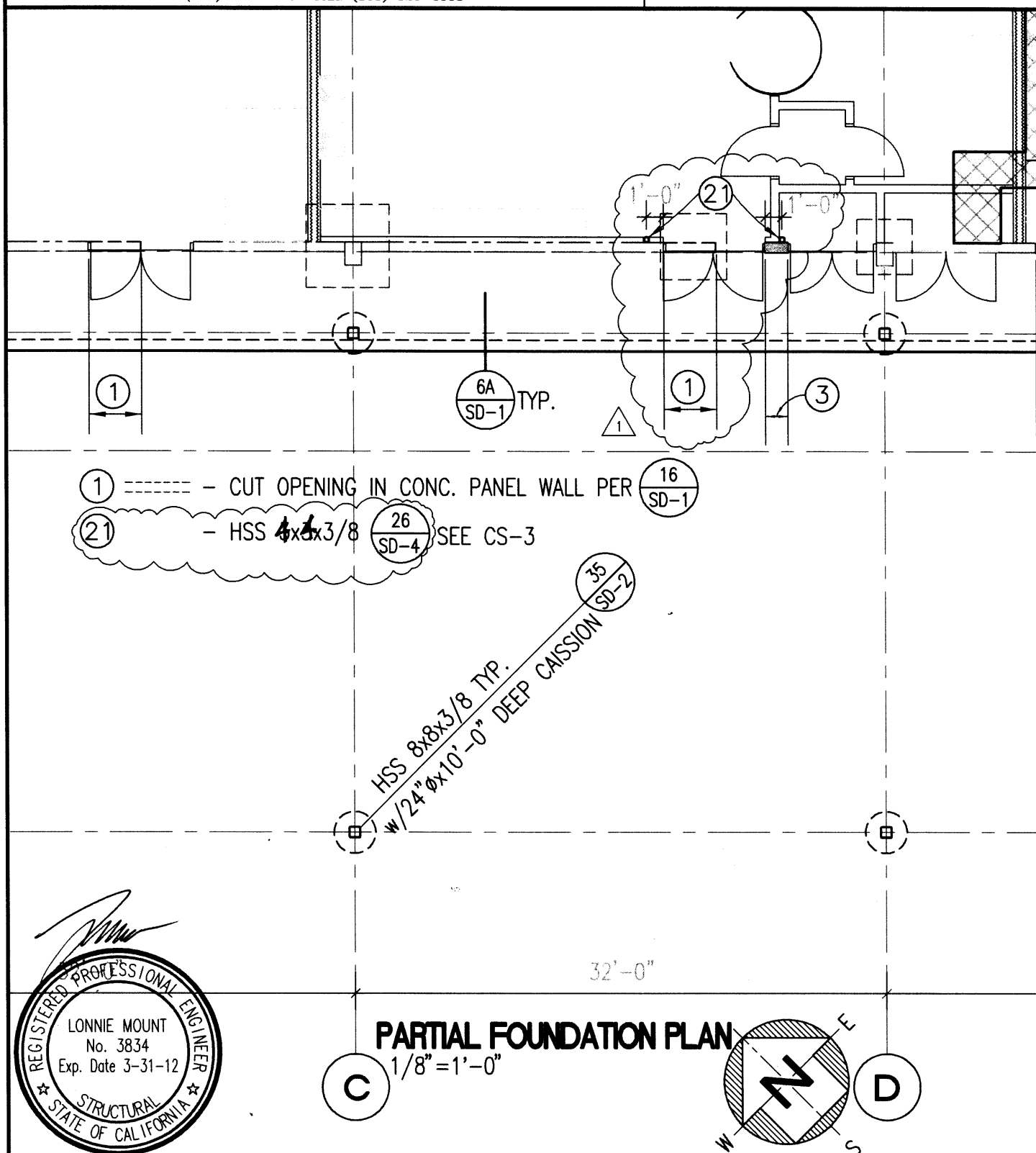


SAUGUS H. S. CLASSROOM REMODEL

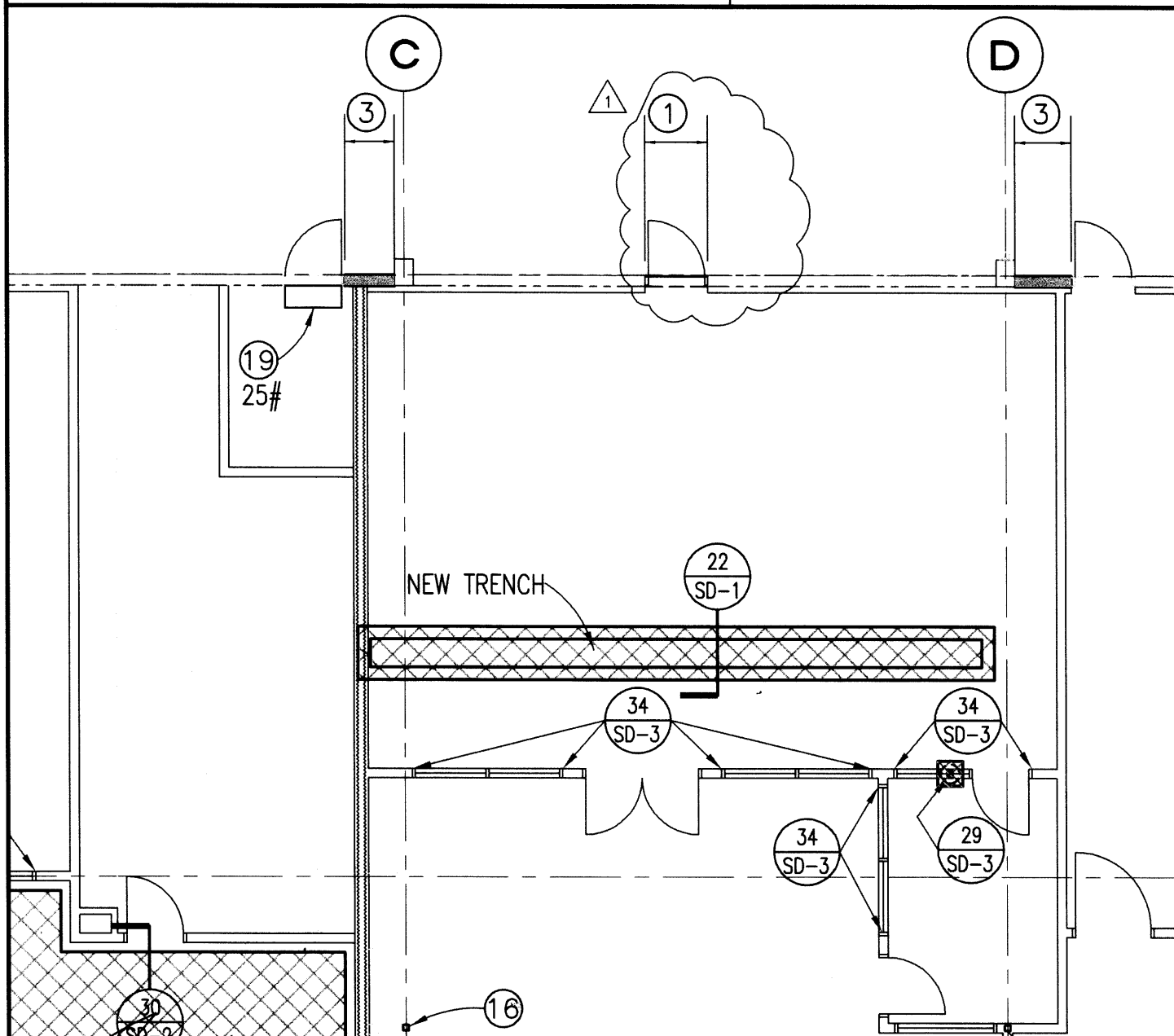
SHEET REF:S-1

P S W C GROUP
ARCHITECTS / PLANNERS
330 Zachary Street, Suite 100 - Moorpark, CA 93021
(805) 529-9129 FAX. (805) 529-9165



DSA APP.# 03-113696

CLARIFICATION SKETCH	No. CS-2	DATE:12/06/11
SAUGUS H. S. CLASSROOM REMODEL	R.F.I.#	C.O.#
P S W C GROUP ARCHITECTS / PLANNERS 330 Zachary Street, Suite 100 - Moorpark, CA 93021 (805) 529-9129 FAX. (805) 529-9165	I.B.# IB-X	R.F.P.# RFP-X
	DETAIL: -	SHEET REF:S-1

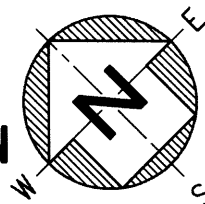


① ----- - CUT OPENING IN CONC. PANEL WALL PER (16) SD-1



PARTIAL FOUNDATION PLAN

1/8" = 1'-0"

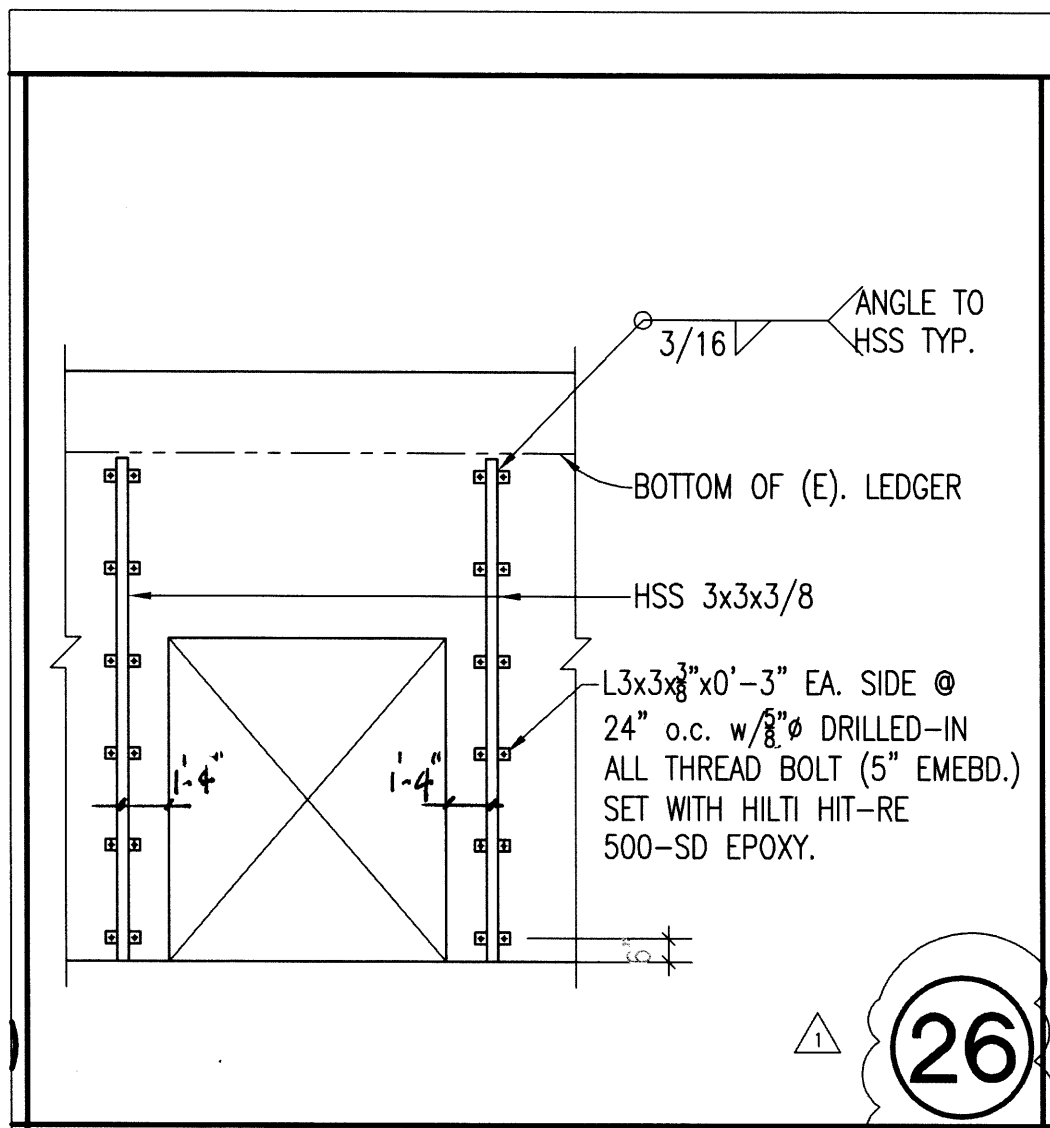


#21-193

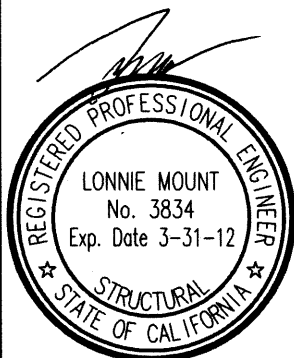
DSA FILE# 19-H28

DSA APP.# 03-113696

CLARIFICATION SKETCH	No. CS-3	DATE:12/06/11
SAUGUS H. S. CLASSROOM REMODEL	R.F.I.#	C.O.#
P S W C GROUP ARCHITECTS / PLANNERS 330 Zachary Street, Suite 100 - Moorpark, CA 93021 (805) 529-9129 FAX. (805) 529-9165	I.B.# IB-X	R.F.P.# RFP-X
	DETAIL:	SHEET REF:



NEW DETAIL



#21-193

DSA FILE# 19-H28

DSA APP.# 03-113696



JOHNSON & NIELSEN ASSOCIATES
647 North Main St. Suite 4B
Riverside, California 92501
Phone 909-686-5122 FAX 909-686-6752

Project **Saugus High School**

Building "D"
Tilt-up walls with plywood diaphragm
Out-Of-Plane wall analysis

Job # **21-193**
by **AQD**
Date **01/12/2012**
Sheet **of**

98wdlat1.wk4
5-6-00 Filespec: C:\J&N\CALC\WORK\21-193\LAT-D.WK4 Save/Retrieve drive = C: work dir = 21-193
Load drive = C: filespec = Lat-D
Exterior concrete side wall, load bearing - Line 4 - with 6'-0" wide door

slender3 SLENDER CONCRETE WALL ANALYSIS

12.11.1 **Out-of-plane analysis, (with wall openings if present): solid grouting & special inspection required**

ASCE 7-05 Sections 12.11.1 & 12.11.2.1

Fp, wall design = 0.628 Wp = 53.4 #/sq. ft. where
Fp, wall anchorage = 1.257 Wp/1.4 = 458 #/ft. (ASCE 12.11.1)
Dead wt. of wall tributary to roof diaphragm = 510 #/ft.

a(p) = 1.00 wall
a(p) = 1.50 anchorage
Sds = 1.26 spectral accel
Ip = 1.25 ASCE 11.5-1
Rp = 3.00 wall
Rp = 3.00 anchorage
Rp = 4.00 diaphragm

wall mass = 85 psf
parapet height = 0.00 ft.
clear wall height = 12.00 ft.

Loading combination (12-5) & (12-6)

from ASCE 7-05 Section 3.2.2

load source = exception #2 D E L
load factor, (5) = 1.1 1.2 1.000 0.0
load factor, (7) = 0.9 1.000 0

Mid height out-of-plane deflection
from deflection of roof diaphragm = 0.12 in.

where: Eh = 0.628 D
Ev = 0.785 D
D+Ev Eh L
(5) = 2.184 D + 0.6912 D + 0
(7) = 0.126 D + 0.6912 D + 0

Wall geometry

	left open'g	wall thickness	right open'g
lintel height =	0.00 ft.	7.63 in.	4.83 ft.
opn'g. ht. =	0.00 ft.	pier	7.17 ft.
sill ht. =	0.00 ft.	width	0.00 ft.
opn'g. 1/2 width =	0.00 ft.	1.33 ft.	3.00 ft.
mass above			
clearheight/2 =	0 #	678.3 #	0 #

Ledger loading

	un-factored	(5)	(7)
ledger live load =	70 #/ft.	0 #/ft.	0 #/ft.
ledger dead load =	56 #/ft.	122 #/ft.	7 #/ft.
totals =	126 #/ft.	122 #/ft.	7 #/ft.
total width =	4.33	530 #	31 #
load eccentricity =	0.57 ft. (default = wall thickness/2 + 3")		
total ledger moments =		301 ft.#	17 ft.#

Total factored vertical loads

	(5)	(7)
factored axial wall dead loads =	1481 #	85 #
factored ledger loads =	530 #	31 #
totals =	2011 #	116 #

Material Properties

F'c = 3000 psi
Fy = 60000 psi
As = 0.200 sq. ins.
d = 3.81 in.

>>> 0.5*p(b) = 0.765 sq. ins.
delta = 0.175 in. ~ Ht./ 821
Mu/(phi*mn) = 0.877 OK!

#4 vert. bars @ 16" oc (Existing reinforcing)

NOTE: Existing wall reinforcing does work for new 6'-0" wide door opening

ANALYSIS VALUES

wall thickness = 7.63 in.
pier width, inches = 15.96 in.
Gross area = thickness * width = 122 sq. ins.
Gross steel ration: As/Ag = 0.0016
A(se) = (Pu+As*Fy)/Fy = 0.2 sq. ins.
"a" = (A(se)*Fy+Pu)/(0.85*f'c*12*width) = 0.298 ins.
"c" = "a"/0.85 = 0.350 ins.
Phi = 0.8
Mn = A(se)*Fy*(d-a/2) = 44389 in.#
Mu = phi * Mn = 35511 in.#
Ec = 750*F'c <= 3,000,000 = ***** psi
N = 29000000/Ec = 12.9
Fr = 4*F'c*0.5+Pu/Ag = 220.0 psi
Section modulus (gross) = 155 in.^3
moment capacity @ cracking = S*Fr = 34030 in.#
l(gross) = width * thickness^3/12 = 590 in.^4
l(cracked) = A(se)*n(d-c)^2+b*c^3/3 = 31 in.^4

Add steel tube adjacent to new 6'-0" wide door opening

bm8	Span =	12.00 ft.	a =	7.16 ft.	v=0@	5.27 ft.	5.3	>> steel	>> options: sawn, glb, tji, lam, conc, masonry & csteel						
11-1-09	Mount	Loads >>	w1	P	w2	Try >>	size	Fy	area	Sxx	Ixx	rxx	Syy	lyy	ryy
		T.A. =	33 sf. trib =	4.00	1.00	TS4x4x0	36	5.08	5.4	10.7	1.45	5.4	10.7	1.45	
		L.L. =	53.4 psf	213.6	0	C(D) =	1.00		fb =	6.6 ksi	pa =	0.0 ksi			
		D.L. =	0.0 psf	0.0	0.0	Axis =	xx	KL =	5.00 ft.	Fb =	21.6 ksi	Pa =	21.6 ksi		
			Axial	R1	Momn't.	R2	Deflections >>	LL =	0.24 in. = L /	607			combined stress		
		L.L. =	0	1125	2964	663	Number of	DL =	0.00 in. = L /	*****			0.308 %		
		D.L. =	0	0	0	0	pieces	1 TL =	0.24 in. = L /	607			Deflection control		
			=====	=====	=====	=====							1 roof		
		Totals	0	1125	2964	663	USE	TS4x4x0.375	Fy =	36					





JOHNSON & NIELSEN ASSOCIATES
647 North Main St. Suite 4B
Riverside, California 92501
Phone 909-686-5122 FAX 909-686-6752

Project **Saugus High School**
Building "D"
Tilt-up walls with plywood diaphragm
Out-Of-Plane wall analysis

Job # 21-193
by AQD
Date 01/12/2012
Sheet of

98wdlat1.wk4

5-6-00

Filespec: C:\J&N\CALC\WORK\21-193\LAT-D.WK4

Save/Retrieve drive =
Load drive =

C: work dir = 21-193
C: filespec = Lat-D

Exterior concrete side wall, load bearing - Line 1 - with 3'-0" wide door

slender3 SLENDER CONCRETE WALL ANALYSIS

12.11.1 **Out-of-plane analysis, (with wall openings if present): solid grouting & special inspection required**

ASCE 7-05 Sections 12.11.1 & 12.11.2.1

Fp, wall design = 0.628 Wp = 53.4 #/sq. ft. where
Fp, wall anchorage = 1.257 Wp/1.4 = 458 #/ft. (ASCE 12.11.1)
Dead wt. of wall tributary to roof diaphragm = 510 #/ft.

a(p) =	1.00	wall	wall mass =	85	psf
a(p) =	1.50	anchorage	parapet height =	0.00	ft.
Sds =	1.26	spectral accel	clear wall height =	12.00	ft.
Ip =	1.25	ASCE 11.5-1			
Rp =	3.00	wall			
Rp =	3.00	anchorage			
Rp =	4.00	diaphragm			

Loading combination (12-5) & (12-6)

from ASCE 7-05 Section 3.2.2

load source =	exception #2	D	E	L
load factor, (5) =	1.1	1.2	1.000	0.0
load factor, (7) =		0.9	1.000	0

Mid height out-of-plane deflection
from deflection of roof diaphragm = 0.12 in.

where: Eh = 0.628 D
Ev = 0.785 D
D+Ev Eh L
(5) = 2.184 D + 0.6912 D + 0
(7) = 0.126 D + 0.6912 D + 0

Wall geometry

	left open'g	wall thickness	right open'g
lintel height =	0.00 ft.	7.63 in.	4.83 ft.
open'g. ht. =	0.00 ft.	pier	7.17 ft.
sill ht. =	0.00 ft.	width	0.00 ft.
open'g. 1/2 width =	0.00 ft.	1.33 ft.	1.50 ft.
mass above			
clearheight/2 =	0 #	678.3 #	0 #

Ledger loading

un-factored	(5)	(7)
ledger live load =	70 #/ft.	0 #/ft.
ledger dead load =	56 #/ft.	122 #/ft.
totals =	126 #/ft.	7 #/ft.
total width =	2.83	346 #
load eccentricity =	0.57 ft. (default = wall thickness/2 + 3")	20 #
total ledger moments =	196 ft.#	11 ft.#

Total factored vertical loads

	(5)	(7)
factored axial wall dead loads =	1481 #	85 #
factored ledger loads =	346 #	20 #
totals =	1827 #	105 #

Material Properties

F'c = 3000 psi
Fy = 60000 psi
As = 0.200 sq. ins.
d = 3.81 in.

>>> 0.5*p(b) = 0.765 sq. ins.
delta = 0.175 in. ~ Ht./ 821
Mu/(phi*mn) = 0.668 OK!

#4 vert. bars @ 16" oc (Existing reinforcing)

NOTE: Existing wall reinforcing does work for new 3'-0" wide door opening

ANALYSIS VALUES

wall thickness = 7.63 in.
pier width, inches = 15.96 in.
Gross area = thickness * width = 122 sq. ins.
Gross steel ration: As/Ag = 0.0016
A(se) = (Pu+As*Fy)/Fy = 0.2 sq. ins.
"a" = (A(se)*Fy+Pu)/(0.85*f'c*12*width) = 0.297 ins.
"c" = "a"/0.85 = 0.350 ins.
Phi = 0.8
Mn = A(se)*Fy*(d-a/2) = 44352 in.#
Mu = phi * Mn = 35481 in.#
Ec = 750*F'c <= 3,000,000 = ***** psi
N = 29000000/Ec = 12.9
Fr = 4*F'c^0.5+Pu/Ag = 220.0 psi
Section modulus (gross) = 155 in^3
moment capacity @ cracking = S*Fr = 34017 in.#
I(gross) = width *thickness^3/12 = 590 in.^4
I(cracked) = A(se)*n(d-c)^2+b*c^3/3 = 31 in.^4

