A. DESIGN CRITERIA

1. BUILDING CODE – 2021 INTERNATIONAL BUILDING CODE (IBC).

2. GRAVITY LOADS IN ACCORDANCE WITH ASCE/SEI 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" –

OCCUPANCY OR USE	UNIFORM LIVE LOAD*	CONCENTRATED LIVE LOAD
STAIRS AND EXITWAYS	100 PSF	300 LB.* AND 1000 LB.**
SLAB–ON–GRADE U.N.O.	200 PSF	2000 LB.***
SLAB–ON–GRADE (WAREHOUSE BLDG)	500 PSF	10000 LB.****
SLAB–ON–GRADE (SWITCHGEAR BLDG)	500 PSF	2000 LB.***
ROOF (MINIMUM)	20 PSF	–––––––
WALKWAYS & ELEVATED PLATFORMS (OTHER THAN EXITWAYS)	75 PSF	1000 LB.***

* 300 LB. CONCENTRATED LOAD APPLIED AT STAIR TREADS ON AREA OF 2 IN BY 2 IN.(IBC 2021)
** 1000 LB. CONCENTRATED LOAD APPLIED AT CENTER OF ANY STAIR TREAD.(OSHA)
*** 1000 LB. AND 2000 LB. CONCENTRATED LOAD APPLIED ON ANY 2.5 FT. X 2.5 FT. AREA.
**** 10,000 LB. CONCENTRATED LOAD APPLIED ON ANY 8 IN. x 8 IN. FLOOR AREA.

3. SNOW LOAD IN ACCORDANCE WITH ASCE/SEI 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES". GROUND ROOF SNOW LOAD (Pg) = 0 PSF.

4. LATERAL LOADS –

A. WIND LOAD IN ACCORDANCE WITH ASCE/SEI 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" –

BASIC WIND SPEED	V = 150 mph (PLAQUEMINE, LA)
BASIC WIND SPEED (CCR AND SWITCHGEAR BLDGS).	V = 195 mph
WIND EXPOSURE CATEGORY	C

B. SEISMIC LOAD IN ACCORDANCE WITH ASCE/SEI 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" –

1. DESCRIPTION OF THE STRUCTURES AND LATERAL FORCE RESISTING SYSTEMS

THE STRUCTURAL SYSTEM IS A BUILDING FRAME SYSTEM WITH AN ESSENTIALLY COMPLETE STEEL SPACE FRAME PROVIDING SUPPORT FOR GRAVITY LOADS. RESISTANCE TO LATERAL LOADS IS PROVIDED BY STRUCTURAL STEEL MOMENT FRAMES AND BRACED FRAMES.

2. SEISMIC DESIGN PARAMETERS –

RISK CATEGORY	III
SEISMIC IMPORTANCE FACTOR	Ie = 1.25 (CATEGORY III)
MAPPED SPECTRAL RESPONSE ACCELERATION	Ss = 0.125**
MAPPED SPECTRAL RESPONSE ACCELERATION	S1 = 0.06**
DESIGN SPECTRAL RESPONSE ACCELERATION	Sds = 0.200**
DESIGN SPECTRAL RESPONSE ACCELERATION	Sd1 = 0.168**
SITE CLASSIFICATION	CLASS E
SEISMIC DESIGN CATEGORY	C
SEISMIC RESPONSE COEFFICIENT	Cs = 0.083**
RESPONSE MODIFICATION COEFFICIENT	R = 3*
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE PROCEDURE

* STRUCTURAL STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE.
** THESE PARAMETERS ARE IN ACCORDANCE WITH SPP–2. SEISMIC RESPONSE COEFFICIENT WHICH IS CALCULATED BY THESE PARAMETERS IS SHINTECH SPECIFICATION AND IS BIGGER THAN ONE WHICH IS CALCULATED IN ACCORDANCE WITH SPP–4 GEOTECHNICAL REPORT.

3. NO ALLOWANCE MADE FOR FUTURE EXTENSIONS OR ADDITIONS.
4. SPECIAL LOADS – NONE

5. LOAD COMBINATIONS –

A. LOAD COMBINATIONS IN ACCORDANCE ASCE 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES". ASCE 7–16 USED IN COMBINATION WITH "AISC SPECIFICATIONS, 15TH EDITION" AND "ACI 318–19".

6. DESIGN AND DIMENSIONS FOR STEEL FRAMING SUPPORTING EQUIPMENT ARE BASED ON INFORMATION, DESIGN WEIGHTS, AND SKELETON DRAWINGS PROVIDED BY SHINTECH AND HITACHI ARCHITECTS AND ENGINEERS. CONTRACTOR SHALL COORDINATE EQUIPMENT, EQUIPMENT ANCHORAGE REQUIREMENTS, DESIGN WEIGHTS AND STEEL FLOOR PLATE OPENINGS ARE VALID FOR FINAL SELECTED EQUIPMENT PRIOR TO BEGINNING FABRICATION OR CONSTRUCTION.

B. STRUCTURAL STEEL –

1. STRUCTURAL STEEL HAS BEEN DESIGNED IN ACCORDANCE WITH THE AISC 325 STEEL CONSTRUCTION MANUAL, 15th EDITION AND ANSI/AISC 360–16 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.

A. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STEEL ERECTION STANDARDS 29–CFR, SUBPART R.

2. STRUCTURAL STEEL SHALL MEET THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE NOTED ON THE DRAWINGS –

TYPE	ASTM	GRADE	FY KSI (MIN.)
STRUCTURAL WIDE FLANGE BEAMS AND COLUMNS (W–SHAPES)	A992	–––––––––––	50
STRUCTURAL TEES (WT–SHAPES)	A992	–––––––––––	50
STRUCTURAL CHANNELS AND ANGLES (C, MC, AND L–SHAPES)	A36	–––––––––––	36
STRUCTURAL PLATES AND BARS (U.N.O.)	A36	–––––––––––	36
STRUCTURAL STEEL PLATES FOR BOLTED MOMENT CONNECTIONS	A572	50	50
STRUCTURAL STEEL CHECKERED (DIAMOND) FLOOR PLATES	A786	–––––––––––	36
GRATING	A569	–––––––––––	38
STRUCTURAL PIPE	A53	B, TYPE E OR S	35
STRUCTURAL PIPE (SUBSTITUTION)	A500	B	46
STRUCTURAL TUBING (HSS–SHAPES)	A500	C	50
STRUCTURAL ANCHOR RODS	F1554	–––––––––––	36
	WITH WELDABILITY SUPPLEMENT S1 & CARBON EQUIVALENT FORMULA PER ASTM F1554 SECTION 1.5.2.1		
STRUCTURAL HIGH STRENGTH BOLTS	F3125 GRADE A325 TYPE1	–––––––––––	Fu = 120 KSI
	F3125 GRADE A490 TYPE1	–––––––––––	Fu = 150 KSI

3. STRUCTURAL STEEL CONNECTIONS –

A. ALL CONNECTIONS NOT DETAILED OR OTHERWISE NOTED SHALL BE DESIGNED BY THE FABRICATOR. SHOP DRAWINGS AND CONNECTION CALCULATIONS SHALL BE SUBMITTED BEARING THE SEAL OF AN ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.

BEAM SHEAR CONNECTIONS SHALL BE STANDARD AISC CONNECTIONS AND SHALL BE DESIGNED USING "Table 3–6 Maximum Total Uniform Load, kips" FOUND IN PART 2 OF THE "STEEL CONSTRUCTION AISC MANUAL 15TH EDITION". THE TABLE PROVIDED MAXIMUM TOTAL UNIFORM LOAD ON THE BEAM LENGTH RESPECTIVELY. THE LOAD CAN BE APPLIED FOR THE CONNECTION DESIGN BY DIVIDING BY 2. PLUS ANY AXIAL LOAD INDICATED ON THE DRAWINGS.

CONNECTION DESIGN SHALL BE BASED ON BEARING TYPE BOLTED CONNECTIONS WITH BOLTS "SNUG TIGHT" PER AISC. WELDED TYPE CONNECTIONS SHALL BE APPROVED FOR USE PRIOR TO SUBMITTAL OF SHOP DRAWINGS.

B. WHERE PRETENSIONING TO BOLT IS REQUIRED ON CONNECTION SHALL BE INDICATED AS (PT). WHERE SLIP–CRITICAL CONNECTION IS REQUIRED ON CONNECTION SHALL BE INDICATED AS (SC).

PRETENSIONED OR SLIP–CRITICAL CONNECTION SHALL BE TIGHTENDED TO A BOLT TENSION NOT LESS THAN THAT GIVEN IN AISC TABLE J3.1.

C. CONNECTION BOLTS INDICATED ON THE DRAWINGS ARE A325 BEARING TYPE "N" UNLESS NOTED OTHERWISE.

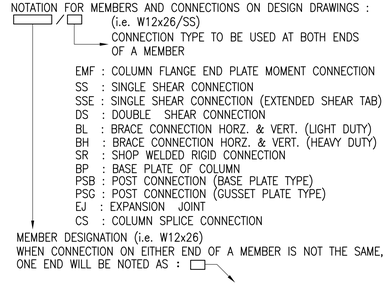
D. BOLTS SHALL BE IN STANDARD SIZE HOLES UNLESS NOTED OTHERWISE.

E. MINIMUM SIZE OF HIGH STRENGTH BOLTS
THE SIZE OF HIGH STRENGTH BOLTS SHALL BE MORE THAN OR EQUAL TO 3/4 INCH IN DIAMETER UNLESS OTHERWISE NOTED.

F. STANDARD BOLTS
UNLESS OTHERWISE SPECIFIED, STANDARD BOLTS ASTM A307 GRADE A WITH THE DIAMETER OF 5/8 INCH SHALL BE USED FOR LADDERS, STAIR TREADS, PURLINS, GIRTS, DOOR FRAMES AND HANDRAIL CONNECTIONS.
ASTM A563 GRADE A STANDARD NUTS SHALL BE USED FOR STANDARD BOLTS.

G. MINIMUM NUMBER OF HIGH STRENGTH BOLTS
THE MINIMUM NUMBER OF HIGH STRENGTH BOLTS SHALL BE TWO(2).

H. NOTATION FOR MEMBERS AND CONNECTIONS ON DESIGN DRAWINGS :



4. STEEL FRAMING CONNECTIONS SHALL BE TIGHTENED AND COLUMNS SHALL BE LEVELED AND GROUTED IN PLACE BEFORE FLOOR PLATE IS ATTACHED TO FRAMING.

5. NO HOLES OR LENGTH ADJUSTMENTS SHALL BE CUT IN STEEL BEAMS IN THE FIELD UNLESS APPROVED BY THE ENGINEER.

6. FLOORS (TYP. U.N.O.) – STEEL FLOOR PLATE SHALL BE 1/4 INCH THICK CHECKERED FLOOR PLATE CONFORMING TO ASTM A786 COMPLYING WITH ASTM A36, SHALL HAVE A YIELD STRENGTH OF 36 KSI, AND SHALL BE ATTACHED TO SUPPORTING MEMBERS AS SHOWN ON DETAILS 6 ON SHEET LPG4–40000–25

7. ALL STRUCTURAL AND MISCELLANEOUS STEEL FRAMING, GUARDRAIL, HANDRAIL, STAIRS, FLOOR PLATE, GRATING, ETC. SHALL BE HOT DIP GALVANIZED ACCORDING TO ASTM A123, ASTM A153 AND ASTM F2329 UNLESS NOTED OTHERWISE.

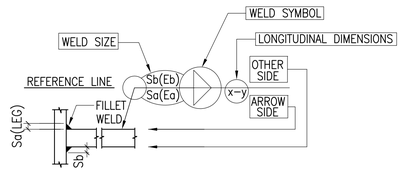
8. WELDED CONNECTIONS

A. CODES AND SPECIFICATIONS
ALL WELDING AND WELDED CONNECTIONS SHALL BE IN ACCORDANCE WITH STRUCTURAL WELDING CODE–STEEL (AWS D1.1/D1.1M).

B. WELDING ELECTRODES
WELDING ELECTRODES FOR SHIELD METAL ARC WELDING (SMAW) SHALL CONFIRM TO AWS A5.1 OR A5.5.
FOR FILLET WELD, ELECTRODES CLASSIFICATION E70XX (Fexx=70ksi) OR EQUIVALENT SHALL BE USED. WELDING PROCESS OTHER THAN SMAW MAY BE USED WITH APPROVAL OF SHINTECH AND HITACHI ARCHITECTS AND ENGINEERS

C. WELDERS
ALL WELDERS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS.

D. WELDING SYMBOLS
WELDING SYMBOLS ARE AS FOLLOWS IN ACCORDANCE WITH AWS.A2.4



WELD DIMENSIONS (IN INCHES)
Sa: DEPTH OF PENETRATION OR SIZE ON ARROW SIDE
Ea: EFFECTIVE THROAT ON ARROW SIDE
Sb: DEPTH OF PENETRATION OR SIZE ON OPPOSITE ARROW SIDE
Eb: EFFECTIVE THROAT ON OPPOSITE ARROW SIDE

LONGITUDINAL DIMENSIONS (IN INCHES)
(NO DIMENSIONS INDICATE FULL LENGTH)
x : LENGTH WELD
y : PITCH (C/C SPACING) OF WELDS

WELD SYMBOL

: FILLET WELD — : FLUSH
: SQUARE GROOVE BUTT — : CONVEX
: BEVEL GROOVE WELD — : ALL ROUND WELD
: V–GROOVE WELD — : FIELD WELD
: BACKING

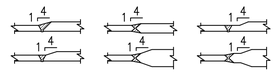
E. GROOVE WELD

1. WELD ACCESS HOLES
WELD ACCESS HOLES SHALL SATISFY ALL REQUIREMENTS OF ANSI/AISC 360–16 SECTION J1.6.

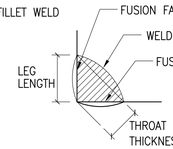
2. WELDING TABS
ALL RUN–OFF BARS AND EXTENSION TABS SHALL BE REMOVED.

3. FIELD WELDING
ALL FIELD WELDING SHALL BE PERFORMED IN FLAT OR VERTICAL WELDING POSITIONS.

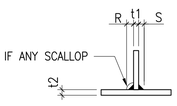
4. ALIGNMENT OF BUTT JOINTS
THE ROOT EDGES OR ROOT FACES OF BUTT JOINTS SHALL NOT BE OUT OF ALIGNMENT BY MORE THAN
① 25% OF THICKNESS OF THINNER MATERIAL, FOR MATERIALS UP TO AND INCLUDING 12 mm.
② 3mm FOR MATERIAL THICKER THAN 12mm.
BUTT JOINTS BETWEEN PARTS HAVING UNEQUAL THICKNESS SHALL HAVE A SMOOTH TRANSITION BETWEEN OFFSET SURFACES AT A SLOPE OF NO LESS THAN 1 TRANSVERSE TO 4 LONGITUDINAL WITH SURFACE OF EITHER PART AS SHOWN BELOW.



F. FILLET WELD



1. STANDARD FILLET WELDING SIZE ; S



DIMENSIONS (INCH)		
BASE METAL THICKNESS (t)	LEG LENGTH (S)	R
(t) < ¼"	S=t	1
¼" ≦ (t) < 5/16"	¼"	1
5/16" ≦ (t) < 7/16"	5/16"	1
7/16" ≦ (t) < 5/8"	⅜"	1
5/8" ≦ (t) < ¾"	½"	1
¾" ≦ (t) < 7/8"	9/16"	1
7/8" ≦ (t) tw	5/8"	1

NOTES :
1. UNLESS NOTED OTHERWISE, STANDARD FILLET WELDING SIZE SHALL BE USED.
2. WELDING FOR STANDARD CONNECTIONS SHALL BE REFERRED TO THE STANDARD DRAWINGS FOR CONNECTION.
3. BASE METAL SHALL BE t=t1 OR t2 WHICHEVER IS THINNER.
4. BASE MATERIAL SHALL BE A992 OR A36 OR EQUIVALENT AND ELECTRODES SHALL BE E70XXX.
5. IF STANDARD FILLET WELDING IS NOT USED, MINIMUM WELDING SIZE SHALL CONFIRM TO AWS D1.1 CLAUSE 5.14 (TABLE 5.8).

2. FILLET WELDS ON THE OPPOSITE SIDES OF A COMMON PLANE SHALL BE INTERRUPTED AT A CORNER COMMON BOTH WELDS.

C. PREFABRICATED METAL BUILDING –

1. THE BUILDINGS SHALL BE PRE–ENGINEERED PREFABRICATED METAL STRUCTURES OF THE SIZE AND CONFIGURATION SHOWN. THE BUILDINGS SHALL BE FABRICATED IN ACCORDANCE WITH AISC, MBMA AND AISI LATEST SPECIFICATIONS. WHEN CONFLICTS OCCUR BETWEEN AISC, MBMA AND AISI, THE MOST STRINGENT SHALL GOVERN. THE DIMENSIONAL TOLERANCES OUTLINED IN THE AWS CODE UNDER WORKMANSHIP AND THE TOLERANCES APPLICABLE TO ROLL FORMED STEEL UNDER THE AISC "STANDARD MILL PRACTICE" SECTION SHALL BE REQUIRED IN THE FABRICATION AND ERECTION OF THE STEEL BUILDING FRAMES.

2. REFER TO AND COORDINATE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.

3. THE METAL BUILDING SYSTEM SHALL BE DESIGNED ACCORDING TO THE BUILDING CODE, AISC, MBMA AND AISI LATEST SPECIFICATIONS. WHEN CONFLICTS OCCUR, THE MOST STRINGENT SHALL GOVERN. THE FOLLOWING ARE ADDITIONAL DESIGN REQUIREMENTS:

A. A COMPLETE DESIGN ANALYSIS INCLUDING ALL CALCULATIONS FOR THE RIGID FRAMES, PORTAL FRAMES, GIRTS, PURLINS, FLOOR FRAMING SYSTEM AND LATERAL LOAD RESISTING SYSTEM FOR WIND AND SEISMIC LOADS SHALL BE SUBMITTED FOR REVIEW WITH THE SHOP DRAWINGS. SHOP DRAWINGS SHALL INDICATE ALL EMBEDDED ITEMS AND INCLUDE AN ANCHOR BOLT LAYOUT. SHOP DRAWINGS SHALL INCLUDE DETAILS OF ALL MAIN MEMBERS, TYPICAL CONNECTIONS (SHOWING BOLT HOLES AND WELDS) AND ERECTION DRAWINGS. SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED BEARING THE SEAL AND SIGNATURE OF AN ENGINEER REGISTERED IN THE STATE OF LOUISIANA.

B. THE METAL BUILDING SYSTEM SHALL BE COORDINATED WITH AND DESIGNED TO SUPPORT ALL MECHANCAL, ELECTRICAL AND PROCESS RELATED EQUIPMENT, PIPING, CONDUIT, ETC. ADDITIONAL GIRTS OR PURLINS SHALL BE PLACED IN CONVENIENT LOCATIONS FOR ATTACHMENT AND SUPPORT OF ALL EQUIPMENT, PIPING, CONDUIT, ETC. REFER TO AND COORDINATE WITH MECHANICAL, ELECTRICAL, ARCHITECTURAL AND PROCESS RELATED SERIES DESIGN DOCUMENTS FOR EQUIPMENT, PIPING, CONDUIT, MATERIALS, ETC. LOCATIONS, LOADS AND SUPPORT REQUIREMENTS.

C. THE METAL BUILDING SYSTEM SHALL BE DESIGNED TO LIMIT THE LATERAL DEFLECTION TO H/400 (H BEING THE EAVE HEIGHT IN INCHES) AT THE BUILDING EAVE FOR THE BASIC WIND SPEED CALLED FOR IN THE STRUCTURAL NOTES SECTION "A". MINIMUM WEB THICKNESS OF RIGID AND PORTAL FRAMES SHALL BE 3/16" AND THE MINIMUM FLANGE THICKNESS OF RIGID AND PORTAL FRAMES SHALL BE 3/8".

D. THE LATERAL LOAD RESISTING SYSTEM SHALL UTILIZE RIGID FRAMES WITH PINNED BASES, PORTAL FRAMES WITH PINNED BASES, VERTICAL AND HORIZONTAL CROSS BRACING AND TAPERED COLUMNS AS SHOWN / REQUIRED ON DRAWINGS. REFER TO NOTE "G" BELOW FOR INTENDED PORTAL FRAME / BRACED BAYS LOCATIONS. COORDINATED LOCATIONS OF ROOF BRACES.

E. THE METAL BUILDING SYSTEM SUPPLIER SHALL PROVIDE THE STRUCTURAL STEEL TUBES INDICATED AT THE TOP OF THE EXTERIOR CMU WALLS. THESE WALLS ARE DESIGNED TO SPAN VERTICALLY AND, AS SUCH, WILL RESULT IN CONCENTRATED LATERAL LOADS BEING IMPOSED ON THE STRUCTURE BY THE SUPPORTING TUBES. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

F. THE FOUNDATION SYSTEM SHOWN ON THE CONTRACT DRAWINGS IS PRELIMINARY PENDING THE RECEIPT OF FINAL DESIGN REACTIONS AND SUPPORT REQUIREMENTS FOR THE PRE–ENGINEERED METAL BUILDING SYSTEM. THE METAL BUILDING MANUFACTURER SHALL SUBMIT THIS INFORMATION AT LEAST FOUR WEEKS PRIOR TO BEGINNING ANY SITE PREPARATION OR CONSTRUCTION.

G. PROVISIONS IN THE PRELIMINARY FOUNDATION DESIGN HAVE BEEN MADE TO SUPPORT FRAMES, PORTAL FRAMES AND VERTICAL BRACES AT THE LOCATIONS SHOWN COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

H. THE METAL BUILDING SYSTEM DESIGN SHALL CONSIDER AND PROVIDE CAPACITY TO SUPPORT EQUIPMENT TO INCLUDE BUT NOT LIMITED TO 10 PSF.

I. PROVIDE LATERAL BRACING FOR BOTH FLANGES OF GIRTS WITH SUPPORTING CALCULATIONS (FLANGE CONNECTED TO WALL PANEL SHALL NOT BE ASSUMED TO BRACE OPPOSITE FLANGE).

J. FRAME MEMBERS WILL BE DESIGNED FOR AN UNBRACED LENGTH EQUAL TO THE DISTANCE BETWEEN ROOF X–BRACES.

K. JOIST TOP AND BOTTOM CHORDS SHALL BE DESIGNED FOR UNBRACED LENGTHS EQUAL TO DISTANCE BETWEEN BRIDGING.

L. JOIST SHOP DRAWINGS WITH CALCULATIONS FOR UPLIFT AND REFLECTING ACTUAL UNBRACED LENGTHS SHALL BE SUBMITTED FOR REVIEW.

M. JOISTS USED AS COMPRESSION STRUTS FOR ROOF X–BRACING SHALL HAVE CALCULATIONS VERIFYING THEIR ADEQUACY FOR AXIAL COMPRESSION PLUS BENDING.

N. IN ADDITION TO THE DESIGN LOADS SHOWN AND/OR THOSE LOADS FROM THE CRITERIA INDICATED IN THE GENERAL STRUCTURAL NOTES, PART A "DESIGN CRITERIA", THE METAL BUILDING SYSTEM DESIGN LOADS SHALL BE COORDINATED WITH ALL OTHER DISCIPLINE REQUIREMENTS AND FINAL EQUIPMENT SELECTION.

O. COORDINATE WITH WALL SECTIONS AT OVERHEAD DOORS ON ARCHITECTURAL SERIES DRAWINGS AND PROVIDE STRUCTURAL STEEL CHANNEL JAMBS AND HEAD MEMBERS AT OVERHEAD DOORS.

D. MISCELLANEOUS –

1. SHOP DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH PROVISIONS OF THE CONTRACT.

2. CONTRACTOR SHALL SUPPLY ALL ITEMS FOR ATTACHING MECHANICAL AND ELECTRICAL EQUIPMENT TO THE STRUCTURE OR FOUNDATIONS TO RESIST ALL LOADS INCLUDING SEISMIC FORCES. ATTACHMENT SHALL BE MADE SO AS NOT TO OVERSTRESS STRUCTURAL MEMBERS OR FOUNDATIONS.

3. SUBSTITUTION OF EXPANSION ANCHORS FOR EMBEDDED ANCHORS SHOWN ON THE DRAWINGS WILL NOT BE PERMITTED.

4. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING SERVICES –

A. VERIFICATION OF ALL DIMENSIONS, ELEVATIONS, OPENING SIZES, AND MECHANICAL EQUIPMENT WEIGHTS PRIOR TO STARTING WORK.

B. REMOVE ALL ABANDONED FOUNDATIONS, UTILITIES, PIPELINES, ETC. THAT INTERFERE WITH NEW CONSTRUCTION.

C. PROVIDE TEMPORARY BRACING AND SHORING AS REQUIRED FOR STABILITY DURING CONSTRUCTION.

5. PLANS, SECTIONS, AND DETAILS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.

6. CONSTRUCTION DOCUMENTS CONSIST OF THE DRAWINGS AND A SEPARATE BOOK OF SPECIFICATIONS. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY, NEITHER IS MEANT TO STAND ALONE FOR ANY PORTION OF THE WORK DESCRIBED HEREIN. ANY CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS SHALL BE REPORTED IMMEDIATELY TO THE OWNER.

7. CONTRACTOR SHALL COORDINATE AND VERIFY ALL EQUIPMENT ANCHORAGE REQUIREMENTS WITH FINAL SELECTED EQUIPMENT PRIOR TO BEGINNING CONSTRUCTION.

CONTINUED ON SHEET 02

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
△				
△				
△				
△				
△				

SHINTECH PLAQUEMINE PLANT–4

GENERAL

STRUCTURAL TYPICAL / STEEL

GENERAL NOTE (1/2)

SHINTECH

APPROVED BY I.MARUYAMA	DATE: 05/08/25	SCALE: NONE
CHECKED BY N.MORI		AREA: –
DRAWN BY Y.NAKAJIMA	DWG. NO.	LPG4–40000–01 △0

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E. REQUIRED STRUCTURAL INSPECTIONS

1. PERIODIC AND SPECIAL STRUCTURAL TEST AND INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE MORE STRINGENT REQUIREMENTS OF THE PROJECT SPECIFICATIONS AND THE 2021 INTERNATIONAL BUILDING CODE (CHAPTER 17, SPECIAL INSPECTIONS & TESTS) AND AS DIRECTED BY THE PROVISIONS OF THE CONTRACT.
2. INSPECTION BY THE BUILDING OFFICIAL.
   - A. FINAL INSPECTION SHALL BE MADE WHEN THE CONTRACTOR HAS COMPLETED THE STRUCTURE.
3. IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE, THE CONTRACTOR WILL PROVIDE QUALIFIED PERSONNEL FROM AN INDEPENDENT TESTING AGENCY TO PERFORM THE FOLLOWING SPECIAL INSPECTIONS AND REPORT THE FINDINGS TO THE OWNER. THIS DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE DESIGN DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR 24 HOURS IN ADVANCE OF ALL REQUIRED INSPECTIONS.
   - A. FRAMING INSPECTIONS SHALL BE PROVIDED DURING THE ERECTION OF ALL STEEL FRAMING MEMBERS.
   - B. DUCTILE-MOMENT RESISTING STEEL FRAMES SHALL HAVE WELDS INSPECTED IN ACCORDANCE WITH THE CODE.
   - C. HIGH-STRENGTH BOLTS SHALL BE INSPECTED DURING INSTALLATION AND TIGHTENING IN ACCORDANCE WITH THE CODE.
   - D. SPRAY-APPLIED FIREPROOFING INSPECTIONS SHALL BE MADE IN ACCORDANCE WITH UL STANDARD UL1709(LATEST) & API PUBLICATION API 2218(LATEST).

F. ROOF PANEL NOTES:

1. PANEL PROFILE IS TO BE A TAPERED-RIB-PROFILE, LAP-SEAM METAL ROOF PANELS. THE PANEL COVERAGE IS 36" WIDE WITH A MAJOR-RIB SPACING OF 12" O.C..
2. PREFINISHED METAL SHALL BE 24 GAUGE HOT-DIPPED GALVANIZED STEEL ASTM A446-85 GRADE C, G-90 COATING ASTM A653-94 AND A924-94.
3. FINISH SHALL BE KYNAR 500 WITH COLOR SELECTED FROM MANUFACTURERS RANGE OF COLORS.
4. ALL EXPOSED ADJACENT FLASHING SHALL BE OF THE SAME MATERIAL AND FINISH AS PANEL SYSTEM.

G. FLASHING, TRIM AND CLOSURE NOTES:

1. FLASHING AND/OR TRIM SHALL BE FURNISHED AT EAVES, RAKE, CORNERS, BASE, FRAMED OPENINGS, AND WHEREVER NECESSARY TO SEAL AND PROVIDE A FINISHED APPEARANCE, COLOR TO BE SELECTED FROM MANUFACTURERS FULL RANGE OF COLORS.

H. FASTENER NOTES:

1. ROOF FASTENERS SHALL BE SELF-DRILLING CARBON STEEL SCREWS WITH INTEGRAL 5/16 INCH HEX WASHER HEAD. SCREWS FOR PANEL TO STRUCTURAL APPLICATION SHALL BE #12 DIAMETER WITH A MINIMUM LENGTH OF 1¼ INCHES. STITCH SCREWS SHALL BE ¼ DIAMETER AND ⅞ INCHES LONG.
2. PANEL TO STRUCTURAL SCREWS SHALL HAVE A SEALING WASHER.
3. ENTIRE FASTENER SHALL HAVE A 0.0005 INCHES MINIMUM THICKNESS ZINC PLATING PLUS A POLYMER COATING FOR LONG TERM CORROSION RESISTANCE. FASTENER HEAD SHALL ALSO BE PAINTED TO MATCH WALL PANEL AND/OR TRIM COLOR.

I. SEALANT NOTES:

1. SEALANTS FOR SIDE LAPS, END LAPS, ACCESSORIES, ETC., SHALL BE A PREFORMED, BUTYL RUBBER BASED COMPOUND. THE MATERIAL SHALL BE NON-HARDENING, NON-SHRINKING AND NON-CORROSIVE AND SHALL HAVE EXCELLENT ADHESION TO METALS, PAINTED SURFACES AND PLASTICS AT TEMPERATURES FROM -30°F TO 160°F. THESE SEALANTS SHALL BE IN TAPE MASTIC FORM, OF SHAPE AND SIZE RECOMMENDED BY THE MANUFACTURER, AND SHALL HAVE A PAPER BACKING FOR EASY HANDLING.
2. TUBE SEALANTS SHALL BE USED TO SUPPLEMENT TAPE MASTIC SEALANTS AND SHALL BE APPLIED AS REQUIRED. TUBE SEALANT SHALL BE A SYNTHETIC, ELASTOMER-BASED MATERIAL WHICH BECOMES TACK-FREE IN LESS THAN 2 HOURS AT 75° BUT RETAINS FLEXIBILITY.

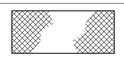
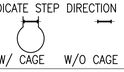
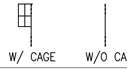
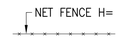
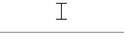
J. INSTALLATION OF ROOF PANEL NOTES:

1. ROOF PANELS SHALL BE CONTINUOUS FROM EAVE TO RIDGE. IF PANEL LENGTHS EXCEED MANUFACTURING AND SHIPPING LIMITATIONS, SPLICE END LAPS SHALL BE PER MANUFACTURERS RECOMMENDATIONS. SEALANT SHALL BE USED IN ALL ROOF PANEL END LAPS.
2. ROOF PANEL SIDE LAPS SHALL BE SEALED WITH A FIELD APPLIED CONTINUOUS RIBBON OF TAPE MASTIC SEALANT. EAVES SHALL ALSO BE SEALED.
3. FASTENER POPULATION AND PATTERN FOR BOTH WALL AND ROOF PANELS SHALL BE AS PER MANUFACTURERS RECOMMENDATIONS.

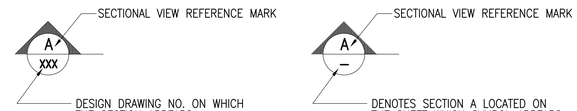
K. ABBREVIATION INDEX

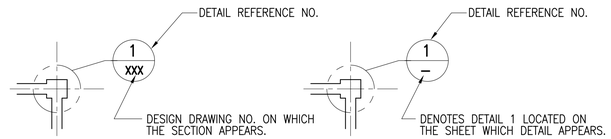
A.B.	ANCHOR BOLT(S)	F#	FOOTING NUMBER	PC.	PIER CAP
ABV.	ABOVE	FD	FLOOR DRAIN	P.C.	PRECAST CONCRETE
ACI	AMERICAN CONCRETE INSTITUTE	FDN.	FOUNDATION	P.C.D	PILE CENTER DIAMETER
ADJ.	ADJACENT	FIG.	FIGURE	PCF	POUNDS PER CUBIC FOOT
A.F.F.	ABOVE FINISH FLOOR	F TO F	FACE TO FACE	PCY	POUNDS PER CUBIC YARD
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	F.F.	FINISHED FLOOR OR FAR FACE	PED.	PEDESTAL
		FIN.	FINISH(ED)	PERF.	PERFORATED
ALT.	ALTERNATE	FLR.	FLOOR	P.J	PROJECTION
ALUM.	ALUMINUM	F.S.	FAR SIDE	PL.	PLATE
ANC.	ANCHOR	FT.	FEET OR FOOT	PLF	POUNDS PER LINEAR FOOT
ARCH.	ARCHITECTURAL	FTG.	FOOTING	PLYWD.	PLYWOOD
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS	FY	YIELD STRENGTH	PREFAB.	PREFABRICATED
		F'c	SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE	PROJ.	PROJECT
AVG.	AVERAGE			PSF	POUNDS PER SQUARE FOOT
AWS	AMERICAN WELDING SOCIETY	F'cr	REQUIRED COMPRESSIVE STRENGTH OF CONCRETE	PSI	POUNDS PER SQUARE INCH
				PT.	POINT
B	BOTTOM	F'm	COMPRESSIVE STRENGTH OF MASONRY		
BAL.	BALANCE			QTY.	QUANTITY
B.C.D	BOLT CENTER DIAMETER				
BEJ	BRICK OR BLOCK EXPANSION JOINT	GA.	GAUGE	R	RISER(S)
		GALV.	GALVANIZED	RAD.	RADIUS
BEL.	BELOW	GB#	GRADE BEAM NUMBER	R.D.	ROOF DRAIN
BETW.	BETWEEN	GEN.	GENERAL	REF.	REFER TO
B.F.	BOTTOM FACE	GOVT.	GOVERNMENT	REINF.	REINFORCEMENT OR REINFORCING
B.F.F.	BELOW FINISHED FLOOR	GR.	GRADE	REQD.	REQUIRED
B.L.	BOTTOM LAYER	GRTG.	GRATING	REV.	REVISION
BL	BRICK LEDGE			RND.	ROUND
BLDG.	BUILDING	HD. ST.	HEADED STUD	RTU.	ROOF TOP UNIT
BLK.	BLOCK OR BLOCKING	HK.	HOOK		
BM.(S)	BEAM(S)	HORZ.	HORIZONTAL	S	SOUTH OR SECTION MODULUS
B.O.	BOTTOM OF	H.S.	HIGH STRENGTH	S.C.	SHEAR CONNECTOR
B.O.F.	BOTTOM OF FOOTING	HT.	HEIGHT	SCHED.	SCHEDULE
B.O.P.	BOTTOM OF PIER OR PEDESTAL			SECT.	SECTION
BOT.	BOTTOM	I	MOMENT OF INERTIA	SIM.	SIMILAR
B.P.	BASE PLATE	In	MOMENT OF INERTIA (NEGATIVE)	SHT.	SHEET
BPL	BEARING PLATE	Ip	MOMENT OF INERTIA (POSITIVE)	S.J.	SAWN JOINT
BRCG.	BRACING	Ix	MOMENT OF INERTIA ABOUT X-AXIS	SLBB	SHORT LEG BACK-TO-BACK
BRDG.	BRIDGING			Sn	SECTION MODULUS (NEGATIVE)
BRG.	BEARING	I.D.	INSIDE DIAMETER	S.O.G.	SLAB ON GRADE
BRK.	BRICK	I.F.	INSIDE FACE	Sp	SECTION MODULUS (POSITIVE)
B.S.	BOTH SIDES	IN.	INCH(ES)	SP.	SPACE(S), SPACING
BT.	BENT	INFO.	INFORMATION	SPEC.	SPECIFICATION(S)
B. TO B.	BACK TO BACK	INT.	INTERIOR	SQ.	SQUARE
				STD.	STANDARD
C#	COLUMN NUMBER	J.B.	JOIST BEARING	STGR.	STRINGER
C.C.	CENTER TO CENTER	JST.	JOIST	STIF.	STIFFENER
CANT.	CANTILEVER	JT.	JOINT	STL.	STEEL
CFMF	COLD-FORMED METAL FRAMING			STRUCT.	STRUCTURAL
CIP	CAST-IN-PLACE	K	KIP(S)	Sx	SECTION MODULUS ABOUT X-AXIS
C.J.	CONSTRUCTION JOINT	KCF	KIPS PER CUBIC FOOT		
CL.	CENTERLINE	Kg	KILOGRAM	T	TOP OR TREAD(S)
CLR.	CLEAR	KLF	KIPS PER LINEAL FOOT	TEMP.	TEMPERATURE
CMU	CONCRETE MASONRY UNIT	kN	KILONEWTON	T.F.	TOP FACE
COL.	COLUMN	kPa	KILOPASCAL	THK.	THICK
COMP.	COMPOSITE	KSF	KIPS PER SQUARE FOOT	T.L.	TOP LAYER
CONC.	CONCRETE	KSI	KIPS PER SQUARE INCH	T.O.	TOP OF
CONN.	CONNECTION			T.O.C.	TOP OF CONCRETE
CONSTR.	CONSTRUCTION	L	LENGTH	T.O.F.	TOP OF FOOTING
CONT.	CONTINUOUS	LB.(S)	POUND(S)	T.O.P.	TOP OF PEDESTAL
CTR.	CENTER	LIN.	LINEAR	T.O.S.	TOP OF STEEL
CU.	CUBIC	L.L.	LIVE LOAD	T.O.W.	TOP OF WALL
		LLBB	LONG LEG BACK-TO-BACK	TRANS.	TRANSVERSE
D	DEPTH	LLH	LONG LEG HORIZONTAL	TYP.	TYPICAL
D.B.	DECK BEARING	LLV	LONG LEG VERTICAL	T&B	TOP & BOTTOM
D.B.A.	DEFORMED BAR ANCHOR	LONG.	LONGITUDINAL		
DBL.	DOUBLE	LT.	LIGHT	U.O.N.	UNLESS OTHERWISE NOTED
DEG.	DEGREE	L.W.	LIGHT WEIGHT	U.N.O.	UNLESS NOTED OTHERWISE
DEM.	DEMOLISH				
DET.	DETAIL	M	METER(S)	V.R.	VAPOR RETARDER
DIA.	DIAMETER	MANUF.	MANUFACTURER(S)	VERT.	VERTICAL
DIAG.	DIAGONAL	MATL.	MATERIAL		
DIM.	DIMENSIONS	MAX.	MAXIMUM	W	WEST OR WIDTH
DK.	DECK	MBR.	MEMBER	W.C.	WEB CONNECTION
D.L.	DEAD LOAD	M.C.	MOMENT CONNECTION	WD.	WOOD
DN	DOWN	MCJ	MASONRY CONTROL JOINT	WF	WIDE FLANGE
DO	DITTO	MECH.	MECHANICAL	WP	WORKING POINT
DP	DEEP OR DRILLED PIER	MIN.	MINIMUM	W.P.J.	WEAKENED PLANE JOINT
DRN.	DRAIN	MISC.	MISCELLANEOUS	WSFC.	WEB SHEAR FRAMING CONNECTION
D.T.I.	DIRECT TENSION INDICATOR	MK	MARK	WT.	WEIGHT
DWG.(S)	DRAWING(S)	ML	MASONRY LEDGE	WWF	WELDED WIRE FABRIC
DWL.(S)	DOWEL(S)	MTL	METAL	W/	WITH
		MPa	MEGAPASCAL	W/C	WATER/CEMENT
E	EAST	mm	MILLIMETER(S)	W/O	WITHOUT
EA.	EACH	M.O.	MASONRY OPENING		
E.E.	EACH END			X	BY
E.F.	EACH FACE	N	NORTH OR NEWTON		
EIFS	EXTERIOR INSULATED FINISH SYSTEM	N.A.	NOT APPLICABLE	YD.	YARD
		N.F.	NEAR FACE		
EL.	ELEVATION	N.I.C.	NOT IN CONTRACT	&	AND
ELEC.	ELECTRICAL	NO., #	NUMBER		
ELEV.	ELEVATION	NOM.	NOMINAL	@	AT
EMBED.	EMBEDDED, EMBEDMENT	N.R.	NOT REQUIRED		
ENT.	ENTRAINMENT	N.S.	NEAR SIDE		
EQ.	EQUAL	N.T.S.	NOT TO SCALE		
EQUIP.	EQUIPMENT	N.W.	NORMAL WEIGHT		
EQUIV.	EQUIVALENT				
E.W.	EACH WAY	O.C.	ON CENTER		
EXIST.	EXISTING	O.D.	OUTSIDE DIAMETER		
EXP.	EXPANSION	O.F.	OUTSIDE FACE		
EXT.	EXTERIOR	O.H.	OPPOSITE HAND OR OVERHEAD		
		OPNG.	OPENING		

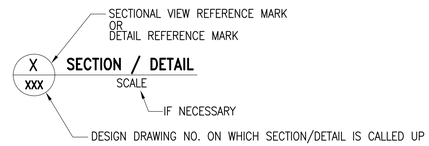
L. SYMBOLS OF VARIOUS REGIONAL MATERIALS AND ITEMS

REPRESENTED ITEMS	INDICATIONS	
	PLAN	ELEVATION OR SECTION
CHECKERED PLATE FLOOR / COVER		
GRATING FLOOR / COVER		
STAIRS (SCALE AROUND 1/100 OR 1/200)		
LADDER	INDICATE STEP DIRECTION 	
HANDRAIL		
FENCE		
REPRESENTED ITEMS	SCALE-WISE CLASSIFICATION	
	FRAMING PLAN & ELEVATION	DETAIL DRAWING
STEEL FRAME		

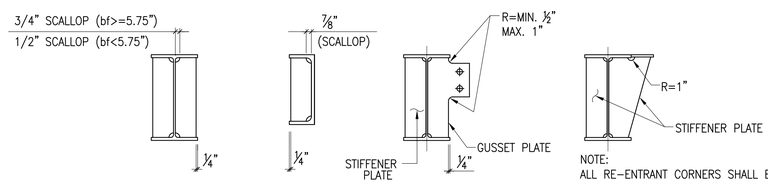
M. CROSS REFERENCE SYMBOL FOR SECTION AND DETAIL







N. SCALLOP FOR GUSSET PLATE & STIFFENER PLATE (inch)



REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
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△				
△				
△				
△				

SHINTECH PLAQUEMINE PLANT-4

GENERAL

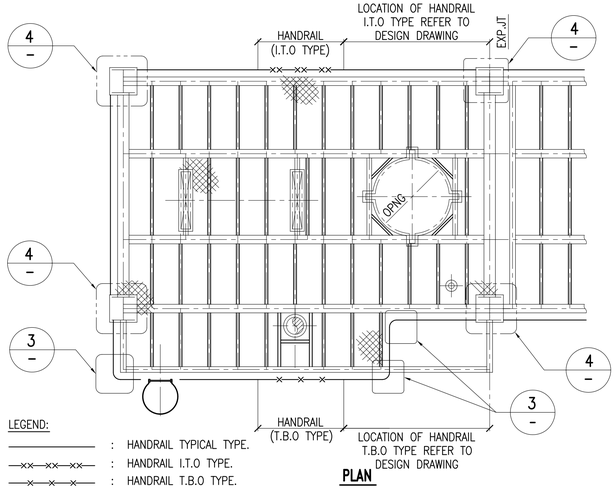
STRUCTURAL TYPICAL / STEEL

GENERAL NOTE (2/2)

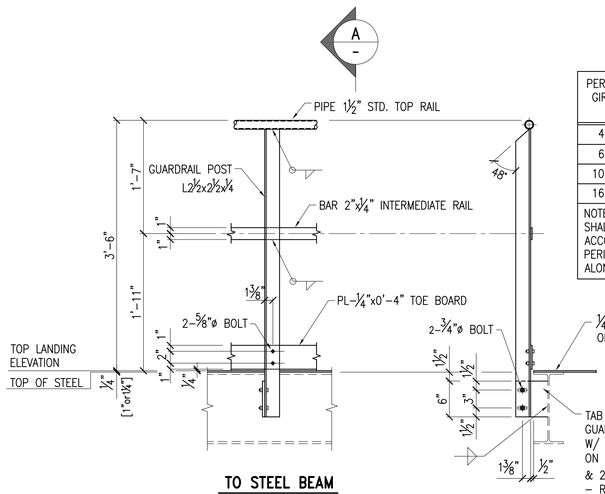
SHINTECH

APPROVED BY I.MARUYAMA	DATE: 05/02/25	SCALE: NONE	AREA: –
CHECKED BY N.MORI	DWG. NO.	LPG4-40000-02	0
DRAWN BY Y.NAKAJIMA			

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PLAN



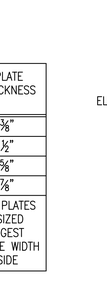
TO STEEL BEAM

VALUE IN PARENTHESIS [ ] DENOTES IN FLOOR GRATING

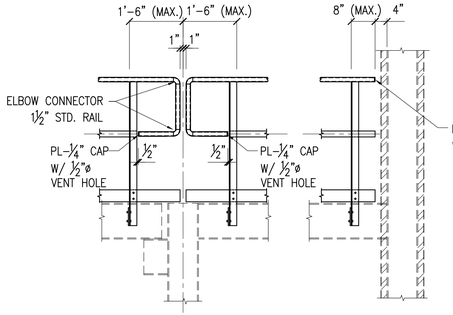
A — SECTION
SCALE: 1" = 1'-0"

PERIMETER STEEL GIRDER FLANGE WIDTH	PLATE THICKNESS
4 < bf ≤ 6	⅜"
6 < bf ≤ 10	½"
10 < bf ≤ 16	⅝"
16 < bf ≤ 24	⅞"

NOTE: GUARDRAIL TAB PLATES SHALL BE LOCATED & SIZED ACCORDING TO THE LARGEST PERIMETER BEAM FLANGE WIDTH ALONG ANY PLATFORM SIDE

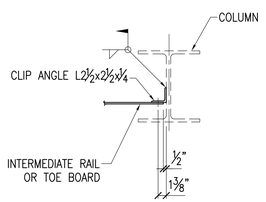


SLOT HOLE
SCALE: 2" = 1'-0"

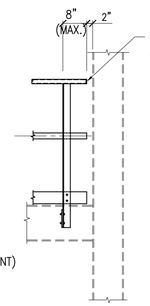


EXPANSION JOINT

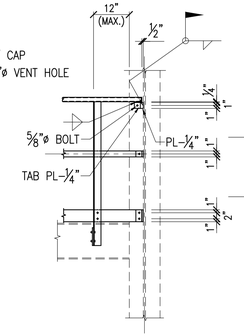
FOR COLUMN
(WITH FIREPROOFING)



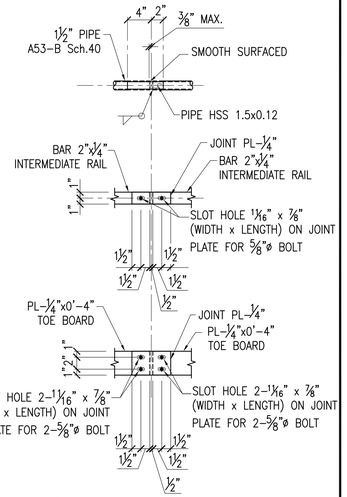
D — SECTION
SCALE: 1" = 1'-0"



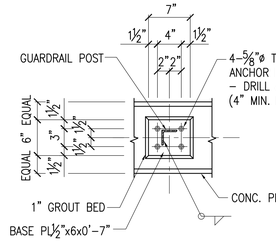
FOR COLUMN FLANGE
(WITHOUT FIREPROOFING)



FOR COLUMN WEB
(WITHOUT FIREPROOFING)

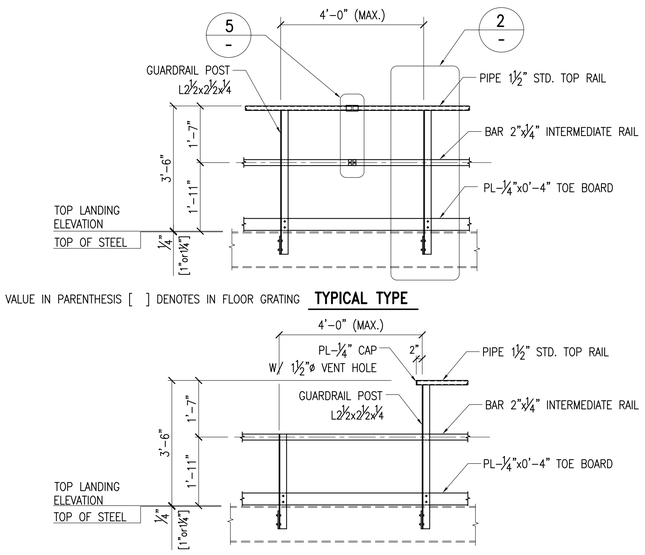


5 — TYPICAL JOINT DETAIL
SCALE: 1" = 1'-0"



C — SECTION
SCALE: 1" = 1'-0"

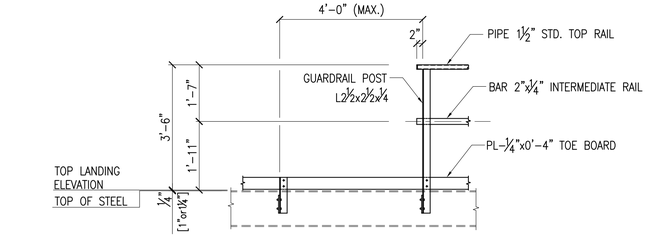
4 — TYPICAL DETAIL FOR JOINT
SCALE: 1/2" = 1'-0"



VALUE IN PARENTHESIS [ ] DENOTES IN FLOOR GRATING **TYPICAL TYPE**

VALUE IN PARENTHESIS [ ] DENOTES IN FLOOR GRATING **I. T. O TYPE**

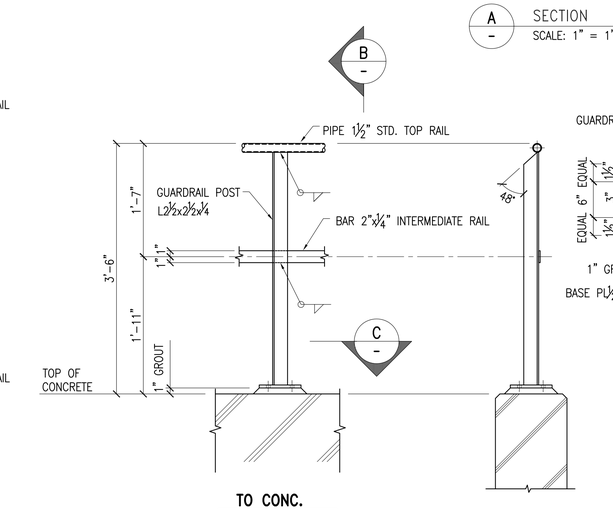
(INTERMEDIATE RAIL AND TOE BOARD ONLY)



VALUE IN PARENTHESIS [ ] DENOTES IN FLOOR GRATING **T. B. O TYPE**

(TOE BOARD ONLY)

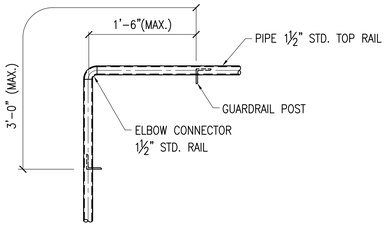
1 — TYPICAL HANDRAIL DETAIL
SCALE: 1/2" = 1'-0"



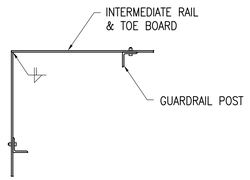
TO CONC.

2 — DETAIL
SCALE: 1" = 1'-0"

B — SECTION
SCALE: 1" = 1'-0"

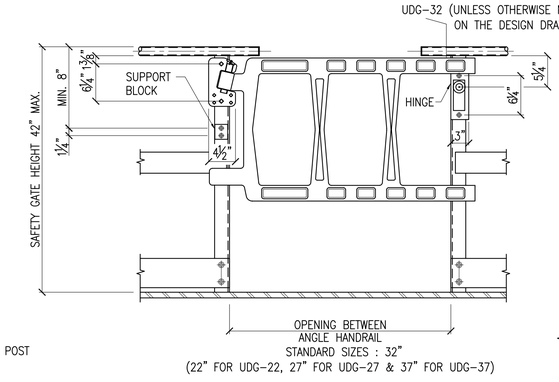


TOP RAIL



INTERMEDIATE & TOE BOARD

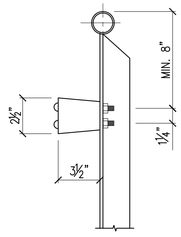
3 — TYPICAL HANDRAIL CORNER DETAIL
SCALE: 1" = 1'-0"



1. UDG : INTREPID INDUSTRIES, INC.
2. MODEL : UNIVERSAL DOUBLE SAFETY GATE BAR
UDG-32(UDG-22, UDG-27 & UDG-37

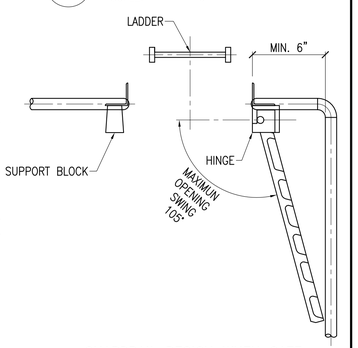
TYPICAL INSTALLATION OF UD-GATE BAR

6 — TYPICAL SAFETY GATE DETAIL



SUPPORT BLOCK DETAILS

MAKE 2-⅜" HOLES FOR ¼"x4½" CARRIAGE BOLTS.



GUARDRAIL DESIGN WHEN GATE IS IN CORNER OF PLATFORM

PROVIDE AT LEAST 6" OF STUB RAILING IN ORDER TO MOUNT HINGE. THIS SHOULD BE DONE TO;
(1) GIVE SPACE FOR MOUNTING HINGE AND
(2) ALLOW GATE TO OPEN AT LEAST 90°.

GENERAL NOTES

1. FOR STEEL GENERAL NOTES AND CONSTRUCTION CRITERIA SEE THE FOLLOWING DRAWINGS:
LPG4-40000-01
LPG4-40000-02

SHINTECH PLAQUEMINE PLANT-4

GENERAL

STRUCTURAL TYPICAL / STEEL

TYPICAL GUARDRAIL DETAILS

SHINTECH

SS24

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
△				
△				
△				
△				
△				

APPROVED BY I.MARUYAMA | DATE: 05/08/25 | SCALE: NONE | AREA: -
CHECKED BY N.MORI
DRAWN BY Y.NAKAJIMA | DWG. NO. LPG4-40000-24 | △0

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A. DESIGN CRITERIA

1. BUILDING CODE – 2021 INTERNATIONAL BUILDING CODE (IBC).

2. GRAVITY LOADS IN ACCORDANCE WITH ASCE/SEI 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" –

OCCUPANCY OR USE	UNIFORM LIVE LOAD*	CONCENTRATED LIVE LOAD
STAIRS AND EXITWAYS	100 PSF	300 LB.* AND 1000 LB.**
SLAB–ON–GRADE U.N.O.	200 PSF	2000 LB.***
SLAB–ON–GRADE (WAREHOUSE BLDG)	500 PSF	10000 LB.****
SLAB–ON–GRADE (SWITCHGEAR BLDG)	500 PSF	2000 LB.***
ROOF (MINIMUM)	20 PSF	–––––––
WALKWAYS & ELEVATED PLATFORMS (OTHER THAN EXITWAYS)	75 PSF	1000 LB.***

* 300 LB. CONCENTRATED LOAD APPLIED AT STAIR TREADS ON AREA 2 IN. BY 2 IN. (IBC 2021)
** 1000 LB. CONCENTRATED LOAD APPLIED AT CENTER OF ANY STAIR TREAD.(OHSA)
*** 1000 LB. AND 2000 LB. CONCENTRATED LOAD APPLIED ON ANY 2.5 FT. X 2.5 FT. AREA.
**** 10,000 LB. CONCENTRATED LOAD APPLIED ON ANY 8 IN. x 8 IN. FLOOR AREA

3. SNOW LOAD IN ACCORDANCE WITH ASCE/SEI 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES". GROUND ROOF SNOW LOAD (Pg) = 0 PSF.

4. LATERAL LOADS –

A. WIND LOAD IN ACCORDANCE WITH ASCE/SEI 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" –

BASIC WIND SPEED	V = 150 mph (PLAQUEMINE, LA)
BASIC WIND SPEED (CCR AND SWITCHGEAR BLDGS).	V = 195 mph
WIND EXPOSURE CATEGORY	C

B. SEISMIC LOAD IN ACCORDANCE WITH ASCE/SEI 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" –

1. DESCRIPTION OF THE STRUCTURES AND LATERAL FORCE RESISTING SYSTEMS

THE STRUCTURAL SYSTEM IS A BUILDING FRAME SYSTEM WITH AN ESSENTIALLY COMPLETE STEEL SPACE FRAME PROVIDING SUPPORT FOR GRAVITY LOADS. RESISTANCE TO LATERAL LOADS IS PROVIDED BY STRUCTURAL STEEL MOMENT FRAMES AND BRACED FRAMES.

2. SEISMIC DESIGN PARAMETERS –

RISK CATEGORY	III
SEISMIC IMPORTANCE FACTOR	Ie = 1.25 (CATEGORY III)
MAPPED SPECTRAL RESPONSE ACCELERATION	Ss = 0.125**
MAPPED SPECTRAL RESPONSE ACCELERATION	S1 = 0.06**
DESIGN SPECTRAL RESPONSE ACCELERATION	Sds = 0.200**
DESIGN SPECTRAL RESPONSE ACCELERATION	Sd1 = 0.168**
SITE CLASSIFICATION	CLASS E
SEISMIC DESIGN CATEGORY	C
SEISMIC RESPONSE COEFFICIENT	Cs = 0.083 **
RESPONSE MODIFICATION COEFFICIENT	R = 3*
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE PROCEDURE

* STRUCTURAL STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE.
** THESE PARAMETERS ARE IN ACCORDANCE WITH SPP–2. SEISMIC RESPONSE COEFFICIENT WHICH IS CALCULATED BY THESE PARAMETERS IS SHINTECH SPECIFICATION AND IS BIGGER THAN ONE WHICH IS CALCULATED IN ACCORDANCE WITH SPP–4 GEOTECHNICAL REPORT.

3. NO ALLOWANCE MADE FOR FUTURE EXTENSIONS OR ADDITIONS.

4. SPECIAL LOADS – NONE

5. LOAD COMBINATIONS –

A. LOAD COMBINATIONS IN ACCORDANCE ASCE 7–16, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES". ASCE 7–16 USED IN COMBINATION WITH "AISC SPECIFICATIONS, 15th EDITION" AND "ACI 318–19".

6. DESIGN AND DIMENSIONS FOR STEEL FRAMING SUPPORTING EQUIPMENT ARE BASED ON INFORMATION, DESIGN WEIGHTS, AND SKELETON DRAWINGS PROVIDED BY SHINTECH AND HITACHI ARCHITECTS AND ENGINEERS. CONTRACTOR SHALL COORDINATE EQUIPMENT, EQUIPMENT ANCHORAGE REQUIREMENTS, DESIGN WEIGHTS AND STEEL FLOOR PLATE OPENINGS ARE VALID FOR FINAL SELECTED EQUIPMENT PRIOR TO BEGINNING FABRICATION OR CONSTRUCTION.

B. SOIL PREPARATION AND FOUNDATIONS

1. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT BY GEOENGINEERS

2. ALL EXCAVATION, FILL, COMPACTION AND GRADING OF THE SITE SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT.

3. SOIL SUPPORTED FOUNDATIONS –

A. DESIGN BEARING PRESSURE (NET) VARIES PER THE GEOTECHNICAL REPORT FOR FOUNDATIONS BEARING ON UNDISTURBED SOIL OR APPROVED ENGINEERED FILL MATERIAL. BEARING MATERIALS SHALL BE VERIFIED BY A LICENSED GEOTECHNICAL ENGINEER.

B. ALL FOUNDATIONS ARE DESIGNED WITH AND SHALL HAVE FORMED SIDES.

C. FOUNDATION REINFORCING SHALL BE ADEQUATELY SUPPORTED TO PREVENT DISPLACEMENT WHILE DEPOSITING CONCRETE IN FORMS.

D. MOISTURE CONTENT IN FOOTING EXCAVATIONS SHALL BE MAINTAINED UNTIL FOOTINGS ARE PLACED. FOOTINGS SHALL BE POURED AS SOON AS PRACTICAL AFTER EXCAVATIONS ARE COMPLETED.

4. CONCRETE SLABS–ON–GRADE

A. SLABS ON GRADE SHALL BE SUPPORTED ON UNDISTURBED NATURAL FILL OR COMPACTED ENGINEERED FILL AS DESCRIBED IN THE GEOTECHNICAL REPORT.

B. INTERIOR FLOOR SLABS ON GRADE: PROVIDE A FOUR INCH LAYER OF COMPACTED FINE AGGREGATE CAPILLARY WATER BARRIER OVER A 10 MIL VAPOR RETARDER SYSTEM OVER A ONE INCH LAYER OF COMPACTED FINE AGGREGATE CAPILLARY WATER BARRIER OVER A SIX INCH LAYER OF COMPACTED COARSE AGGREGATE CAPILLARY WATER BARRIER BETWEEN SLABS ON GRADE AND COMPACTED FILL SUB–BASE. FINE AGGREGATE MATERIAL SHALL BE AN UNWASHED #10 PER ASTM D448.

C. EXTERIOR SLAB ON GRADE: PROVIDE A ONE INCH LAYER OF COMPACTED FINE AGGREGATE CAPILLARY WATER BARRIER OVER A SIX INCH LAYER OF COMPACTED COARSE AGGREGATE WATER BARRIER.

5. AUGER CAST PILES –

A. ALL AUGER CAST PILES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT AND SUPPLEMENTS.

B. ALL AUGER CAST PILES SHALL CONFORM TO THE REQUIREMENT OF "the Auger Cast–In–Place Pile Model Specification, Second Edition, 1st Printing, 2003, of the Deep Foundation Institute's Augered Cast–In–Place Piles Manual".

C. ALL MATERIALS SHALL BE CONFORMING TO ASTM.
PORTLAND CEMENT : C595
MINERAL ADMIXTURE : C618 CLASS C OR CLASS F
FLUIDIFIER : C937
FINE AGGREGATE : C33
*REINFORCING STEEL SHALL BE DEFORMED TYPE AND SHALL BE NEW BILLET STEEL ASTM A615 GRADE 60.
*1–1/8" DIA. "DYWIDAG" THREADBAR PRESTRESSING ROD SYSTEM CONFORMING TO ASTM A615 GRADE 75. WITH 4x4x3/4" PLATE ANCHOR WITH 2 NUTS.
*GROUT MIX TO TEST 4000 PSI IN 28 DAYS.

D. AUGER CAST PILES SHALL BE INSTALLED IN ACCORDANCE WITH PIP SPECIFICATION STS02465 "AUGERED CAST–IN–PLACE PILE INSTALLATION SPECIFICATION".

E. AUGER CAST PILES SHALL BE INSTALLED BY AN EXPERIENCED PILE CONTRACTOR WHO UPON REQUEST OF THE ARCHITECT/ENGINEER SHALL SUBMIT EVIDENCE OF SUCCESSFUL AUGER CAST PILE INSTALLATION UNDER SIMILAR JOB AND SUBSURFACE CONDITIONS, INCLUDING A JOB SUPERVISER WHO SHALL HAVE A MINIMUM OF FIVE YEARS OF METHOD SPECIFIC EXPERIENCE.

F. PILE LOAD TEST SHALL BE CONFORMING TO ASTM D1143. AT LEAST ONE PILE LOAD TEST OR AS OTHERWISE GIVEN IN THE PLANS SHALL BE PERFORMED.

6. DRIVEN CONCRETE FILLED STEEL PIPE PILES –

A. ALL CONCRETE FILLED STEEL PIPE PILES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT AND SUPPLEMENTS.

B. STEEL FOR PIPE PILES SHALL CONFORM TO ASTM SPECIFICATION A–252 GRADE 3, (fy=45 ksi). PIPE SHALL BE SEAMLESS OR STRAIGHT SEAM. THE PIPE SHALL BE CAPABLE OF BEING DRIVEN TO THE DRIVING RESISTANCE'S GIVEN IN THIS SPECIFICATION WITHOUT BUCKLING OF THE PILE BENEATH THE DRIVING HEAD. THE BOTTOMS OF PIPE PILES SHALL BE WELDED CLOSED WITH A MINIMUM 1 INCH THICK FLAT STEEL PLATE. THE CLOSURE PLATE AND ITS CONNECTING WELD SHALL NOT PROTRUDE BEYOND THE OUTSIDE DIAMETER OF THE PIPE PILE.

C. CONCRETE USED TO FILL PILES SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN 28 DAYS, AND MAXIMUM SLUMP OF 5 INCHES. THE PIPES SHALL BE INSPECTED TO INSURE THERE IS NO MUD OR WATER INFLOW INTO THE PILE FROM BROKEN JOINTS, COLLAPSED PIPES, ETC. THIS INSPECTION SHALL BE DONE AFTER DRIVING AND AGAIN IMMEDIATELY BEFORE FILLING THE PILES WITH CONCRETE, AS SOON AS POSSIBLE AFTER DRIVING. ALL PILES SHALL BE FILLED WITH CONCRETE. NO PILE DRIVING SHALL BE DONE WITHIN 20 FEET OF THE FILLED PILES UNTIL 16 HOURS AFTER THE CONCRETE HAS BEEN PLACED.

D. SPLICES SHALL BE CAPABLE OF WITHSTANDING THE DRIVING FORCES AND SHALL MAINTAIN THE LATERAL ALIGNMENT OF THE PILE. PIPE PILES JOINED IN ANY FASHION EXCEPT A FULL PENETRATION BUTT WELD SHALL HAVE THE APPROVAL OF THE ENGINEER. SPLICE WELDS SHALL NOT PROTRUDE BEYOND THE OUTSIDE DIAMETER OF THE PIPE.

E. THE PILES SHALL BE DRIVEN ONE AT A TIME INTO THE GROUND IN ONE CONTINUOUS OPERATION EXCEPT FOR THE TIME REQUIRED FOR SPLICING.

C. CAST–IN–PLACE CONCRETE –

1. ALL STRUCTURAL CONCRETE HAS BEEN DESIGNED IN ACCORDANCE WITH ACI 318–19 AND THE BUILDING CODE.

2. THE CONCRETE REQUIREMENTS ARE –

A. 28–DAY CONCRETE COMPRESSIVE STRENGTHS –

LOCATION	MINIMUM F'c	UNIT WEIGHT
FOUNDATIONS	4000 PSI	150 PCF
SLABS–ON–GRADE	4000 PSI	150 PCF

CONCRETE WITH AN EXTERIOR EXPOSURE SHALL HAVE AIR ENTRAINMENT PRODUCING A TOTAL AIR CONTENT IN THE CONCRETE BETWEEN 4–1/2 AND 6 PERCENT BY VOLUME.

B. CONCRETE MINIMUM CLEAR COVER OVER REINFORCING SHALL BE IN ACCORDANCE WITH ACI 318–19, LISTED BELOW, UNLESS OTHERWISE NOTED –

(a) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ---------- 3"
(b) CONCRETE EXPOSED TO EARTH OR WEATHER
#6 AND OVER ----------2"
#5 AND SMALLER ---------- 1½"
(c) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
SLABS, WALLS AND JOISTS ---------- ¾"
BEAMS, COLUMNS ----------1½"
SHELLS, FOLDED PLATE MEMBERS ---------- ¾"

ALL REINFORCEMENT FOR OTHER CONCRETE COVER REQUIREMENTS NOT SHOWN SEE ACI 318–19.

3. CONCRETE REINFORCING SHALL MEET THE FOLLOWING –

A. REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60. REINFORCING BARS THAT ARE REQUIRED TO BE WELDED SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE60. WELDING OF REINFORCING OTHER THAN SPECIFIED IS PROHIBITED.

B. ALL REINFORCING SHALL BE CONTINUOUS. CONTINUOUS BARS SHALL BE LAP SPLICED.

1). UNLESS OTHERWISE NOTED, STANDARD SPLICE SHALL BE REFERRED TO BELOW TABLE.

TABLE 1. STANDARD SPLICE TABLE (INCH) FOR 4,000 PSI CONCRETE & 60,000 PSI REINF. BAR

BAR SIZE	DIAMETER db	AREA (inch2)	SPLICE LENGTH TOP BAR	SPLICE LENGTH OTHER BAR
#3	3/8	0.11	24 1/2	18 1/2
#4	1/2	0.20	32 1/2	25
#5	5/8	0.31	40 1/2	31
#6	3/4	0.44	48 1/2	37
#7	7/8	0.60	70 1/2	54
#8	1	0.79	80 1/2	62
#9	1 1/8	1.00	90 1/2	70
#10	1 1/4	1.27	102	78 1/2

NOTE1: THIS STANDARD SPLICE LENGTH MAY BE USED FOR BOTH COMPRESSION AND TENSION.
NOTE2: COMPRESSION SPLICES SHALL BE 30 BAR DIAMETERS MINIMUM, BUT NOT LESS THAN 12"
NOTE3: TENSION SPLICES SHALL BE CLASS "B" USING GRADE 60 IN ACCORDANCE WITH ACI 318–19. THE LENGTH ARE CALCULATED BY 1.3 TIMES THE DEVELOPMENT LENGTH (LD) IN TENSION LISTED IN TABLE 2 BELOW.
NOTE4: TOP BAR SHALL BE PLACED MORE THAN 12 INCH. (SEE FIGURE A AND B)

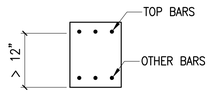


FIGURE A : BEAM SECTION

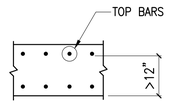


FIGURE B : RAFT SECTION

2). MINIMUM LAP FOR WELDED WIRE FABRIC SHALL BE ONE FULL MESH PLUS 2", BUT NOT LESS THAN 12".

3). LONG MAT SPLICES TO BE STAGGERED, I.E. NO MORE THAN ONE HALF THE BARS TO BE SPLICED AT THE SAME LOCATION. REINFORCING STEEL SPLICES SHALL BE STAGGERED AT LEAST 24".

C. UNLESS OTHERWISE NOTED, STANDARD DEVELOPMENT LENGTH (LD) AND DEVELOPMENT LENGTH WITH HOOK (LDH) SHALL BE AS FOLLOWS:

TABLE 2. STANDARD DEVELOPMENT TABLE (INCH) FOR 4,000 PSI CONCRETE & 60,000 PSI REINF. BAR

	DIAMETER db	DEVELOPMENT LENGTH (LD) TOP BAR	DEVELOPMENT LENGTH (LD) OTHER PLACE	DEVELOPMENT LENGTH WITH HOOK (LDH) MIN BEND DIA D (MAIN BAR)	ψr=1.0, ψo=1.0,	ψr=1.0, ψo=1.25,	ψr=1.6, ψo=1.0,	ψr=1.6, ψo=1.25,
#3	3/8	18 1/2	14 1/2	2 1/4	6	6	6	7
#4	1/2	25	19	3	6	7	9	11
#5	5/8	31	24	3 3/4	7.5	9.5	12	15
#6	3/4	37	28 1/2	4 1/2	10	12.5	16	19.5
#7	7/8	54	42	5 1/4	12.5	15.5	20	25
#8	1	62	47 1/2	6	15	19	24	30
#9	1.128	70	54	9 1/4	18	22.5	29	36
#10	1.270	78 1/2	60 1/2	10 1/4	21	26.5	33.5	42

NOTE1: THIS STANDARD DEVELOPMENT LENGTH (LD) MAY BE USED FOR BOTH COMPRESSION AND TENSION.
NOTE2: DEVELOPMENT LENGTH (LD) IN COMPRESSION SHALL BE 19 BAR DIAMETERS MINIMUM, BUT NOT LESS THAN 8".
NOTE3: DEVELOPMENT LENGTH (LD) IN TENSION LISTED IN TABLE 2 ARE CALCULATED AS PER ACI 318–19 25.4.2.3 DEVELOPMENT LENGTH (LD) CAN BE FURTHER REDUCED BY THE EQUATION (25.4.2.4a) IN ACCORDANCE WITH ACI 318–19 25.4.2.4, EXCEPT WHERE PROHIBITED BY ACI 318–19 25.4.10.2
NOTE4: STANDARD HOOK SEE FIGURE C AND D.
NOTE5: FINISHED BEND DIAMETER "D" FOR MAIN BAR IS AS BELOW(SEE ACI 318–19 TABEL 25.3.1),
6db FOR #3 TO #8
8db FOR #9 TO #10

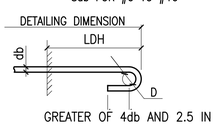


FIGURE C : 180° HOOK

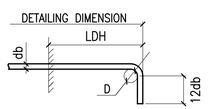
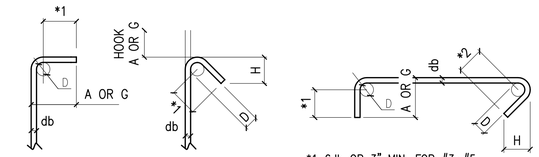


FIGURE D : 90° HOOK

NOTE6: STANDARD HOOK FOR STIRRUPS AND TIE HOOK SHALL BE REFERRED TO TABLE 3 AND FIGURE E AND F.
NOTE7: DEVELOPMENT LENGTH WITH HOOK(LDH) ON TENSION LISTED IN TABLE 2 ARE CALCULATED AS PER ACI 318–19 25.4.3. SEE TABLE 4 FOR CONDITION OF ψr AND ψo.

TABLE 3. STIRRUP AND TIES AS PER CRSI'S MANUAL OF STANDARD PRACTICE–2019

BAR SIZE	DIAMETER db	MIN BEND DIA D (STIRRUP AND TIE)	90° HOOK A OR G	135° HOOK A OR G	135° HOOK H (APPROX)
#3	3/8	2	4 1/2	4 1/2	2 3/4
#4	1/2	2 1/2	4 3/4	5	3
#5	5/8	3 1/4	6	6	3 3/4
#6	3/4	4 1/2	12	8	4 1/2



90° HOOK 135° HOOK

*1 6db OR 3" MIN. FOR #3~#5
12db FOR #6~#8
*2 6db OR 3" MIN.

FIGURE E : FOR STIRRUPS AND TIE HOOK

FIGURE F : CROSS TIE

SYMBOL

Ath: THE TOTAL CROSS–SECTIONAL AREA OF TIES OR STIRRUPS CONFINING HOOKED BARS
Ahs: THE TOTAL CROSS–SECTIONAL AREA OF HOOKED BARS IN CRITICAL SECTION
S: MINIMUM CENTER–TO–CENTER SPACING OF HOOKED BARS(SEE SECTION A)
db: NOMINAL DIAMETER OF HOOKED BAR

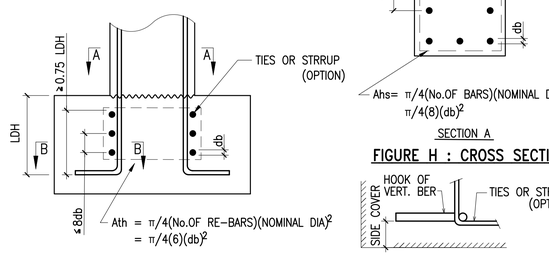


FIGURE G : PEDESTAL AND FOOTING

FIGURE H : CROSS SECTION

FIGURE I : CROSS SECTION

D. REINFORCING STEEL VENDOR, OR CIVIL SUBCONTRACTOR SHALL PROVIDE REBAR CUT AND BEND SCHEDULES, AND PLACEMENT DRAWINGS.
USE OF MECHANICAL BAR SPLICES SUCH AS BAR–LOCK COUPLERS ARE PERMITTED FOR USE ONLY WITH THE APPROVAL OF SHINTECH.

E. REINFORCING STEEL VENDOR SHALL FURNISH REQUIRED REBAR SUPPORTS FOR REINFORCING PLACEMENT. UNLESS OTHERWISE APPROVED BY SHINTECH, BAR SUPPORTS SHALL BE:

1). PRE CAST CONCRETE BLOCKS WHEN CONCRETE IS CAST ON GRADE.
2). CRSI CLASS 3–NO PROTECTION, BRIGHT BASIC WIRE BAR SUPPORTS WHERE CONCRETE WILL NOT BE EXPOSED TO VIEW UNLESS OTHERWISE NOTED ON DESIGN DRAWINGS.
3). CRSI CLASS 1–MAXIMUM PROTECTION, PLASTIC COATED WIRE BAR SUPPORTS WHERE CONCRETE WILL BE EXPOSED TO VIEW OR IN A CORROSIVE ENVIRONMENT UNLESS OTHERWISE NOTED ON DESIGN DRAWINGS.

F. PROVIDE CORNER BARS IN OUTSIDE FACE OF ALL GRADE BEAMS, TIE BEAMS, TRENCHES AND WALLS EQUAL IN SIZE AND SPACING TO MAIN HORIZONTAL REINFORCING.
EXTEND INSIDE FACE REINFORCING OF ALL BEAMS AND WALLS TO OUTSIDE FACE AND BEND TO A STANDARD 90 DEGREE HOOK.

CONTINUED ON SHEET 02

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
△				
△				
△				
△				
△				

SHINTECH PLAQUEMINE PLANT–4

GENERAL
STRUCTURAL TYPICAL / CONCRETE
GENERAL NOTE (1/2)

SHINTECH

APPROVED BY I.MARUYAMA | DATE: 05/08/25 | SCALE: NONE | AREA: –
CHECKED BY N.MORI
DRAWN BY Y.NAKAJIMA | DWG. NO. LPG4–50000–01 | △0

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4. FORMING AND EMBEDMENTS SHALL MEET THE FOLLOWING –

A. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" INSIDE FORMS OR TOOLED TO 3/4" RADIUS UNLESS OTHERWISE NOTED.

B. SLABS ON GRADE SHALL HAVE CONSTRUCTION JOINTS AND CONTROL JOINTS (SAWED JOINTS) LOCATED AT A MAXIMUM SPACING OF 15'–0" O.C. IN EACH DIRECTION WITH A MAXIMUM LENGTH–TO–WIDTH RATIO OF 1:2 FOR ALL SLAB PANELS BOUNDED BY JOINTS UNLESS NOTED OTHERWISE. CONTRACTOR SHALL LOCATE SLAB JOINTS ON SHOP DRAWINGS.

C. WHERE NECESSARY, VERTICAL CONSTRUCTION JOINTS SHALL BE LOCATED WITHIN THE CENTER ONE–THIRD OF THE SPAN. ALL JOINTS SHALL BE THOROUGHLY CLEANED AND PURPOSELY ROUGHENED TO 1/4" PRIOR TO PLACING ADJACENT CONCRETE. JOINTS IN EXPOSED CONCRETE SHALL BE USED WITH A MAXIMUM SPACING OF 50 FEET. CONSTRUCTION JOINTS SHALL ALIGN WITH THE NEAREST ADJACENT MASONRY CONTROL JOINT WHERE APPLICABLE.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMING, TEMPORARY BRACING, AND SHORING.

E. NO ALUMINUM SHALL BE EMBEDDED IN CONCRETE.

F. ALL CONCRETE EMBEDMENT SHALL CONFORM TO ASTM A36 AND SHALL BE HOT–DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 COATING GRADE 100.

G. ANCHOR RODS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING NO. LPG4–50000–08.

5. FOR CURING OF CONCRETE SURFACES NOT IN CONTACT WITH FORMS, ONE OF THE FOLLOWING PROCEDURES SHALL BE APPLIED IMMEDIATELY AFTER COMPLETION OF PLACEMENT AND FINISHING. ALL SLABS–ON–GRADE SHALL BE CURED USING MOISTURE RETAINING MATERIAL INDICATED IN ITEM "A" BELOW.

A. APPLICATION OF MOISTURE RETAINING CURING MATERIALS CONSISTING OF WATERPROOF SHEET MATERIALS, CONFORMING TO "SPECIFICATIONS FOR WATERPROOF SHEET MATERIALS FOR CURING CONCRETE" (ASTM C 171). CURING SHALL BE CONTINUED AT LEAST 7 DAYS.

B. APPLICATION OF A CURING COMPOUND CONFORMING TO "SPECIFICATIONS FOR LIQUID MEMBRANE–FORMING COMPOUNDS FOR CURING CONCRETE" (ASTM C 309). THE COMPOUND SHALL BE APPLIED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER IMMEDIATELY AFTER ANY WATER SHEEN WHICH MAY DEVELOP AFTER FINISHING HAS DISAPPEARED FROM THE CONCRETE SURFACE. IT SHALL NOT BE USED ON ANY SURFACE AGAINST WHICH ADDITIONAL CONCRETE IS TO BE BONDED UNLESS IT IS PROVEN THAT THE CURING COMPOUND WILL NOT PREVENT BOND, OR UNLESS POSITIVE MEASURES ARE TAKEN TO REMOVE IT COMPLETELY FROM AREAS TO RECEIVE BONDED APPLICATIONS. CURING SHALL BE CONTINUED AT LEAST 7 DAYS.

AND / OR

C. APPLICATION OF ABSORPTIVE MATS OR FABRIC KEPT CONTINUOUSLY WET.

6. CONTRACTOR SHALL SUBMIT FOR REVIEW AND COMMENT A CONCRETE PLACEMENT, JOINTING, AND CURING PLAN 28 DAYS PRIOR TO BEGINNING ANY CONCRETE CONSTRUCTION. THE PLAN SHALL INCLUDE AS A MINIMUM THE LOCATION, SEQUENCE, AND SCHEDULE FOR EACH CONCRETE PLACEMENT. THE CONCRETE JOINTING LOCATIONS, TYPE, AND MATERIALS SHALL BE COORDINATED WITH THE PLACEMENT PLAN AND THE CONCRETE CURING MATERIALS AND DURATIONS COORDINATED WITH THE PLACEMENT AND JOINTING PLANS. THE SLAB ON GRADE JOINTING PLAN SHALL INCLUDE AND INDICATE 2–#4x3'–0" @ 6"O.C. ADDITIONAL DIAGONAL REINFORCING AT EACH RE–ENTRANT CORNER AND AT EACH CORNER OF SLAB ON GRADE PENETRATION. ADDITIONAL CRACK CONTROL REINF. SHALL BE PROVIDED AT OFFSET JOINTS.

D. MASONRY –

1. ALL MASONRY HAS BEEN DESIGNED IN ACCORDANCE WITH ACI 530–13. DESIGN IS BASED ON ALL MASONRY RECEIVING FIELD INSPECTION BY AN ACI CERTIFIED TECHNICIAN.

2. CONCRETE MASONRY UNITS (CMU) MATERIALS SHALL BE –

A. ALL CONCRETE MASONRY UNITS (CMU) SHALL BE TWO CELL NORMAL WEIGHT AGGREGATE UNITS WITH A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI ON NET AREA OR 1000 PSI ON GROSS AREA AT 28 DAYS CONFORMING TO ASTM C90 UNLESS OTHERWISE NOTED.

B. ALL MORTAR SHALL BE TYPE "S" WITH A MINIMUM MORTAR COMPRESSIVE STRENGTH OF 1800 PSI AT 28 DAYS CONFORMING TO ASTM C270. THE MINIMUM COMPRESSIVE STRENGTH (f'm) OF A PRISM ASSEMBLED OF CMU AND MORTAR SHALL BE 1500 PSI ON THE NET AREA AT 28 DAYS UNLESS OTHERWISE NOTED.

C. GROUT SHALL CONFORM TO ASTM C1107 WITH 3/8" NORMAL WEIGHT AGGREGATE AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS. THE COMPRESSIVE STRENGTH OF THE GROUT SHALL BE DETERMINED IN ACCORDANCE WITH ASTM C1019 UNLESS OTHERWISE NOTED.

D. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615 GRADE 60.

3. VERTICAL WALL REINFORCING –

A. PROVIDE VERTICAL REINFORCING (NORMAL REINFORCING) IN GROUT FILLED CELLS IN ALL WALLS AS FOLLOWS UNLESS OTHERWISE NOTED –

WALL TYPE	REINF. IN FILLED CELLS	MAXIMUM SPACING
8" CMU	1 – #5	1'–4"

THERE SHALL BE A FOUNDATION DOWEL CAST INTEGRAL WITH THE SUPPORTING MEMBER FOR EACH VERTICAL REINFORCING BAR (NORMAL REINFORCING). ALL VERTICAL REINFORCING BARS AND DOWELS SHALL BE CENTERED IN THE WALL UNLESS NOTED OTHERWISE.

B. PROVIDE AN ADDITIONAL VERTICAL REINFORCING BAR WITH FOUNDATION DOWEL IN GROUT FILLED CELL, OF SAME SIZE AND LENGTH AS THE NORMAL REINFORCING BAR, AT THE FOLLOWING LOCATIONS –

1. EACH SIDE OF A CONTROL OR ISOLATION JOINT.
2. INTERSECTION OF EXTERIOR WALLS.
3. INTERSECTION OF INTERIOR SHEAR WALLS WITH EXTERIOR WALLS.
4. INTERSECTION OF INTERIOR WALLS.
5. EACH SIDE OF A WALL OPENING.
6. EACH END OF A WALL.
7. EACH BEAM BEARING LOCATION.

C. VERTICAL REINFORCING SHALL EXTEND CONTINUOUSLY FROM THE TOP OF THE SUPPORTING FOUNDATION MEMBER TO EMBED AT LEAST 6" INTO THE TOP COURSE BOND BEAM.

4. HORIZONTAL WALL REINFORCING –

A. PROVIDE GROUT FILLED BOND BEAM AT THE TOP OF WALL OR PARAPET, AT FLOOR LEVELS (ABOVE GRADE), AT TOP OF OPENINGS, BELOW OPENINGS, AT BEARING LOCATIONS, AND INTERMEDIATELY AT EVERY SIXTH COURSE (4'–0" O.C.). BOND BEAMS SHALL BE REINFORCED AS FOLLOWS UNLESS OTHERWISE NOTED.

WALL TYPE	BOND BEAM REINF.
8" CMU	2 – #4

B. ALL INTERIOR STRUCTURAL WALLS (SHEAR AND/OR BEARING) SHALL HAVE INTERMEDIATE BOND BEAMS LOCATED AT THE SAME LEVELS AS EXTERIOR BOND BEAMS.

C. PROVIDE BENT CORNER BARS TO MATCH HORIZONTAL BAR SIZE AND SPACING AT ALL CORNERS.

5. REINFORCING SHALL MEET THE FOLLOWING LAP, SPLICE, AND EMBEDMENT REQUIREMENTS UNLESS OTHERWISE NOTED.

REINF. BAR SIZE	LAP OR SPLICE LENGTH IN WALL	DOWELS INTO FOUNDATION EMBEDMENT W/ STD.ACI HOOK	STRAIGHT EMBEDMENT
	(IN.)	(IN.)	(IN.)
#4	24	8	17
#5	25	10	21
#6	30	12	25
#7	35	14	29
#8	40	16	35

FOUNDATION DOWELS SHALL EXTEND A LAP LENGTH INTO THE MASONRY WALL.

6. VERTICAL AND HORIZONTAL BARS AROUND PERIMETER OF OPENINGS SHALL EXTEND NOT LESS THAN 40 BAR DIAMETERS OR 2'–0", WHICHEVER IS LARGER, BEYOND THE CORNER OF THE OPENING.

7. CELLS WHICH CONTAIN REINFORCING STEEL (VERTICAL CELLS, BOND BEAMS, LINTELS, AND PILASTERS) SHALL BE FILLED SOLIDLY WITH GROUT.

8. VERTICAL CELLS TO BE FILLED SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR UNOBSTRUCTED CONTINUOUS VERTICAL CELL NOT LESS THAN 2" X 3" IN PLAN DIMENSIONS.

9. BOND BEAM REINFORCING FOR INTERIOR AND EXTERIOR WALLS SHALL BE CONTINUOUS THROUGHOUT, EXCEPT AT CONTROL AND ISOLATION JOINTS IT SHALL BE AS FOLLOWS –

A. INTERMEDIATE BOND BEAM REINFORCING SHALL BE DISCONTINUOUS AT CONTROL JOINTS EXCEPT THAT REINFORCEMENT IN BOND BEAMS AT FLOOR AND ROOF DIAPHRAGM LEVELS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED.

B. ALL BOND BEAM REINFORCING SHALL BE DISCONTINUOUS AT ISOLATION JOINTS.

10. LOCATION AND DETAILS OF CONTROL AND ISOLATION JOINTS IN REINFORCED MASONRY SHALL BE AS SHOWN ON THE STRUCTURAL AND/OR ARCHITECTURAL DRAWINGS. THE MAXIMUM SPACING OF CONTROL OR ISOLATION JOINTS SHALL BE AT A LENGTH TO HEIGHT RATIO OF 4 TO 1 OR 25 FT. ON CENTER, WHICHEVER IS LESS. THE CONTRACTOR SHALL SUBMIT A JOINT LAYOUT PLAN FOR APPROVAL PRIOR TO CONSTRUCTION UNLESS OTHERWISE NOTED.

11. MASONRY UNITS IN CONTACT WITH SOIL SHALL HAVE VOIDS FILLED WITH GROUT.

12. LINTELS SHALL CONSIST OF GROUT FILLED BOND BEAMS MEETING THE FOLLOWING UNLESS OTHERWISE NOTED –

CMU TYPE	CLEAR OPENING WIDTH UP TO 3'–4" DEPTH/REINF.	UP TO 6'–4" DEPTH/REINF.	UP TO 8'–0" DEPTH/REINF.	UP TO 10'–0" DEPTH/REINF.
8"	X"/X–#X	X"/X–#X	X"/X–#X	X"/X–#X

ALL LINTELS SHALL EXTEND NOT LESS THAN 40 BAR DIAMETERS OR 2'–0", WHICHEVER IS GREATER, BEYOND THE CORNER OF THE OPENING.

E. GROUTING

1. ALL GROUTING FOR STRUCTURAL AND EQUIPMENT FOUNDATION INCLUDING GROUTING OF THE ANCHOR SLEEVES SHALL BE PROVIDED BY ERECTION SUBCONTRACTOR AND SHALL BE PERFORMED AS SOON AS POSSIBLE PRIOR TO ANY LARGE AXIAL LOADS AND MOMENT

F. REQUIRED STRUCTURAL INSPECTIONS

1. PERIODIC AND SPECIAL STRUCTURAL TEST AND INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE MORE STRINGENT REQUIREMENTS OF THE PROJECT SPECIFICATIONS AND THE 2021 INTERNATIONAL BUILDING CODE (CHAPTER 17, SPECIAL INSPECTIONS AND TESTS) AND AS DIRECTED BY THE PROVISIONS OF THE CONTRACT.

2. INSPECTION BY THE BUILDING OFFICIAL.

A. FOUNDATION INSPECTION SHALL BE PERFORMED AFTER EXCAVATION AND SOIL PREPARATION, BUT PRIOR TO PLACING REINFORCING. THEN AGAIN AFTER REINFORCING PLACEMENT AND PRIOR TO CONCRETE PLACEMENT.

B. CONCRETE SLAB ON GRADE/UNDERSLAB INSPECTION SHALL BE MADE AFTER ALL UNDERSLAB WORK IS IN PLACE, BUT PRIOR TO CONCRETE PLACEMENT.

C. FINAL INSPECTION SHALL BE MADE WHEN THE CONTRACTOR HAS COMPLETED THE STRUCTURE.

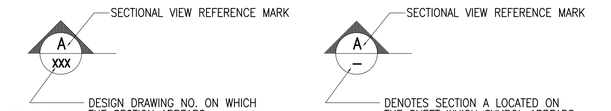
3. IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE, THE CONTRACTOR WILL PROVIDE QUALIFIED PERSONNEL FROM AN INDEPENDENT TESTING AGENCY TO PERFORM THE FOLLOWING SPECIAL INSPECTIONS AND REPORT THE FINDINGS TO THE OWNER. THIS DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE DESIGN DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR 24 HOURS IN ADVANCE OF ALL REQUIRED INSPECTIONS.

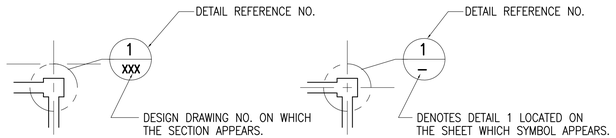
A. EXCAVATIONS, GRADING AND EARTH FILL SHALL BE INSPECTED IN ACCORDANCE WITH THE CODE.

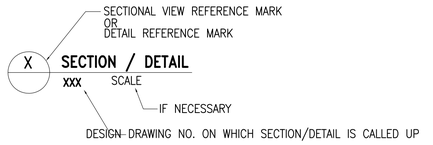
B. FOUNDATION INSPECTION DURING THE PLACEMENT OF PILING, PILE CAPS, GRADE BEAMS, FOOTINGS, RETAINING WALLS, AND SLABS ON GRADE. ALL EMBEDDED BOLTS SHALL BE INSPECTED.

C. ALL REINFORCING STEEL SIZE AND PLACEMENT SHALL BE INSPECTED PRIOR TO CONCRETE PLACEMENT.

G. CROSS REFERENCE SYMBOL FOR SECTION AND DETAIL







H. ABBREVIATION INDEX

A.B.	ANCHOR BOLT(S)	F#	FOOTING NUMBER	PC	PIER CAP
ABV.	ABOVE	FD	FLOOR DRAIN	P.C.	PRECAST CONCRETE
ACI	AMERICAN CONCRETE INSTITUTE	FDN.	FOUNDATION	P.C.D	PILE CENTER DIAMETER
ADJ.	ADJACENT	FIG.	FIGURE	PCF	POUNDS PER CUBIC FOOT
A.F.F.	ABOVE FINISH FLOOR	F TO F	FACE TO FACE	PCY	POUNDS PER CUBIC YARD
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	F.F.	FINISHED FLOOR OR FAR FACE	PED.	PEDESTAL
		FIN.	FINISH(ED)	PERF.	PERFORATED
ALT.	ALTERNATE	FLR.	FLOOR	P.J	PROJECTION
ALUM.	ALUMINUM	F.S.	FAR SIDE	PL.	PLATE
ANC.	ANCHOR	FT.	FEET OR FOOT	PLF	POUNDS PER LINEAR FOOT
ARCH.	ARCHITECTURAL	FTG.	FOOTING	PLYWD.	PLYWOOD
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS	FY	YIELD STRENGTH	PREFAB.	PREFABRICATED
		F'c	SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE	PROJ.	PROJECT
AVG.	AVERAGE			PSF	POUNDS PER SQUARE FOOT
AWS	AMERICAN WELDING SOCIETY	F'cr	REQUIRED COMPRESSIVE STRENGTH OF CONCRETE	PSI	POUNDS PER SQUARE INCH
				PT.	POINT
B	BOTTOM	F'm	COMPRESSIVE STRENGTH OF MASONRY		
BAL.	BALANCE			QTY.	QUANTITY
B.C.D	BOLT CENTER DIAMETER				
BEJ	BRICK OR BLOCK EXPANSION JOINT	GA.	GAUGE	R	RISER(S)
		GALV.	GALVANIZED	RAD.	RADIUS
BEL.	BELOW	GB#	GRADE BEAM NUMBER	R.D.	ROOF DRAIN
BETW.	BETWEEN	GEN.	GENERAL	REF.	REFER TO
B.F.	BOTTOM FACE	GOVT.	GOVERNMENT	REINF.	REINFORCEMENT OR REINFORCING
B.F.F.	BELOW FINISHED FLOOR	GR.	GRADE		
B.L.	BOTTOM LAYER	GRTG.	GRATING	REQD.	REQUIRED
BL.	BRICK LEDGE			REV.	REVISION
BLDG.	BUILDING	HD. ST.	HEADED STUD	RND.	ROUND
BLK.	BLOCK OR BLOCKING	HK.	HOOK	RTU.	ROOF TOP UNIT
BM.(S)	BEAM(S)	HORZ.	HORIZONTAL		
B.O.	BOTTOM OF	H.S.	HIGH STRENGTH	S	SOUTH OR SECTION MODULUS
B.O.F.	BOTTOM OF FOOTING	HT.	HEIGHT	S.C.	SHEAR CONNECTOR
B.O.P.	BOTTOM OF PIER OR PEDESTAL			SCHED.	SCHEDULE
BOT.	BOTTOM	I	MOMENT OF INERTIA	SECT.	SECTION
B.P.	BASE PLATE	In	MOMENT OF INERTIA (NEGATIVE)	SIM.	SIMILAR
BPL	BEARING PLATE	Ip	MOMENT OF INERTIA (POSITIVE)	SHT.	SHEET
BRCG.	BRACING	Ix	MOMENT OF INERTIA ABOUT X–AXIS	S.J.	SAWN JOINT
BRDG.	BRIDGING			SLBB	SHORT LEG BACK–TO–BACK
BRG.	BEARING	I.D.	INSIDE DIAMETER	Sn	SECTION MODULUS (NEGATIVE)
BRK.	BRICK	I.F.	INSIDE FACE	S.O.G.	SLAB ON GRADE
B.S.	BOTH SIDES	IN.	INCH(ES)	Sp	SECTION MODULUS (POSITIVE)
BT.	BENT	INFO.	INFORMATION	SP.	SPACE(S), SPACING
B. TO B.	BACK TO BACK	INT.	INTERIOR	SPEC.	SPECIFICATION(S)
				SQ.	SQUARE
C#	COLUMN NUMBER	J.B.	JOIST BEARING	STD.	STANDARD
C.C.	CENTER TO CENTER	JST.	JOIST	STGR.	STRINGER
CANT.	CANTILEVER	JT.	JOINT	STIF.	STIFFENER
CFMF	COLD–FORMED METAL FRAMING			STL.	STEEL
CIP	CAST–IN–PLACE	K	KIP(S)	STRUCT.	STRUCTURAL
C.J.	CONSTRUCTION JOINT	KCF	KIPS PER CUBIC FOOT	Sx	SECTION MODULUS ABOUT X–AXIS
CL.	CENTERLINE	Kg	KILOGRAM		
CLR.	CLEAR	KLF	KIPS PER LINEAL FOOT		
CMU	CONCRETE MASONRY UNIT	kN	KILONEWTON	T	TOP OR TREAD(S)
COL.	COLUMN	kPa	KILOPASCAL	TEMP.	TEMPERATURE
COMP.	COMPOSITE	KSF	KIPS PER SQUARE FOOT	T.F.	TOP FACE
CONC.	CONCRETE	KSI	KIPS PER SQUARE INCH	THK.	THICK
CONN.	CONNECTION			T.L.	TOP LAYER
CONSTR.	CONSTRUCTION	L	LENGTH	T.O.	TOP OF
CONT.	CONTINUOUS	LB.(S)	POUND(S)	T.O.C.	TOP OF CONCRETE
CTR.	CENTER	LIN.	LINEAR	T.O.F.	TOP OF FOOTING
CU.	CUBIC	L.L.	LIVE LOAD	T.O.P.	TOP OF PEDESTAL
		LLBB	LONG LEG BACK–TO–BACK	T.O.S.	TOP OF STEEL
D	DEPTH	LLH	LONG LEG HORIZONTAL	T.O.W.	TOP OF WALL
D.B.	DECK BEARING	LLV	LONG LEG VERTICAL	TRANS.	TRANSVERSE
D.B.A.	DEFORMED BAR ANCHOR	LONG.	LONGITUDINAL	TYP.	TYPICAL
DBL.	DOUBLE	LT.	LIGHT	T&B	TOP & BOTTOM
DEG.	DEGREE	L.W.	LIGHT WEIGHT		
DEM.	DEMOLISH			U.O.N.	UNLESS OTHERWISE NOTED
DET.	DETAIL	M	METER(S)	U.N.O.	UNLESS NOTED OTHERWISE
DIA.	DIAMETER	MANUF.	MANUFACTURER(S)		
DIAG.	DIAGONAL	MATL.	MATERIAL	V.R.	VAPOR RETARDER
DIM.	DIMENSIONS	MAX.	MAXIMUM	VERT.	VERTICAL
DK.	DECK	MBR.	MEMBER		
D.L.	DEAD LOAD	M.C.	MOMENT CONNECTION	W	WEST OR WIDTH
DN	DOWN	MCJ	MASONRY CONTROL JOINT	W.C.	WEB CONNECTION
DO	DITTO	MECH.	MECHANICAL	WD.	WOOD
DP	DEEP OR DRILLED PIER	MIN.	MINIMUM	WF	WIDE FLANGE
DRN.	DRAIN	MISC.	MISCELLANEOUS	WP	WORKING POINT
D.T.I.	DIRECT TENSION INDICATOR	MK	MARK	W.P.J.	WEAKENED PLANE JOINT
DWG.(S)	DRAWING(S)	ML	MASONRY LEDGE	WSFC.	WEB SHEAR FRAMING CONNECTION
DWL.(S)	DOWEL(S)	MTL	METAL		
		MPa	MEGAPASCAL	WT.	WEIGHT
E	EAST	mm	MILLIMETER(S)	WWF	WELDED WIRE FABRIC
EA.	EACH	M.O.	MASONRY OPENING	W/	WITH
E.E.	EACH END			W/C	WATER/CEMENT
E.F.	EACH FACE	N	NORTH OR NEWTON	W/O	WITHOUT
EIFS	EXTERIOR INSULATED FINISH SYSTEM	N.A.	NOT APPLICABLE	X	BY
		N.F.	NEAR FACE		
EL.	ELEVATION	N.I.C.	NOT IN CONTRACT	YD.	YARD
ELEC.	ELECTRICAL	NO., #	NUMBER		
ELEV.	ELEVATION	NOM.	NOMINAL	&	AND
EMBED.	EMBEDDED, EMBEDMENT	N.R.	NOT REQUIRED		
ENT.	ENTRAINMENT	N.S.	NEAR SIDE	@	AT
EQ.	EQUAL	N.T.S.	NOT TO SCALE		
EQUIP.	EQUIPMENT	N.W.	NORMAL WEIGHT		
EQUIV.	EQUIVALENT				
E.W.	EACH WAY	O.C.	ON CENTER		
EXIST.	EXISTING	O.D.	OUTSIDE DIAMETER		
EXP.	EXPANSION	O.F.	OUTSIDE FACE		
EXT.	EXTERIOR	O.H.	OPPOSITE HAND OR OVERHEAD		
		OPNG.	OPENING		

I. SYMBOLS OF VARIOUS REGIONAL MATERIALS AND ITEMS

REPRESENTED ITEMS	INDICATIONS PLAN	ELEVATION OR SECTION
SLOPED SURFACE (UNWORKED)	HIGHER SIDE / LOWER SIDE	
SLOPED SURFACE (WORKED)	HIGHER SIDE / LOWER SIDE	
WATER LEVEL		WL
MORTAR FINISH (CEMENT)		
OPENING		

REPRESENTED ITEMS	SCALE–WISE CLASSIFICATION: FRAMING PLAN & ELEVATION	DETAIL DRAWING
WALLS, GENERAL		
REINFORCED CONCRETE		(SLANTED LINES NOT REQUIRED ON REINFORCEMENT DRAWING)
PLAIN CONCRETE		
HOLLOW CONCRETE BLOCK WALL		
BRICK WALL		

REPRESENTED ITEMS	DETAIL DRAWING
CRUSHED STONE	
BOARDS : PLASTER GYPSUM CEMENTED EXCELSIOR CALCIUM SILICATE	INSERT MATERIAL NAME
HEAT INSULATING / SOUND ABSORBING MATERIAL	INSERT MATERIAL NAME
LATH	INSERT MATERIAL NAME

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
0				

SHINTECH PLAQUEMINE PLANT–4

GENERAL

STRUCTURAL TYPICAL / CONCRETE

GENERAL NOTE (2/2)

SHINTECH

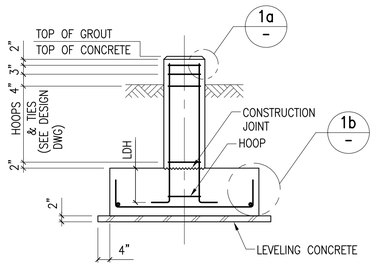
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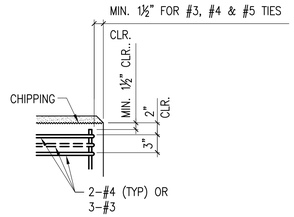
DRAWN BY Y.NAKAJIMA | DWG. NO. LPG4–50000–02 | 0

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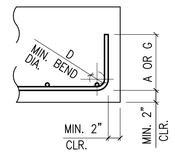
SPREAD FOUNDATION



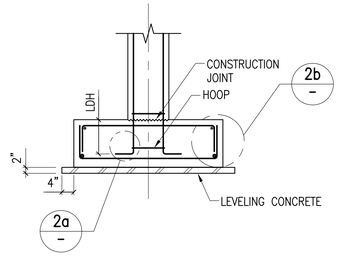
1 – PEDESTAL AND FOOTING
(SINGLY REINFORCED FOOTING)



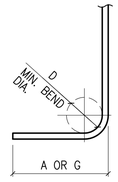
1a – DETAIL



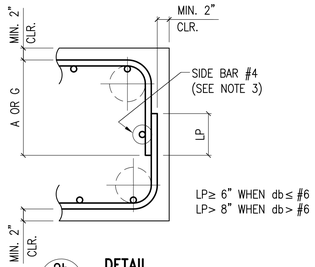
1b – DETAIL



2 – PEDESTAL AND FOOTING
(DOUBLY REINFORCED FOOTING)

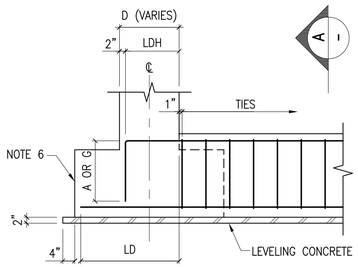


2a – DETAIL

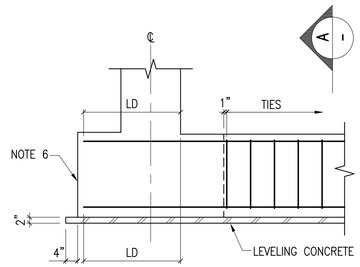


2b – DETAIL

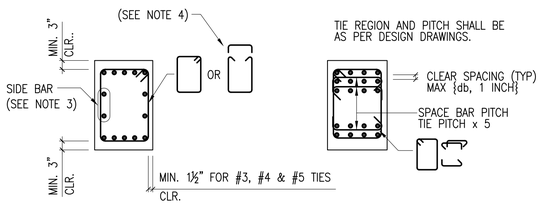
GRADE BEAM



3 – LARGER THAN FOOTING DEPTH



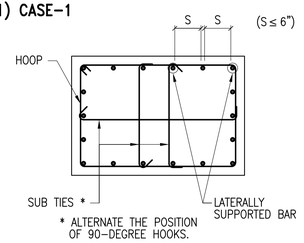
4 – SAME DEPTH WITH FOOTING



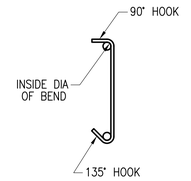
A – SECTION

INTERMEDIATE TIE ARRANGEMENT IN PEDESTAL/COLUMN (SEE NOTE 5)

(1) CASE–1

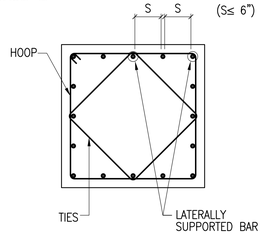


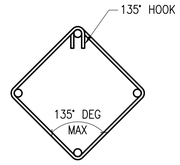
* ALTERNATE THE POSITION OF 90–DEGREE HOOKS.



SUB TIE

(2) CASE–2

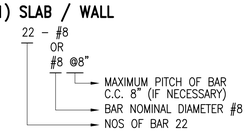




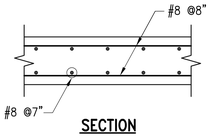
SUB TIE

METHOD OF EXPRESSION FOR BAR ARRANGEMENT

(1) SLAB / WALL



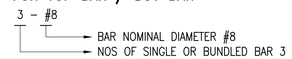
EXAMPLE (1)



SECTION

(2) BEAM

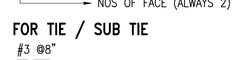
FOR TOP BAR / BOT BAR



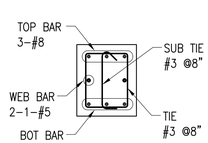
FOR WEB BAR



FOR TIE / SUB TIE



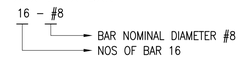
EXAMPLE (2)



SECTION

(3) PEDESTAL, COLUMN

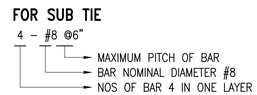
FOR MAIN BAR



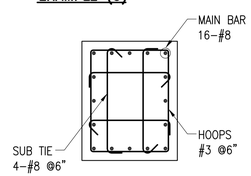
FOR HOOPS



FOR SUB TIE



EXAMPLE (3)



PLAN

GENERAL NOTES

1. FOR CONCRETE GENERAL NOTES SEE THE FOLLOWING DRAWINGS:
   LPG4–50000–01
   LPG4–50000–02
2. "LD", "LDH" AND "A OR G" REFER TO TABLE 2 IN DWG NO. LPG4–50000–01
3. SIDE BAR SHALL BE PROVIDED NOT TO EXCEED 18" SPACING.
   SIDE BAR SHALL BE CONTINUOUS.
4. THIS TYPE OF TIE SHALL BE USED IN SLAB AND BEAM JUNCTION.
5. TIES SHALL BE ARRANGED SUCH THAT EVERY CORNER AND ALTERNATE LONGITUDINAL BAR SHALL HAVE LATERAL SUPPORT (PROVIDED BY TIE) AND NO BAR SHALL BE FARTHER THAN 6" CLEAR ON EACH SIDE ALONG THE TIE FROM SUCH A LATERALLY SUPPORTED BAR.
6. WHERE THE DETAIL SHOWS ONLY THE DETAIL FOR GRADE BEAM REINFORCEMENT, THE DETAIL SHALL BE READ IN CONJUNCTION WITH FOOTING REINFORCEMENT DETAIL IN DETAIL 1 & 2.

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
0				

CS05

SHINTECH PLAQUEMINE PLANT–4

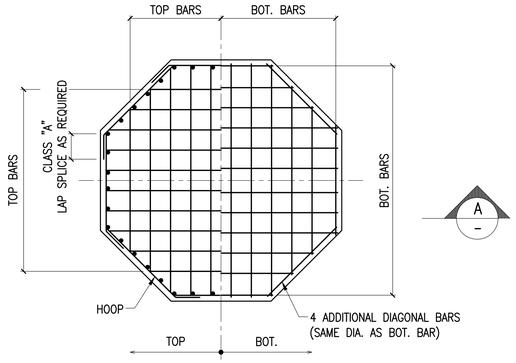
GENERAL
STRUCTURAL TYPICAL / CONCRETE
SPREAD FOUNDATION (1/2)

SHINTECH

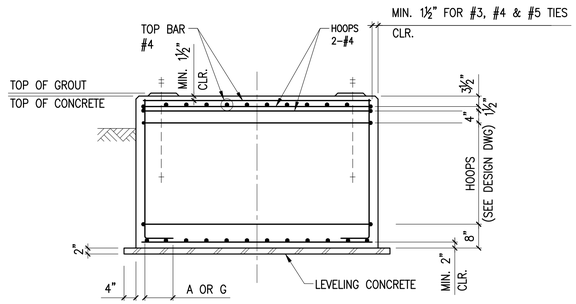
APPROVED BY I.MARUYAMA | DATE: 05/02/25 | SCALE: NONE | AREA: –
CHECKED BY N.MORI
DRAWN BY Y.NAKAJIMA | DWG. NO. LPG4–50000–05 | 0

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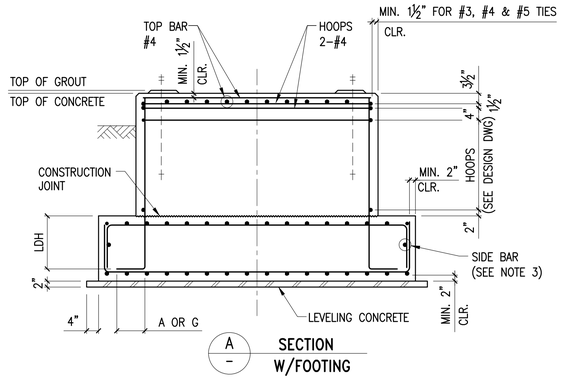
SPREAD FOUNDATION



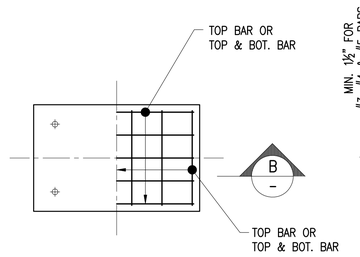
1 – OCTAGONAL FDN



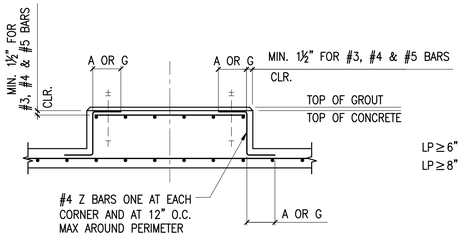
A – SECTION W/O FOOTING



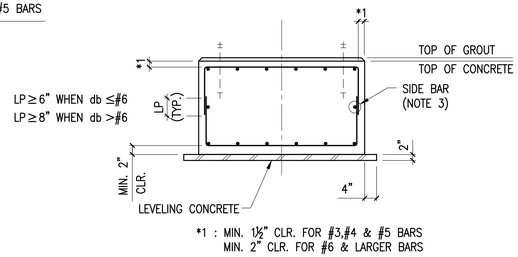
A – SECTION W/FOOTING



2 – BLOCK FDN



ON PAVED



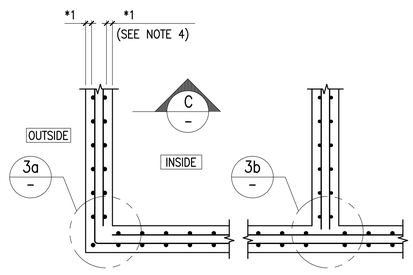
LP ≥ 6" WHEN db ≤ #6
LP ≥ 8" WHEN db > #6

*1 : MIN. 1½" CLR. FOR #3,#4 & #5 BARS
MIN. 2" CLR. FOR #6 & LARGER BARS

UNPAVED

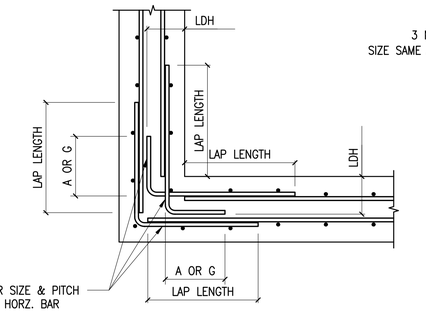
B – SECTION

*1 : MIN. 1½" CLR. FOR #3, #4 & #5 BARS
MIN. 2" CLR. FOR #6 & LARGER BARS



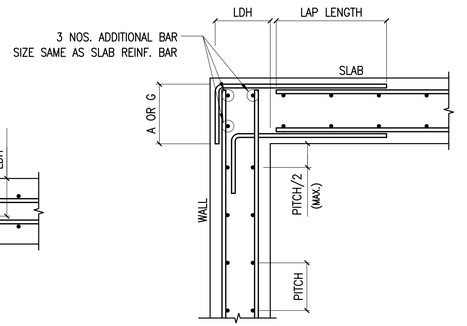
(PLAN VIEW)

3 – PIT / WALL

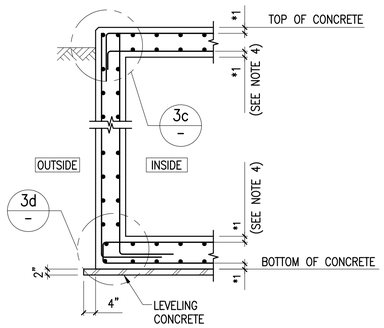


ADDITIONAL BAR SIZE & PITCH SAME AS WALL HORZ. BAR

3a – WALL @ CORNER

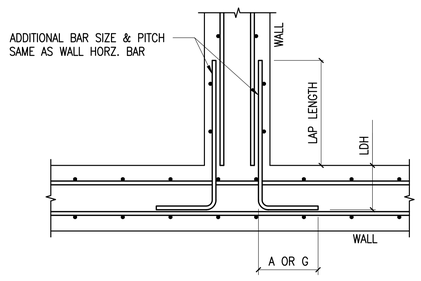


3c – WALL TO TOP SLAB

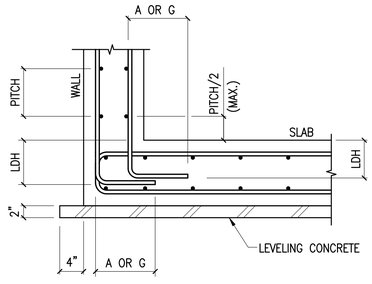


*1 : MIN. 1½" CLR. FOR #3,#4 & #5 BARS
MIN. 2" CLR. FOR #6 & LARGER BARS

C – SECTION



3b – WALL TO WALL (TEE-INTERSECTION)



3d – WALL TO BOTTOM SLAB

GENERAL NOTES

1. FOR CONCRETE GENERAL NOTES SEE THE FOLLOWING DRAWINGS:
   LPG4-50000-01
   LPG4-50000-02
2. "LD", "LDH" AND "A OR G" REFER TO TABLE 2 IN DWG NO. LPG4-50000-01
3. SIDE BAR SHALL BE PROVIDED NOT TO EXCEED 18" SPACING.
   SIDE BAR SHALL BE CONTINUOUS.
4. IF CONCRETE IS OBVIOUSLY NOT EXPOSED TO WEATHER, 3/4" CONCRETE COVER CAN BE APPLIED.

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
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△				
△				
△				
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CS06

SHINTECH PLAQUEMINE PLANT-4

GENERAL
STRUCTURAL TYPICAL / CONCRETE
SPREAD FOUNDATION (2/2)

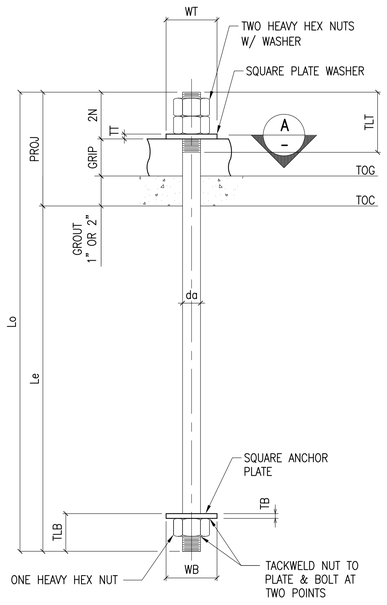
SHINTECH

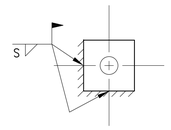
APPROVED BY I.MARUYAMA
CHECKED BY N.MORI
DRAWN BY Y.NAKAJIMA

DATE: 05/02/25 | SCALE: NONE | AREA: –

DWG. NO. LPG4-50000-06 △0

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FOR 7/8" & LARGER ANCHOR BOLT

(STRUCTURE & PIPE RACK ONLY)

A – SECTION

STANDARD ANCHOR ROD (inches)

	da	:DIAMETER OF ANCHOR ROD	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4
TOP	PROJ	FOR VCM-4 STRUCTURE (MAX. PROJECTION)	4 1/2	5 1/2	5 3/4	7	7 3/4	8 1/4	9
		FOR OTHERS (UTY, CA STRUCTURE & ALL AREA IN EQUIPMENT FDN)	SEE DESIGN DRAWING (ROUND UP TO NEAREST 1/4" INCHES)						
	2N	FOR VCM-4 STRUCTURE & UTY, CA STRUCTURE :TWO NUT, WASHER & ALLOWANCE (2.5D+WASHER THK.)	2	2 1/4	2 1/2	3	3 3/4	4 1/4	5
		FOR EQUIPMENT FDN.	SEE DESIGN DRAWING						
	TLT	FOR VCM-4 STRUCTURE & UTY, CA STRUCTURE :THREAD LENGTH AT TOP	4	4 1/4	4 1/2	5	5 3/4	6 1/4	7
		FOR EQUIPMENT FDN.	SEE DESIGN DRAWING						
	WT	:SQUARE PLATE WASHER SIZE AT TOP (AISC D.G.1 TABLE 2.3)	2	2	2 1/2	3	3	3 1/2	4
	TT	:SQUARE PLATE WASHER THICKNESS AT TOP (AISC D.G.1 TABLE 2.3)	1/4	1/4	5/16	3/8	1/2	1/2	5/8
	HOLE	:UPPER WASHER HOLE DIA.	1 1/16	1 3/16	1 5/16	1 1/16	1 5/16	1 3/16	1 13/16
	S	:WELDING SIZE (STRUCTURE & PIPE RACK ONLY)	N/A	N/A	3/16	3/16	3/8	3/8	3/8
BOT	TLB	:THREAD LENGTH AT BOT.	1 1/4	1 1/4	1 1/2	1 3/4	2 1/4	2 1/2	3
	WB	:SQUARE PLATE WASHER SIZE AT BOT.	2	2	2	2 1/4	2 3/4	3	3 1/2
	TB	:SQUARE PLATE WASHER THICKNESS AT BOT.	1/4	1/4	1/4	1/4	1/4	1/4	1/4
Lo: Rod Length		FOR VCM-4 STRUCTURE	13	26 1/2	31	35 3/4	39 3/4	40 1/4	41
		FOR OTHERS (UTY, CA STRUCTURE & ALL AREA IN EQUIPMENT FDN)	SEE DESIGN DRAWING						
Le:MIN EMBEDDED LENGTH		FOR VCM-4 STRUCTURE	8 1/2	21	25 1/4	28 3/4	32	32	32
		FOR OTHERS (UTY, CA STRUCTURE & ALL AREA IN EQUIPMENT FDN)	SEE DESIGN DRAWING						
		MIN EDGE DISTANCE (ACI318-19 17.9.2)	4 1/2	4 1/2	5	5 1/2	5 1/2	5 1/2	6
		MIN BOLT SPACING (ACI318-19 17.9.2)	2 1/2	3	3 1/2	4	5	6	7

NOTE:
GROUT THICKNESS SHALL BE INDICATED IN EACH DESIGN DRAWINGS.
NO NEED TO WELD WASHER FOR 3/4" & SMALLER ANCHOR BOLT.

GENERAL NOTES

1. FOR CONCRETE GENERAL NOTES SEE THE FOLLOWING DRAWINGS:
   LPG4-50000-01
   LPG4-50000-02
2. UNLESS NOTED OTHERWISE, ALL THREADED RODS, NUTS, WASHERS AND ANCHOR PLATES SHALL BE SUPPLIED AND SET BY CIVIL SUBCONTRACTOR.
3. MATERIALS SPECIFICATION
   3.1 THREADED ROD
   MATERIAL: ASTM F1554 GRADE 36
   THREAD : UNC-2A THREADS FOR BOLTS, UNO.
   3.2 HEXAGON NUT : ASTM A563 GRADE A, HEAVY HEX, WITH UNC-2B THREADS.
   3.3 SQUARE ANCHOR PLATE -------- ASTM-A572 GR50
   3.4 SQUARE PLATE WASHER -------- ASTM-A36
4. ANCHOR ROD ASSEMBLIES SHALL CONSIST OF:
   2-NUTS WITH WASHER AT TOP
   1-NUT WITH WASHER AT BOTTOM
5. ALL DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE.
6. UNLESS OTHERWISE SPECIFIED, BOLTS, NUTS, WASHERS AND ANCHOR PLATES SHALL BE HOT-DIP GALVANIZED AS PER F2329. EXCESS GALVANIZING MATERIAL SHALL BE REMOVED FROM THREADED PORTION OF THE BOLT BY USE OF CENTRIFUGE.
7. ANCHOR ROD TAG SHOWN ON DESIGN DRAWINGS USES THE FOLLOWING FORMATS:

   8-¾ø, PROJ=3½, L=24
   QUANTITY
   DIAMETER(INCHES)
   PROJECTION FROM TOC (INCHES)
   LENGTH OF ANCHOR ROD "Lo" (INCHES)

8. ANCHOR ROD NUTS SHALL BE TIGHTENED TO SNUG CONDITION EXCEPT WHERE TORQUE VALUE IS SPECIFIED ON DESIGN DRAWING, OR AT THE LOCATION OF SLIDE PLATES.
9. UNLESS NOTED OTHERWISE, TOLERANCE SHALL BE AS FOLLOWS:
   a) BOLT PROJECTION ---------- ±¼",-0"
   b) CENTER TO CENTER OF ANY 2 BOLTS WITHIN A GROUP ---- ±⅛" (SUCH AS AN EQUIPMENT FOUNDATION OR BASE PLATE)
   c) CENTER TO CENTER BETWEEN BOLT GROUPS ---------- ±¼" (SUCH AS A SERIES OF COLUMN)
   d) MAXIMUM OUT OF PLUMB ---------- ⅛" IN 3'-0" (SUCH AS A SERIES OF COLUMN)
   e) THE ACCUMULATED VARIATION IN DIMENSION BETWEEN CENTERS OF ANCHOR BOLT GROUPS ALONG THE ESTABLISHED COLUMN LINE THROUGH MULTIPLE ANCHOR BOLT GROUPS SHALL BE EQUAL TO LESS THAN 1/4 INCH PER 100 FEET.
   f) THE VARIATION IN DIMENSION FROM CENTER OF ANY ANCHOR BOLT GROUP TO THE ESTABLISHED COLUMN LINE THROUGH THAT GROUP SHALL BE EQUAL TO OR LESS THAN 1/4 INCHES.
10. THE FIT OF NUTS ON THREADS OF ANCHOR BOLTS SHALL BE VERIFIED BEFORE SHIPMENT BY CIVIL CONTRACTOR.

SHINTECH PLAQUEMINE PLANT-4

GENERAL

STRUCTURAL TYPICAL / CONCRETE

ANCHOR ROD

SHINTECH

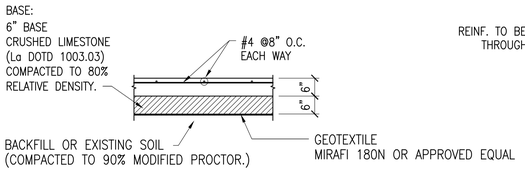
CS08

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
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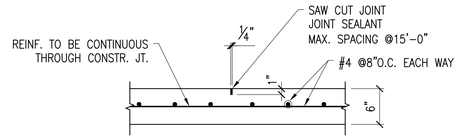
APPROVED BY I.MARUYAMA | DATE: 05/02/25 | SCALE: NONE | AREA: –
CHECKED BY N.MORI
DRAWN BY Y.NAKAJIMA | DWG. NO. LPG4-50000-08 | 0

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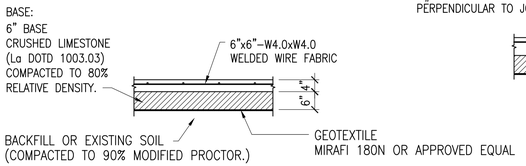
CONCRETE PAVING IN GENERAL



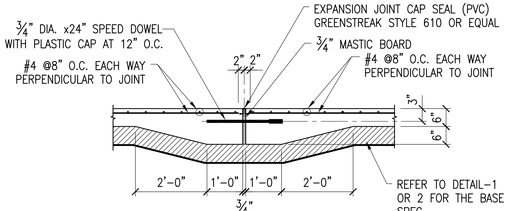
1 – TYP. SLAB ON GRADE DETAIL



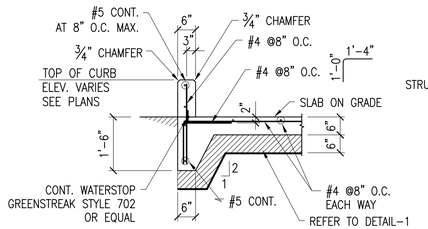
5 – TYP. CONTRACTION JOINT DETAIL



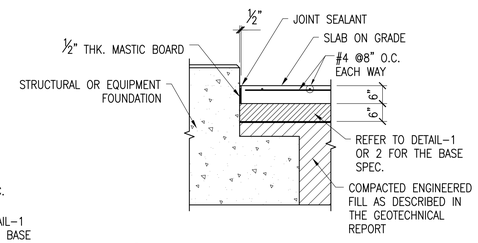
2 – TYP. SLAB ON GRADE DETAIL
(LIGHT DUTY)



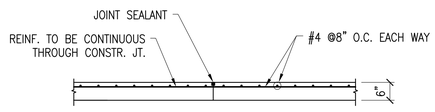
6 – TYP. EXPANSION JOINT DETAIL



3 – TYP. EDGE WITH CURB DETAIL

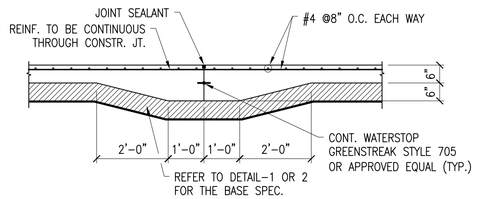


7 – TYP. EQUIPMENT SPREAD FOOTING

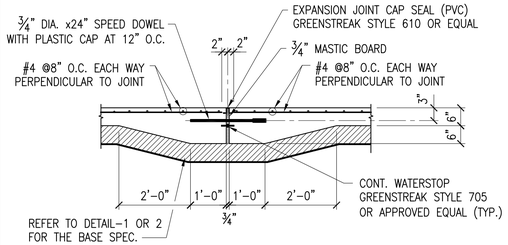


4 – TYP. CONSTRUCTION JOINT DETAIL

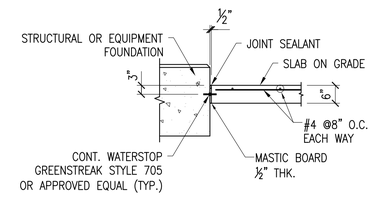
CONCRETE PAVING IN JOINT SEALANT IMPERVIOUS CONTAINMENT



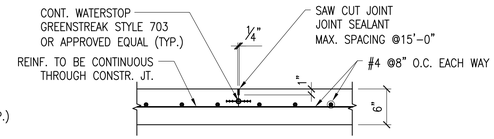
8 – CONSTRUCTION JOINT DETAIL



9 – EXPANSION JOINT DETAIL

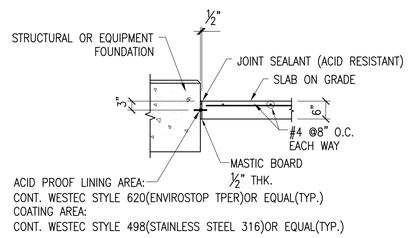


10 – EQUIPMENT SPREAD FOOTING



11 – CONTRACTION JOINT

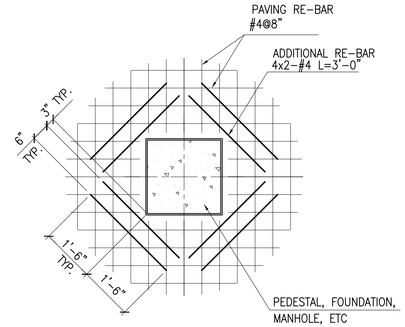
CONCRETE PAVING IN ACID PROOF LINING AREA & COATING AREA



12 – EQUIPMENT SPREAD FOOTING FOR
ACID PROOF LINING AREA AND COATING AREA

GENERAL NOTE

1. FOR CONCRETE GENERAL NOTES SEE THE FOLLOWING DRAWINGS:
   LPG4–50000–01
   LPG4–50000–02
2. STANDARD DETAIL FOR TYPICAL REINFORCEMENT AROUND SQUARE OR RECTANGULAR PEDESTAL ARE AS FOLLOWS.
   (TO BE EFFECTIVE IN ALL PLANT AREA)
3. CONCRETE PAVING IN JOINT SEALANT IMPERVIOUS CONTAINMENT SHALL BE APPLIED FOR AREA–K1 & K2 OF VCM PROJECT.



REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
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CS10

SHINTECH PLAQUEMINE PLANT–4

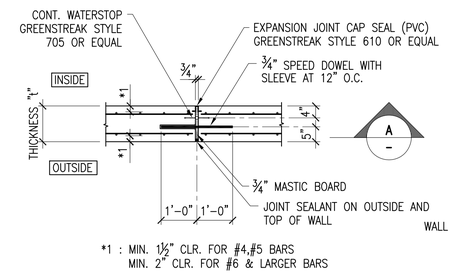
GENERAL
STRUCTURAL TYPICAL / CONCRETE
MISCELLANEOUS DETAIL (1/2)

SHINTECH

APPROVED BY I.MARUYAMA | DATE: 05/08/25 | SCALE: NONE | AREA: –
CHECKED BY N.MORI
DRAWN BY Y.NAKAJIMA | DWG. NO. LPG4–50000–10 △0

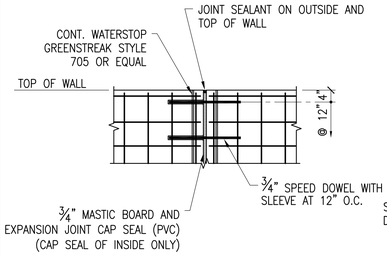
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CONCRETE WALL

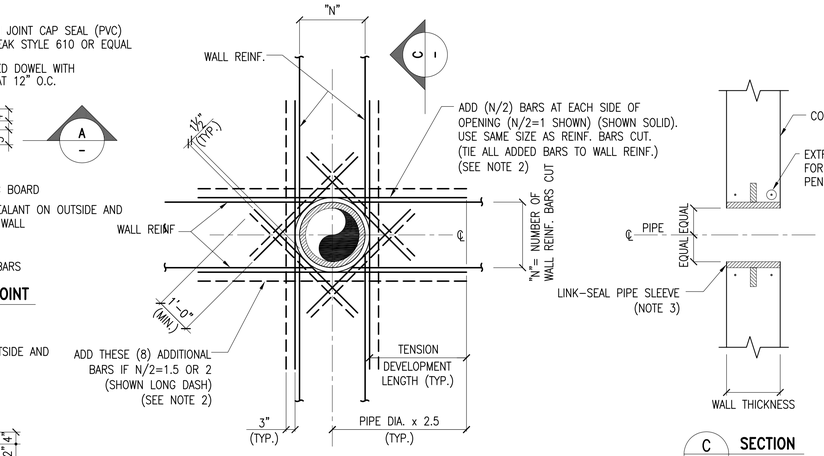


*1 : MIN. 1½" CLR. FOR #4,#5 BARS
MIN. 2" CLR. FOR #6 & LARGER BARS

1 – TYP. WALL EXPANSION JOINT



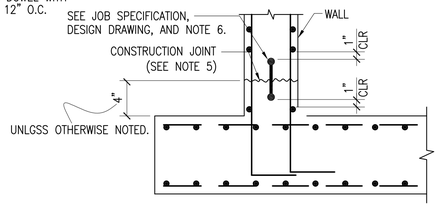
A – SECTION



ELEVATION @ WALL

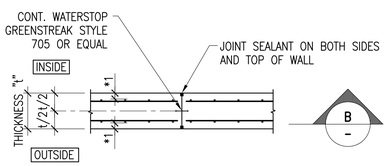
C – SECTION

3 – PIPE PENETRATION



WALL TO FLOOR INTERSECTION

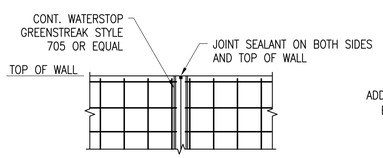
10 – DETAIL



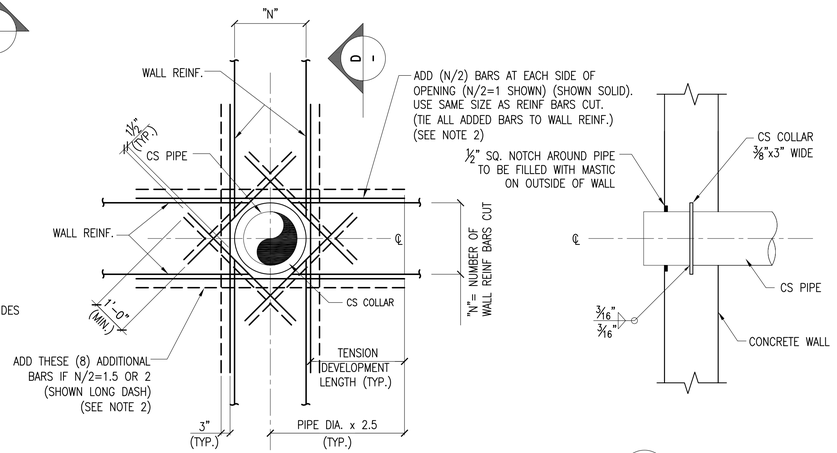
B

*1 : MIN. 1½" CLR. FOR #4,#5 BARS
MIN. 2" CLR. FOR #6 & LARGER BARS

2 – TYP. WALL CONSTRUCTION JOINT



B – SECTION

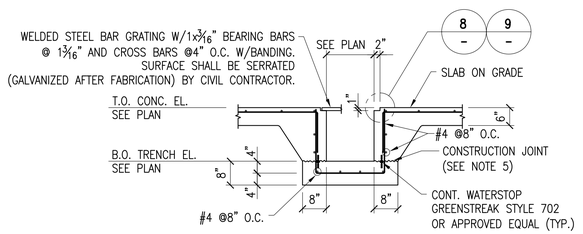


ELEVATION @ WALL

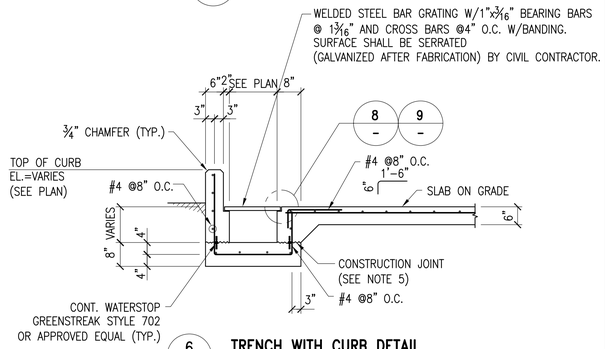
D – SECTION

4 – PIPE PENETRATION (ALTERNATIVE)

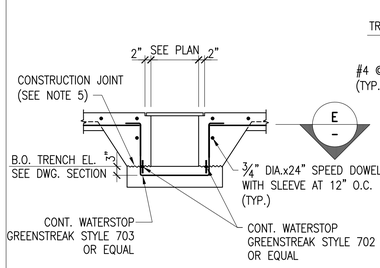
TRENCH



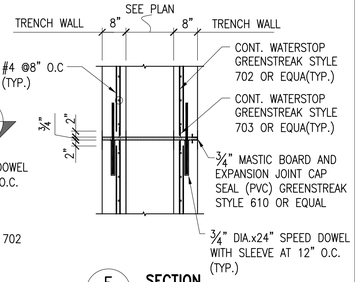
5 – TYP. TRENCH DETAIL



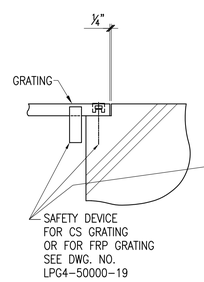
6 – TRENCH WITH CURB DETAIL



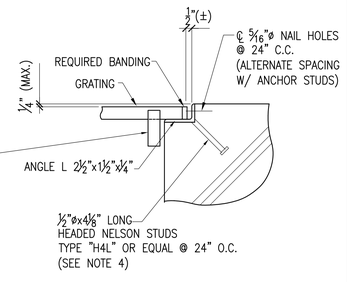
7 – TRENCH EXPANSION JOINT DETAIL



E – SECTION



8 – DETAIL ON CONCRETE DIRECTLY



9 – DETAIL ON ANGLE SEAT

GENERAL NOTE

1. FOR CONCRETE GENERAL NOTES SEE THE FOLLOWING DRAWINGS:
   LPG4-50000-01
   LPG4-50000-02
2. NO ADDITIONAL REINFORCING IS REQUIRED IF PENETRATION IS LESS THAN 6" DIAMETER.
3. THE PRODUCT MODEL NUMBER IN EACH PENETRATING PIPE IS AS FOLLOWS.

PIPE SIZE (NOM.)	MODEL NUMBER
½	WS-2-15-S-*
¾	WS-2-½-20-S-*
1	WS-2-½-20-S-*
1¼	WS-3-21-S-*
1½	WS-3-21-S-*
2	WS-3-½-22-S-*
2½	WS-4-23-S-*
3	WS-6-28-S-*
3½	WS-6-28-S-*
4	WS-6-28-S-*
5	WS-8-32-S-*
6	WS-10-36-S-*
8	WS-12-37-S-*
10	WS-14-37-S-*
12	WS-16-37-S-*
14	WS-18-37-S-*
16	WS-20-37-S-*
18	WS-22-37-S-*
20	WS-24-37-S-*

*= WALL THICKNESS

4. EMBEDDED ANGLE SHALL HAVE A MINIMUM OF TWO(2) ANCHORS.
5. CONSTRUCTION JOINT:
   REMOVE LAITANCE AND THOROUGHLY CLEAN AND DAMPEN CONSTRUCTION JOINT BEFORE PLACEMENT OF FRESH CONCRETE. BONDING SHALL BE REQUIRED. SEE PARA. 5.3.2.6 CONSTRUCTION JOINT IN ACI 301-20.
6. A. PROVIDE FACTORY MADE WATERSTOP FABRICATIONS FOR ALL CHANGES OF DIRECTION, INTERSECTIONS, AND TRANSITIONS LEAVING ONLY STRAIGHT BUTT JOINT SPLICES FOR THE FIELD.
   B. PROVIDE HOG RINGS OR GROMMETS SPACED AT 12 INCHES ON CENTER ALONG LENGTH OF WATERSTOP.
   C. PROVIDE TEFLON COATED THERMOSTATICALLY CONTROLLED WATERSTOP SPLICING IRONS FOR FIELD BUTT SPLICES.

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
0				

CS11

SHINTECH PLAQUEMINE PLANT-4

GENERAL
STRUCTURAL TYPICAL / CONCRETE
MISCELLANEOUS DETAIL (2/2)

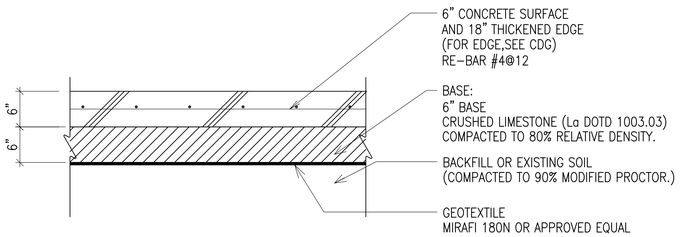
SHINTECH

APPROVED BY I.MARUYAMA
CHECKED BY N.MORI
DRAWN BY Y.NAKAJIMA

DATE: 05/02/25 | SCALE: NONE | AREA: –
DWG. NO. LPG4-50000-11 | 0

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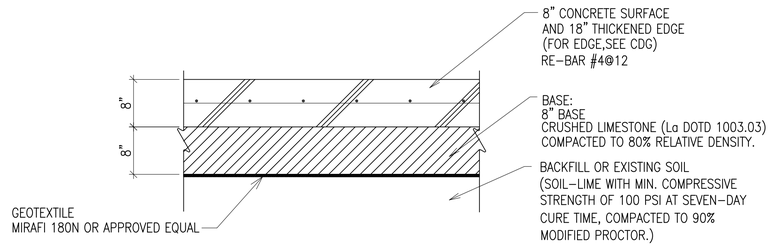
NORMAL CONCRETE PAVING (CDA)



1 – SECTION

NOTE;
28-DAY CONCRETE COMPRESSIVE STRENGTH : 4000PSI

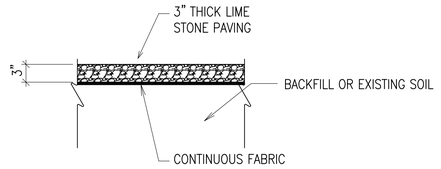
HEAVY DUTY CONCRETE PAVING (CDB)



2 – SECTION

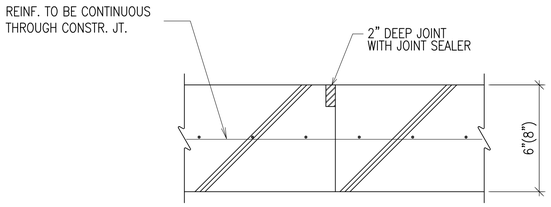
NOTE;
28-DAY CONCRETE COMPRESSIVE STRENGTH : 4000PSI

LIMESTONE PAVING



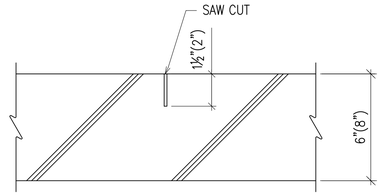
3 – SECTION

CONCRETE PAVING CONSTRUCTION JOINT DETAIL



4 – SECTION

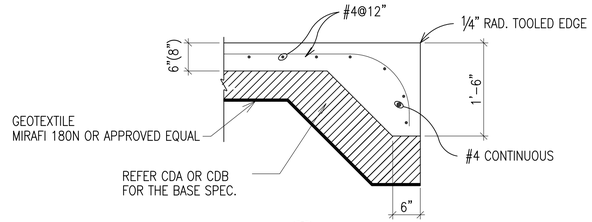
CONCRETE PAVING CONTROL JOINT(SAW CUT JOINT) DETAIL



5 – SECTION

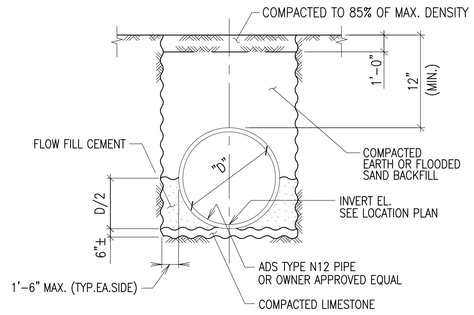
NOTE;
SAW CUT
CUT ⅛ INCH WIDE JOINTS INTO CONCRETE WHEN CUTTING ACTION WILL NOT TEAR, ABRADE OR OTHERWISE DAMAGE SURFACE AND BEFORE CONCRETRE DEVELOPS RANDOM CONSTRUCTION CRACKS. SAW CUT DEPTH SHOULD BE AT LEAST ONE-FORTH OF CONCRETE THICKNESS.

CONCRETE PAVING END AND EDGE DETAIL



6 – SECTION

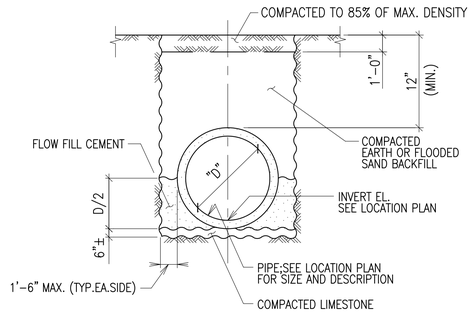
TYPICAL BEDDING DETAIL FOR UNDERGROUND HDPE PIPE



7 – SECTION

NOTE;
MAXIMUM DENSITY SHALL BE
DETERMINED BY A.S.T.M. TEST D-1557

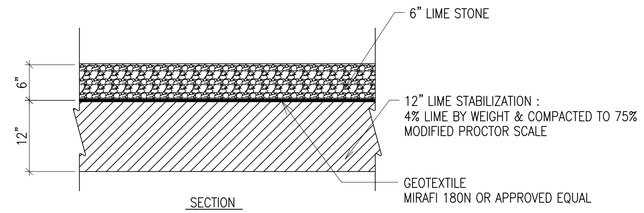
TYPICAL BEDDING DETAIL FOR UNDERGROUND CONCRETE PIPE



8 – SECTION

NOTE;
MAXIMUM DENSITY SHALL BE
DETERMINED BY A.S.T.M. TEST D-1557

HEAVY DUTY LIMESTONE PAVING



9 – SECTION

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
0				

CS12

SHINTECH PLAQUEMINE PLANT-4

GENERAL

CIVIL & DRAINAGE PLAN

DETAILS (1)

SHINTECH

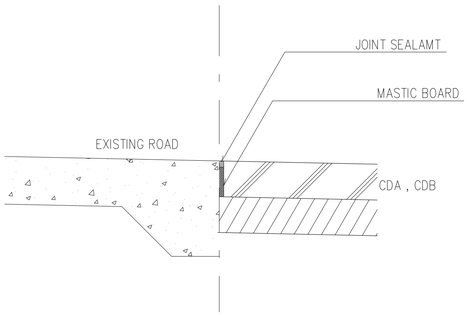
APPROVED BY I.MARUYAMA | CHECKED BY N.MORI | DRAWN BY Y.NAKAJIMA

DATE: 05/02/25 | SCALE: NONE | AREA: –

DWG. NO. LPG4-50000-12 | 0

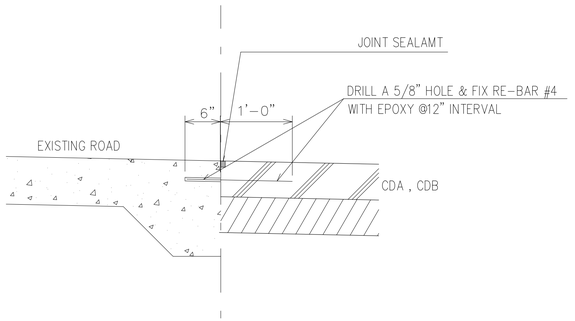
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CONCRETE SLAB JOINT DETAIL (1)



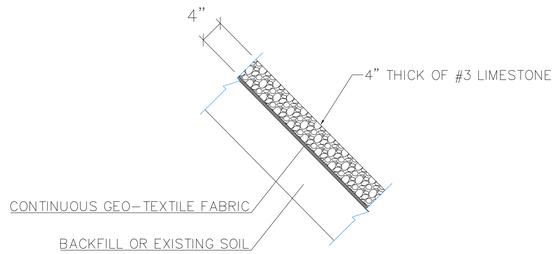
1 SECTION

CONCRETE SLAB JOINT DETAIL (2)



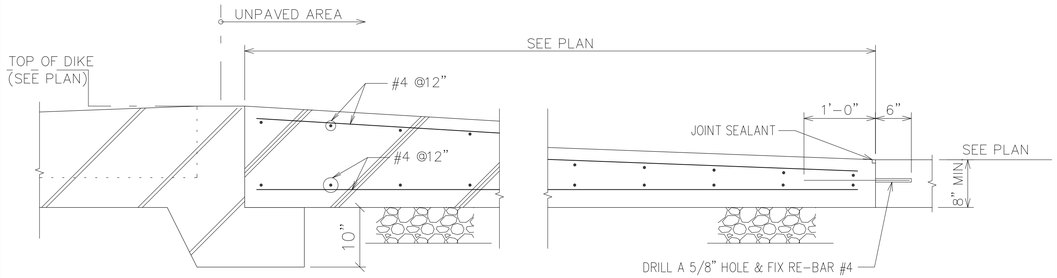
2 SECTION

TYPICAL SECTION FOR GRAVEL OF THE SLOPE AROUND SIDEWALKS



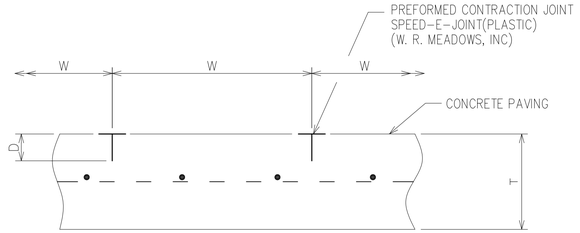
3 SECTION

TYPICAL DETAIL FOR HEAVY DUTY CONCRETE PAVING



4 SECTION

SAW CUT DETAIL

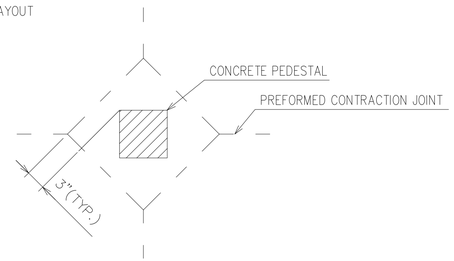


T (INCH)	6"	8"
D (INCH)	1.5"	2.0"
W (FEET)	15' MAX.	20' MAX.

NOTE.

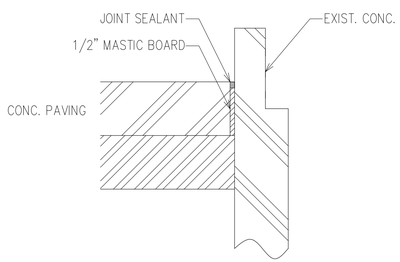
1. APPLICATION : TO INSTALL SPEED-E-JOINT, PRESS A STRAIGHT EDGE CUTTING TOOL INTO THE WET CONCRETE TO PART THE AGGREGATE IN A STRAIGHT LINE. PLACE SPEED-E-JOINT INTO THE SEPARATION UNTIL THE TOP SEGMENT LAYS ON THE SURFACE OF THE WET CONCRETE. REMOVE THE TOP. FLOAT CONCRETE TO FILL ALL VOIDS ADJACENT TO SPEED-E-JOINT AND FINISH IN THE NORMAL MANNER.

2. LAYOUT



5 SECTION

CONCRETE SLAB JOINT DETAIL (3)



6 SECTION

CS15

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
0				

SHINTECH PLAQUEMINE PLANT-4

GENERAL

CIVIL & DRAINAGE PLAN

DETAILS(4)

SHINTECH

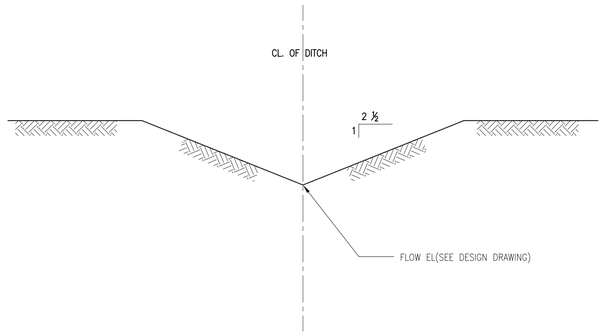
APPROVED BY I.MARUYAMA
CHECKED BY N.MORI
DRAWN BY Y.NAKAJIMA

DATE: 05/08/25 | SCALE: NONE | AREA: -

DWG. NO. LPG4-50000-15 | 0

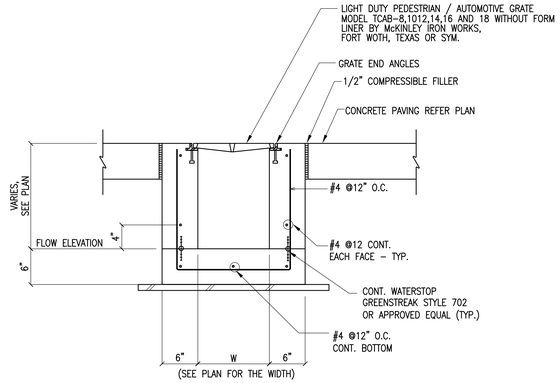
CONFIDENTIAL: SHINTECH, ALL RIGHTS RESERVED.THE DRAWINGS, SPECIFICATIONS AND INFORMATIONS ARE THE PROPERTY OF SHINTECH, AND CONFIDENTIAL.

TYPICAL V-DITCH



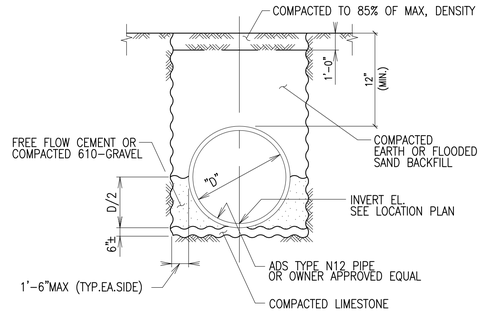
1 / – SECTION

TRENCH FOR LIGHT DUTY



3 / – SECTION

TYPICAL BEDDING DETAIL FOR UNDERGROUND HDPE PIPE



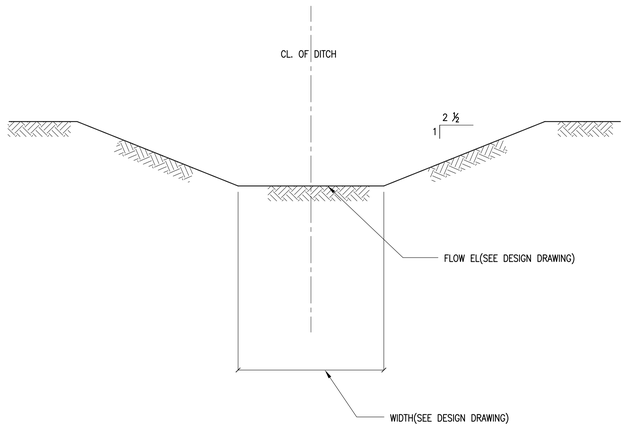
NOTE;
MAXIMUM DENSITY SHALL BE DETERMINED BY A.S.T.M.TEST D-1557

5 / – SECTION

GENERAL NOTES

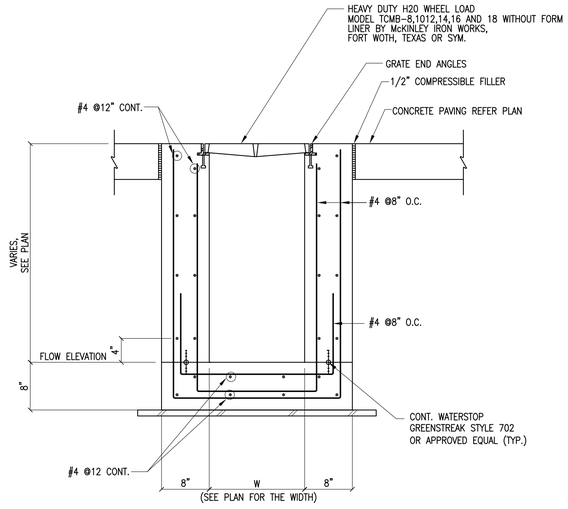
1. FOR CONCRETE GENERAL NOTES SEE THE FOLLOWING DRAWINGS:
   LPG4-50000-01 CONCRETE GENERAL NOTE (1/2)
   LPG4-50000-02 CONCRETE GENERAL NOTE (2/2)

TYPICAL FLAT-BOTTOM DITCH



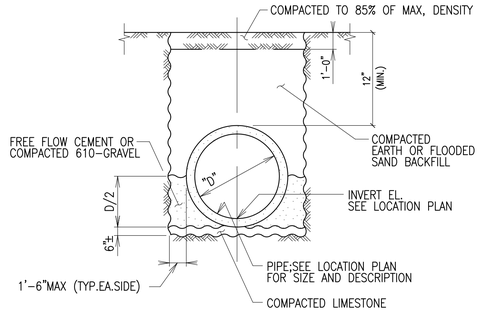
2 / – SECTION

TRENCH FOR HEAVY DUTY(H20 COVER PART)



4 / – SECTION

TYPICAL BEDDING DETAIL FOR UNDERGROUND CONCRETE PIPE



NOTE;
MAXIMUM DENSITY SHALL BE DETERMINED BY A.S.T.M.TEST D-1557

6 / – SECTION

CS52

REV.NO.	DESCRIPTION	DRAWN	CHECKED	DATE
△				
△				
△				
△				
△				

SHINTECH PLAQUEMINE PLANT-4

GENERAL

STRUCTURAL TYPICAL / CONCRETE

DITCH , TRENCH & BEDDING

SHINTECH

APPROVED BY I.MARUYAMA
CHECKED BY N.MORI
DRAWN BY A.FUJITA

DATE: 05/02/25 | SCALE: NONE | AREA: –

DWG. NO. LPG4-50000-52 △0

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