBLE TAPERED STEEL PLATES, PRE ASSEMBLED AND SUPPORTED BY WIRE FRAME TO KEEP THE ASSEMBLY STABLE DURING SHIPPING AND CONSTRUCTION. THE FOLLOW IS ACCEPTABLE:
   a. "DOUBLE TAPERED BASKET" BY SIKA GREENSTREAK.
   b. "PD3 BASKET" BY PNA CONSTRUCTION TECHNOLOGIES.

K. ARMORED CONSTRUCTION JOINT ASSEMBLY
1. PRE-FABRICATED AND ASSEMBLED BARS WITH HEADED STUDS, AND SHIPPING/INSTALLATION ANCHORAGES WHICH WILL PERMIT FREE MOVEMENT OF JOINT AFTER INSTALLATION . THE FOLLOWING IS ACCEPTABLE:
   a. ARMOR-EDGE JOINT ASSEMBLY BY PNA CONSTRUCTION TECHNOLOGIES

L. ARMORED SLAB EDGE ASSEMBLY - NEW-TO-EXISTING SLABS
1. PROVIDE PRE-FABRICATED JOINT ASSEMBLY FOR NEW SLAB CONSTRUCTION ADJOINING EXISTING SLABS WHERE NOTED ON DRAWINGS. PROVIDE THE FOLLOWING, OR APPROVED EQUAL:
   a. "ARMOR-EGE n2e JOINT ASSEMBLY" BY PNA CONSTRUCTION TECHNOLOGIES.

L. CONSTRUCTION JOINT DOWELS (11.2.6)
1. WHEN REQUIRED BY THE CONTRACT DOCUMENTS, USE SMOOTH SQUARE DOWELS PRE-MANUFACTURED WITH A DOWEL SLEEVE COVERING HALF THE DOWL WITH FOAM INSERT ON SIDES OF DOWEL. THE FOLLOWING ARE ACCEPTABLE:
   a. SPEED DOWEL BY SIKA GREENSTREAK.
   b. ROUND DOWEL BASKET BY PNA TECHNOLOGIES.
2. WHEN REQUIRED BY CONTRACT DOCUMENTS, PLATE DOWELS SHALL BE PREFABRICATED FLAT PLATE STEEL DOWELS WITH PRE-ASSEMBLED POCKET FORMER. THE FOLLOWING IS ACCEPTABLE:
   a. DIAMOND DOWEL BY PNA CONSTRUCTION TECHNOLOGIES
   b. SPEED PLATE BY SIKA GREENSTREAK GROUP

M. CONCRETE CURING MATERIALS (11.2.9)
1. MOISTURE_RETAINING COVER FOR MOIST CURE: PROVIDE ONE OF THE FOLLOWING, COMPLYING WITH ASTM C171 FOR CONCRETE FLOORS THAT ARE TO BE EXPOSED OR TO RECEIVE FLOOR SEALER / HARDENER OR URETHANE TOPPING.
   a. WATERPROOF PAPER
   b. POLYETHYLENE FILM
   c. WHITE BURLAP_POLYETHYLENE SHEET
2. CHEMICAL CURING COMPOUND: WATER-BASED, NON SOLIDS, BLEND OF SODIUM, POTASSIUM AND META SILICATES TO CURE CONCRETE, LEAVING CONCRETE SURFACES RESIDUE AND MEMBRANE FREE. THE FOLLOWING ARE ACCEPTABLE:
   a. L&M CURE AS MANUFACTURED BY L&M CONSTRUCTION CHEMICALS, INC.
3. WATER BORNE LIQUID MEMBRANE_FORMING CURING COMPOUND (11.2.9.1): LIQUID TYPE MEMBRANE_FORMING LOW-VOC CURING COMPOUND, COMPLYING WITH ASTM C309, TYPE I, CLASS B, DISSIPATING. IN ACCORDANCE WITH ACI 302.1R-15, "GUIDE TO CONCRETE FLOOR AND SLAB CONSTRUCTION", A LETTER OF COMPATIBILITY WITH APPLIED FINISHES MUST BE ISSUED BY THE COMPOUND MANUFACTURER. COMPOUNDS FOUND TO BE INCOMPATIBLE WITH FINISH SHALL BE ABRASIVELY REMOVED BY APPLICATOR AT NO COST TO THE OWNER OR FINISH TRADE. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE FOLLOWING FOR CONCRETE FLOORS THAT ARE TO RECEIVE APPLIED FINISHED FLOOR MATERIALS, OR APPROVED EQUAL.
   a. KUREZ DR-100 VOX; EUCLID CHEMICAL CO., CLEVELAND, OHIO.
   b. LM CURE R; LM CONSTRUCTION CHEMICALS, OMAHA, NEBRASKA.
4. CURING AND SEALING COMPOUND: THE COMPOUND SHALL CONFORM TO ASTM C309, TYPE 1 OR 1D, CLASS B, 28 PERCENT SOLIDS CONTENT MINIMUM, AND SHALL HAVE TEST DATA FROM AN INDEPENDENT LABORATORY INDICATING A MAXIMUM MOISTURE LOSS OF 0.030 GRAMS PER SQ.CM. WHEN APPLIED AT A COVERAGE RATE OF 300 SQ. FT. PER GALLON. MANUFACTURER'S CERTIFICATION IS REQUIRED. PROVIDE ONE OF THE FOLLOWING, OR APPROVED EQUAL:
   a. SUPER DIAMOND CLEAR VOXBY EUCLID CHEMICAL CO.
   b. KURE-N-SEAL 30 BY SONNEBORN
5. DISSIPATING CURING COMPOUND: THE COMPOUND SHALL CONFORM TO ASTM C309 AND IS TO BE USED ON SLABS THAT ARE TO RECEIVE SUBSEQUENT APPLIED FINISHES AND WHERE NOTED ON THE DRAWINGS. INSTALL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SUPERVISION. VERIFY COMPOUND IS COMPATIBLE WITH THE APPLIED FINISH PRIOR TO PLACEMENT, SUBJECT TO APPROVAL THE FOLLOWING ARE ACCEPTABLE:
   a. KUREZ DR VOX BY EUCLID CHEMICAL
   b. CLEAR SURE J11W BY DAYTON SUPERIOR
   c. DR CURE BY KAUFMAN PRODUCTS
   d. SAFE-CURE CLEAR DR BY CHEMMASTERS

N. BENTONITE WATERSTOP (VOCLAY):
1. WATERSTOP SHALL CONSIST OF SODIUM BENTONITE AND BUTYL RUBBER COMPOUND FORMED INTO FLEXIBLE STRIPS. ADHESIVE MUST BE USED TO ADHERE WATERSTOP TO DRY CONCRETE SURFACE. INSTALL PER MANUFACTURER'S INSTRUCTIONS. PROVIDE THE FOLLOWING:
   a. WATERSTOP-RX102 BY COLLOID ENVIRONMENTAL TECHNOLOGIES (CETGO)

O. FLEXIBLE JOINT FILLER FOR EXPOSED NON-INDUSTRIAL FLOORS: ONE- OR TWO-PART SELF LEVELING POLYURETHANE. THE FOLLOWING AREA ACCEPTABLE:
1. MASTERFILL CJ BY MASTER BUILDERS
2. EULASTIC BY EUCLID CHEMICALS
3. SIKADURE 51 SL BY SIKA CORP.

P. SEMI-RIGID EPOXY JOINT FILLER FOR EXPOSED INDUSTRIAL SLABS: (11.2.7) 100 PERCENT SOLIDS, TWO-COMPONENT POURABLE EPOXY, MINIMUM SHORE HARDNESS OF 80. WHEN MEASURED IN ACCORDANCE WITH ASTM D2240. PROVIDE ONE OF THE FOLLOWING, OR APPROVED EQUAL:
1. EUCO 700 BY EUCLID CHEMICAL CO.
2. BURKEPOXY REFLEX BY BURKE
3. MM-80 BY METGER/MCGUIRE

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A	05.23.2018	TJM	MCF	PLAN COMMISSION REVIEW

GREAT LAKES CHEESE
2200 ENTERPRISE AVENUE
LA CROSSE, WISCONSIN 54603

SPECIFICATIONS

DENNIS GROUP
Plan • Design • Engineer • Build • Start-Up
dennisgroup.com
United States • Canada • Brazil • Portugal

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Q. JOINT FILLER FOR FREEZER FLOORS: 100 PERCENT SOLIDS, TWO-COMPONENT POLYUREA POLYMER LIQUID. THE FOLLOWING, OR APPROVED EQUAL, IS ACCEPTABLE:
1. SPAL-PRO RSF BY METGER/MCGUIRE

R. SUBGRADE DRAINAGE FILL: WASHED, NARROWLY GRADED MIXTURE OF CRUSHED STONE, OR CRUSHED OR UNCRUSHED GRAVEL: ASTM D448; COARSE AGGREGATE GRADING SIZE #57, WITH 100 PERCENT PASSING A 1 INCH SIEVE.

S. SUB-SLAB "CRUSHER-RUN": WIDELY GRADED, ROCK DUST TO 1 ½" MAXIMUM; NCDOT ABC.

T. BITUMINOUS COATING FOR BELOW-GRADE STEEL: COLD-APPLIED ASPHALT MASTIC, SSPC-PS-9.01, COMPOUNDED FOR 15 MIL DRY FILM THICKNESS PER COAT. PROVIDE INERT TYPE, NONCORROSIVE COMPOUND FREE OF ASBESTOS FIBERS, SULFUR COMPONENTS AND OTHER DELETERIOUS IMPURITIES.

U. EPOXY CRACK INJECTION ADHESIVE (REPAIR): ASTM C881, TYPE I, GRADE 1, SOLVENT FREE.
1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
a. SIKADUR 35 HI-MOD LV; SIKA CORP., LYNDHURST, NEW JERSEY.
b. SURE-INJECT (J-56); DAYTON SUPERIOR CORP., OREGON, ILLINOIS.
c. EUCO #352 LV; EUCLID CHEMICAL CO., CLEVELAND, OHIO.

V. SEMI-RIGID POLYUREA JOINT FILLER FOR COOLER AND FREEZER FLOOR SLABS (11.2.7): 100 PERCENT SOLIDS, TWO-COMPONENT POURABLE POLYUREA POLYMER, MINIMUM SHORE HARDNESS "A" OF 80 WHEN MEASURED IN ACCORDANCE WITH ASTM D2240. PROVIDE ONE OF THE FOLLOWING, OR APPROVED EQUAL:
1. SPAL-PRO 2000 BY METZGER/McGUIRE
2. QWIKJOINT 200 BY EUCLID CHEMICAL

W. CHEMICAL DENSIFIER AND SEALER (11.2.10): CLEAR, PENETRATING, WATER-BASED VOC COMPLIANT BLEND OF LITHIUM SILICATES. PRODUCT MUST BE USDA COMPLIANT. PROVIDE THE FOLLOWING OR APPROVED EQUAL:
1. CONSOLIDECK LS BY PROSOCO
2. ULTRASIL LI+ BY EUCLID CHEMICAL
3 LiON HARD BY L&M CONSTRUCTION CHEMICALS

X. CONCRETE BONDING AGENT: ASTM C1059 LATEX-BASED LIQUID BONDING SYSTEMS FOR CONCRETE. THE FOLLOWING ARE ACCEPTABLE:
a. TAMMSWELD BY EUCLID CHEMICAL
b. WELD-CRETE BY LARSEN PRODUCTS
c. EVERWELD BY L&M CONSTRUCTION CHEMICALS
d. INTRALOK BY W.R. MEADOWS

Y. OVERLAYMENT MORTAR: TWO-COMPONENT POLYMER MODIFIED CONCRETE TOPPING MATERIAL. POWDER MATERIAL SHALL BE A CEMENT BASED MIX WITH GRADED SILICA. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, THE FOLLOWING, OR APPROVED EQUAL, IS ACCEPTABLE:
1. PATCHCRETE BY LYONS MANUFACTURING

Z. UNDERSLAB INSULATION - PROVIDE THE FOLLOWING OR APPROVED EQUAL:
1. STYROFOAM HI-60 BY DOW CHEMICAL

AA. BELOW-GRADE STEEL COATING: BRUSH-GRADE, LIQUID APPLIED ASPALTIC DAMPPROOFING, DESIGNED FOR APPLICATION TO BELOW-GRADE METAL SURFACES. PROVIDE THE FOLLOWING, OR APPROVED EQUAL:
1. WEATHERPROOF BY FBC CHEMICAL CORP.

BB. SHAKE-ON HARDENER (11.2.11): BLEND OF MINERAL (NON-METALLIC) AGGREGATES, COMBINED WITH CEMENT. PROVIDE THE FOLLOWING OR APPROVED EQUAL.
1. EMORY TUFF BY DAYTON SUPERIOR
2. SURFLEX TR BY EUCLID CHEMCIAL
3. MASTERTOP 100 (MASTERCRON) BY BASF (MASTER BUILDERS)

2.02 MIXES

THE FOLLOWING CLASSES OF CONCRETE ARE REQUIRED (4.2.2.8):

TYPE	F'C(28 DAY)	WEIGHT	MAXIMUM WATER CEMENTITIOUS MATERIAL RATIO	MAX AIR CONTENT
CLASS V INTERIOR SLABS ON GRADE				
	4,000 PSI	NORMAL	0.52	1.5% MAX.
CLASS VI INTERIOR SLABS ON DECK				
	4,000 PSI	NORMAL	0.52	1.5% MAX

1. SLUMP: MAXIMUM 5". IF A SUPERPLASTICIZER IS USED, INITIAL SLUMP OF THE CONCRETE TO BE 2 TO 3 INCHES, INCREASED TO 8" MAXIMUM AFTER ADDITION (AT THE JOB SITE) OF THE SUPERPLASTICIZER. FOR THE HIGH RANGE WATER REDUCING ADMIXTURE ADDED AT THE BATCH PLANT, VERIFICATION IS TO BE INCLUDED ON THE DELIVERY TICKET WHICH INDICATES THAT THE WATER-TO-CEMENT RATIO AND THE SLUMP REQUIREMENTS HAVE NOT BEEN EXCEEDED.
2. ALL CONCRETE IS TO BE READY_MIXED (4.3.1.1 AND 4.3.1.2). ALL ADMIXTURES ARE TO BE ADDED AT THE BATCH PLANT, EXCEPT FOR SUPERPLASTICIZERS.
3. MIXES INTENDED TO BE PUMPED ARE TO BE SO IDENTIFIED ON THE MIX DESIGN SUBMITTED FOR APPROVAL.
4. FLY ASH OR GROUND-GRANULATED BLAST FURNACE SLAG IS ACCEPTABLE AND SHALL BE INCLUDED IN THE WATER-TO-CEMENTITIOUS RATIO. REPLACEMENT OF CEMENT BY FLY ASH OR SLAG UP TO 20% OF TOTAL CEMENTITIOUS IS ACCEPTABLE. REPLACEMENT OF CEMENT BY A COMBINATION OF FLY ASH AND GROUND-GRANULATED BLAST FURNACE SLAG UP TO 40% OF TOTAL CEMENTITIOUS CONTENT IS ACCEPTABLE.
5. UNAUTHORIZED JOBSITE ADDITION OF WATER IS NOT PERMITTED.

CLASS VII-SC (SHRINKAGE COMPENSATING)
INDUSTRIAL SLABS 4,000 PSI 517 LBS 0.52 1.5% MAX
1. SLUMP: 5 INCHES, PLUS/MINUS 1 INCH. WATER MAY BE WITHHELD FROM BATCH PLANT AND ADDED AT SITE TO OBTAIN SPECIFIED SLUMP. THIS MAXIMUM "TRIM WATER" SHALL BE NOTED ON DELIVERY TICKET. ONLY ONE SLUMP ADJUSTMENT IS PERMITTED FOR EACH TRUCK LOAD, AND ALL WATER MUST BE ADDED WITHIN 15 MINUTES OF THE FIRST ADDITION OF WATER (4.3.2.1).
2. MIXES THAT ARE TO BE PUMPED SHALL CONTAIN THE SPECIFIED HIGH-RANGE WATER REDUCER (SUPERPLASTICIZER)(4.2.2.2).
3. ALL CONCRETE IS TO BE READY_MIXED (4.3.1.1 AND 4.3.1.2). ALL ADMIXTURES ARE TO BE ADDED AT THE BATCH PLANT, EXCEPT FOR SUPERPLASTICIZERS.
4. MIXES INTENDED TO BE PUMPED ARE TO BE SO IDENTIFIED ON THE MIX DESIGN SUBMITTED FOR APPROVAL.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. SUBGRADE CONSTRUCTION TOLERANCE FOR SLABS ON GRADE (11.3.1): THE SLAB CONTRACTOR SHALL BE RESPONSIBLE FOR THE FLATNESS OF THE SUBGRADE BASE CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE A LASER INSTRUMENT AND ONE LABORER TO ASSIST THE OWNER'S TESTING LABORATORY, WHO WILL PERFORM AN AUDIT OF SUBGRADE LEVELNESS PRIOR TO CONCRETE PLACEMENT. TOLERANCE LIMITS FOR BASE CONSTRUCTION SHALL BE +0" (HIGH) TO -3/4" (LOW). SUBGRADE READINGS SHALL BE MADE FOR THE ENTIRE AREA OVER WHICH CONCRETE IS TO BE PLACED, ON A GRID OF 10 FEET BY 10 FEET. ANY PORTION OF THE BASE NOT MEETING THIS REQUIREMENT SHALL BE CORRECTED PRIOR TO CONCRETE PLACEMENT.

B. UPON COMPLETION OF THE SUBGRADE AUDIT, THE CONCRETE SUBCONTRACTOR SHALL SUBMIT CERTIFICATION THAT THE SUBGRADE MEETS THE SPECIFIED TOLERANCES. INCLUDE TEST REPORTS FROM THE OWNER'S INDEPENDENT TESTING LABORATORY. NO CONCRETE PLACEMENT SHALL BE MADE UNTIL THE REQUIRED CERTIFICATION HAS BEEN RECEIVED AND REVIEWED BY THE CONSTRUCTION MANAGER.

C. IF AND WHERE REQUIRED FOR INTERIOR SLABS, PLACE 10 MIL VAPOR RETARDER OVER AREA, WITH 4" LAP AT SECTIONS AND TAPE ALL JOINTS.

D. PLACE A 3 " LEVELED LAYER OF COMPACTED (TO 95% MODIFIED PROCTOR) "CRUSHER RUN" BASE MATERIAL (1-1/2" TO ROCK DUST) FOLLOWED BY A THIN LAYER OF FINES (NO. 10 PER ASTM D448) ON THE SURFACE TO FILL-IN THE OPEN GRADED AREAS TO ACHIEVE A "SMOOTH" BASE. ADD JUST ENOUGH WATER FOR INITIAL COMPACTION IN ORDER TO MAXIMIZE THE "BLOTTING EFFECT" OF THE "CRUSHER RUN".

E. USE THE ASTM D698, METHOD D, TO DETERMINE DENSITY AND USE A NUCLEAR DENSITY TEST DEVICE ASTM D6938 TO DETERMINE COMPLIANCE IN FIELD, BY OWNER'S INDEPENDENT TESTING LABORATORY.

F. VERIFY THAT THE PREPARED BASE, SUBASE, SUBGRADE AND SUBSTRATES ARE FREE OF WATER AND ICE, AND HAVE BEEN APPROVED BY THE SOILS ENGINEER INCLUDING PROOF-ROLLING OF THE PREPARED BASE, PRIOR TO PLACING CONCRETE (5.3.1, 11.3.1).

G. APPROVAL IS REQUIRED FROM THE OWNER'S ENGINEER OR DESIGNATED REPRESENTATIVE ON ALL BELOW SLAB PREPARATORY WORK BEFORE PROCEEDING WITH THE PLACEMENT OF CONCRETE.

H. NOTIFY ARCHITECT/ENGINEER AND TESTING LABORATORY NOT LESS THAN 24 HOURS IN ADVANCE OF PLACING CONCRETE. PLACE CONCRETE ONLY WHEN TESTING LABORATORY PERSONNEL ARE PRESENT, UNLESS THIS REQUIREMENT IS SPECIFICALLY WAIVED IN WRITING BY THE OWNER.

I. LEVEL AREA AND COMPACT SO THAT THE FINISHED SUBGRADE WILL PASS A 95% MODIFIED PROCTOR COMPACTION TEST, UNLESS OTHER PERCENT COMPACTION IS APPROVED BY THE OWNER'S ENGINEER. PLACE A LEVELED LAYER OF COMPACTED (TO 95% MODIFIED PROCTOR) "CRUSHER RUN" APPROVED BASE MATERIAL (1 1/2" TO ROCK DUST) AND IF NEEDED, FOLLOWED BY A THIN LAYER OF FINES (NO. 10 PER ASTM D448) ON THE SURFACE TO FILL-IN THE OPEN GRADED AREAS TO ACHIEVE A "SMOOTH" BASE. ADD JUST ENOUGH WATER FOR INITIAL COMPACTION IN ORDER TO MAXIMIZE THE "BLOTTING EFFECT" OF THE "CRUSHER RUN."

J. RE-WETTING OF BASE IS PERMITTED TO MAINTAIN COMPACTION, BUT SHOULD BE KEPT TO A MINIMUM AND COMPLETED A MINIMUM OF 24 HOURS PRIOR TO SLAB PLACEMENT.

K. RECOMPACTION REQUIRED DURING THE SLAB PLACEMENT SHOULD BE DONE WITH A DRUM ROLLER. VIBRATORY PLATE COMPACTION IS NOT PERMITTED DURING CONCRETE PLACEMENT.

3.02 CONCRETE REINFORCEMENT:

A. INTERIOR: SUPPORT STEEL REINFORCEMENT INCLUDING WELDED WIRE REINFORCEMENT BY USING CONTINUOUS STEEL (OR APPROVED PLASTIC) SLAB BOLSTER UPPERS (SBU) OR UPPER CONTINUOUS STEEL (OR APPROVED PLASTIC) HIGH CHAIRS PLACED EVERY 3'- 0" O.C. WELDED WIRE REINFORCEMENT SHALL NOT BE PLACED ON THE GROUND AND PULLED UP NOR WALKED-IN AFTER CONCRETE PLACEMENT. CONCRETE BLOCK OR OTHER TYPE SUPPORT MATERIALS ARE NOT ACCEPTABLE. TIE WIRE TO BE USED AT EVERY CROSS BAR. BEND LOOSE WIRES DOWN INTO SLAB AREA. SEE DRAWINGS FOR SPECIFIC REQUIREMENTS.

B. NOTE: THE SUPPORT SLAB BOLSTERS OR HIGH CHAIRS SHOULD HAVE ADEQUATE BASE SUPPORT SO THAT WORKMEN STEPPING ON THE RE-BAR DO NOT CAUSE THE SUPPORT STEEL TO SINK INTO THE "CRUSHER RUN" BASE MATERIAL OR TEAR/ PUNCTURE THE VAPOR BARRIER IF INSTALLED.

C. INTERIOR AND/OR EXTERIOR:
1. MARK CONTROL JOINT LOCATION ON SIDE SCREED FORMS IN BOTH DIRECTIONS AND IF DIRECTED BY THE DRAWINGS OR ARCHITECT / ENGINEER CUT EVERY OTHER WIRE MESH OR REINFORCING BAR THAT THE CONTROL JOINT WILL CROSS. (NOTE: REDUCING THE AMOUNT OF STEEL REINFORCEMENT CROSSING THE JOINT FURTHER ENHANCES THE ACTIVITY OF THE FUNCTION OF THE CONTROL JOINTS.)
2. WHEN ROUND, SQUARE OR PLATE DOWEL BASKETS ARE USED, INTERRUPT ALL REINFORCING AND MARK CONTROL JOINT LOCATIONS ON SIDE FORMS IN BOTH DIRECTIONS AND SNAP CHALK LINE ON TOP OF NEWLY PLACED SLAB BETWEEN MARKS TO IDENTIFY FUTURE SAW CUT LOCATIONS.

3.03 DELIVERY, PLACEMENT, AND TOLERANCES DELIVERY:

A. DELIVERY (4.3.2.):
1. CONFORM TO ASTM C94.
2. DELIVERY TICKETS TO CONTAIN THE FOLLOWING, IN ADDITION TO THE INFORMATION REQUIRED BY C94:
a. READING OF REVOLUTION COUNTER AT FIRST ADDITION OF WATER.
b. TYPE AND BRAND OF CEMENT.
c. AMOUNT OF CEMENT.
d. TOTAL WATER CONTENT BY PRODUCER.
e. MAXIMUM SIZE OF AGGREGATE.
f. ADDITIONAL INFORMATION REQUIRED FOR BATCH PLANT ADDED SUPERPLASTIZER.
3. NON_AGITATING TYPE EQUIPMENT IS NOT TO BE USED FOR TRANSPORTATION.
4. WATER MAY NOT BE ADDED AT THE JOB SITE, EXCEPT AS AUTHORIZED BY THE TESTING LABORATORY IN ORDER TO ACHIEVE MINIMUM SLUMP. TESTING LABORATORY PERSONNEL WILL BE DIRECTED TO REJECT ANY CONCRETE TRUCK TO WHICH UNAUTHORIZED WATER HAS BEEN ADDED.
5. UNLESS APPROVED BY THE ARCHITECT/ ENGINEER DISCHARGE CONCRETE WITHIN 1_1/2 HOURS OR 300 REVOLUTIONS, WHICHEVER COMES FIRST, AFTER THE INTRODUCTION OF WATER TO CEMENT AND AGGREGATES, OR THE INTRODUCTION OF CEMENT TO THE AGGREGATES (4.1.2.10, 4.3.2.2). ENGINEER OR TESTING LABORATORY MAY REQUIRE AN EARLIER DISCHARGE DURING HOT WEATHER.

B. PLACEMENT (5.3.2. 5.3.4):
1. UNLESS OTHERWISE SPECIFIED, A MINIMUM OF ONE FINISHER OR FINISHING SUPERVISOR SHALL BE CERTIFIED ACI FLATWORK CONCRETE FINISHER OR ACI SPECIALITY COMMERCIAL / INDUSTRIAL FLATWORK FINISHER OR EQUIVALENT. PLACE CONCRETE WITHIN 6 FEET OF FINAL POSITION. SPREADING WITH VIBRATORS IS PROHIBITED.
2. MAXIMUM FREE FALL SHALL BE 5 FEET.
3. THICKNESS TOLERANCE:
a. CONCRETE THICKNESS SHALL BE MAINTAINED WITHIN THE FOLLOWING TOLERANCES FROM THE SPECIFIED THICKNESS:
(1) OVERTHICKNESS: MAXIMUM 1/2"
(2) UNDERTHICKNESS:MAXIMUM 1/4"
b. AVERAGE THICKNESS SHALL BE NOT LESS THAN THAT SPECIFIED ON THE DRAWINGS.
c. MINIMUM NUMBER OF SLAB THICKNESS SAMPLES SHALL BE FOUR (4) FOR EACH 5,000 SQFT OR PART THEREFOR (ACI 117, 4.5.4).
4. CONCRETE WHICH DOES NOT MEET THE ABOVE CRITERIA SHALL BE SUBJECT TO REJECTION AT THE OWNER'S SOLE DISCRETION.
5. POWER SCREED VIBRATOR IS TO BE USED WHENEVER POSSIBLE. WHEN POWER SCREED IS NOT AVAILABLE, USE ELECTRIC POWERED CONCRETE VIBRATOR (VERTICALLY APPLIED TO CONCRETE).
6. 100% CONSOLIDATION IS REQUIRED. DO NOT OVER VIBRATE OR ALLOW WATER IN MIX TO SURFACE.
7. CONCRETE SLABS WHICH ARE REJECTED DUE TO VARIANCE FROM ALLOWABLE TOLERANCE SHALL BE REMOVED AND REPLACED AT NO COST TO THE OWNER.
8. USE THE ALTERNATE "LONG" STRIP PATTERN LAYOUT AS RECOMMENDED BY ACI. DO NOT USE THE "CHECKERBOARD" PLACEMENT PATTERN.
9. POSTPONING EACH STEP OF FINISHING (AND THE INHERENT REWORKING OF THE SURFACE) AS LONG AS POSSIBLE WITHOUT ENDANGERING RESULTS (11.3.5).

C. RECORDS: KEEP A COMPLETE LOG OF POURS, INCLUDING DATE, LOCATION, QUANTITY, WEATHER CONDITION AND IDENTIFICATION OF TEST CYLINDERS FOR EACH POUR.

D. DRY-SHAKE HARDENER: PROVIDE WHERE INDICATED IN SLAB SCHEDULE.
1. AFTER CONCRETE HAS BEEN PLACED, IMMEDIATELY SCREED, THEN BULLFLOAT OR HIGHWAY STRAIGHTEDGE SURFCE. ALLOW BLEED WATER TO SURFACE.
2. AFTER WATER SHEEN HAS DISAPPEARED AND JUST BEFORE INITIAL SET, FLOAT SURFACE OF SLAB "OPEN" WITH MECHANICAL FLOAT FITTED WITH FLOAT BLADES.
3. DO NOT APPLY HARDENER INTO BLEED WATER. IF EXCESSIVE BLEED WATER IS PRESENT, REMOVE STANDING WATER. DO NOT DELAY PLACEMENT AS THERE MAY NOT BE ENOUGH MOISTURE AT THE SURFACE TO HYDRATE THE CEMENT BNIDERS IN THE FLOOR HARDENERS.
4. APPLY A TOTAL OF 1.0 POUNDS PER SQUARE FOOT. APPLY IN TWO APPLICATIONS IF RECOMMENDED BY MANUFACTURER. EVENLY DISTRIBUTE THE HARDENER MATERIAL USING A MECHANICAL SPREADER.
5. WHEN THE MATERIAL DARKENS SLIGHTLY FROM THE ABSORBED MOISTURE, FLOAT USING HAND WOODEN FLOATS OR POWER TROWELS WITH KICK-OFF FLOAT SHOES. CARE SHOULD BE TAKEN NOT TO TEAR THROUGH THE SURFACE OF THE HARDENER TO THE UNDERLYING CONCRETE.
6. AFTER THE SURFACE HAS FURTHER STIFFENED, IT SHOULD BE MACHINE TROWELED TO A BLEMISH FREE FINISH. CARE SHOULD BE TAKEN NOT TO TROWEL-BURN THE SURFACE.
7. AFTER COMPLETION OF FINAL TROWELING, AND WHEN SURFACE WILL NOT BE MARRED BY FOOT TRAFFICE, APPLY MEMBRANE CURING COMPOUND RECOMMENDED AND APPROVED BY SURFACE HARDENER MANUFACTURER. DO NOT WATER OR MOIST CURE, OR CURE WITH POLYETHYYLENE.
8. KEEP SLAB FREE OF TRAFFIC FOR A MINIMUM OF 10 DAYS.

3.04 JOINTING (5.3.5. 11.3.6.)

A. SAW CUT:
1. LOCATE CONTROL (CONTRACTION) JOINTS AS SHOWN ON THE DRAWINGS. A ENTRY DRY-CUTTING SAW SHALL BE USED IMMEDIATELY AFTER FINAL FINISHING WITHIN 1 TO 6 HOURS. SCHEDULE SLAB POURS AND SAW CUTTING OPERATIONS SUCH THAT SAWING IS COMPLETED PRIOR TO THE ONSET OF SHRINKAGE CRACKING (5.3.5. 11.3.6.3). CUTTING MUST BE PERFORMED AS SOON AS THE CONCRETE SURFACE IS FIRM ENOUGH NOT TO BE TORN OR DAMAGED BY THE BLADES. VACUUM DUST FROM SAW CUT BEFORE APPLYING MOISTURE - RETAINING COVER OR CURING COMPOUND. CUTTING OF JOINTS SHALL NOT TO BE DELAYED UNTIL THE NEXT DAY.
2. PROVIDE ISOLATION JOINTS AT COLUMNS (1/2 INCH THICK) AND AT WALLS (1/8 INCH THICK). WHERE ISOLATION JOINT WILL BE EXPOSED TO VIEW, SET TOP OF JOINT FILLER BELOW TOP OF SLAB A DISTANCE EQUAL TO THE FILLER THICKNESS, TO RECEIVE SEALANT. WHERE NOT EXPOSED TO VIEW, SET TOP OF FILLER FLUSH WITH TOP OF SLAB (11.3.6.1). WHERE SHRINKAGE COMPENSATING CONCRETE IS USED, PROVIDE ISOLATION JOINTS AT COLUMNS AND WALLS (1" THICK).
3. JOINT DEPTH AND SPACING OF CONTROL JOINTS (5.3.5, 11.3.6.3):
a. DEPTH OF SAW CUTS: FOR EARLY - ENTRY DRY - CUTTING SAW, $1\frac{1}{2}$" ± $\frac{1}{4}$" ($1\frac{1}{4}$" TO $1\frac{3}{4}$") FOR SLAB THICKNESS UP TO 9" UNLESS OTHERWISE SPECIFIED.
b. JOINT SPACING TO BE AS SHOWN ON THE DRAWINGS. ALTERNATE JOINT LAYOUT MAY BE PROPOSED BY CONTRACTOR, BUT MUST BE APPROVED IN WRITING BY ARCHITECT / ENGINEER PRIOR TO CONSTRUCTION. UNLESS OTHERWISE SPECIFIED OR APPROVED, JOINT SPACING SHALL NOT EXCEED 15FT AND PANEL ASPECT RATIOS SHALL NOT EXCEED 1.5.
c. CONTROL JOINTS INDICATED TO BE DOWELED SHALL HAVE TAPERED PLATE STEEL DOWELS CENTERED UNDER THE CONTROL JOINT LOCATION.
4. EXPANSION JOINTS:
a. PLACEMENT: FULL DEPTH OF CROSS SECTION, ALONG ADJACENT CONCRETE STRUCTURES, EQUIPMENT FOUNDATIONS, AND EXISTING SLABS.
b. MATERIAL: PRE-MOLDED ASPHALT, SPONGE RUBBER, FIBER, OR CORK, WITH REMOVABLE PLASTIC JOINT CAP AT TOPSIDE FOR FINAL JOINT FILLER SEALANT.
5. CONSTRUCTION JOINTS (5.3.2.6, 11.3.6.2):
a. FORMS: OIL BEFORE PLACING CONCRETE.
b. TYPE: DOWELS - SQUARE OR PLATE STEEL DOWELS, INSTALLED PERPENDICULAR TO THE PLANE OF THE JOINT BOTH HORIZONTALLY AND VERTICALLY, INSTALLED PER MANUFACTURER, AND PLACED AT MID-CROSS SECTION.
(1) INTERIOR: PER DETAIL ON DRAWINGS.
(2) NO SQUARE DOWEL CLOSER THAN 12" FROM A CORNER
(3) NO PLATE DOWEL CLOSER THAN 6" FROM A CORNER.
c. LOCATION: AS DEEMED NECESSARY PER JOB CONDITIONS AND APPROVED BY ARCHITECT / ENGINEER.
(1) STRAIGHTNESS: $\frac{1}{4}$" OVER A DISTANCE OF 10FT
(2) $\frac{3}{4}$" HORIZONTAL AND VERTICAL OF PLACEMENT LOCATION s TO BE TOOLED AT TIME OF FINISH; FOLLOWED BY SAW CUT (USING TOOL OF 1/16 R OR LESS).
d. UNLESS OTHERWISE SPECIFIED, DOWELED CONSTRUCTION JOINTS DESIGNED TO ALLOW WIDENING SHALL BE SAW CUT TO $\frac{1}{4}$ SLAB THICKNESS OR 2 INCHES, WHICHEVER IS SMALLER. ALIGN SAW CUT WITH JOINT.

B. SEMI-RIGID EPOXY OR POLYUREA JOINT FILLERS:
1. PLACEMENT OF JOINT FILLER IS TO BE DELAYED AS LONG AS POSSIBLE, PREFERABLY AT LEAST 90 DAYS AFTER CONCRETE PLACEMENT, TO ALLOW CONCRETE SHRINKAGE TO TAKE PLACE.
2. ROOM SCHEDULED TO BE COOLED MUST BE BROUGHT TO OPERATING TEMPERATURE AND STABILIZED FOR 72 HOUR PRIOR TO FILLING JOINTS.
3. PRIOR TO FILLING JOINTS, ALL JOINTS SHALL BE COMPLETELY CLEANED OF ALL CONCRETE DUST AND LAITANCE, DIRT, AND OTHER FOREIGN MATERIALS. AFTER CLEANING, JOINTS ARE TO BLOWN OUT WITH HIGH PRESSURE WATER FOLLOWED BY COMPRESSED AIR. JOINT FILLING SHALL NOT COMMENCE UNTIL AN ON-SITE INSPECTION OF CLEANED JOINTS HAS BEEN MADE BY THE CONSTRUCTION MANAGER. CONCRETE CONTRACTOR SHALL COORDINATE INSPECTION WITH THE CONSTRUCTION MANAGER, AND SUPERVISOR IN CHARGE OF JOINT FILLING SHALL BE PRESENT DURING THE INSPECTION, TO ENSURE THAT JOINT FILLING REQUIREMENTS ARE FULLY UNDERSTOOD.
4. JOINTS SHALL BE FILLED FULL DEPTH. INITIAL FILLING OF JOINT IS TO BE APPROXIMATELY 2/3 OF JOINT DEPTH, FOLLOWED CLOSELY BY FINAL FILLING (AFTER SETTLEMENT OF INITIAL PLACEMENT) LEVEL WITH FINISHED FLOOR. SEATING OF JOINT FILLER AT JOINT BOTTOM IS CRITICAL TO JOINT PERFORMANCE. SAND, BACKING ROD, OR OTHER JOINT FILLER MATERIALS ARE SPECIFICALLY PROHIBITED. FOR JOINTS WITH SIGNIFICANT SHRINKAGE CRACKS BELOW SAWN JOINTS, THE JOINTS SHALL BE SEALED WITH TAPE PRIOR TO INSTALLING FILLER, OR SILICA SAND MAY BE USED ONLY UP TO THE BOTTOM OF THE JOINT, SO AS TO PREVENT LOSS OF FILLER MATERIAL.
5. FREEZER JOINTS SHALL NOT BE FILLED UNTIL SLAB HAS BEEN AT OPERATING TEMPERATURES FOR A MINIMUM OF 72 HOURS.

3.05 FINISHES

A. FINISH ON FLATWORK IS TO BE AS FOLLOWS:
1. INTERIOR FLOOR AREAS TO REMAIN EXPOSED _ TROWELED FINISH (5.3.4.2.C, 11.3.5).
a. A MINIMUM OF THREE TROWELINGS SHALL BE USED, WITH A TIME LAPSE BETWEEN SUCCESSIVE TROWELINGS TO PERMIT CONCRETE TO BECOME HARDER. AS THE SURFACE STIFFENS, SMALLER TROWELS SHALL BE USED TO PROVIDE SUFFICIENT PRESSURE FOR PROPER FINISHING.
2. MAN-POWER:
a. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE NUMBER OF QUALIFIED CONCRETE FINISHES IN ORDER TO OBTAIN THE FINISH SPECIFIED WITHIN THE CONCRETE 'SET-UP' TIME PERIOD.
b. DO NOT SPRINKLE CEMENT ON SURFACE WATER ON THE CONCRETE SURFACE FOR FINISHING PURPOSES.
c. DO NOT PERFORM ANY FINISHING OPERATIONS WHILE WATER IS PRESENT ON THE SURFACES.
3. AREAS INDICATED ON DRAWINGS OR AS REQUIRED BY THESE SPECIFICATIONS:

B. SURFACES OF FLOOR SLABS SHALL BE FINISHED TO THE FOLLOWING TOLERANCES, PER ACI 117 (5.3.4.3):
1. INDUSTRIAL FLOOR SLABS: REFER TO SLAB SCHEDULE ON SHEET S2.03 FOR FLATNESS AND LEVELNESS REQUIREMENTS.
2. MINIMUM FLATNESS AND LEVELNESS AS SPECIFIED ON THE DRAWING. PRECEDING VALUES ARE AVERAGE VALUES TO BE OBTAINED OVER A GIVEN AREA. MINIMUM LOCAL VALUES (ONE - HALF BAY) OF 75 PERCENT OF MINIMUM AVERAGE VALUES SHALL BE ALL LOCATIONS.
3. UNLESS OTHERWISE SPECIFIED, THE MINIMUM OVERALL SURFACE FLATNESS SHALL BE FF35, LEVELNESS SHALL BE FL25, AND LOCAL AREA MINIMUMS SHALL BE FF23, FL17, AS DETERMINED BY ASTM E1155 (11.3.5.1).
4. TESTING BY THE TESTING LABORATORY SHALL BE MADE ON THE DAY FOLLOWING PLACEMENT OF THE FIRST CONCRETE POUR. TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM E1155. AFTER IT IS ESTABLISHED THAT PROPER PROCEDURES ARE BEING UTILIZED TO OBTAIN THE DESIRED RESULTS, FLATNESS/LEVELNESS TESTS SHALL BE PERFORMED ONLY AS DIRECTED BY THE OWNER.

C. ANY BAY NOT CONFORMING TO THE ABOVE FLATNESS AND LEVELNESS REQUIREMENTS SHALL BE REMOVED, REPLACED, AND RETESTED, AT NO EXPENSE TO THE OWNER OR CONSTRUCTION MANAGER.

D. "F NUMBERS" SHALL BE SUBMITTED TO THE CONSTRUCTION MANAGER AND ENGINEER IMMEDIATELY AFTER THEY ARE DETERMINED BY THE TESTING LABORATORY.

3.06 CURING AND PROTECTION

A. TEMPERATURE:
1. WHEN AIR TEMPERATURE DURING PLACEMENT IS LESS THAN 40 DEGREES, OR WILL BE WITHIN 24 HOURS, TEMPERATURE OF CONCRETE AS PLACED IS TO BE BETWEEN 55 AND 75 DEGREES. MAINTAIN CONCRETE TEMPERATURE WITHIN THESE LIMITS FOR THE FULL CURING PERIOD OF 7 DAYS. (4.2.2.7 AND 5.3.1.6).
a. DO NOT PLACE CONCRETE IN CONTACT WITH SURFACES LESS THAN 35F (5.3.2.1.b).
b. FOR SLABS PLACED ON GROUND, THE MAXIMUM TEMPERATURE DIFFERENCE BETWEEN THE BASE OR AMBIENT TEMPERATURE AND FRESH CONCRETE TEMPERATURE SHALL BE 30F.
2. WHEN AIR TEMPERATURE IS MORE THAN 80 DEGREES, ALL CONCRETE SHALL CONTAIN AT LEAST ONE OF THE FOLLOWING: TYPE B RETARDED; TYPE D WATER-REDUCING AND RETARDER; OR HYDRATION CONTROLLING ADMIXTURE MEETING THE REQUIREMENTS OF ASTM C494 / C494M.

B. CURING (5.3.6, 11.3.7):
1. WHEN MOIST CURING IS REQUIRED, ALL SLAB AREAS SHALL BE MOIST_CURED USING ONE OR MORE OF THE METHODS LISTED IN ACI 301, SECTION 5.3.6.4.A THROUGH 5.3.6.4.D. WHEN CHEMICAL CURING IS INDICATED, SLAB AREAS SHALL RECEIVE AN APPLICATION OF CURING COMPOUND (5.3.6.4.E), EXCEPT THAT WHEN CONCRETE IS PLACED IN THE OPEN, AND THE AIR TEMPERATURE EXCEEDS 75 DEGREES, THE CONCRETE IS TO BE MOIST_CURED FOR THE FIRST 24 HOURS.
2. WHICHEVER CURING METHOD IS USED, IT IS TO COMMENCE IMMEDIATELY AFTER DISAPPEARANCE OF WATER SHEEN, AND CONTINUE FOR AT LEAST 7 DAYS (5.3.6.1). DO NOT ALLOW CURING TO BE DELAYED OVERNIGHT.
3. PREVENT EXCESSIVE MOISTURE LOSS FROM FORMED SURFACES (5.3.6.3). IF EDGE FORMS ARE REMOVED BEFORE 7 DAYS HAVE ELAPSED, CURE THE FORMED SURFACES BY MOIST_CURING OR APPLICATION OF CURING COMPOUND FOR THE REMAINDER OF THE CURING PERIOD.
4. SLABS SCHEDULE TO RECEIVE SPECIFIED LIQUID CHEMICAL HARDENER/DENSIFIER SHALL BE CURED AND PREPARED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS:
a. MOIST CURE
b. CHEMICAL CURING COMPOUND SHALL BE REMOVED BEFORE THE APPLICATION OF THE HARDENER/DENSIFIER.

C. PREVENTION OF PLASTIC SHRINKAGE CRACKING:
1. PLASTIC SHRINKAGE CRACKING, CAUSED BY RAPID LOSS OF MOISTURE BEFORE CURING BEGINS, SHALL BE PREVENTED BY THE FOLLOWING PRACTICES AS NECESSARY:
a. ERECTION OF WINDBREAKS.
b. ERECTION OF SUNSHADES, OR SCHEDULING CONCRETE PLACEMENT AT NIGHT OR AFTER THE ROOF DECK IS INSTALLED.
c. UTILIZING FOG SPRAYS BEFORE FINAL FINISHING AND THE START OF CURING; COVERING WITH POLYETHYLENE SHEETING OR DAMP BURLAP IMMEDIATELY AFTER SCREEDING AND FLOATING; AND THE USE OF MONO-MOLECULAR FILMS TO REDUCE EVAPORATION BETWEEN THE VARIOUS PLACING AND FINISHING OPERATIONS.
d. POSTPONING EACH STEP OF FINISHING (AND THE INHERENT REWORKING OF THE SURFACE) AS LONG AS POSSIBLE WITHOUT ENDANGERING RESULTS.

D. CURING COMPOUND: APPLY UNIFORMLY TO FLOORS AND SLABS INDICATED IN A CONTINUOUS OPERATION BY POWER SPRAY OR ROLLER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. RECOAT AREAS SUBJECTED TO HEAVY RAINFALL WITHIN 3 HOURS AFTER INITIAL APPLICATION. REPEAT PROCESS 24 HOURS LATER AND APPLY A SECOND COAT. MAINTAIN CONTINUITY OF COATING AND REPAIR DAMAGE DURING CURING PERIOD.

3.07 ACCEPTANCE (1.7)

A. CONCRETE WORK WITH SERIOUS CRAZING, CRUSTING, AGGREGATE SHADOWING, MORTAR FLAKING, TROWEL MARKS, CRACKING, DEVIATION FROM TOLERANCES, OR OTHER VARIATION FROM CONTRACT REQUIREMENTS IS SUBJECT TO REJECTION (1.7.1.2).

B. WHEN OBSERVATIONS OR TESTS INDICATE THAT THE CONTRACT REQUIREMENTS HAVE NOT BEEN MET, THE CONTRACTOR IS TO BEAR THE COSTS OF ANY ADDITIONAL TESTING AND ANALYSIS TO DETERMINE ACCEPTABILITY, AND ALSO THE COST OF REMOVAL AND REPLACEMENT, IF SUCH IS REQUIRED (1.6.5.1, 1.7.1.5, 1.7.4, AND 1.7.5).

3.08 FIELD QUALITY CONTROL

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

B. INSPECTIONS:
1. STEEL REINFORCEMENT PLACEMENT.
2. STEEL REINFORCEMENT WELDING.
3. HEADED BOLTS AND STUDS.
4. VERIFICATION OF USE OF REQUIRED DESIGN MIXTURE.
5. CONCRETE PLACEMENT, INCLUDING CONVEYING AND DEPOSITING.
6. CURING PROCEDURES AND MAINTENANCE OF CURING TEMPERATURE.
7. VERIFICATION OF CONCRETE STRENGTH BEFORE REMOVAL OF SHORES AND FORMS FROM BEAMS AND SLABS.

C. CONCRETE TESTS: TESTING OF COMPOSITE SAMPLES OF FRESH CONCRETE OBTAINED ACCORDING TO ASTM C 172 SHALL BE PERFORMED ACCORDING TO THE FOLLOWING REQUIREMENTS:
1. TESTING FREQUENCY: PER STATEMENT OF SPECIAL INSPECTION
2. SLUMP: ASTM C 143; ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE (EACH STRENGTH TEST SPECIMEN FOR EACH 50 CUBIC YARDS OR FRACTIONS THEREOF FROM EACH MIX DESIGN OF CONCRETE PLACED IN ANY ONE DAY). PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
3. AIR CONTENT: ASTM C 231, PRESSURE METHOD, FOR NORMAL-WEIGHT CONCRETE; ASTM C 173, VOLUMETRIC METHOD, FOR STRUCTURAL LIGHTWEIGHT CONCRETE; ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE.
4. CONCRETE TEMPERATURE: ASTM C 1064; ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEG F AND BELOW AND WHEN 80 DEG F AND ABOVE, AND ONE TEST FOR EACH COMPOSITE SAMPLE.
5. UNIT WEIGHT: ASTM C 567, FRESH UNIT WEIGHT OF STRUCTURAL LIGHTWEIGHT CONCRETE; ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE.
6. COMPRESSION TEST SPECIMENS: ASTM C 31.
a. CAST AND LABORATORY CURE TWO SETS OF TWO STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE.
7. COMPRESSIVE-STRENGTH TESTS: PERFORM ONE STRENGTH TEST FOR EACH 50 CUBIC YARDS OR FRACTIONS THEREOF FROM EACH MIX DESIGN OF CONCRETE PLACED IN ANY ONE DAY.
8. STRENGTH OF EACH CONCRETE MIXTURE WILL BE SATISFACTORY IF EVERY AVERAGE OF ANY THREE CONSECUTIVE COMPRESSIVE-STRENGTH TESTS EQUALS OR EXCEEDS SPECIFIED COMPRESSIVE STRENGTH AND NO COMPRESSIVE-STRENGTH TEST VALUE FALLS BELOW SPECIFIED COMPRESSIVE STRENGTH BY MORE THAN 500 PSI.
9. TEST RESULTS SHALL BE REPORTED IN WRITING TO ARCHITECT, CONCRETE MANUFACTURER, AND CONTRACTOR WITHIN 48 HOURS OF TESTING. REPORTS OF COMPRESSIVE-STRENGTH TESTS SHALL CONTAIN PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING AND INSPECTING AGENCY, LOCATION OF CONCRETE BATCH IN WORK, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIXTURE PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH, AND TYPE OF BREAK FOR BOTH 7- AND 28-DAY TESTS.
10. NONDESTRUCTIVE TESTING: IMPACT HAMMER, SONOSCOPE, OR OTHER NONDESTRUCTIVE DEVICE MAY BE PERMITTED BY ARCHITECT BUT WILL NOT BE USED AS SOLE BASIS FOR APPROVAL OR REJECTION OF CONCRETE.
11. ADDITIONAL TESTS: TESTING AND INSPECTING AGENCY SHALL MAKE ADDITIONAL TESTS OF CONCRETE WHEN TEST RESULTS INDICATE THAT SLUMP, AIR ENTRAINMENT, COMPRESSIVE STRENGTHS, OR OTHER REQUIREMENTS HAVE NOT BEEN MET, AS DIRECTED BY ARCHITECT. TESTING AND INSPECTING AGENCY MAY CONDUCT TESTS TO DETERMINE ADEQUACY OF CONCRETE BY CORED CYLINDERS COMPLYING WITH ASTM C 42 OR BY OTHER METHODS AS DIRECTED BY ARCHITECT.
12. ADDITIONAL TESTING AND INSPECTING, AT CONTRACTOR'S EXPENSE, WILL BE PERFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.
13. CORRECT DEFICIENCIES IN THE WORK THAT TEST REPORTS AND INSPECTIONS INDICATE DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS.

D. CONCRETE TEMPERATURE OF 90F OR ABOVE IN TRUCK AT SITE WILL BE REJECTED.

E. CONCRETE WHICH ARRIVES AT THE JOB SITE WITH EXCESSIVE AIR CONTENT (GREATER THAN 3%) OR EXCESSIVE SLUMP, OR TO WHICH UNAUTHORIZED WATER HAS BEEN ADDED, SHALL BE REJECTED.

F. DO NOT PLACE CONCRETE WHEN SLUMP, TEMPERATURE, OR TIME VARY FROM ALLOWABLE (1.6.8).

G. CONDUCT A SUBGRADE TOLERANCE SURVEY, PER THE REQUIREMENTS OF SECTION 3.01.A.

H. DETERMINATION OF THE FLATNESS AND LEVELNESS OF A CONCRETE SLAB SHALL BE MADE ON THE DAY FOLLOWING PLACEMENT OF EACH CONCRETE POUR. TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM E1155.

I. TEST CYLINDERS SHALL BE STORED AT THE JOBSITE FOR THE FIRST 20 HOURS, PLUS OR MINUS 4 HOURS, IN A PROTECTED LOCATION AND ENVIRONMENT PREVENTING MOISTURE LOSS FROM TEST CYLINDERS, WITH THE TEMPERATURE MAINTAINED BETWEEN 60 AND 80 DEGREES, OR RESULTS OF STRENGTHS TESTS SHALL BE CONSIDERED UNACCEPTABLE.

J. MAINTAIN RECORDS OF ALL TESTS, INDICATING EXACT LOCATION OF THE STRUCTURE REPRESENTED BY EACH TEST.

K. USAGE: UNLESS APPROVED BY THE ARCHITECT / ENGINEER DO NOT ALLOW ANY LOADING ON NEW CONCRETE SURFACES OTHER THAN LIGHT FOOT TRAFFIC FOR A PERIOD OF 7 DAYS AFTER PLACEMENT. LIGHT CONSTRUCTION TRAFFIC SUCH AS SMALL LIFTS CAN RESUME ON NEW SLABS AFTER A PERIOD OF 14 DAYS AFTER PLACEMENT. USE OF HEAVY CONSTRUCTION EQUIPMENT CONCRETE TRUCKS, BUGGIES, DUMP TRUCKS, CRANES, ETC., IS PROHIBITED AT ALL TIMES DURING CURING OPERATION OF 28 DAYS UNTIL CONCRETE HAS REACHED DESIGN VALUES ON INTERIOR AND EXTERIOR PAVED CONCRETE SURFACES.

L. PERFORM JOB SITE MONITORING OF CONCRETING OPERATIONS, INCLUDING SLUMP TESTING OF EACH TRUCK OF CLASS VI CONCRETE. CONCRETE WHICH ARRIVES AT THE JOB SITE WITH EXCESSIVE AIR CONTENT (GREATER THAN 3%) OR EXCESSIVE SLUMP, OR TO WHICH UNAUTHORIZED WATER HAS BEEN ADDED, SHALL BE REJECTED.

M. OBTAIN CONCRETE FOR REQUIRED TESTS AT POINT OF PLACEMENT. IF CONCRETE IS PUMPED, OBTAIN CONCRETE FOR TESTS AT DISCHARGE END (1.6.3.3).

N. PERFORM STRENGTH, TEMPERATURE, SLUMP AND AIR TESTS PER SPECIFICATIONS.

O. DETERMINE CONCRETE TEMPERATURE FOR EACH STRENGTH TEST (1.6.3.2.d).

END OF SECTION

RELEASE	DATE	BY	APP.	RELEASED FOR . . .
A	05.23.2018	TJM	MCF	PLAN COMMISSION REVIEW

GREAT LAKES CHEESE
2200 ENTERPRISE AVENUE
LA CROSSE, WISCONSIN 54603

SPECIFICATIONS

DENNIS GROUP
Plan • Design • Engineer • Build • Start-Up
dennisgroup.com
United States • Canada • Brazil • Portugal

DRAWING NO.
S10.002
5590

051200 STRUCTURAL STEEL

PART 1 - GENERAL

1.01 ITEMS REQUIRED BUT NOT SPECIFIED

A. IF AN ITEM OR MATERIAL OF THIS TRADE IS INDICATED ON THE DRAWINGS BUT NOT SPECIFICALLY LISTED IN THIS SECTION, PROVIDE SUCH ITEM OR MATERIAL AT A STANDARD OF QUALITY EQUAL TO THE STANDARD ESTABLISHED FOR THE BALANCE OF THE WORK SPECIFIED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.02 EXECUTION, CORRELATION, AND INTENT

A. IN CASE OF AN INCONSISTENCY BETWEEN DRAWINGS AND SPECIFICATIONS OR WITHIN EITHER DOCUMENT NOT CLARIFIED BY ADDENDUM, THE BETTER QUALITY OR GREATER QUANTITY OF WORK IS TO BE PROVIDED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.03 DESCRIPTION

A. WORK INCLUDED: ALL LABOR AND MATERIALS REQUIRED TO FURNISH AND INSTALL THE STRUCTURAL STEEL WORK SHOWN ON THE DRAWINGS AND REQUIRED BY THESE SPECIFICATIONS.
1. PROVIDE SPECIAL PREPARATION AND PRIMER AS SPECIFIED.

B. RELATED WORK SPECIFIED ELSEWHERE: THE GENERAL PROVISIONS OF THE CONTRACT APPLY TO THE WORK OF THIS SECTION, AS THOUGH REPRODUCED HEREIN. CAREFULLY EXAMINE ALL OTHER SECTIONS AND ALL DRAWINGS FOR RELATED WORK, WHICH INCLUDES BUT IS NOT LIMITED TO:
1. METAL DECKING: SECTION 053100
2. STEEL JOISTS: SECTION 052100

C. WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS:
1. CAST-IN-PLACE ANCHOR BOLTS FOR COLUMNS
2. EMBEDDED ARMORING ANGLES & CHANNELS AT LOADING DOCKS AND OTHER LOCATIONS INDICATED.

D. WORK SPECIFICALLY EXCLUDED, TO BE PERFORMED BY OTHERS:
1. GROUTING UNDER COLUMN BASE PLATES
2. COATING OF STRUCTURAL STEEL COLUMNS AND BASE PLATES BELOW FLOOR WITH BITUMINOUS COATING.

E. WORK AFFECTED BY OTHERS: FRAMING, LOADS, OPENINGS, AND STRUCTURE IN ANY WAY RELATED TO MECHANICAL, ELECTRICAL OR REFRIGERATION REQUIREMENTS IS SHOWN FOR BIDDING PURPOSES ONLY. RESPONSIBILITY FOR COORDINATING THE WORK OF THIS SECTION WITH THESE REQUIREMENTS IS SOLELY THAT OF THE CONTRACTOR. CONTRACTOR'S REVIEW OF SHOW DRAWINGS WILL BE TAKEN TO INDICATE THAT THIS COORDINATION HAS BEEN ACCOMPLISHED.

F. INSPECTION AND TESTING REQUIRED BY THIS SECTION ARE TO BE PERFORMED BY AN AGENCY RETAINED BY THE CONSTRUCTION MANAGER/OWNER. .

1.04 QUALITY ASSURANCE

A. COMPLY WITH THE PROVISIONS OF THE FOLLOWING REFERENCE STANDARDS:
1. BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):
a. SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
b. SPECIFICATION FOR STRUCTURAL JOISTS USING ASTM A325 OR A490 BOLTS.
c. CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
2. BY THE AMERICAN WELDING SOCIETY (AWS):
a. STRUCTURAL WELDING CODE - STEEL (D1.1).
b. SYMBOLS FOR WELDING AND NON-DESTRUCTIVE TESTING (A2.4).
3. BY THE STEEL STRUCTURES PAINTING COUNCIL (SSPC):
a. STEEL STRUCTURES PAINTING MANUAL SYSTEMS AND SPECIFICATIONS.

B. FABRICATOR'S QUALIFICATIONS:
1. MINIMUM FIVE YEARS CONTINUOUS EXPERIENCE IN THE FABRICATION OF STEEL FOR PROJECTS OF SIMILAR QUALITY AND SCOPE.
2. MEMBERSHIP IN THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, OR SHALL BE CERTIFIED BY AN APPROVED INDEPENDENT PROFESSIONAL TESTING AGENCY AS BEING QUALIFIED FOR CATEGORY I CONVENTIONAL STEEL STRUCTURES IN CONFORMANCE TO THE REQUIREMENTS OF THE AISC QUALITY CERTIFICATION PROGRAM.

C. ERECTOR'S QUALIFICATIONS: A QUALIFIED INSTALLER WHO PARTICIPATES IN THE AISC QUALITY CERTIFICATION PROGRAM AND IS DESIGNATED AN AISC-CERTIFIED ERECTOR, CATEGORY CSE.

D. WELDERS' QUALIFICATIONS: PERSONNEL AND PROCEDURES ARE TO BE QUALIFIED IN ACCORDANCE WITH AWS D1.1.

E. STRUCTURAL FASTENERS SHALL BE MANUFACTURED IN THE UNITED STATES. FABRICATOR SHALL FURNISH PROOF OF U.S. MANUFACTURER. IF IT BECOMES NECESSARY TO USE IMPORTED FASTENERS, EACH SIZE, TYPE, AND EACH LARGE QUANTITY PACKAGE (500 PCS. OR MORE) SHALL UNDERGO A RANDOM SAMPLING OF A MINIMUM OF 5 PIECES FOR TESTING, AND THE TEST RESULTS SHALL BE PROVIDED TO THE A/E. TESTS SHALL BE PERFORMED BY AN INDEPENDENT TESTING AGENCY, AND THE COST SHALL BE INCLUDED IN THE BASE BID. IF INFERIOR FASTENERS ARE DISCOVERED, ALL FASTENERS OF THAT TYPE SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE FASTENERS AT NO COST TO THE OWNER.

1.05 SUBMITTALS

A. CERTIFICATION OF EXPERIENCE: SUBMIT, ON REQUEST ONLY, WRITTEN DESCRIPTIONS OF PERSONNEL, PROJECTS, AND EQUIPMENT WHICH DOCUMENT THE EXPERIENCE AND QUALIFICATIONS REQUIRED OF THE FABRICATOR, ERECTOR, WELDERS, AND INSPECTION AGENCY.

B. SHOP DRAWINGS:
1. INDICATE ALL SHOP AND ERECTION DETAILS, INCLUDING CUTS, COPES, CONNECTIONS, HOLES, THREADED FASTENERS, AND WELDS.
2. INDICATE ALL MATERIAL SPECIFICATIONS AND FINISHES.
3. INDICATE SHOP AND FIELD WELDS WITH SYMBOLS PER AWS A2.4.
4. FOR STRUCTURAL-STEEL CONNECTIONS INDICATED TO COMPLY WITH DESIGN LOADS, INCLUDE STRUCTURAL ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

C. PROOF OF COMPLIANCE FOR MATERIALS: SUBMIT, ON REQUEST ONLY, THE FOLLOWING:
1. MILL REPORTS FOR PROPERLY IDENTIFIED MATERIAL.
2. CERTIFICATES ON COMPLIANCE FOR:
a. STRUCTURAL STEEL SHAPES
b. HIGH STRENGTH THREADED FASTENERS
c. SHEAR STUDS.

D. WELDING CERTIFICATES.

1.06 PRODUCT DELIVERY AND STORAGE

A. DELIVERY:
1. COMPLY WITH ASTM A6. NON-COMPLIANCE WILL BE CAUSE FOR REJECTIONS.
2. DELIVER ANCHOR BOLTS AND OTHER ITEMS TO BE EMBEDDED IN CAST-IN-PLACE CONCRETE PRIOR TO THE START OF THAT WORK. PROVIDE SETTING DRAWINGS, TEMPLATES, OR INSTRUCTIONS REQUIRED FOR THE INSTALLATION OF SUCH ITEMS.

B. STORAGE:
1. STORE STEEL AT SITE ABOVE GROUND ON PLATFORMS, SKIDS, OR OTHER SUPPORTS.
2. PROTECT STEEL FROM CORROSION.
3. STORE PACKAGED MATERIALS IN THEIR ORIGINAL UNBROKEN PACKAGES.
4. STORE FASTENERS IN A PROTECTED PLACE. CLEAN AND RELUBRICATE BOLTS AND NUTS THAT BECOME DRY OR RUSTY BEFORE USE.
5. DO NOT STORE MATERIALS ON STRUCTURE IN A MANNER THAT MIGHT CAUSE DISTORTION, DAMAGE, OR OVERLOAD TO MEMBERS OR SUPPORTING STRUCTURES. REPAIR OR REPLACE DAMAGED MATERIALS OR STRUCTURES AS DIRECTED.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. STRUCTURAL STEEL SPECIFIED HEREIN OR ON THE DRAWINGS SHALL CONTAIN THE HIGHEST RECYCLED CONTENT AVAILABLE (A MINIMUM OF 95% WHERE POSSIBLE).

B. STRUCTURAL STEEL SHAPES, PLATES, BARS, ETC.:
1. WIDE FLANGE SHAPES: ASTM A992 FY =50 KSI.
2. ANGLES, CHANNELS, PLATES, RODS, ETC: ASTM A36, FY=36 KSI.

C. STRUCTURAL STEEL TUBING:
1. SQUARE AND RECTANGULAR TUBING: ASTM A500, GRADE B (FY = 46 KSI).
2. ROUND STEEL PIPE: ASTM A53, TYPE E OR S, GRADE B (FY = 35 KSI).

D. THREADED RODS, UNFINISHED BOLTS AND NUTS: ASTM A307 OR A36. PROVIDE HEAVY WASHERS FOR ANCHOR BOLTS.

E. ANCHOR BOLTS: ASTM F1554 GRADE 36, 55, OR 105. PROVIDE HEAVY WASHERS FOR ANCHOR BOLTS.

F. HIGH STRENGTH THREADED FASTENERS: ASTM A325 OR A490.
1. USE 3/4 INCH DIAMETER BOLTS UNLESS NOTED OR REQUIRED TO DEVELOP CONNECTION CAPACITY.
2. BOLTS SHALL HAVE A SUITABLE IDENTIFYING MARK PLACED ON TOP OF THE HEAD BEFORE LEAVING THE FACTORY.

G. WELDING ELECTRODES: CONFORM TO REQUIREMENTS OF AWS D1.1, USING SERIES E70 ELECTRODES, APPROPRIATE FOR THE MATERIALS BEING WELDED.

H. HEADED STUD SHEAR CONNECTORS: CONFORM TO THE REQUIREMENTS OF ANSI/AWS D1.1, CHAPTER 7, TYPE B, AND ASTM A108, MINIMUM 60 KSI.

I. CHEMICAL ANCHORS:
1. ADHESIVE SHALL BE TWO-COMPONENT EPOXY OR OTHER ADHESIVE MORTAR COMBINING RESIN AND HARDENER COMPONENTS. COMPONENTS SHALL BE FURNISHED IN SEPARATE CONTAINERS, DESIGNED TO ACCEPT A STATIC MIXING NOZZLE THAT THOROUGHLY BLENDS THE COMPONENTS AND ALLOWS INJECTION DIRECLY INTO A DRILLED HOLE. MANUFACTURER'S INSTALLATION INSTRUCTIONS MUST BE FOLLOWED. PROVIDE THE FOLLOWING, OR APPROVED EQUAL:
a. HIT HY 200 BY HILTI FASTENING SYSTEMS
2. ANCHOR RODS: ALL-THREAD ROD; ASTM A36 MINIMUM.

J. EXPANSION ANCHORS:
1. WEDGE ANCHORS SHALL HAVE A ONE PIECE ANCHOR BODY WITH AN EXPANSION MECHANISM OF INTERLOCKING WEDGES. CARBON STEEL COMPONENTS SHALL BE ZINC PLATED ACCORDING TO ASTM B633, GALVANIZED ACCORDING TO ASTM B695, OR STAINLESS STEEL CONFORMING TO ASTM A276 OR ASTM A493 OF MATERIAL MEETING AISI 304 OR 316. THE FOLLOWING ARE ACCEPTABLE:
a. KWIK BOLT II BY HILTI FASTENING SYSTEMS
b. RAWL-STUD BY RAWLPLUG COMPANY
2. SLEEVE ANCHORS SHALL BE FLUSH OR SHELL TYPE THAT MEET FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 3 CARBON STEEL COMPONENTS SHALL BE ZINC PLATED ACCORDING TO ASTM B633, GALVANIZED ACCORDING TO ASTM B695, OR STAINLESS STEEL CONFORMING TO ASTM A276 OR ASTM A493 OF MATERIAL MEETING AISI 304 OR 316. THE FOLLOWING ARE ACCEPTABLE:
a. SLEEVE ANCHOR BY HILTI FASTENING SYSTEMS
b. LOK / BOLT BY RAWLPLUG COMPANY

K. COLUMN FREEZER BLOCKS: UNDER COLUMNS IN FREEZER AREAS (BELOW 32 DEGREES F) AND AS SHOWN IN THE DRAWINGS, PROVIDE HIGH DENSITY RIGID CELLULAR POLYURETHANE BLOCKS. BLOCKS SHALL BE PREFABRICATED WITH ANCHOR BOLT HOLES PREDRILLED TO MATCH BOLT PATTERN. MINIMUM COMPRESSIVE STRENGTH 1500 PSI. PROVIDE ONE OF THE FOLLOWING, OR AN APPROVED EQUAL:
1. GENERAL PLASTICS MANUFACTURING
2. AVE SHADCO INC
3. DOW CHEMICAL COMPANY

2.02 FABRICATION

A. CONFORM TO APPLICABLE PROVISIONS OF THE REFERENCE STANDARDS LISTED IN PART 1 OF THIS SECTION, AS MODIFIED HEREIN.

B. CONNECTION DESIGN:
1. DESIGN CONNECTIONS PER AISC STANDARDS FOR FORCES, MOMENTS AND AXIAL REACTIONS GIVEN ON THE DRAWINGS.
2. BEAMS WITH REACTIONS NOT SHOWN SHALL BE DESIGNED FOR 60% OF THE AISC MAXIMUM TOTAL UNIFORM LOAD (FACTORED).
3. WIND GIRTS WITH REACTIONS NOT SHOWN SHALL BE DESIGNED FOR A 15 KIP HORIZONTAL REACTION (FACTORED).

C. FOR COMPOSITE MEMBERS WITH SHEAR STUDS, USE 1.4 TIMES THE NON-COMPOSITE CAPACITY OF THE BEAM UNLESS REACTION IS GIVEN ON DRAWINGS.
1. CONNECTION DETAILS ON DRAWINGS ARE TO ILLUSTRATE LOCATION, TYPE, GENERAL ARRANGEMENT ONLY, AND TO ESTABLISH MINIMUM REQUIREMENTS.
2. SHOP CONNECTIONS MAY BE WELDED OR BOLTED, UNLESS SHOWN OTHERWISE.
3. FIELD CONNECTIONS SHALL BE BOLTED, UNLESS SHOWN OTHERWISE.
4. STANDARD BOLTS AND NUTS ARE PERMITTED ONLY FOR CONNECTIONS OF SECONDARY MEMBERS, SUCH AS PURLINS AND GIRTS, UNLESS NOTED OTHERWISE. HIGH STRENGTH THREADED FASTENERS ARE REQUIRED FOR ALL OTHER BOLTED CONNECTIONS.

D. FINISHING: ENDS OF MEMBERS IN DIRECT CONTACT BEARING, SUCH AS COLUMNS AT THEIR BASES AND SPLICES, ARE TO BE "FINISHED", AS DEFINED IN THE CODE OF STANDARD PRACTICE.

E. BEARING AND BASE PLATES: COLUMN BASE PLATES ARE TO BE SHOP ATTACHED.

F. CLEANING:
1. REMOVE OIL, DIRT, LOOSE MILL SCALE, OR THEIR MATERIAL WHICH WOULD IMPAIR WELDING, PERFORMANCE OF FRICTION-TYPE CONNECTIONS, OR ADHERENCE OF CONCRETE.
2. FOR STEEL THAT IS TO BE PAINTED, CLEANING TECHNIQUES ARE TO BE AS REQUIRED BY THE APPROPRIATE SSPC PAINT SPECIFICATION LISTED BELOW.

G. SHOP PAINTING:
1. GENERAL: SHOP PAINT STRUCTURAL STEEL WORK, EXCEPT THOSE MEMBERS OR PORTIONS OF MEMBERS TO BE EMBEDDED IN CONCRETE OR MORTAR. DO NOT PAINT CONTACT SURFACES THAT ARE TO BE WELDED OR HIGH STRENGTH BOLTED WITH FRICTION-TYPE CONNECTIONS.
2. ALL STRUCTURAL STEEL SHALL BE PREPARED AND PRIMED.
a. SURFACE PREPARATION: CLEAN STEEL IN ACCORDANCE WITH SSPC SP-3 "POWER TOOL CLEANING".
b. PAINTING: USE PAINTING METHODS THAT WILL RESULT IN FULL COVERAGE OF JOINTS, CORNERS, EDGES AND EXPOSED SURFACE, AT RATE TO PROVIDE A UNIFORM DRY FILM THICKNESS OF 3 TO 5 MILS. APPLY SHOP COAT(S) IN ACCORDANCE WITH SSPC-PS 2.01, 2.02, 2.03, OR 2.04.
c. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE FOLLOWING:
1) TNEMEC PERIMEPRIME SERIES 394.
2) ARCHITECT APPROVED EQUAL.
4. ALL STEEL MEMBERS EXPOSED TO WEATHER SHALL BE GALVANIZED.
a. SURFACE PREPARATION: CLEAN STEEL IN ACCORDANCE WITH SSPC SP-3 "POWER TOOL CLEANING".
b. GALVANIZING IS TO CONFORM TO ASTM A153. EXCEPT FOR BOLTS, NUTS, AND ANCHORS, ALL GALVANIZING IS TO BE DONE AFTER FABRICATION

H. CAMBER: PROVIDE CAMBER IN BEAMS AS INDICATED ON THE DRAWINGS.

2.03 SOURCE QUALITY CONTROL

A. OWNER/CONSTRUCTION MANAGER WILL ENGAGE AN INDEPENDENT TESTING AND INSPECTING AGENCY TO PERFORM SHOP TESTS AND INSPECTIONS AND PREPARE TEST REPORTS.
1. PROVIDE TESTING AGENCY WITH ACCESS TO PLACES WHERE STRUCTURAL-STEEL WORK IS BEING FABRICATED OR PRODUCED TO PERFORM TESTS AND INSPECTIONS.

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

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

D. WELDED CONNECTIONS: IN ADDITION TO VISUAL INSPECTION, SHOP-WELDED CONECTIONS WILL BE TESTED AND INSPECTED ACCORDING TO AWS D1.1 AND THE FOLLOWING INSPECTION PROCEDURES, AT TESTING AGENCY'S OPTION:
1. LIQUID PENETRANT INSPECTION: ASTM E 165.
2. MAGNETIC PARTICLE INSPECTION: ASTM E 709; PERFORMED ON ROOT PASS AND ON FINISHED WELD. CRACKS OR ZONES OF INCOMPLETE FUSION OR PENETRATION WILL NOT BE ACCEPTED.
3. ULTRASONIC INSPECTION: ASTM E 164.
4. RADIOGRAPHIC INSPECTION: ASTM E 94.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. PRIOR TO BEGINNING WORK OF THIS SECTION, VERIFY THAT THE EXISTING CONDITIONS AND THE INSTALLED WORK OF OTHER TRADES IS COMPLETE AND CORRECT TO THE EXTENT NECESSARY FOR THE PROPER EXECUTION OF THE WORK OF THIS SECTION. THIS INCLUDES LOCATIONS OF ANCHOR RODS, AND LINES AND GRADES OF BEARING AREAS.

B. THIS STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTORS RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE; AND TO ENSURE THE STABILITY OF THE BUILDING AND ITS COMPONENT PARTS, AND OF THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS, DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS, OR TIE-DOWNS THAT MIGHT BE NECESSARY. SUCH MATERIAL IS NOT SHOWN ON THE DRAWINGS. IF APPLIED, THEY SHALL BE REMOVED AS CONDITIONS PERMIT, AND SHALL REMAIN THE CONTRACTOR'S PROPERTY.

C. SAFETY: IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.

D. CLEAN BEARING SURFACES AND OTHER SURFACES IN PERMANENT CONTACT, PRIOR TO ASSEMBLY.

E. SPLICES ARE PERMITTED ONLY WHERE INDICATED.

F. TOLERANCES: PER AISC CODE OF STANDARD PRACTICE.

G. FIELD CORRECTION OF FABRICATION ERRORS BY GAS CUTTING IS NOT PERMITTED IN MAJOR MEMBERS WITHOUT PRIOR APPROVAL OF THE ARCHITECT. DO NOT ENLARGE UNFAIR HOLES IN MEMBERS BY BURNING OR BY THE USE OF DRIFT PINS, EXCEPT IN SECONDARY BRACING MEMBER.

H. ALL HIGH STRENGTH BOLTED CONNECTIONS SHALL BE "SNUG TIGHT" CONNECTIONS, UNLESS OTHERWISE INDICATED.
1. SNUG TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN ALL PLIES IN A JOINT ARE IN FIRM CONTACT AND CAN BE ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR BY THE FULL EFFORT OF A PERSON USING AN ORDINARY SPUD WRENCH.
2. ALL VERTICAL BUILDING BRACING CONNECTIONS, HANGER CONNECTIONS IN TENSION, AND OTHER CONDITIONS NOTED ON DRAWINGS SHALL BE INSTALLED TO A "SLIP CRITICAL" CONDITION, AS DEFINED BY THE "SPECIFICATION FOR STRUCTURAL JOISTS USING ASTM A325 OR A490 BOLTS".
a. PROVIDE 5/16" THICK PLATE WASHERS AT ALL SLOTTED HOLES IN "SLIP CRITICAL" CONNECTIONS.
b. DO NOT USE SLOTTED HOLES IN THE DIRECTION OF THE LOAD.

I. TOUCH-UP PAINTING: AFTER ERECTION, TOUCH-UP FIELD CONNECTIONS AND ABRASIONS IN THE SHOP COAT WITH SAME PAINT USED FOR SHOP COAT. DO NOT PAINT WELDS UNTIL THEY HAVE BEEN CLEANED IN ACCORDANCE WITH AWS D1.1.

3.02 FIELD QUALITY CONTROL

A. A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY RETAINED BY THE OWNER/CONSTRUCTION MANAGER SHALL PERFORM THE FOLLOWING:
1. REVIEW QUALIFICATIONS OF WELDERS, OPERATORS, AND WELDING PROCEDURES SUBMITTED BY THE CONTRACTOR.
2. REVIEW MATERIAL PROOF OF COMPLIANCE, IF SUCH IS REQUIRED.
3. INSPECT BOLTED CONNECTIONS, PER THE REQUIREMENTS OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS.
4. VISUALLY INSPECT FIELD WELDS PER AWS D1.1. IN ADDITION TO VISUAL INSPECTION, FIELD WELDS WILL BE TESTED ACCORDING TO AWS D1.1 AND THE FOLLOWING RPOCEDURES, AT TESTING AGENCY'S OPTION:
a. LIQUID PENETRANT INSPECTION: ASTM E 165.
b. MAGNETIC PARTICLE INSPECTION: ASTM E 709; PERFORMED ON ROOT PASS AND ON FINISHED WELD. CRACKS OR ZONES OF INCOMPLETE FUSION OR PENETRATION WILL NOT BE ACCEPTED.
c. ULTRASONIC INSPECTION: ASTM E 164.
d. RADIOGRAPHIC INSPECTION: ASTM E 94.
5. IN ADDITION TO VISUAL INSPECTION, TEST AND INSPECT FIELD-WELDED SHEAR CONNECTORS ACCORDING TO REQUIREMENTS IN AWS D1.1 FOR STUD WELDING AND AS FOLLOWS:
a. PERFORM BEND TESTS IF VISUAL INSPECTIONS REVEAL EITHER A LESS-THAN-CONTINUOUS 360 DEGREE FLASH OR WELDING REPAIRS TO ANY SHEAR CONNECTOR.
b. CONDUCT TESTS ON ADDITIONAL SHEAR CONNECTORS IF WELD FRACTURE OCCURS ON SHEAR CONNECTORS ALREADY TESTED, ACCORDING TO REQUIREMENTS IN AWS D1.1.
6. INSPECT CONNECTIONS OF METAL DECKING.
a. INSPECT METAL DECK ANCHORAGES, FIELD WELDS AND SIDELAP FASTENERS. VERIFY INSTALLATIONS WAS PERFORMED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS AND CONTRACT DRAWINGS.

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

3.03 REPAIRS AND PROTECTION

A. REPAIR DAMAGED GALVANIZED COATINGS ON GALVANIZED ITEMS WITH GALVANIZED REPAIR PAINT ACCORDING TO ASTM A 780 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.

END OF SECTION

052100 STEEL JOISTS

PART 1 GENERAL

1.01 ITEMS REQUIRED BUT NOT SPECIFIED
A. IF AN ITEM OR MATERIAL OF THIS TRADE IS INDICATED ON THE DRAWINGS BUT NOT SPECIFICALLY LISTED IN THIS SECTION, PROVIDE SUCH ITEM OR MATERIAL AT A STANDARD OF QUALITY EQUAL TO THE STANDARD ESTABLISHED FOR THE BALANCE OF THE WORK SPECIFIED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.02 EXECUTION, CORRELATION, AND INTENT
A. IN CASE OF AN INCONSISTENCY BETWEEN DRAWINGS AND SPECIFICATIONS OR WITHIN EITHER DOCUMENT NOT CLARIFIED BY ADDENDUM, THE BETTER QUALITY OR GREATER QUANTITY OF WORK IS TO BE PROVIDED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.03 DESCRIPTION
A. WORK INCLUDED: ALL LABOR AND MATERIALS REQUIRED TO FURNISH AND INSTALL THE STEEL JOIST WORK SHOWN ON THE DRAWINGS AND REQUIRED BY THESE SPECIFICATIONS. INCLUDE ALL BRIDGING, BRACING, BOTTOM CHORD EXTENSIONS, ANCHORS, EXTENDED ENDS AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION.

B. RELATED WORK SPECIFIED ELSEWHERE: THE GENERAL PROVISIONS OF THE CONTRACT APPLY TO THE WORK OF THIS SECTION, AS THOUGH REPRODUCED HEREIN. CAREFULLY EXAMINE ALL OTHER SECTIONS AND ALL DRAWINGS FOR RELATED WORK, WHICH INCLUDES BUT IS NOT LIMITED TO:
1. STRUCTURAL STEEL: SECTION 051200
2. METAL DECKING: SECTION 053100

C. WORK AFFECTED BY OTHERS: MECHANICAL FRAMING, LOADS, OPENINGS, AND STRUCTURE IN ANY WAY RELATED TO MECHANICAL REQUIREMENTS IS SHOWN FOR BIDDING PURPOSES ONLY. RESPONSIBILITY FOR COORDINATING THE WORK OF THIS SECTION WITH THESE REQUIREMENTS IS SOLELY THAT OF THE CONTRACTOR. CONTRACTOR'S REVIEW OF SHOW DRAWINGS WILL BE TAKEN TO INDICATE THAT THIS COORDINATION HAS BEEN ACCOMPLISHED.

D. INSPECTION AND TESTING REQUIRED BY THIS SECTION ARE TO BE PERFORMED BY AN AGENCY RETAINED BY THE CONSTRUCTION MANAGER. SEE SECTION 051200 FOR INSPECTION REQUIREMENTS.

1.04 QUALITY ASSURANCE

A. REFERENCE STANDARDS, BY THE STEEL JOIST INSTITUTE (SJI) AND THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):
1. STANDARD SPECIFICATIONS FOR OPEN WEB STEEL JOISTS (K-SERIES).
2. STANDARD SPECIFICATIONS FOR LONGSPAN STEEL JOISTS (LH-SERIES) AND DEEP LONGSPAN STEEL JOISTS (DLH-SERIES).

B. MANUFACTURER'S QUALIFICATIONS: MEMBERSHIP IN THE STEEL JOIST INSTITUTE (SJI).
1. SUBMIT MANUFACTURER CERTIFICATE, SIGNED BY THE JOIST MANUFACTURER, CERTIFYING THAT PRODUCTS FURNISHED COMPLY WITH SJI STANDARD SPECIFICATIONS AND IS CERTIFIED BY SJI TO MANUFACTURE JOISTS.

C. WELDERS' QUALIFICATIONS: PERSONNEL AND PROCEDURES ARE TO BE QUALIFIED IN ACCORDANCE WITH AWS D1.1.

D. TOLERANCES:
1. SWEEP: MAXIMUM 1/480 OF JOIST LENGTH. VARIATION, THROUGHOUT FULL LENGTH OF JOIST. *
2. SPACING: MAXIMUM 1
3. PLUMBNESS: ¼ INCH PER FOOT OF JOIST DEPTH.

E. STRUCTURAL PERFORMANCE:
1. ALL ROOF JOISTS SHALL BE DESIGNED FOR NET UPLIFT AS INDICATED ON THE DRAWINGS.
2. LIMIT LIVE LOAD DEFLECTION OF ROOF JOISTS TO 1/240 OF THE SPAN.

1.05 SUBMITTALS

A. SHOP DRAWINGS:
1. INDICATE MARK, NUMBER, TYPE AND LOCATION OF ALL JOISTS.
2. INDICATE ALL BRIDGING, INCLUDING SIZE, ATTACHMENT TO THE JOISTS, AND ANCHORAGE OF THE ENDS OF EACH LINE.
3. INDICATE BEARING AND CONNECTIONS DETAILS, AND HANDLING INSTRUCTIONS.
4. INDICATE PAINT TYPE, AND ALL ACCESSORIES REQUIRED FOR PROPER INSTALLATION OF JOISTS.
5. INDICATE MEMBER SIZES, GEOMETRY, AND WELDS.
6. INDICATE MEMBER DESIGN FORCES
7. FOR SPECIAL JOISTS, PROVIDE LOAD DIAGRAMS STATING ALL DISTRIBUTED AND CONCENTRATED LOADS APPLIED TO THE JOIST. THESE LOADS SHALL CORRESPOND TO THE LOADS SHOWN ON THE STRUCTURAL CONTRACT DRAWINGS.
8. INDICATE THAT JOISTS AND ACCESSORIES HAVE BEEN DESIGNED FOR SPECIFIED UPLIFT.

B. PROOF OF COMPLIANCE FOR MATERIALS: SUBMIT, ON REQUEST ONLY, THE FOLLOWING:
1. CERTIFIED COPIES OF MILL TEST REPORTS.
2. CERTIFICATES FOR WELDING PROCEDURES AND PERSONNEL.
3. INSPECTION REPORTS FOR FIELD CONNECTIONS.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING
A. PROVIDE TAGS ON JOISTS FOR READY IDENTIFICATION.

B. STORE JOISTS OFF GROUND, IN UPRIGHT POSITION. KEEP FREE OF DIRT AND OTHER DETRIMENTAL SUBSTANCES.

C. STORE AND HANDLE SO AS TO AVOID DAMAGE TO THE JOISTS. REPAIR OR REPLACE DAMAGED JOISTS. ALL REPAIRS SHALL BE APPROVED BY THE JOIST MANUFACTURER.

PART 2 PRODUCTS

2.01 MATERIALS
A. STEEL JOISTS AND ADDITIONAL STEEL SPECIFIED HEREIN OR ON THE DRAWINGS SHALL CONTAIN THE HIGHEST RECYCLED CONTENT AVAILABLE (A MINIMUM OF 95% WHERE POSSIBLE).

B. JOISTS: PER SJI REQUIREMENTS. CHORDS MAY BE DESIGNED USING FY=55 KSI IF MATERIAL CERTIFICATION IS PROVIDED.

C. BEARING PLATES, BRIDGING, ACCESSORIES: ASTM A36, FY=36 KSI.

D. PAINT: MANUFACTURER'S STANDARD RUST-INHIBITING PRIMER. COLOR: GRAY.

2.02 DESIGN CRITERIA

A. JOISTS SHALL BE DESIGNED TO SUPPORT A MINIMUM 500 LB. CONCENTRATED LOAD PLACED ANYWHERE ON THE TOP & BOTTOM CHORD WITHOUT THE NEED FOR ADDITIONAL WEB REINFORCING. THIS LOAD IS IN ADDITION TO SPECIFIED LOADING. ROUND BAR CHORDS ARE NOT PERMITTED.

B. EXTENDED ENDS ARE TO BE DESIGNED FOR LOADS ON DRAWINGS. IF NONE ARE GIVEN, DESIGN FOR THE SAME LOAD (LBS./LIN.FT.) AS THE JOIST.

C. BRIDGING: ALL BRIDGING SHALL BE ACCORDING TO THE REQUIREMENTS OF SJI.
1. ADDITIONAL BRIDGING SHALL BE PROVIDED AS REQUIRED FOR DESIGN AND ERECTION CONSIDERATIONS OF SPECIAL JOISTS.
2. PROVIDE BRIDGING AT FIRST BOTTOM PANEL POINT OF ROOF JOISTS, FOR UPLIFT CONSIDERATIONS.

D. JOISTS, BRIDGING, AND JOIST ANCHORAGES SHALL BE DESIGNED FOR ALL LOADS, INCLUDING NET UPLIFT.

E. JOIST GIRDERS, BRIDGING, AND JOIST GIRDER ANCHORAGES SHALL BE DESIGNED FOR ALL LOADS, INCLUDING COLLECTOR FORCES AND NET UPLIFT.

F. STRUCTURAL PERFORMANCE:
1. ALL ROOF JOISTS SHALL BE DESIGNED FOR NET UPLIFT INDICATED ON THE DRAWINGS
2. LIMIT LIVE LOAD DEFLECTION OF ROOF JOISTS TO 1/240 OF THE SPAN.

	A	02.23.2018	TJM	MCF	PLAN COMMISSION REVIEW
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GREAT LAKES CHEESE
2200 ENTERPRISE AVENUE
LA CROSSE, WISCONSIN 54603

SPECIFICATIONS

DENNIS GROUP
Plan • Design • Engineer • Build • Start-Up
dennisgroup.com
United States • Canada • Brazil • Portugal

DRAWING NO.
S10.003
5590

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052100 STEEL JOISTS (CONT)

2.03 FABRICATION

A. FABRICATE STEEL JOISTS IN ACCORDANCE WITH SJI.

B. BOTTOM CHORDS SHALL BE EXTENDED AND CONNECTED TO COLUMNS OR WEBS OF GIRDERS AT COLUMN LINES AND WHERE SHOWN ON STRUCTURAL DRAWINGS.

C. LH & DLH JOIST SEATS SHALL BE STANDARD DEPTH UNLESS SHOWN OTHERWISE. K SERIES JOISTS SHALL BE PROVIDED WITH A 5" SEAT. SEATS SHALL BE BEVELED WHEN SLOPE EXCEEDS ¼ INCH PER FOOT.

D. REMOVE LOOSE SCALE, HEAVY RUST, AND OTHER FOREIGN MATERIALS FROM FABRICATED JOISTS, GIRDERS AND ACCESSORIES BEFORE APPLICATION OF SHOP PAINT. PAINT APPLICATION SHALL COMPLY WITH SJI. PROVIDE GRAY STEEL JOIST SHOP PAINT CONFORMING TO STEEL STRUCTURE PAINTING COUNCIL (SSPC) - PAINT 15 UNLESS NOTED OTHERWISE. APPLY ONE SHOP COAT OF PRIMER PAINT TO STEEL JOISTS AND ACCESSORIES TO PROVIDE A CONTINUOUS DRY PAINT FILM THICKNESS OF LESS THAN 1.0 MIL.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. PRIOR TO BEGINNING WORK OF THIS SECTION, VERIFY THAT THE INSTALLED WORK OF OTHER TRADES IS COMPLETE AND CORRECT TO THE EXTENT NECESSARY FOR THE PROPER EXECUTION OF THE WORK OF THIS SECTION.

B. IN THE EVENT OF DISCREPANCIES, IMMEDIATELY NOTIFY THE ARCHITECT. DO NOT PROCEED WITH WORK AFFECTED BY THE DISCREPANCIES UNTIL THEY HAVE BEEN RESOLVED.

3.02 ERECTION

A. GENERAL: PER REQUIREMENTS OF SJI.

B. CONCENTRATED LOADS: PROVIDE REINFORCING FOR CHORDS OR WEBS AS REQUIRED AT POINTS OF CONCENTRATED LOADS.

C. TOUCH UP PAINTING: AFTER INSTALLATION, TOUCH UP FIELD WELDS, UNPAINTED AREAS, CONNECTIONS, AND ABRASIONS IN THE SHOP COAT, WITH THE SAME PAINT USED FOR THE SHOP COAT.

3.03 FIELD QUALITY CONTROL

A. INSPECTION SHALL BE AS SPECIFIED IN SECTION 051200.

END OF SECTION

053100 METAL DECKING

PART 1 - GENERAL

1.01 ITEMS REQUIRED BUT NOT SPECIFIED

A. IF AN ITEM OR MATERIAL OF THIS TRADE IS INDICATED ON THE DRAWINGS BUT NOT SPECIFICALLY LISTED IN THIS SECTION, PROVIDE SUCH ITEM OR MATERIAL AT A STANDARD OF QUALITY EQUAL TO THE STANDARD ESTABLISHED FOR THE BALANCE OF THE WORK SPECIFIED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.02 EXECUTION, CORRELATION, AND INTENT

A. IN CASE OF AN INCONSISTENCY BETWEEN DRAWINGS AND SPECIFICATIONS OR WITHIN EITHER DOCUMENT NOT CLARIFIED BY ADDENDUM, THE BETTER QUALITY OR GREATER QUANTITY OF WORK IS TO BE PROVIDED, IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

1.03 DESCRIPTION

A. WORK INCLUDED: ALL LABOR AND MATERIALS REQUIRED TO FURNISH AND INSTALL METAL DECKING AND ACCESSORIES INCLUDING CLOSURES AND ROOF SUMP PANS, WHERE SHOWN ON THE DRAWINGS AND/OR REQUIRED FOR A COMPLETE INSTALLATION. OPENINGS IN METAL DECK SHALL BE CUT UNDER THIS SECTION.

B. RELATED WORK SPECIFIED ELSEWHERE: THE GENERAL PROVISIONS OF THE CONTRACT APPLY TO THE WORK OF THIS SECTION, AS THOUGH REPRODUCED HEREIN. CAREFULLY EXAMINE ALL OTHER SECTIONS AND ALL DRAWINGS FOR RELATED WORK, WHICH INCLUDES BUT IS NOT LIMITED TO:
1. STRUCTURAL STEEL: SECTION 051200
2. STEEL JOISTS: SECTION 052100

C. INSPECTION AND TESTING REQUIRED BY THIS SECTION ARE TO BE PERFORMED BY AN AGENCY RETAINED BY THE OWNER/CONSTRUCTION MANAGER. SEE SECTION 051200 FOR INSPECTION REQUIREMENTS.

1.04 QUALITY ASSURANCE

A. REFERENCE STANDARDS:
1. SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, BY THE AMERICAN IRON AND STEEL INSTITUTE.
2. DESIGN MANUAL FOR FLOOR DECKS AND ROOF DECKS, BY THE STEEL DECK INSTITUTE.

B. MANUFACTURER'S QUALIFICATIONS: REGULARLY ENGAGED IN THE MANUFACTURE OF SIMILAR DECKING.

C. WELDERS' QUALIFICATIONS: PERSONNEL AND PROCEDURES ARE TO BE QUALIFIED IN ACCORDANCE WITH AWS D1.1.

D. ERECTOR'S QUALIFICATIONS: PERSONNEL AND PROCEDURES ARE TO BE QUALIFIED PER THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, AS GIVEN IN AWS D1.1

E. TESTING AGENCY QUALIFICATIONS: AN INDEPENDENT AGENCY QUALIFIED ACCORDING TO ASTM E 329 FOR TESTING INDICATED.

F. FIRE-TEST RESPONSE CHARACTERISTICS: WHERE INDICATED, PROVIDE STEEL DECK UNITS IDENTICAL TO THOSE TESTED FOR FIRE RESISTANCE PER ASTM E 119 BY A TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
1. FIRE-RESISTANCE RATINGS: INDICATED BY DESIGN DESIGNATIONS OF APPLICABLE TESTING AND INSPECTING AGENCY.
2. STEEL DECK UNITS SHALL BE IDENTIFIED WITH APPROPRIATE MARKINGS OF APPLICABLE TESTING AND INSPECTING AGENCY.

1.05 SUBMITTALS

A. SHOP DRAWINGS:
1. INDICATE MARK, NUMBER, TYPE AND LOCATION OF ALL DECK UNITS.
2. INDICATE METHOD OF ATTACHMENT TO SUPPORTING MEMBERS, AND SIDELAP FASTENING REQUIREMENTS.
3. PROVIDE PRODUCT AND INSTALLATION REQUIREMENTS FOR POWDER ACTUATED FASTENERS.
4. INDICATE DETAILS AND INSTALLATION INSTRUCTIONS FOR ALL ACCESSORIES.
5. INDICATE SEQUENCE OF INSTALLATION, WHERE CRITICAL.
6. WELDING CERTIFICATES.

B. MANUFACTURER'S CERTIFICATION:
1. CERTIFY COMPLIANCE WITH STRUCTURAL CRITERIA. PUBLISHED LOAD TABLES AND LITERATURE ARE USUALLY ACCEPTABLE. PROVIDE DESIGN CALCULATIONS ON REQUEST ONLY.
2. CERTIFY COMPLIANCE WITH FINISH CRITERIA WITH TEST REPORTS AS INDICATED.
3. CERTIFY COMPLIANCE WITH FACTORY MUTUAL REQUIREMENTS.

C. CERTIFICATION OF EXPERIENCE: SUBMIT, ON REQUEST ONLY, WRITTEN DESCRIPTION OF PERSONNEL, PROJECTS, AND EQUIPMENT WHICH DOCUMENT THE EXPERIENCE AND QUALIFICATIONS REQUIRED OF THE MANUFACTURER, ERECTOR, AND WELDERS.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. PREVENT DAMAGE TO DECK OR FINISH DURING HANDLING AND STORAGE. STORE ON BLOCKING OR PLATFORMS, OFF THE GROUND, WITH ONE ELEVATED FOR DRAINAGE.

B. PROTECT FROM RUSTING WITH WATERPROOF COVERING, OR STORAGE UNDER ROOF. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR STORAGE AND PROTECTION OF DECK SURFACES THAT ARE NOT PAINTED OR GALVANIZED.

PART 2 - PRODUCTS

2.01 DESIGN CRITERIA

A. ROOF DECK:
1. TYPE: SEE STRUCTURAL DRAWINGS.
2. FINISH: GALVANIZED DECK.
3. MEET OR EXCEED FACTORY MUTUAL REQUIREMENTS.
4. ALLOWABLE DEFLECTION: DESIGN AND FABRICATE DECK FOR A MAXIMUM DEFLECTION OF 1/240 OF THE CLEAR SPAN UNDER THE UNIFORM LIVE LOAD.

B. REFERENCE STANDARDS, BY THE STEEL DECK INSTITUTE (SDI):
1. SDI SPECIFICATIONS FOR STEEL ROOF DECK.
2. SDI SPECIFICATIONS FOR COMPOSITE FLOOR DECK.

C. MANUFACTURER'S QUALIFICATIONS: MEMBERSHIP IN THE STEEL DECK INSTITUTE (SDI).

D. SUBMIT MANUFACTURER CERTIFICATE, SIGNED BY THE DECK MANUFACTURER, CERTIFYING THAT PRODUCTS FURNISHED COMPLY WITH SDI STANDARD SPECIFICATIONS AND IS CERTIFIED BY SDI TO MANUFACTURE METAL DECK.

2.02 MATERIAL AND FINISHES

A. MATERIAL: STEEL SHEET CONFORMING TO ASTM A653, STRUCTURAL QUALITY GRADE 80.

B. FINISHES: GALVANIZED CONFORMING TO ASTM A924, G60.

C. GALVANIZING REPAIR PAINT: SSPC PAINT 20 OR DOD-P-21035, WITH DRY FILM CONTAINING A MINIMUM OF 94 PERCENT ZINC DUST BY WEIGHT.

D. ACCESSORIES: SAME MATERIAL AND FINISH AS DECK UNITS, EXCEPT THAT INTERIOR CLOSURES MAY BE OF COMPRESSIBLE MATERIAL.

E. FIELD TOUCH-UP PAINT: FOR GALVANIZED DECK, USE ZINC CHROMATE PAINT. TOUCH-UP FIELD CONNECTIONS AND ABRASIONS IN THE SHOP COAT WITH SAME PAINT USED FOR SHOP COAT.

F. SELF-TAPPING SCREWS: NO. 10 SELF-DRILLING SCREWS WITH LENGTHS ADEQUATE FOR THICKNESS OF BASE MATERIAL.

G. POWDER ACTUATED FASTENERS: CORROSION-RESISTANT, LOW-VELOCITY, CARBON-STEEL FASTENERS.
1. FASTENERS SHALL HAVE KNURLED SHANKS; MINIMUM 12MM DIAMETER STEEL WASHERS, AND SHALL BE ZINC ELECTROPLATED IN CONFORMANCE WITH ASTM B633, SC 1, TYPE III.
2. FASTENERS SHALL BE USED IN CONFORMANCE WITH SDI DESIGN PROCEDURES AND SHALL BE APPROVED BY FACTORY MUTUAL.
3. USE APPROPRIATE FASTENER FOR DECKING AND SUBSTRATE MATERIAL AND THICKNESS.
4. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
   a. HILTI ENP-19

2.03 FABRICATION

A. UNITS ARE TO BE CONTINUOUS OVER AT LEAST THREE SPANS, WHERE POSSIBLE. END LAPS ARE TO OCCUR OVER SUPPORTS.
1. ROOF DECK AND NON-COMPOSITE FORM DECK SHALL BE LAPPED OVER SUPPORTS WITH A MINIMUM END BEARING OF 1.5 INCHES FOR ALL DECK UNITS.

B. FORM DECK WITH NESTING SIDELAPS.

C. DECKING SHALL BE CHEMICALLY CLEANED AND PHOSPHATE TREATED AFTER GALVANIZING TO AID IN THE ADHERENCE OF FINAL COAT OF PAINT.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. PRIOR TO BEGINNING WORK OF THIS SECTION, VERIFY THAT THE INSTALLED WORK OF OTHER TRADES IS COMPLETE AND CORRECT TO THE EXTENT NECESSARY FOR THE PROPER EXECUTION OF THE WORK OF THIS SECTION.

B. IN THE EVENT OF DISCREPANCIES, IMMEDIATELY NOTIFY THE ARCHITECT. DO NOT PROCEED WITH WORK AFFECTED BY THE DISCREPANCIES UNTIL THEY HAVE BEEN RESOLVED.

3.02 ERECTION

A. INSTALL DECKING IN ACCORDANCE WITH APPROVED PLACING DRAWINGS.

B. TOLERANCE: ALIGN ADJACENT UNITS WITH ¼" IN 40 FEET

C. ATTACHMENT TO SUPPORTING MEMBERS:
1. ROOF DECK (TYPICAL): ATTACH TO SUPPORTING STEEL WITH POWER ACTUATED FASTENERS OR SCREWS ONLY AND NOT WELDED TO SUPPORTING STRUCTURE. (SEE S1.601 FOR ATTACHMENT).
2. COMPOSITE FLOOR DECK (MEZZANINE): ATTACH TO SUPPORTING STEEL WITH POWER ACTUATED FASTENERS OR SCREWS ONLY AND NOT WELDED TO SUPPORTING STRUCTURE. FASTENERS SHALL BE AT A MAXIMUM SPACING OF 12 INCHES ON CENTER (EVERY OTHER RIB).

D. MECHANICAL FASTENERS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND FACTORY MUTUAL REQUIREMENTS. SHOP DRAWINGS SHALL BE SUBMITTED INDICATING FASTENER DATA INCLUDING SIZE VERSUS STEEL SUBSTRATE MATERIAL, SPACING, FASTENER CAPACITY, INCLUDING DIAPHRAGM SHEAR CAPACITY, METHODS OF INSTALLATION, AND PROGRAM FOR QUALITY ASSURANCE OF INSTALLATION.

E. SIDELAP FASTENING:
1. ROOF DECK (TYPICAL): SEE S1.601 FOR SIDELAP SPACING. END LAPS SHALL BE A MINIMUM OF 2 INCHES AND SHALL OCCUR OVER THE SUPPORTS.
2. COMPOSITE FLOOR DECK: (2)-#10 SELF-TAPPING SCREWS PER SPAN. END LAPS SHALL BE A MINIMUM OF 2 INCHES AND SHALL OCCUR OVER THE SUPPORTS.

F. OPENINGS: FIELD CUT OPENINGS, BEVELS, MITERS, ETC. AS REQUIRED.
1. REINFORCE ROOF DECKING AROUND OPENINGS LESS THAN 10 INCHES IN ANY DIMENSION BY MEANS OF A FLAT STEEL SHEET PLACED OVER THE OPENING AND SCREWED TO THE TOP SURFACE OF THE DECK. PROVIDE STEEL SHEET OF THE SAME QUALITY AS THE DECK UNITS, NOT LESS THAN 20 GAGE AND AT LEAST 12 INCHES WIDER AND LONGER THAN THE OPENING. PROVIDE FASTENERS AT EACH CORNER AND SPACED NOT MORE THAN 6 INCHES O.C. ALONG EACH SIDE.
2. STEEL ANGLE REINFORCEMENT SHALL BE PROVIDED FOR OPENINGS 10 INCHES AND LARGER. DECK OPENING SHALL BE CUT UNDER THIS SECTION.

G. HANGING LOADS: DO NOT HANG ITEMS FROM THE UNDERSIDE OF METAL DECKS, UNLESS SPECIFICALLY APPROVED BY THE ARCHITECT.

H. CONSTRUCTION LOADS: DO NOT USE DECK AS STORAGE OR WORKING PLATFORM UNTIL IT HAS BEEN PERMANENTLY ATTACHED TO SUPPORTS. ASSURE THAT CONSTRUCTION LOADS DO NOT EXCEED THE CARRYING CAPACITY OF THE DECK.

I. REPAIR AND TOUCH-UP:
1. WHERE THE DECK WILL BE EXPOSED TO VIEW, REMOVE ANY UNITS WITH DAMAGE OR DEFECT THAT CANNOT BE CONCEALED BY PAINTING.
2. WHERE DECK WILL NOT BE EXPOSED TO VIEW, REPAIR ANY CUTS AND HOLES WITH PLATE OF THE SAME GAGE AS DECK.
3. TOUCH UP ALL DAMAGED AREAS OF FINISH, ON BOTH TOP AND BOTTOM SIDES OF DECK.
   a. WIRE BRUSH, CLEAN AND PAINT WITH GALVANIZING REPAIR PAINT, APPLIED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ASTM A780.

3.03 FIELD QUALITY CONTROL

A. INSPECTION SHALL BE AS SPECIFIED IN SECTION 051200.

END OF SECTION

RELEASE	DATE	BY	APP.	
A	02.23.2018	TJM	MCF	PLAN COMMISSION REVIEW

GREAT LAKES CHEESE
2200 ENTERPRISE AVENUE
LA CROSSE, WISCONSIN 54603

SPECIFICATIONS

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