STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE ASTM DESIGNATION AS INDICATED BELOW (UNO):

WF SHAPES, EXCEPT MOMENT FRAME GIRDERS:	A572, GRADE 50
MOMENT FRAME GIRDERS, PLATES U.N.O., CONNECTION PLATES, AND MISC.	A–36
PIPE COLUMNS	A–53, GRADE B
TUBE SECTIONS	A–500, GRADE B
BOLTS	A–325
BOLTS IN CONCRETE/MASONRY	A–307
ANGLES, CHANNELS, WT SHAPES	A–36"

2. BOLT HOLES USED IN STEEL SHALL BE 1/16" LARGER IN DIAMETER THAN NOMINAL SIZE OF BOLT USED, EXCEPT AS NOTED.

3. ALL WELDING IS TO BE DONE BY CERTIFIED WELDERS USING E70XX ELECTRODES (UNO). ALL WELDS SHALL BE IN CONFORMITY WITH THE PROJECT SPECIFICATIONS AND THE CODE FOR WELDING IN BUILDING CONSTRUCTION (AWS D1.1 LATEST REVISION) OF THE AMERICAN WELDING SOCIETY. SEE SPECIAL INSPECTIONS SECTION FOR WELDING INSPECTION REQUIREMENTS.

4. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE FILLET WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE, USE MINIMUM SIZE WELDS AS SPECIFIED IN AISC MANUAL OF STEEL CONSTRUCTION 9TH EDITION, SECTION 1.17.2.

GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.

2. ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.

3. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.

4. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODES:

   2010 CALIFORNIA BUILDING CODE
   REFERRED TO HERE AS "THE CODE" AND ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY, AND THOSE CODES & STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.

5. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:

   SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, EXCEPT AS NOTED

   SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR NON–BEARING PARTITIONS NOT INDICATED ON OUR DRAWINGS. IF SHOWN ON OUR DRAWING SIZES ARE TO BE VERIFIED W/ ARCHITECTURAL DRAWINGS. ANY CONFLICT IS TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER.

   FLOOR AND ROOF FINISHES

   MISCELLANEOUS DRAINAGE AND WATERPROOFING

   DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS

6. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE FOLLOWING:

   ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS

   SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES, ANCHOR BOLTS FOR MOTOR MOUNTS

7. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, CONSTRUCTIONS, INSPECTION AND APPROVALS OF ALL SUCH SHORINGS. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.

8. THE CONTRACT STRUCTURAL DRAWINGS SHOW THE BUILDING IN ITS FINAL INTENDED POSITION. CONTRACTOR SHALL MAKE PROVISIONS IN THE LAYOUT OF THE BUILDING TO TAKE INTO ACCOUNTS SHRIKAGE, CREEP, SHORTENING, ETC.,

9. ASTM SPECIFICATIONS ON THE DRAWINGS SHALL BE OF THE LATEST REVISIONS.

10. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED ROOF OR FLOOR. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.

SPECIAL INSPECTIONS

1. ALL SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1704 OF THE CODE ANY ADDITIONAL REQUIREMENTS STATED IN THESE DRAWINGS AND/OR THE PROJECT SPECIFICATIONS.

2. THE FOLLOWING ELEMENTS OF CONSTRUCTION SHALL HAVE PERIODIC INSPECTION BY A BUILDING INSPECTOR APPROVED BY BUILDING DEPARTMENT.

   a) STRUCTURAL STEEL SINGLE–PASS FILLET WELDS < 5/16"

DESIGN LOADS

1. EARTHQUAKE LOADS ON PRIMARY STRUCTURE:

   EARTHQUAKE LOADS ARE IN ACCORDANCE WITH SECTION 1613 OF THE CODE.

2. EARTHQUAKE LOADS ON NONSTRUCTURAL COMPONENTS:

   EARTHQUAKE LOADS ARE IN ACCORDANCE WITH SECTION 1613 OF THE CODE.

   I_p = 1.0 FOR ALL NONSTRUCTURAL COMPONENTS
   EARTHQUAKE LOADS ON NONSTRUCTURAL COMPONENTS ARE DETERMINED PER ASCE 7–05, EQUASION 13.3–1.
   THE MAXIMUM AND MINIMUM VALUES FOR F_p SHALL BE DETERMINED FROM ASCE 7–05 EQUATIONS 13.3–2 AND 13.3–3, RESPECTIVELY.

   ALL EARTHQUAKE LOADS ON NONSTRUCTURAL COMPONENTS SHALL BE BASED ON THE VALUES OF a_p AND R_p FROM ASCE 7–05 TABLES 13.5–1 AND 13.6–1.

   OCCUPANCY CATEGORY: II
   MAPPED SPECTRAL RESPONSE ACCELERATIONS:

   S_S = 2.658
   S_1 = 0.973

   SITE CLASS: D

   SPECTRAL RESPONSE COEFFICIENTS:

   S_{DS} = 1.722
   S_{D1} = 0.973
   SEISMIC DESIGN CATEGORY: D

3. FLOOD DESIGN DATA:

   THE PROJECT IS NOT LOCATED WITHIN A FLOOD HAZARD AREA.

APPROVED
BY:
DATE: 11/4/13
CITY OF OXNARD
PLANNING

Note 34
CITY OF OXNARD
DEVELOPMENT SERVICES
APPROVED
11/1/13

VERIZON OXNARD
1800 SOLAR DRIVE
OXNARD, CA 93030

11/01/13

kpff Consulting Engineers
6080 Center Drive, Suite 300
Los Angeles, California 90045
(310) 665–1536 Fax (310) 665–9070

REGISTERED PROFESSIONAL ENGINEER
STRUCTURAL
STATE OF CALIFORNIA

KEYPLAN

owner

REVISIONS

NO.	DESCRIPTION	DATE

III

09-2010

DRAWING TITLE

GENERAL NOTES

REVIEWED -
DRAWN -
ISSUE DATE
JOB NO. ----
SCALE AS NOTED
DRAWING NO.

S-1

GONZALES ROAD

SOLAR DRIVE

WANKEL WAY

RICE AVENUE

PARKING LOT

(N) COOLING TOWER

2
S-4

N

SITE PLAN

NTS

1

VERIZON OXNARD

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OXNARD, CA 93030

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Los Angeles, California 90045
(310) 665-1536 Fax (310) 665-9070

REGISTERED PROFESSIONAL ENGINEER
No. 33567
EXP. 6-30-15
STRUCTURAL
STATE OF CALIFORNIA

KEYPLAN

APPROVED
PLANNING CENTER
CITY OF OXNARD
THIS SET OF CONSTRUCTION PLANS MUST BE KEPT ON THE JOB SITE AT ALL TIMES. OR UNLAWFUL TO DEVIATE FROM THESE PLANS WITHOUT FIRST OBTAINING THE APPROVAL OF THE PLANNING DIRECTOR. ANY CHANGES, MODIFICATIONS OR ALTERATIONS MADE ON THESE PLANS WITHOUT THE PRIOR APPROVAL OF THE PLANNING DIRECTOR WILL INVALIDATE THE BUILDING PERMIT AND ANY CERTIFICATE OF OCCUPANCY ISSUED. ANY VIOLATION OF THESE CONDITIONS MAY RESULT IN REVOCATION OF THE BUILDING PERMIT AND/OR CERTIFICATE OF OCCUPANCY.

REVISIONS

NO.	DESCRIPTION	DATE

DRAWING TITLE

SITE PLAN

REVIEWED -

DRAWN -

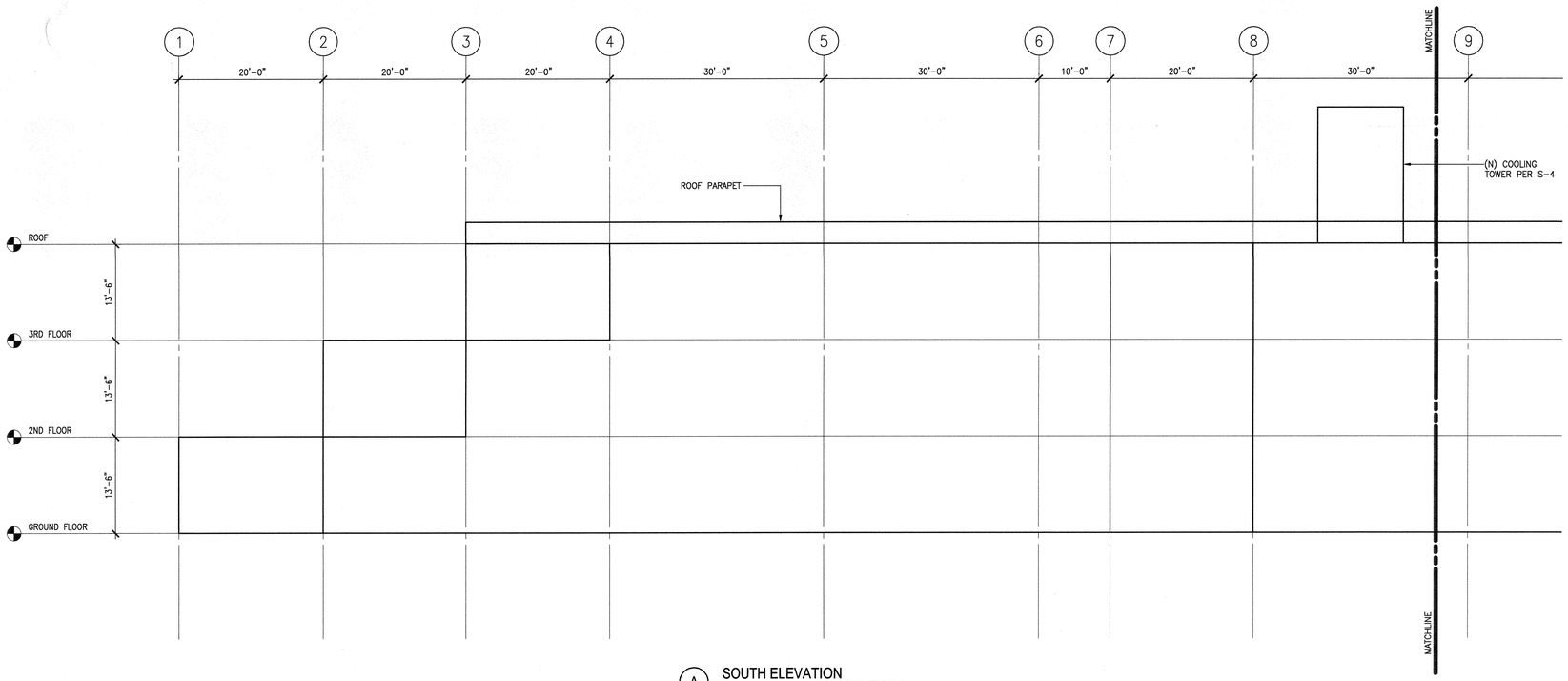
ISSUE DATE

JOB NO. ----

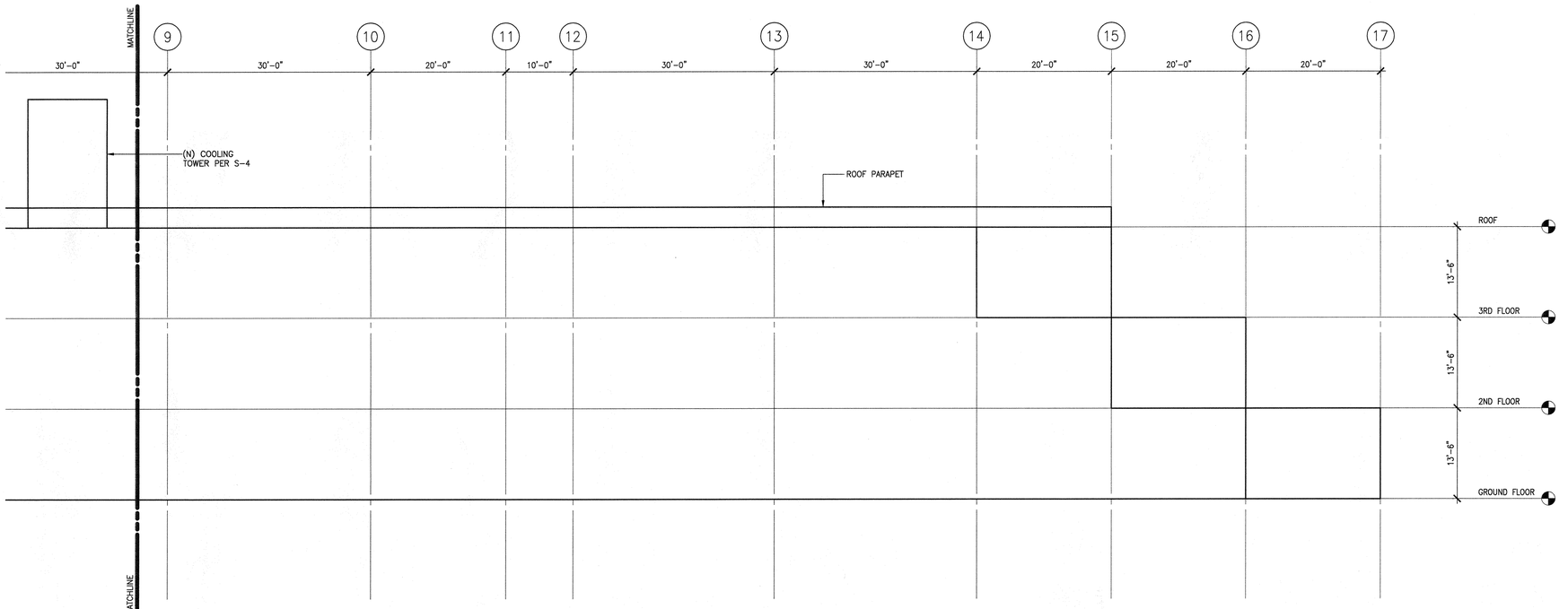
SCALE: AS NOTED

DRAWING NO.

S-2



A SOUTH ELEVATION
SCALE: 1/8"=1'-0"



B SOUTH ELEVATION
SCALE: 1/8"=1'-0"

VERIZON OXNARD

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REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

KEYPLAN

APPROVED
PERMIT CENTER
CITY OF OXNARD
THIS SET OF PLANS AND SPECIFICATIONS MUST BE KEPT ON THE JOB SITE AT ALL TIMES DURING WHICH THE PROVISIONS APPLY. APPROVAL OF THESE PLANS AND SPECIFICATIONS MUST NOT BE CONSTRUED AS PERMITTING ANY VIOLATION OF THE OXNARD CITY CODE OR ANY OTHER LAW. APPROVAL IS REVOKED 180 DAYS FROM DATE OF APPROVAL IF THE PROJECT HAS NOT BEEN COMMENCED.

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

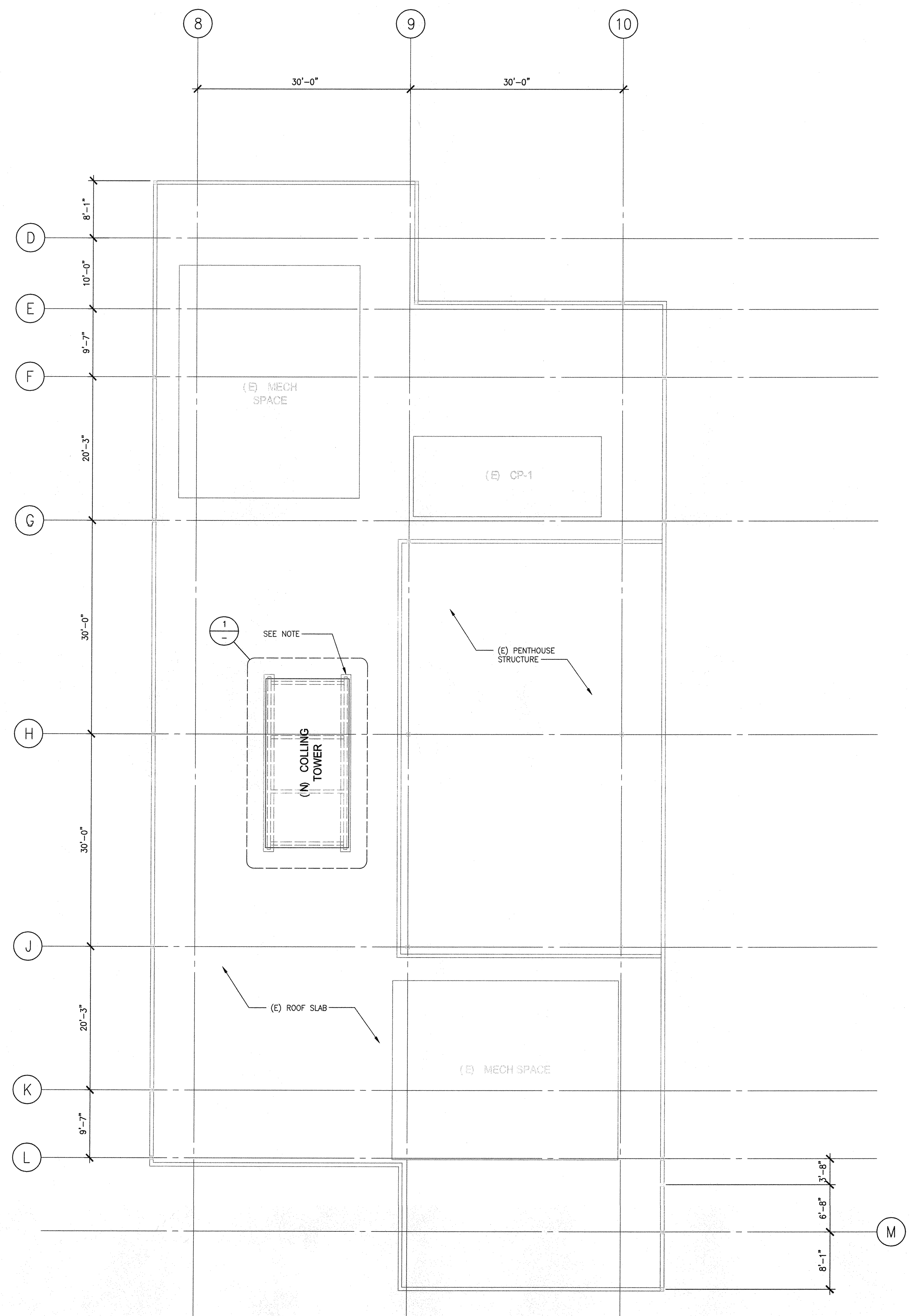
ELEVATIONS

REVIEWED -
DRAWN -
ISSUE DATE

JOB NO. ----
SCALE: AS NOTED

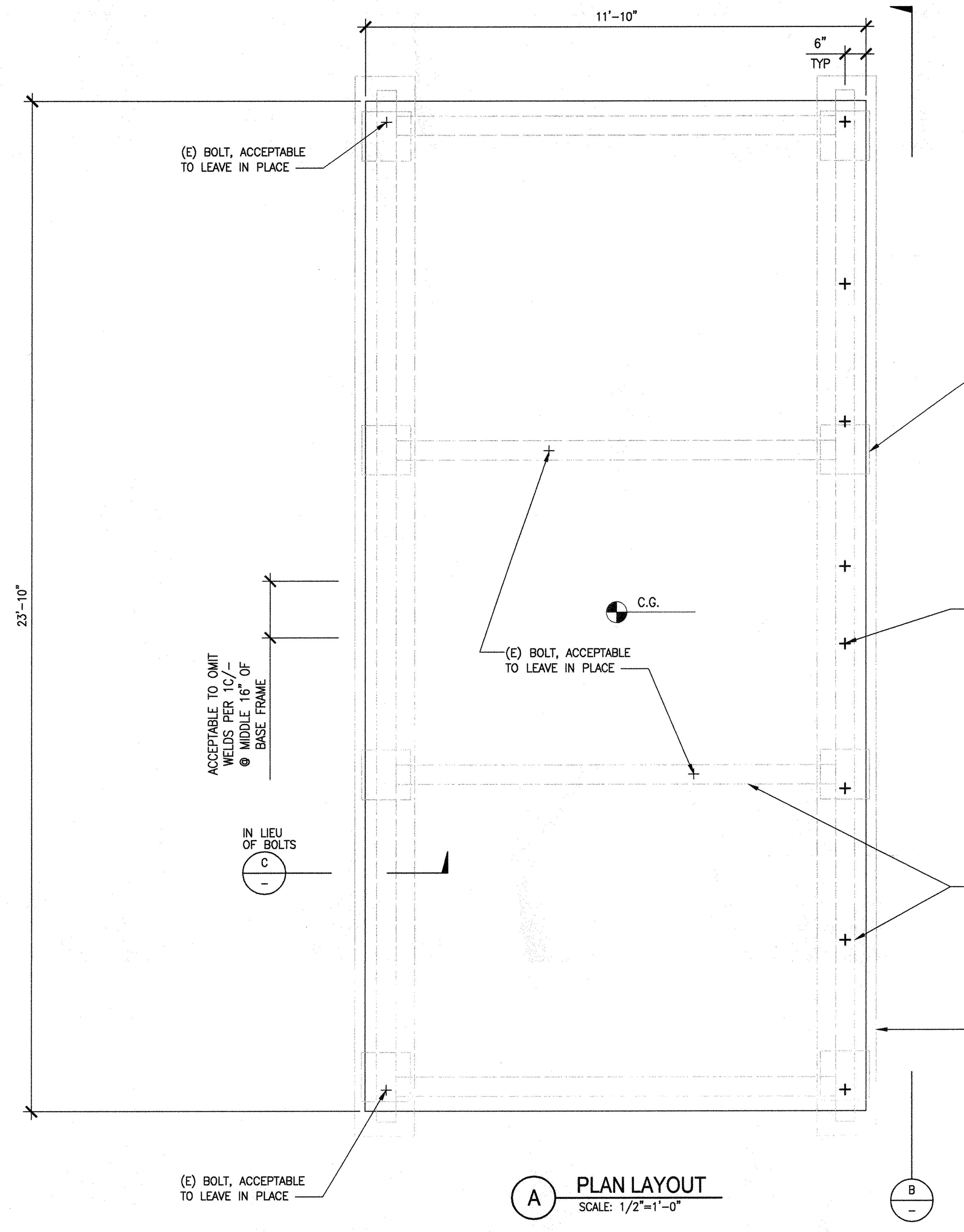
DRAWING NO.

S-3

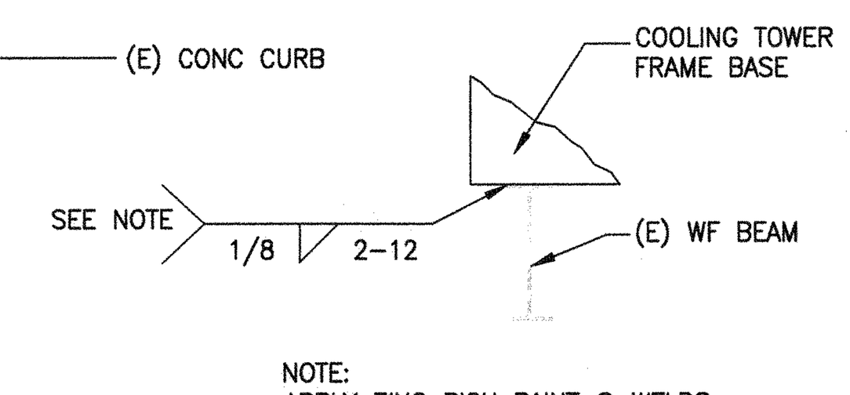


NOTE:
(N) COOLING TOWER (WT=32,150#) LOCATED ON (E) WF BEAMS, ISOLATORS, CONC CURB THAT PREVIOUSLY SUPPORTED A 40,000# COOLING TOWER AT THE SAME LOCATION.

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

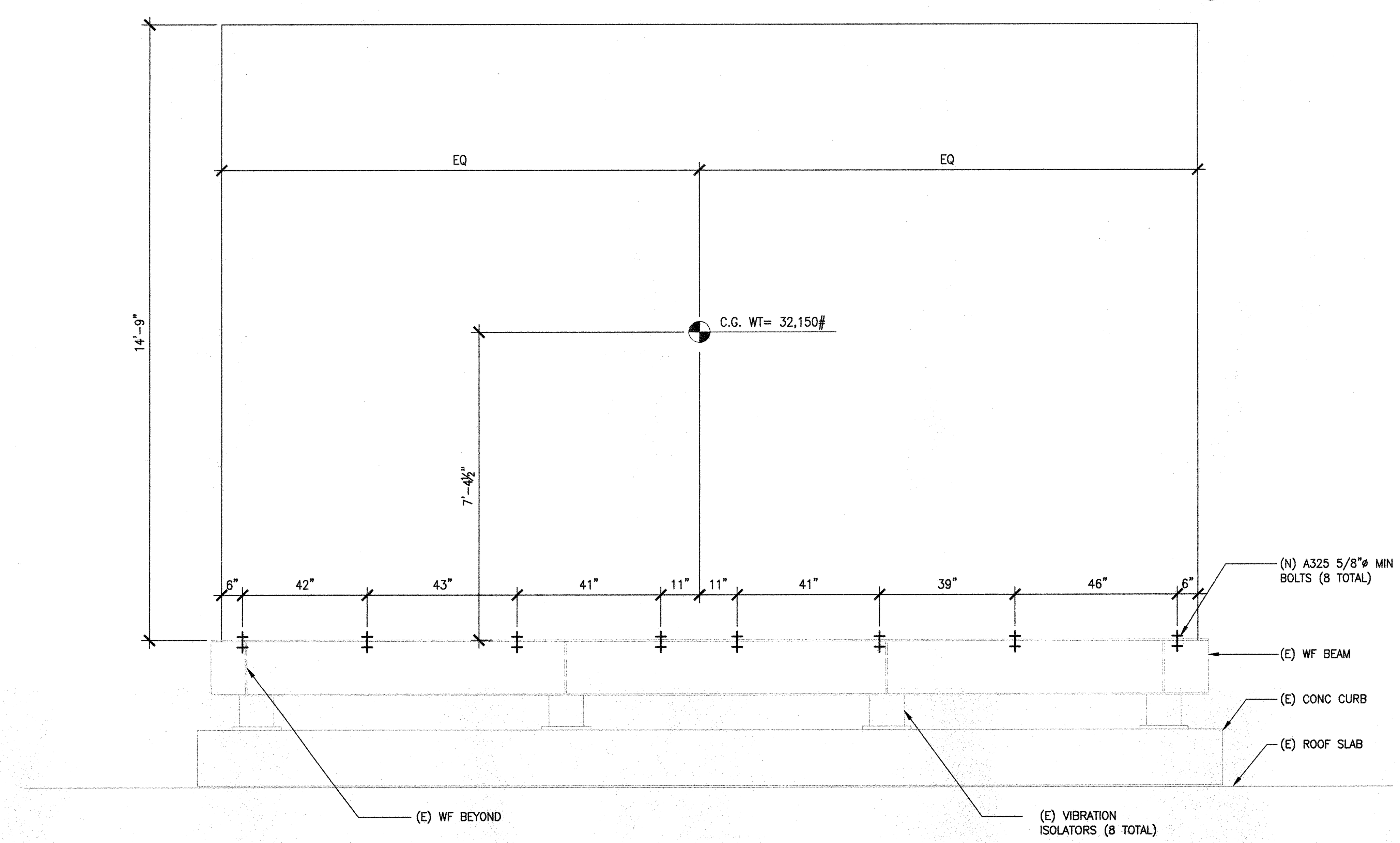


A PLAN LAYOUT
SCALE: 1/2"=1'-0"



NOTE:
APPLY ZINC RICH PAINT @ WELDS AFTER COMPLETION FOR GALVANIZED STEEL WELDS

C WELD DETAIL
SCALE: 1/2"=1'-0"



NOTES:
1. ALL BOLT LAYOUT DIMENSIONS CAN BE ADJUSTED +/-3"
2. BOLT HOLES MAY BE SLOTTED UP TO 11/16" OR 3/4" ø BOLTS
3. BOLTS TO BE GALVANIZED

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

COOLING TOWER ANCHORAGE 1/2"=1'-0" 1

VERIZON OXNARD
1800 SOLAR DRIVE
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Los Angeles, California 90045
(310) 665-1536 Fax (310) 665-9070

REGISTERED PROFESSIONAL ENGINEER STRUCTURAL STATE OF CALIFORNIA

KEYPLAN

REVISIONS

NO.	DESCRIPTION	DATE

DRAWING TITLE

ROOF PLAN AND DETAILS

REVIEWED -
DRAWN -
ISSUE DATE

JOB NO.	SCALE:
----	AS NOTED

DRAWING NO.

S-4

Development Services Department
Building & Engineering Division
214 South "C" Street, Oxnard, CA 93030

PERMIT

CITY OF OXNARD CALIFORNIA

LEGACY PERMIT - COOLING TOWER

FOR INSPECTIONS CALL (805) 247- 8980 - 24 HOUR ADVANCE NOTICE

Application Number . . . . . 09-00002070 Date 11/21/13
Property Address . . . . . 1800 SOLAR DR
PARCEL NUMBER 213-0-070-045
Tenant nbr, name . . . . . AC UNIT REPLACEMENT
Application description . . . MECH WORK ONLY, COM, IND, MULTI-RES

Owner	Contractor
GENERAL TELEPHONE CO LESSEE	SWINTERTON BUILDERS
FLAG PROPERTIES LESSOR	865 S FIGUEROA ST #3000
ONE GTE PL RC 3521	LOS ANGELES CA 90017
THOUSAND OAKS CA 91362	(213) 896-3400

Permit . . . . . BUILDING PERMIT
Additional desc . .
Phone Access Code . 1538966
Permit Fee . . . . 46.50 Plan Check Fee . . 114.00
Issue Date . . . . 11/21/13 Valuation 1000
Expiration Date . . 5/20/14

Qty	Unit Charge	Per		Extension
			BASE FEE	31.75
5.00	2.9500	HND	B-$2.95/1C (>$750-$3K)	14.75

Permit . . . . . MECHANICAL PERMIT
Additional desc . . REPLACE SAME UNIT
Phone Access Code . 1473941
Permit Fee . . . . 46.50 Plan Check Fee . . 57.00
Issue Date . . . . 11/21/13 Valuation 0
Expiration Date . . 5/20/14

Qty	Unit Charge	Per		Extension
			BASE FEE	46.50

Special Notes and Comments
REPLACE (E) COOLING TOWER UNIT W/(N) @
SAME LOCATION USING SAME (E)
CONNECTIONS.

Other Fees	DS ADDL PLAN REVIEW CHGS	18.85
	DS STATE GREEN BLDG FEE	1.00
	DS ISSUANCE FEE	40.30
	DS IMAGING DOCUMENTS	25.50
	PL GENERAL PL MAINT. FEE	2.40
	PERMIT CTR SURCHARGE PC	14.49
	PERMIT CTR SURCHARGE	7.96
	DS SMIP/SEISMIC FEE	.50
	PL PC FEE BASE FEE	100.00

Fee summary	Charged	Paid	Credited	Due
Permit Fee Total	93.00	93.00	.00	.00
Plan Check Total	171.00	171.00	.00	.00
Other Fee Total	211.00	211.00	.00	.00
Grand Total	475.00	475.00	.00	.00

NOTICE ***(Please check appropriate box in each paragraph)***

☐ 1(a) I certify that I am licensed under the State Contractor's License Law and my contractor's license is in full force and effect; or

☐ 1(b) I certify that I am exempt from Business and Professions Code #7031.5 under: ☐ #7044 - Owner/builder, ☐ #7048 - Price of labor and materials less than $300.

AND

☐ 2(a) I certify that I have workers' compensation insurance.
Insurer _____ Policy # _____, or a Certificate of Consent to self-insure by the Director of Industrial Relations; or

☐ 2(b) I certify that I am exempt under Labor Code #3800 because: ☐ the permit is for work of $100 or less, or ☐ that in the performance of the work for which the permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California.

AND

☐ 3 Lender's Name _____ Address _____

I certify that I have read this application and declare under penalty of perjury that the information contained herein is true, correct and complete. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above mentioned property for inspection purposes. I am the owner of the structure listed on this permit or I represent the owner and am acting with the owner's full knowledge and consent.

Executed at City of Oxnard _____ _____
Date Owner/Contractor Authorized Signature

PROJECT COMPLETED DATE: 12-05-13 **INSPECTOR:** _____

THIS PERMIT BECOMES NULL AND VOID if work or construction authorized is not commenced within 180 days from date of issuance, or work is suspended or abandoned for a period of 180 days any time after work is commenced.

INSPECTION RECORD

- FOR INSPECTIONS CALL (805) 247-8980 -
24 Hours Advance Notice Is Required For All Inspections
POST THIS CARD IN A CONSPICUOUS PLACE

IVR CODE NO.	INSPECTION	DATE	INSPECTOR
DO NOT COVER UNTIL ALL APPLICABLE SPACES HAVE BEEN SIGNED			
305	PLUMBING GROUNDWORK (SOIL)		
335	SEWER		
340	WATER SERVICE		
	SAMPLE WELL/GREASE INTERCEPTOR		
DO NOT PLACE CONCRETE UNTIL ALL APPLICABLE SPACES HAVE BEEN SIGNED			
101	SETBACK INSPECTION: FRONT ❑ SIDE ❑ REAR ❑		
102	FOUNDATION		
210	UFER GROUND		
DO NOT PLACE CONCRETE UNTIL ALL APPLICABLE SPACES HAVE BEEN SIGNED			
315	WATER PIPING		
215	UNDER SLAB ELECTRICAL CONDUIT		
110	SLAB: REINFORCEMENT ❑ MEMBRANE ❑		
113	POUR STRIP		
DO NOT COVER UNTIL ALL APPLICABLE SPACES HAVE BEEN SIGNED			
121	FLOOR NAIL		
125	ROOF NAIL		
126	ROOF TEAR OFF		
127	PRE-ROOFING		
130	PRE-WRAP EXTERIOR SHEAR PANEL NAILING		
131	SHEAR PANEL NAILING		
DO NOT COVER UNTIL ALL APPLICABLE SPACES HAVE BEEN SIGNED			
	ROUGH FIRE SPRINKLER SYSTEM		
325	PLUMBING TOP OUT WATER TEST		
DO NOT COVER UNTIL ALL APPLICABLE SPACES HAVE BEEN SIGNED			
140	ROUGH FRAMING ❑ STEEL FRAMING ❑		
230	ROUGH ELECTRICAL		
430	ROUGH MECHANICAL		
330	ROUGH PLUMBING		
DO NOT COVER UNTIL ALL APPLICABLE SPACES HAVE BEEN SIGNED			
145	INSULATION: CEILING ❑ WALLS ❑ ROOF ❑		
DO NOT PLASTER UNTIL INTERIOR AND/OR EXTERIOR HAVE BEEN SIGNED			
152	INTERIOR: DRYWALL ❑ LATH ❑		
153	EXTERIOR: LATH ❑ SIDING ❑		
345	GAS TEST: PIPING ❑ SERVICE ❑		
SWIMMING POOL/SPA			
510	PRE-GUNITE WITH REINFORCEMENT		
530	POOL DECK/BONDING		
515	ELECTRICAL CONDUIT		
520	GAS PIPING/TEST		
535	ENCLOSURE/ALARM (BEFORE PLASTER IS APPLIED)		
525	POOL PLUMBING SYSTEM		
MISCELLANEOUS INSPECTIONS			
114	MASONRY REINFORCEMENT (BOND BEAM)		
225	T-BAR LIGHT FIXTURES/ROUGH ELECTRICAL CEILING		
156	T-BAR SUPPORT		
192	WINDOW REPLACEMENT		
	FINAL CUPA		
	FIRE SPRINKLERS FINAL		
	FIRE ALARM FINAL		
	FIRE FINAL (OTHER)		
FINAL INSPECTIONS			
	FIRE FINAL (LIFE SAFETY)		
	FINAL PLANNING		
	FINAL PUBLIC WORKS		
	FINAL PARKS		
	FINAL SOURCE CONTROL		
	CITY BUSINESS LICENSES		
	BACKFLOW PREVENTION		
BUILDING CONSTRUCTION FINALS			
295	FINAL ELECTRICAL (WITH POWER ON)		
395	FINAL PLUMBING		
495	FINAL MECHANICAL	12.5.13	BM
195	FINAL BUILDING	12.5.13	BM
UTILITIES CLEARANCES			
265	ELECTRICAL CLEARANCE APPROVED		
385	GAS CLEARANCE APPROVED		
	PROJECT COMPLETE	12.5.13	BM

Notes

kpff Consulting Engineers
6080 Center Drive, Suite 300
Los Angeles, California 90045
310.665.1536p 310.665.9070f

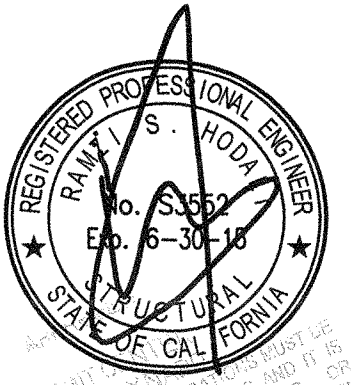
STRUCTURAL CALCULATIONS

FOR

VERIZON BUILDING COOLING TOWER ANCHORAGE

1800 SOLAR DRIVE

OXNARD, CA



KPFF JOB # 113335

October 18, 2013

kpff Consulting Engineers
6080 Center Drive, Suite 300
Los Angeles, CA 90045
(310) 665-1536 Fax (310) 665-9070

project VERIZON WIRELESS - OXNARD	by DLT	sheet no. 1
location OXNARD, CA	date 9/30/13	
client GENSLER	job no. 113335	

SEISMIC PARAMETERS

REFER TO FOLLOWING PAGE: $S_{DS} = 1.722g$, $S_{D1} = 0.973g$ } PER USGS

$$F_p = \frac{0.4 a_p S_{DS} W_p}{(R_p/I_p)} \left(1 + 2\frac{z}{h}\right)$$

$a_p = 2.5$
$R_p = 3.0$
$S_{DS} = 1.722$
$I_p = 1.0$
$z/h = 1.0$

$F_p = 1.722 W_p$ ← GOVERNS

$F_{p_{MAX}} = 1.6 S_{DS} I W_p = 2.76 W_p$

$F_{p_{MIN}} = 0.3 S_{DS} I W_p = 0.52 W_p$

$F_{p_V} = +/- 0.2 S_{DS} W_p = +/- 0.344 W_p$

$W_p = 32{,}150\#$ ∴

$F_p = (1.722) W_p = 55{,}362\#$ $F_{p_V} = +/- 11{,}073\#$

2

USGS

Design Maps Summary Report

User-Specified Input

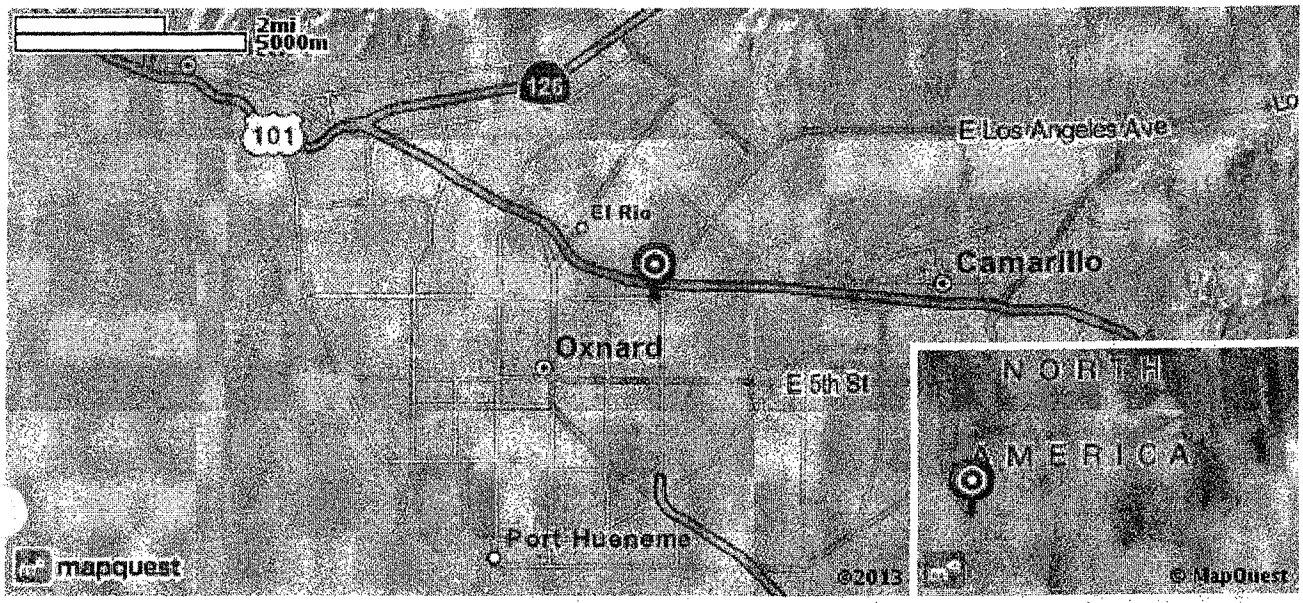
Report Title Verizon Oxnard
Mon September 30, 2013 21:49:01 UTC

Building Code Reference Document ASCE 7-10 Standard
(which utilizes USGS hazard data available in 2008)

Site Coordinates 34.2176°N, 119.14368°W

Site Soil Classification Site Class D – "Stiff Soil"

Risk Category I/II/III

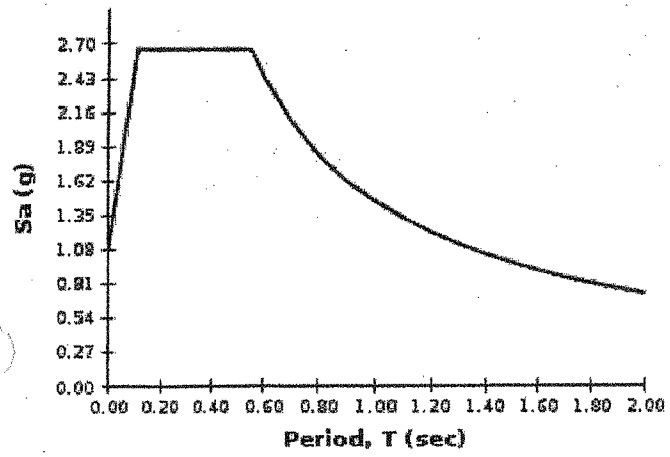


USGS-Provided Output

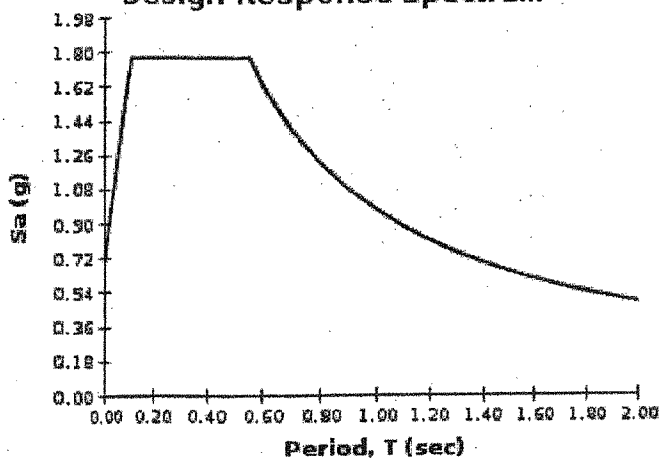
S_S =	2.658 g	S_{MS} =	2.658 g	S_{DS} =	1.772 g
S_1 =	0.973 g	S_{M1} =	1.459 g	S_{D1} =	0.973 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.

MCE_R Response Spectrum



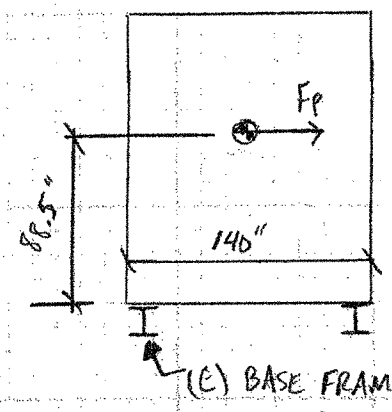
Design Response Spectrum



kpff Consulting Engineers
6080 Center Drive, Suite 300
Los Angeles, CA 90045
(310) 665-1536 Fax (310) 665-9070

project | by | sheet no. 3
location | date
client | job no.

CHECK COOLING TOWER ANCHORAGE



WT = 32,150#

F_p = 55,362# F_{p_v} = 11,073#

SHORT DIRECTION:

$M_{OT} = (55{,}362)88.5" = 4900$ k·in

$M_{RES} = (0.9(32{,}150) - 11{,}073\#)\frac{140}{2} = 1750$ k·in

TOTAL M = 4900 - 1,750 = 3650 k·in

∴ T/C @ BOLTS/WELDS = $\frac{3650 \text{ k·in}}{140}$ = 26.1 KIPS PER SIDE

LONG DIRECTION: M_{OUT} = 4900 #in

$M_{RES} = (0.9(32{,}150) - 11{,}073)\frac{286}{2} = 2555$ k·in

TOTAL M = 4900 - 2555 = 2345 k·in

∴ T/C @ QUARTER POINTS: $\frac{2345 \text{ k·in}}{(286/2)}$ = 16.4 KIPS PER ½ SIDE

SHEAR: $\frac{55{,}362\#}{2}$ = 27.7 KIPS PER SIDE

* TOTAL: 100+30 EFFECTS:

BOLTS: TENSION: $\left(\frac{26.1}{8}\right)0.3 + \left(\frac{16.4}{4}\right) = 5.08$ k/BOLT

SHEAR: $\left(\frac{27.7}{8}\right)1.3 = 4.5$ k/BOLTS

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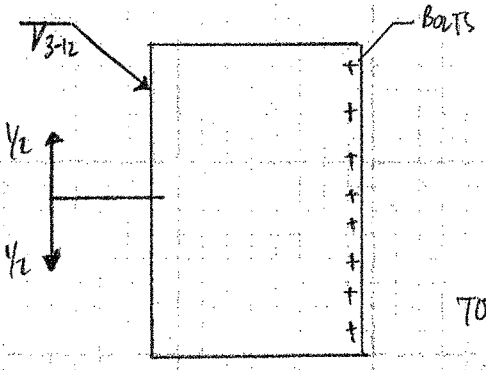
project	by	sheet no.
location	date	4
client	job no.	

WELDS: LOOK @ ½ OF SIDE LENGTH OF WELDS:

(100+30 EFFECTS)



PLAN VIEW

TENSION: $\left(\frac{26.1}{2}\right)0.3 + 16.4 = 20.3\text{ k}/\text{½ SIDE}$

SHEAR $\left(\frac{27.7}{2}\right)1.3 = 18\text{ k}/\text{½ SIDE}$

TOTAL LOAD @ WELD: $R = \sqrt{16.4^2 + 18^2} = \boxed{24.4\text{ k}}$

CHECK WELDS: ℓ ½ SIDE $= \frac{((23'\text{-}10) - 16")}{2} = 135"$

$\ell_{WELD} = \left(\frac{135"}{12}\right)2 = 22"$ OF WELD.

WELD STRENGTH: 1.392 KIPS PER 1/16" THK WELD PER INCH LENGTH

TOTAL = $(22")(1.392)2 = 61.2\text{ k}$ = STRENGTH ½ SIDE

$DCR = \frac{24.4}{61.2} = 0.40$ ok

CHECK BOLTS

COMBINED TENSION & SHEAR: PER EQ J3-2 - AISC

$\phi R_n = \phi F_{nt} A_b$

$\phi R_n = 0.75(87.6\text{ksi})(0.307\text{in}^2)$

$\phi R_n = 20.2\text{ KIPS}$

$F_{nt} = 1.3F_{nt} - \frac{F_{nt}}{\phi F_{nv}} f_c$

$= 1.3(90\text{ksi}) - \frac{90}{(0.75)60}(14.7)$

$F_{nt} = 87.6\text{ ksi}$

$f_v = \frac{4.5\text{k}}{0.307\text{in}^2} = 14.7\text{ksi}$

↳ $DCR = 5.08/20.2 = 0.25$ ok