CITY OF SANTA ANA PLANNING & BUILDING AGENCY

Planning & Building Agency
Building Safety Division
20 Civic Center Plaza
P.O. Box 1988 (M-19)
Santa Ana, CA 92702
(714) 647-5800
www.santa-ana.org

DISABLED ACCESS COMPLIANCE DOCUMENTATION FORM

ACC-01 CBC 2010

A. PURPOSE OF THIS DOCUMENTATION:

☑ Finding of unreasonable hardship for projects under $132,536.28 (as of January 2011) per 2010 California Building Code (CBC) Section 1134B.2.1, Exception 1

☐ Full Compliance with the 2010 California Building Code

B. PROJECT INFORMATION TO BE COMPLETED BY PETITIONER:

Project Address: 1831 S. Ritchey Street	Project Number: 10173635
Project Description: Voluntary Selsmic Strengthening @ Roof	Total Construction Cost: $ 30,000
Occupancy Classification/Use: B, S-1	Number of Stories: 1

1. Business Name: Acralight

2. Legal Property Owner: Rob Socci Phone No. (714) 935-2314

3. The cost of all construction contemplated in the determination of the valuation of improvement threshold based on the valuation of site and building improvements for the last three-year period (from ___/___/___ to ___/___/___). References:

Permit No.	Issuance Date	Valuation of Improvements
	Total:	

4. The minimum amount to be spent to provide disabled access under the subject building permit application (20% of Total Construction Cost / Project Valuation): $ 30,000 x 20% = $6,000

5. Describe the impact of the proposed improvements on financial feasibility of the project:

6. Describe the nature of accessibility that would be gained or lost with the proposed improvements:
HC parking will be upgraded to current standards
HC drinking fountain will be upgraded
Doorknobs will be replaced w/ new "lever-type" hardware

ACCEPTED
SEPARATE PE
ELECTRICAL, PLU
this set of plans and
at all times and it is
alterations on same
City of Santa Ana.
The acceptance of thi
be held to permit nor
provisions of ANY City
Accepted By
Date Issued

7. Identify the accessibility features and equivalent facilities that **WILL** be brought into compliance with the latest edition of Title 24 as a part of this project and an estimate of the cost of each item: *(Documentation may be required)*

Accessible Features to be Made Accessible	Cost of Improvement
a. Entrance:	
☐ Ramp ☐ Door ☐ Landing ☐ Stair/Steps	$
b. Path of Travel:	
☐ Path of travel from building entrance to the area of remodel	$
☐ Path of travel from the public way to the building entrance	$
☒ Path of travel from accessible parking to the building entrance	$ 3,400.00
☐ Path of travel to sanitary facilities / public phone / drinking fountain	$
c. Sanitary facilities (Floor no.)	$
d. Public phone(s)	$
e. Drinking fountain(s)	$ 800.00
f. Parking	$
g. Signage	$ 600.00
h. ~~Alarms~~	$
i. Other Door hardware replacement	$ 1,200.00
Total:	$ 6,000.00

8. Identify the accessibility features that **WILL NOT** comply if a request for unreasonable hardship is granted. Provide an estimated cost of compliance for each item: *(Documentation may be required)*

Accessible Features Not to be Improved	Cost of Improvement
a.	$
b.	$
c.	$
Total:	$

9. Petitioner must be the legal property owner or his/her legal representative:

I certify that the above noted information is true and correct.

☐ Legal Property Owner ☒ Architect/Engineer ☐ Contractor ☐ Other _____

Print Name: Michael Santillan Phone No. 714-803-8454

Address: 27 Orchard, Lake Forest, CA 92630

Signature: Michael Santillan Date: 12/1/11

FOR AGENCY USE ONLY

Approved by: _____ Date: _____

CITY OF SANTA ANA PLANNING & BUILDING AGENCY

Planning & Building Agency
Permits & Plan Check Section
20 Civic Center Plaza
P.O. Box 1988 (M-19)
Santa Ana, CA 92702
(714) 647-5800
www.santa-ana.org

ACCELERATED PLAN CHECK REQUEST

HO18-07-01-11

Project Address: ~~1918 E Glenw~~ 1831 S Ritchey

Misc. Receipt: 583993 *Processed By:* _____ *Plan Checked By:* _____

Cost: $117.70 per hour for each discipline. The plan checker will estimate the number of hours for review. This fee is in addition to the regular plan check fee.

Type of Plan Check: Building 10173635 Electrical _____

Est. Hrs. 2 Actual 2 ¼ Est. Hrs. _____ Actual _____

Plumbing _____ Mechanical _____

Est. Hrs. _____ Actual _____ Est. Hrs. _____ Actual _____

Owner/Representative Signature: _____

Print Name: Michael Santillan Date: 11/15/10

Telephone Number: (714) 803-8454 Fax Number: ( ) _____

MS **An accelerated plan check review will not include the following:**

Fire, Police, Public Works, Planning or Landscaping Plan Check

Revisions: If requesting an "accelerated revision", the cost will be $207.25 per hour in addition to the accelerated fee of $117.70 per hour (total $324.95).

INTERNAL USE ONLY

Name (Last, First, Initial)	Employee #	Division

From (Date & Time)	To (Date & Time)	Total Hours Worked	_____ Comp Time Requested _____ Overtime Requested

Employee Signature: Date:

AUTHORIZED		APPROVALS	
_____ Comp time _____ Overtime		Division Manager	Date
Immediate Supervisor	Date	Executive Director	Date

Distribution: White: Office Yellow: Applicant

BNegrete/Fee Schedules/2011-2012

CITY OF SANTA ANA

BUILDING PERMIT WORKSHEET

PLEASE PRINT 1/14/09:forms/Bldg.App.Worksheet

PROJECT ADDRESS: 1831 S. Ritchey Street	SUITE: B	SAPIN # 10173635
USE OF BUILDING: RESIDENTIAL (COMMERCIAL) INDUSTRIAL OTHER		MASTER ID#
NATURE OF WORK: NEW ADD (ALTER/T.I.) DEMO REROOF REPAIR SIGN (MISC)		

NEW/ADDITION/ALTERATION:

1ST FL..	____ SF	BASEMENT: YES/NO	____ SF	NO. OF STORIES:	____
2ND FL..	____ SF	PATIO/ENCL. PATIO:	____ SF	BLDG. HEIGHT:	____
TOTAL OF OTHER FLS:	____ SF	RES. REMODEL:	____ SF	PROPOSED USE:	____
GARAGE/CARPORT:	____ SF	ALTER/T.I.:	30,000 SF		

JOB DESCRIPTION (non-residential projects see reverse side of this application) : Voluntary Seismic retrofit to roof structure of an existing 1-story bldg.

BUILDING OWNER'S NAME: Rob Socci			PHONE NO: 714-935-2314
ADDRESS: 3500 W. Orangewood	CITY: Orange	STATE: CA	ZIP: 92868
TENANT'S NAME (Comm/Ind):			PHONE NO:
CONTRACTOR'S NAME:	STATE CONTR. #:	LICENSE CLASS:	PHONE NO:
ADDRESS:	CITY:	STATE:	ZIP:
WORKERS COMP. POLICY#:	EXP. DATE:	INSURANCE COMPANY:	SANTA ANA BUS. LIC. #:
ARCHITECT/(ENGINEER): Michael O'Brien	STATE LICENSE #: S-004468	PHONE NO: 949) 716-9990	
ADDRESS: 27 Orchard	CITY: Lake Forest	STATE: CA	ZIP: 92630
CONTACT NAME: Michael Santillan		**PHONE NO:** 714 803-8454	
E-MAIL ADDRESS: michael.santillan@nationaleng.com		**FAX NO:** 949) 716-9997	

OFFICE USE ONLY: ACC OR SPC (CIRCLE ONE) ____ HRS PER ____ BLDG. FEE $ ____

OCC. GROUP: ____ RECEIPT #: 5856 P/C FEE PD $ 207.25

TYPE OF CONSTR: ____ VALUATION: $ 30,000 SUBMITTAL DATE: 11/7

FIRE SPKR: YES / NO A/C: YES / NO FLOOD ZONE: ____ PROCESSED ICH

RES. DEV. FEE: YES / NO **PRIOR DWELLING UNIT:** YES / NO COMMENTS: ____

PLANNING OK TO CHECK & DATE ____ BLDG. DEPT. APPROVAL & DATE ____

PLNG CONDITIONS: ____

PLEASE CHECK ALL THAT APPLY TO YOUR PROJECT

JOB DESCRIPTION CHECKLIST:

- ☐ Additional square footage
- ☐ Awnings
- ☐ Canopy
- ☐ Ceiling work
- ☐ Change of occupancy (use)
- ☐ Disabled accessible (H/C) restrooms
- ☐ Dust collector
- ☐ Elevator shaft
- ☐ Exterior doors or windows
- ☐ Equipment pads
- ☐ Interior demo
- ☐ Kitchen equipment
- ☐ Partition walls
- ☐ Rated corridors
- ☐ Rated shafts
- ☐ Roof mounted equipment
- ☐ Security bars
- ☐ Screening for equipment
- ☐ Skylights
- ☐ Stairs
- ☐ Storefront/facade improvements
- ☐ Storage racks or shelving over 5'-9"
- ☐ Walk-in coolers

ITEMS REQUIRING SEPARATE BUILDING PERMIT APPLICATIONS:

- ☐ Block wall
- ☐ Card readers
- ☐ Complete demo
- ☐ Fence
- ☐ Fire signaling system
- ☐ Fire sprinklers
- ☐ Flagpole
- ☐ Lawn sprinkler system
- ☐ Light Standards
- ☐ Parking lot repaving
- ☐ Parking lot restriping
- ☐ Pedestrian protection
- ☐ Pool/Spa
- ☐ Signs
- ☐ Spray booth
- ☐ Temporary power pole
- ☐ Trash enclosure

FEE CHECKLIST WORKSHEET

Received by: KH SAPIN #: 10173635

FEE TYPE	REQUIRED	
	Yes	No
Plan Check Fee	☒	☐
Disability Fee	☐	☒
SMIP Fee	☒	☐
Res. Dev. Fee	☐	☒
Fire Facility Fee	☐	☒
School Distr. Fee	☐	☒
Microfilm	☐	☒
FCWP Surcharge	☐	☒

CALCULATION AREA

COST/SQ FT X TOTAL SQ FT = VALUATION

per applicant

Counter computations/valuation $ 30,000

3-HR P/C FEE

Plan checker computation/final valuation $_____

F05 1-10-03

NATIONAL
ENGINEERING & CONSULTING, INC.

Structural Calculations

Roof Seismic Strengthening - Partial
Concrete Tilt-up Building
1831 Ritchey Street (Bldg B)
Santa Ana, CA

R-Voit-01B

Revision
0

October 11, 2011

27 Orchard, Suite 200
Lake Forest, CA 92630
Phone: (949) 716-9990 Fax: (949) 716-9997
www.national-eng.com

Scope

THE PROJECT CONSISTS OF A LIMITED SEISMIC STRENGTHENING OF AN EXISTING INDUSTRIAL BUILDING. THE SCOPE OF THE PROJECT IS LIMITED TO THE REQUIREMENTS OF CHAPTER A2 OF THE INTERNATIONAL EXISTING BUILDING CODE AT THE ROOF LEVEL ONLY INCLUDING WALL ANCHORAGE, CONTINUITY TIES, AND DRAGS.

THERE IS NO MEZZANINE

THE BUILDING CONSISTS OF A CONCRETE TILT-UP BUILDING WITH A PANELIZED ROOF CONSISTING OF A PLYWOOD DIAPHRAGM SUPPORTED ON 2X RAFTERS SUPPORTED ON 4X PURLINS THAT SPAN TO GLULAM BEAMS. ORIGINAL BUILDING AGE AND BUILDING CODE WAS NOT DETERMINED BUT IS REPORTED TO PRE-DATE THE MID-1970'S.

THERE IS CURRENTLY NO KNOWN JURISDICTIONAL MANDATE FOR SEISMIC STRENGTHENING FOR THIS BUILDING.

STORY DRIFT, DIAPHRAGM STRENGTH, WALL STRENGTHS, ETC. ARE OUT OF SCOPE AND NOT ADDRESSED.

3404.5 Voluntary seismic improvements. Alterations to existing structural elements or additions of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force-resisting system of an *existing structure* or the performance of seismic bracing or anchorage of existing nonstructural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The altered structure and the altered nonstructural elements are no less in compliance with the provisions of this code with respect to earthquake design than they were prior to the *alteration*.
2. New structural elements are detailed and connected to the existing structural elements as required by Chapter 16.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by Chapter 16.
4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

NATIONAL
ENGINEERING & CONSULTING, INC.

	JOB NO: R-Voit-01B	SHEET NO: G - 2	
JOB NAME: 1831 Ritchey	ENGINEER: MEO'	DATE: Oct '11	
ANALYSIS: General			

Design Criteria

I. Code

A. Chapter A2 of the 2009 International Existing Building Code

II. Lateral Loads

Wind - Not Applicable

III. Allowable Stresses for New Materials

A. Structural Masonry

Walls..... Not Applicable

B. Concrete

(E) Wall panels & Columns ..... f 'c = 2,500 psi at 28 Days Assumed
(E) Slab on grade..... f 'c = 2,000 psi at 28 Days Assumed

C. Reinforcing Steel

Slabs & Footings ..... ASTM A615, Fy = 60 ksi
Welded Bars ..... ASTM A706, Fy = 60 ksi

D. Structural Steel

Structural Shapes (W, M, etc.) ..... ASTM A992, Fy = 50 ksi
Tubes ..... ASTM A500, Fy = 46 ksi
Miscellaneous ..... ASTM A36, Fy = 36 ksi
Pipe ..... ASTM A53, Fy = 35 ksi

E. Timber

Sawn Lumber..... Douglas Fir Larch
Glued Laminated Lumber..... Douglas Fir Larch

F. Soil
Based On Report By:

N/A

33.722733,-117.841008

from Internet

Conterminous 48 States
2009 International Building Code
Latitude = 33.722733
Longitude = -117.84100800000002
Spectral Response Accelerations Ss and S1
Ss and S1 = Mapped Spectral Acceleration Values
Site Class B - Fa = 1.0 ,Fv = 1.0
Data are based on a 0.01 deg grid spacing

Period (sec)	Sa (g)
0.2	1.453 (Ss, Site Class B)
1.0	0.513 (S1, Site Class B)

Conterminous 48 States
2009 International Building Code
Latitude = 33.722733
Longitude = -117.84100800000002
Spectral Response Accelerations SMs and SM1
SMs = Fa x Ss and SM1 = Fv x S1
Site Class D - Fa = 1.0 ,Fv = 1.5

Period (sec)	Sa (g)
0.2	1.453 (SMs, Site Class D)
1.0	0.770 (SM1, Site Class D)

Conterminous 48 States
2009 International Building Code
Latitude = 33.722733
Longitude = -117.84100800000002
Design Spectral Response Accelerations SDs and SD1
SDs = 2/3 x SMs and SD1 = 2/3 x SM1
Site Class D - Fa = 1.0 ,Fv = 1.5

Period (sec)	Sa (g)
0.2	0.968 (SDs, Site Class D)
1.0	0.513 (SD1, Site Class D)

NATIONAL ENGINEERING & CONSULTING, INC.

	JOB NO: R-Voit-01B	SHEET NO:	L - 1
JOB NAME: 1831 Ritchey	ENGINEER: MEO'	DATE:	Oct '11
ANALYSIS: Lateral			

Seismic Design Criteria

Per IBC 2009

Earthquake Loads per CBC 2010 & IBC 2009 Sections 1613 & ACSE 7-05 Sections 12-14

$E = \rho E_H + E_V$	ρ	=	1.00	Redundancy Factor	ASCE 7 12.3.4
$E_M = \Omega_O \times E_H$	Ω_o	=	2.00	Overstrength Factor	ASCE 7 Table 12.2-1 (2.5 minus 0.5 for flex diaphragm per foot note "g") Shall not be less than 2.0
$E_V = 0.2 \times S_{DS} \times D$	E_V	=	0.19 D	Vertical Component	ASCE 7 Section 12.4.2.2

Seismic Base Shear per CBC 2010 & IBC 2009 Sections 1613-1622

				Description	Reference
	S_S	=	1.453	Spectral acceleration short period	IBC Map 1613.5(1)
	S_1	=	0.513	Spectral acceleration 1 sec period	IBC Map 1613.5(2)
Soil Site Class		=	D	Soil Profile Type	from Geotech report
calc'ed	F_a	=	1.00	Site coefficient, Site Class D	IBC Table 1613.5.3(1)
calc'ed	F_V	=	1.50	Site coefficient, Site Class D	IBC Table 1613.5.3(2)
	$S_{MS} = F_a S_S$	=	1.45	Short period max spectral response	
	$S_{M1} = F_V S_1$	=	0.77	1 sec period max spectral response	
	$S_{DS} = 2/3\ S_{MS}$	=	**0.97**	Design short period max spectral response	IBC EQ. 16-39
	$S_{D1} = 2/3\ S_{M1}$	=	**0.51**	Design 1 sec period max spectral response	IBC EQ. 16-40
Bldg height 22 ft	T	=	0.20 sec	Fundamental Period of shearwall	ASCE 7 EQ. 12.8-7
	$T_O = 0.2\ S_{D1} / S_{DS}$	=	0.11 sec		
	$T_S = S_{D1} / S_{DS}$	=	0.53 sec		
	S	=	0.969	Design spectral response acceleration	ASCE 7 Table 12.8-1
	Seismic Use Group	=	II	Group II, typical	ASCE 7 Table 1-1
	Seismic Design Category	=	**D**	ASCE 7 TableS 11.6-1 and 11.6-2	
	I	=	0.75	Importance Factor	IEBC A206.1
	Plan Structural Irregularities	=	None	None	
	Vertical Structural Irregularities	=	None	None	
Intermediate Precast Concrete Bearing Wall	R	=	4.0	Response Modification Coefficient	ASCE 7 Table 12.2-1
	C_d	=	4.0	Deflection Amplification Factor	ASCE 7 Table 12.2-1

Intermediate Precast Concrete Bearing Walls

	$C_S = S_{DS} I / R$	=	0.182 W	Building Base Shear	ASCE 7 EQ. 12.8-2
	$C_S Max = S_{D1} I / (R\ T)$	=	0.47 W	Maximum Base Shear	ASCE 7 EQ. 12.8-3
	$C_S Min = 0.5 S_1 I / R$	=	0.05 W	Minimum Base Shear (S_1 >.6g)	ASCE 7 EQ. 12.8-6
	Ft = 0.07 T V	=	0.000 W	Concentrated Top Force	ASCE 7 EQ. 12.14-13
	V	=	**0.182 W + Ft**	**Governing Base Shear** for flexible diaphragms	Allowable = **0.130 W**

Seismic Diaphragm Shear per CBC 2007 & IBC 2006 Section 1620.1.5

From above	**0.182 W**	Based on Lateral System	**Governs**	
Minimum $F_P = 0.2 S_{DS} I$	=	**0.145 W**	Minimum	
$F_P = 0.4 S_{DS} I$		**0.291 W**	Max Diaphragm Accel	
	0.182 W	Governing Diaphragm acceleratio	Allowable =	**0.130 W**

Seismic Load to Structural Elements per CBC 2010 & IBC 2009 Section 1620.2 (Wall Anchorage)

FP = 0.8SDS I	=	**0.581 W**	Category C & Higher	Allowable = **0.415 W**

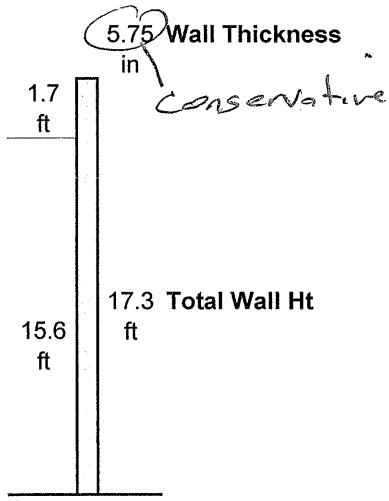
***Note - All seismic coefficients are ULTIMATE and must be divided by a factor of 1.4 for Allowable Stress Design.**

NATIONAL
ENGINEERING & CONSULTING, INC.

	JOB NO: **R-Voit-01B**	SHEET NO:	**L- 2**
JOB NAME: **1831 Ritchey**	ENGINEER: **MEO'**	DATE:	**Oct '11**
ANALYSIS: **Lateral**			

Tributary Mass for Wall Anchorage per Chapter A2 of IEBC

Purlins - Worst Case



145 pcf **Density of Concrete**

Tributary Mass

$$\frac{17.25^2}{2 * 15.55} * 145 \frac{5.75}{12} = \boxed{665} \text{ plf}$$

Wall Anchorage Force per 2010 CBC - Section 12.11 of ASCE 7-05

Fp = 0.8 Sds I W
I= 0.75 linked per A206.1
Sds= 0.97 linked

Fp = 0.8 Sds I W =	0.58 W =	386	plf	Equation 12.11-1
0.1 W =		66	plf	Section 12.11.1
400 Sds I =		291	plf	Section 12.11.2 b
280		280	plf	Section 12.11.2 c

Governs: **386** **plf** **Strength Level**
276 **plf** **Allowable Level**

Steel Elements - use **Allowable Stress Design** and apply a Load Factor of **1.0** per Section A206.2
Steel Demand 276 plf x 1.0 = **276** **plf**

Concrete Elements - use **Strength Design** and apply a Load Factor of **1.0** per Section A206.2
Concrete Demand 386 plf x 1.0 = **386** **plf**

Wood Elements - use **Allowable Stress Design** with no additional Load Factors per Section A206.2
Wood Demand 276 plf x 1.0 = **276** **plf**

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		JOB NO:	R-Voit-01B	SHEET NO:	L- 3
JOB NAME:	1831 Ritchey	ENGINEER:	MEO'	DATE:	Oct '11
ANALYSIS:	Lateral				

Purlin Wall Anchorage & Continuity Ties

Purlins - Worst Case

Purlin Spacing:	8.0	ft							
Continuity Tie Spacing	24.0	ft	Loading per Purlin (based on spacing)				Wood Type	DF #1	(assumed)
Purlin Width	3.5	in	276	plf	2208	lbs Steel Demand	per UBC	1982	(assumed)
Purlin Depth (Min)	13.25	in	386	plf	3091	lbs Concrete Demand	tension ft:	1200	psi
Purlin Span	24.0	ft	276	plf	2208	lbs Wood Demand	flexural fb:	1400	psi

Epoxy Check

Demand 3091 lbs **8.0** ft - max spacing of ***concrete*** demand
Capacity of Hilti HIT RE-500 SD based on PROFIS calculation for a **PAIR** of epoxy anchors
Assumes 5.50 inch thick wall with 4.00 inch embedment with 0.625 inch diameter rod and
8.0 inch spacing of anchors. Please see calc sheets
Capacity 4150 lbs **OK** **OK**

Zone 4 Hardware Check - Wall Anchor

Demand 2208 lbs **8.0** ft - max spacing of ***steel*** demand
Capacity of Zone 4 Hardware from City of LA RR# 25334 for a pair of hardware Please see Zone 4 Table
Assumes 3.50 inch thick member 13.25 inch deep member (min)

Hardware	**T2 43-5 (Pair)**		Hardware	**T2 24-6 (Pair)**		
Capacity	5830 lbs	**OK**	Capacity	5071 lbs	**OK**	**OK**
	ICC			ICC		

Zone 4 Hardware Check - Continuity Tie

Demand 6623 lbs **24.0** ft - max spacing of ***steel*** demand
Capacity of Zone 4 Hardware from City of LA RR# 25334 for a pair of hardware Please see Zone 4 Table
Assumes 3.50 inch thick member 13.25 inch deep member (min)

Hardware	**T2 44-6 (Pair)**		Hardware		
Capacity	#### lbs	**OK**	Capacity	lbs	**OK**
	ICC				

Subdiaphragm Check to Purlin Continuity Ties

Demand 4416 lbs **2** purlin bays of ***wood*** demand into subdiaphragm since next wall anchor is on CT line
Assumes 24.0 ft deep subdiaphragm
92 plf **Resulting Subdiphragm Shear Demand**
System **1/2" CDX plywood with 8d @ 6" oc** assumed - worst case
Capacity **270** lbs **OK** **OK**

Check Purlin Continuity Tie for Combined Gravity and Axial Seismic

Axial Wood Demand 6623 lbs **24.0** ft - max spacing of ***wood*** demand
Resulting axial stress for 3.5 in. x 13.25 in. **142.8** psi
Assumed member DL **12.0** psf resulting in uniform loa **96** plf for a span **24.0** ft
For a max moment c **82944** lb-in on a section modulus **102.4** in^3
Resulting flexural stress for 3.5 in. x 13.25 i **809.9** psi
Unity Check axial bending

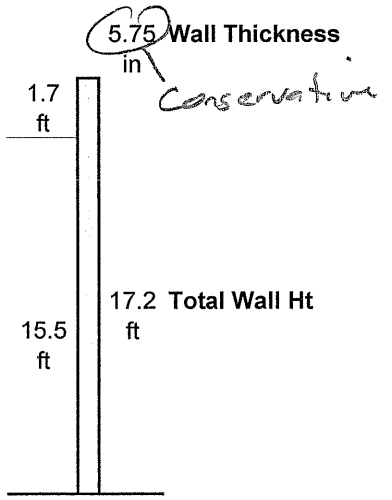
$$\frac{143}{1200} + \frac{809.9}{1400} = 0.70 < 1.6$$ **OK** **OK**

NATIONAL
ENGINEERING & CONSULTING, INC.

	JOB NO: **R-Voit-01B**	SHEET NO:	**L- 4**
JOB NAME: **1831 Ritchey**	ENGINEER: **MEO'**	DATE:	**Oct '11**
ANALYSIS: **Lateral**			

Tributary Mass for Wall Anchorage per Chapter A2 of IEBC

Subpurlins - Worst Case



145 pcf **Density of Concrete**

Tributary Mass

$\frac{17.24^2}{2 * 15.54} * 145 \frac{5.75}{12}$ = **664** plf

Wall Anchorage Force per 2010 CBC - Section 12.11 of ASCE 7-05

Fp = 0.8 Sds I W
I= 0.75 linked per A206.1
Sds= 0.97 linked

Fp = 0.8 Sds I W =	0.58 W =	386	plf	Equation 12.11-1
0.1 W =		66	plf	Section 12.11.1
400 Sds I =		291	plf	Section 12.11.2 b
280		280	plf	Section 12.11.2 c

Governs: **386** plf **Strength Level**
276 plf **Allowable Level**

Steel Elements - use **Allowable Stress Design** and apply a Load Factor of **1.0** per Section A206.2
Steel Demand 276 plf x 1.0 = **276** plf

Concrete Elements - use **Strength Design** and apply a Load Factor of **1.0** per Section A206.2
Concrete Demand 386 plf x 1.0 = **386** plf

Wood Elements - use **Allowable Stress Design** with no additional Load Factors per Section A206.2
Wood Demand 276 plf x 1.0 = **276** plf

NATIONAL
ENGINEERING & CONSULTING, INC.

JOB NAME:	1831 Ritchey	JOB NO:	R-Voit-01B	SHEET NO:	L- 5
		ENGINEER:	MEO'	DATE:	Oct '11
ANALYSIS:	Lateral				

Subpurlin (Rod) Wall Anchorage & Continuity Ties

Subpurlins - Worst Case

Anchor Line Trib:	6.0 ft			Loading per Anchor Line (based on spacing)		
Purlin Width	1.5 in	276	plf	1655	lbs	Steel Demand
Purlin Depth (Min)	3.5 in	386	plf	2317	lbs	Concrete Demand
Wood Type	DF #1 (assumed)	276	plf	1655	lbs	Wood Demand

Epoxy Check

Demand 2317 lbs **6.0** ft - max trib of *concrete* demand
Capacity of Hilti HIT RE-500 SD based on PROFIS calculation for a **SINGLE** epoxy anchor
Assumes 5.50 inch thick wall with 4.00 inch embedment with 0.625 inch diameter rod and
Capacity 2600 lbs **OK** Please see calc sheets

Development of Anchorage Force into Subdiaphragm - assumes field nailing

Demand 1655 lbs **1** # of rods of *wood* demand adjacent to analyzed rafter line
Assumes 16.0 ft deep subdiaphragm
52 plf **Resulting Subdiaphragm Shear Demand** (note: load split between two rafter lines)
System **1/2" CDX plywood with 8d @ 12"oc** assumed - worst case - **field nailing**
Capacity 135 lbs **OK**

Subdiaphragm Check to GLB Continuity Ties

Demand 6620 lbs **4** # of rods of *wood* demand since the GLB wall anchors are not in subdiaphragm
Assumes 16.0 ft deep subdiaphragm
207 plf **Resulting Subdiaphragm Shear Demand**
System **1/2" CDX plywood with 8d @ 6" oc** assumed - worst case
Capacity 270 lbs **OK**

Zone 4 Hardware Check - Continuity Tie on GLBs

Demand 7172 lbs **26.0** ft - max spacing of ***steel*** demand
Capacity of Zone 4 Hardware from City of LA RR# 25334 for a pair of hardware Please see Zone 4 Table
Assumes 5.125 inch thick member 11.25 inch deep member (min)
Hardware **T2 44-6 (Pair)** Hardware
Capacity #### lbs **OK** Capacity lbs **OK**
ICC

TABLE 2—CT CONTINUITY TIE AND T2 TENSION TIE/HOLD-DOWN TENSION DESIGN CAPACITIES FOR PAIRED CONNECTORS
(Design Capacities are based upon Allowable Stress Design)

CT/T2 Paired Connection (PC) System						CT/T2 Paired Connection (PC) Design Capacities (pounds) (C_D = 1.33) [1, 2, 3, 4, 5, 9, 10, 12]						
PC Model Quantity & CT/T2	A307 Bolts Quantity & Diam. (inches)	Min. End Distance [6] (inches)	Anchor Rods [7, 11] (C_D = 1.33) A36 (F_u = 58,000 psi) Diam. (inches)	Capacity (pounds)	b [8] min. width (depth) (inches)	t (inches), length of bolt in wood member (thickness)						
						1.50	2.50	3.00	3.50	5.125	5.50	7.50
~~(2) 22-5~~	(2) 3/8	2 5/8	(2) 5/8	15830	3.5	2095	2862	c				
(2) 43-5	(4) 3/8				3.5	4190	5830	c				
~~(2) 63-5~~	(6) 3/8				3.5	[5270]	6748	c				
					5.5	8284	c					
~~(2) 83-5~~	(8) 3/8				3.5	(5270)	[8763]	[10539]	11661			
					6.5	[7550]	11661	11661	c			
					7.25	8379	c					
(2) 24-6	(2) 1/2	3 1/2	(2) 3/4	22503	3.5	2793	4655	[5071]	c			
(2) 44-6	(4) 1/2				3.5	(5055)	(8424)	(10109)	[10385]	c		
					5.5	5588	9310	10385				
(2) 64-6	(6) 1/2				3.5	(5055)	(8424)	(10109)	[11794]	[14967]	15548	
					5.5	(7383)	[12272]	[14726]	[15548]	15548	c	
					7.25	8379	13965	15548				
(2) 84-6	(8) 1/2				3.5	(5055)	(8424)	(10109)	(11794)	(14967)	(16062)	20731
					5.5	(7383)	(12272)	(14726)	(17181)	20731	20731	
					7.25	(9206)	(15343)	(18411)	20731			
					9.25	(10962)	(18270)	20731	c			
					11.25	11172	18620					
~~(2) 25-5~~	(2) 5/8	4 3/8	(2) 3/4	22503	5.5	3491	5819	6983	7623	c		
~~(2) 45-5~~	(4) 5/8				5.5	6983	11636	13965	16196	c		
~~(2) 65-7~~	(6) 5/8		(2) 7/8	30598	5.5	(7177)	(11961)	(14353)	(16746)	24294		
					7.25	(9034)	(15056)	(18087)	(21078)			
					9.25	10474	17456	20948	24294	c		
~~(2) 85-7~~	(8) 5/8		(2) 1	39968	5.5	(7177)	(11961)	(14353)	(16746)	(27603)	(28043)	32392
					7.25 / 7.5	(9034)	(15056)	(18087)	(21078)	32392	32392	
					9.25	(10604)	(18007)	(21609)	(25210)			
					11.25	(12117)	(20194)	(24233)	(28272)	c		
					13.25	(12970)	(21616)	(25939)	(30263)			
~~(2) 26-6~~	(2) 3/4	5 1/4	(2) 3/4	22503	5.5	4190	6983	8379	9776	11409	c	
(2) 46-8	(4) 3/4		(2) 1	39968	5.5	(6990)	(11650)	(13981)	(16311)	23322		
					7.25	8379	13965	16756	19551	c		
~~(2) 66-8~~	(6) 3/4		(2) 1 1/8	50807	5.5	(6990)	(11650)	(13981)	(16311)	(26360)	(28286)	34963
					7.25 / 7.5	(8862)	(14769)	(17723)	(20677)	34963	34963	
					9.25	(10647)	(17745)	(21294)	(24842)			
					11.25	(11973)	(19955)	(23946)	(27937)	c		
					13.25	12569	20948	25137	29327			

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N, 1 psi = 6.89 kPa

TABLE 2—CT CONTINUITY TIE AND T2 TENSION TIE/HOLD-DOWN TENSION DESIGN CAPACITIES FOR PAIRED CONNECTORS—(Continued)

CT/T2 Paired Connection (PC) System						CT/T2 Paired Connection (PC) Design Capacities (pounds) (C_D = 1.33) [1, 2, 3, 4, 5, 9, 10, 12]						
PC Model Quantity & CT/T2	A307 Bolts Quantity & Diam. (inches)	Min. End Distance [6] (inches)	Anchor Rods [7, 11] (C_D = 1.33) A36 (F_u = 58,000 psi) Diam. (inches)	Capacity (pounds)	b [8] min. width (depth) (inches)	t (inches), length of bolt in wood member (thickness)						
						1.50	2.50	3.00	3.50	5.125	5.50	7.50
~~(2) 27-8~~	(2) 7/8	6 1/8	(2) 1	39968	5.5	4888	8146	9776	11405	15529	c	
~~(2) 47-9~~	(4) 7/8		(2) 1 1/8	50807	5.5	(6804)	(11340)	(13608)	(15876)	(25857)	(27534)	31744
					7.25 / 7.5	(8889)	(14482)	(17379)	(20275)	31744	31744	
					9.25	9776	16293	19551	22810			c
~~(2) 29-7~~	(2) 1	7	(2) 1	39968	5.5	5588	9310	11172	13034	19066	20282	c
(2) 48-9	(4) 1		(2) 1 1/8	50807	5.5	(6817)	(11029)	(13235)	(15441)	(24954)	(26780)	(36518)
					7.25 / 7.5	(8517)	(14196)	(17035)	(19874)	(34795)	(36850)	41451
					9.25/9.5	(10331)	(17216)	(20663)	(24109)	(37670)	40964	
					11.25	11172	18620	22344	26068	36171		c
(2) 68-10	(6) 1		(2) 1 1/4	62470	5.5	(6817)	(11029)	(13235)	(15441)	(24954)	(26780)	(36518)
					7.25 / 7.5	(8517)	(14196)	(17035)	(19874)	(34795)	(36850)	(52977)
					9.25/9.5	(10331)	(17216)	(20663)	(24109)	(37670)	(41661)	62192
					11.25/11.5	(11686)	(19477)	(23373)	(27268)	(40872)	(51536)	
					13.25/13.5	(12583)	(20971)	(25165)	(29359)	(54953)	(60183)	c
					>15.5	NOT APPLICABLE				57257	61446	

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N, 1 psi = 6.89 kPa

1 Design capacities have been increased by a 1.33 load duration factor (C_D) in accordance with Section 1612.3.3 of the UBC. Wood member design capacities include consideration of tensile stresses.

2 Maximum bolt design capacities in the minimum size wood member are shown by ##.

3 Maximum bolt design capacities are achieved in smaller size wood members in areas shown by c.

4 Design capacities controlled by the net section tension capacity of the wood member are shown by [##].

5 Maximum design capacities of wood members are achieved with connectors using fewer and/or smaller bolts or both in areas shown by (##).

6 The minimum end distance, from the end of the wood member to the centerline of the first CT/T2 bolt, is seven (7) CT/T2 bolt diameters. End distance may be increased with no decrease in design capacities.

7 The capacity of the concrete anchor must be equal to or greater than the design capacity of the connector being specified.

8 b = width (depth) of the wood member.

9 The design engineer shall check the wood member's design capacity for use conditions subject to additional loads (i.e. roof and floor dead loads). The applicable formulae and allowable stresses, per the 1991 NDS, should be used when calculating design capacities for wood members subject to a combination of bending about both axes and axial tension or compression.

10 Table is based on wood type and grade, Douglas Fir-Larch, No. 2 typ., No. 1 @ 5 x 5 and larger.

11 For anchor rod design capacities of ASTM A193-B7, A354-BD and A449 the A36 (F_{umin} = 58.0 ksi) tension capacities shown in the tables should be multiplied by the following factors:

Anchor Rod (Diameter)	F_{umin} (ksi)	Factor
ASTM A193-B7 (5/8 - 1 1/2)	125.0	2.155
ASTM A354-BD (5/8 - 1 1/2)	150.0	2.586
ASTM A449 (5/8 - 1)	120.0	2.069
ASTM A449 (1 1/8 - 1 1/2)	105.0	1.810

12 Design capacities are based upon allowable stress design.

NATIONAL
ENGINEERING & CONSULTING, INC.

JOB NAME: 1831 Ritchey	JOB NO: R-Voit-01B	SHEET NO: L- 7	
	ENGINEER: MEO'	DATE: Oct '11	
ANALYSIS: General			

Wall Angle Brackets at Purlins and GLBS

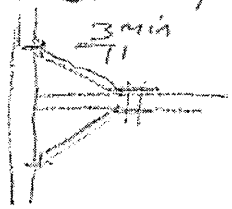
GLB Wall anchorage

FEMA & COLA require that the effects of the pilaster be considered

Regular Trib = 4'
Trib w/ pilaster effects assume double = 8' OK
← This would be 1/3 of panel Length (Conservative)

Epoxy
based on previous calc, each anchor good for 4.0' of Trib
we will be providing a pair of anchors (1 each side)
so capacity is 8' OK

Hardware
due to panel joint & other obstructions, provide angle kickers



Load $8' \times 465\#/LF = \frac{3720\#}{2 \text{ braces}} = 1860\#/\text{brace}$

increase due to skew
$1\frac{3.16}{3}$ $\quad 1860 \times \frac{\sqrt{1^2+3^2}}{3} = 1960\#$

L 3x3x 1/4 w/ 1960# tension/compression
per AISC 13th p. 4-173 Table 4-11
capacity for 9' long $\quad 6.33^k < 1.96^k$ OK
(K was!)

Hardware bolts $\quad \frac{1860\#}{2 \text{ bolts}} = 930\#$ in 5/8" GLB

NDS p. 90 Table 11I 5/8", stl, double shear, Z_{11}, DF, 5/8" ϕ
capacity 2440# $\quad \frac{3720\#}{2440\#/\text{bolt}} = 1.5 \Rightarrow$ 2 bolts (2) 5/8" ϕ MB req'd

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PROFIS Anchor 2.1.4

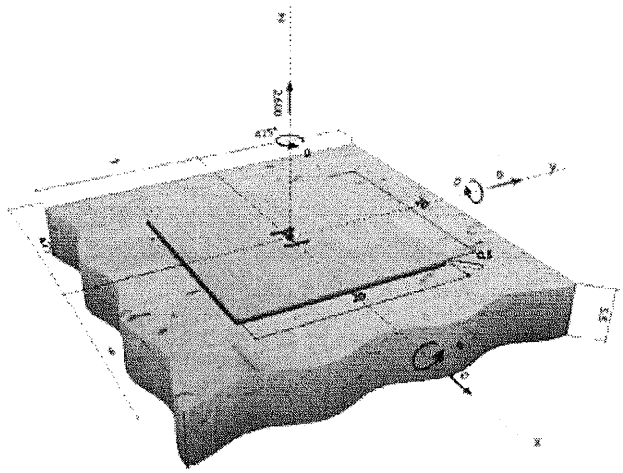
Company:	National Engineering & Consulting	Page:	1
Specifier:	MEO'	Project:	5.5" Thick Concrete
Address:		Sub-Project I Pos. No.:	
Phone I Fax:	- I -	Date:	7/6/2011
E-Mail:			

Specifier's comments:

Input data

Anchor type and diameter:	**HIT-RE 500-SD + HAS, 5/8**
Effective embedment depth:	$h_{ef,act}$ = 4.000 in. ($h_{ef,min}$ = 4.000 in.)
Material:	ASTM F 568M Class 5.8
Evaluation Service Report::	ESR 2322
Issued I Valid:	4/1/2010 I -
Proof:	design method ACI 318 / AC308
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate:	l_x x l_y x t = 20.000 x 20.000 x 0.500 in. (Recommended plate thickness: not calculated)
Profile	S shape (AISC); (L x W x T x FT) = 3.000 in. x 2.330 in. x 0.170 in. x 0.260 in.
Base material:	cracked concrete , 2500, f'_c = 2500 psi; h = 5.500 in., Temp. short/long: 70/70°F
Installation:	hammer drilled hole, installation condition: dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: > No. 4 bar
Seismic loads (cat. C, D, E, or F):	yes (D.3.3.5)

Geometry [in.] & Loading [lb, in.-lb]



Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization [%]	
Loading	Proof	Load	Capacity	β_N/β_V	Status
Tension	Bond Strength	2600	2601	100 / -	OK
Shear	-	-	-	-/-	-

Warnings

• Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

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PROFIS Anchor 2.1.4

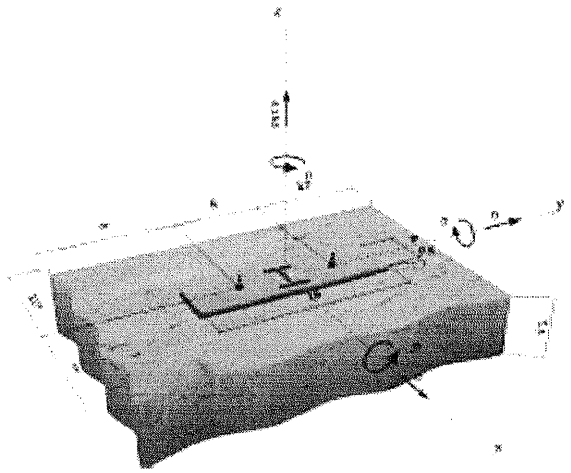
Company:	National Engineering & Consulting	Page:	1
Specifier:	MEO'	Project:	5.5" Thick Concrete
Address:		Sub-Project I Pos. No.:	
Phone I Fax:	- I -	Date:	7/8/2011
E-Mail:			

Specifier's comments:

Input data

Anchor type and diameter:	**HIT-RE 500-SD + HAS, 5/8**
Effective embedment depth:	$h_{ef,act}$ = 3.719 in. ($h_{ef,des}$ = 4.000 in.)
Material:	ASTM F 568M Class 5.8
Evaluation Service Report::	ESR 2322
Issued I Valid:	4/1/2010 I -
Proof:	design method ACI 318 / AC308
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate:	l_x x l_y x t = 4.000 x 16.000 x 0.500 in. (Recommended plate thickness: not calculated)
Profile	S shape (AISC); (L x W x T x FT) = 3.000 in. x 2.330 in. x 0.170 in. x 0.260 in.
Base material:	cracked concrete , 2500, f'_c = 2500 psi; h = 5.500 in., Temp. short/long: 70/70°F
Installation:	hammer drilled hole, installation condition: dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: > No. 4 bar
Seismic loads (cat. C, D, E, or F):	yes (D.3.3.5)

Geometry [in.] & Loading [lb, in.-lb]



Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization [%]	
Loading	Proof	Load	Capacity	β_N/β_V	Status
Tension	Bond Strength	4150	4152	100 / -	OK
Shear	-	-	-	-/-	-

Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

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PROFIS Anchor 2.1.4

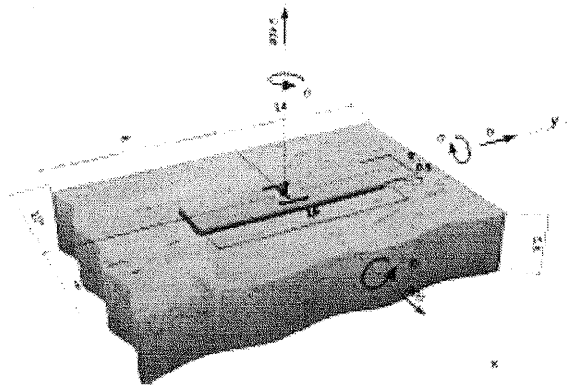
Company:	National Engineering & Consulting	Page:	1
Specifier:	MEO	Project:	5.5" Thick Concrete
Address:		Sub-Project I Pos. No.:	
Phone I Fax:	- I -	Date:	7/6/2011
E-Mail:			

Specifier's comments:

Input data

Anchor type and diameter:	**HIT-RE 500-SD + HAS, 5/8**
Effective embedment depth:	h_{nom} = 3.766 in. ($h_{ef,act}$ = 4.000 in.)
Material:	ASTM F 568M Class 5.8
Evaluation Service Report::	ESR 2322
Issued I Valid:	4/1/2010 I -
Proof:	design method ACI 318 / AC308
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate:	l_x x l_y x t = 4.000 x 16.000 x 0.500 in. (Recommended plate thickness: not calculated)
Profile	S shape (AISC); (L x W x T x FT) = 3.000 in. x 2.330 in. x 0.170 in. x 0.260 in.
Base material:	cracked concrete , 2500, f'_c = 2500 psi; h = 5.500 in., Temp. short/long: 70/70°F
Installation:	hammer drilled hole, installation condition: dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: > No. 4 bar
Seismic loads (cat. C, D, E, or F):	yes (D.3.3.5)

Geometry [in.] & Loading [lb, in.-lb]



Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization [%]	
Loading	Proof	Load	Capacity	β_N/β_V	Status
Tension	Bond Strength	2400	2448	98 / -	OK
Shear	Steel Strength (without lever arm)	900	4129	- / 22	OK

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.980	0.218	-	100	OK

Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

CITY OF SANTA ANA
PLAN CHECK - CHECKLIST

JOB ADDRESS: Ritchey, St Andrew, Glenwood

TRACKING #: 10173635-37 **DATE:** 11-7-11

FOR PLANCHECK STATUS CALL (714) 647-5800

PLEASE INITIAL EACH ITEM BELOW

✓ 1. I agree to pay a plancheck fee established for this project with the understanding that this payment is not a guarantee that a permit will be issued and that this fee is not refundable once a plancheck has commenced.

✓ 2. I understand that I may request an "Accelerated Plancheck" at an additional cost to me. This plancheck will be performed by an in-house plan checker with the intention of reducing plancheck time for the Building & Safety Division.

✓ 3. I understand that the project valuation (from which plancheck and permit fees are calculated) will be reviewed during the plancheck process and that said valuation shall be adjusted up or down in accordance with established fee computation regulations.

✓ 4. I understand that I shall submit **separate plans, applications and plancheck fees** for the following when plan check is required:

a. Electrical Plans - 2 complete sets
b. Plumbing Plans - 3 complete sets
c. Mechanical Plans - 2 complete sets
d. Grading Plans - 3 complete sets

✓ 5. I understand that I shall visit the Public Works Department to verify whether a field inspection of the property is required. I understand that prior to the issuance of the Building permit I am required to obtain Public Works Agency approval if my project valuation exceeds $30,000 or has added plumbing fixtures, or added bedrooms, or exceeds 500 sq.ft.

AGREED TO BY APPLICANT OR AGENT

Applicant's Signature Michael Santillan

Print Name Michael Santillan Address 27 Orchard, Lake Forest

Telephone Number 714 803-8454 Fax 949-716-9997

FOR OFFICE USE ONLY: "Checklist of items discussed" APPROVALS & FEES REQUIRED: Y/N

1. ✓ Planning Department	7. NA Title 24 (Energy)	14. ✓ Constr. Act. Req.
2. ✓ Public Works Agency	8. NA Title 24 (Disabled Access)	15. NA Res. Dev. Fees
3. ✓ Fire Departmemt	9. NA Roof Mounted Equip.	16. ✓ SMIP
4. NA Police Department	10. ✓ List of Subcontr.	17. NA Microfilming
5. NA School District	11. ✓ Bldg. Pmt. Info.	18. ✓ Const. Debris Recyc.
6. NA Health Department	12. ✓ Summary of Appr. Req.	19. NA FCWP Surcharge
	13. ✓ FY Information	20. NA LOA/Owner-Builder Ver.

PERMIT TECHNICIAN K Hernandez

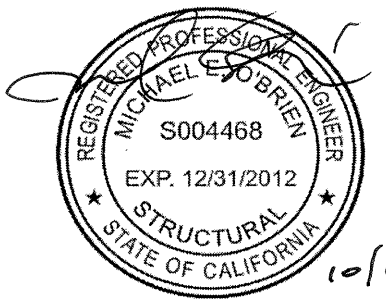
Form 58: 3-26-04

NATIONAL
ENGINEERING & CONSULTING, INC.

Structural Calculations

Roof Seismic Strengthening - Partial
Concrete Tilt-up Building
1831 Ritchey Street (Bldg B)
Santa Ana, CA

R-Voit-01B



10/11/11

Revision
0

October 11, 2011

27 Orchard, Suite 200
Lake Forest, CA 92630
Phone: (949) 716-9990 Fax: (949) 716-9997
www.national-eng.com

Scope

THE PROJECT CONSISTS OF A LIMITED SEISMIC STRENGTHENING OF AN EXISTING INDUSTRIAL BUILDING. THE SCOPE OF THE PROJECT IS LIMITED TO THE REQUIREMENTS OF CHAPTER A2 OF THE INTERNATIONAL EXISTING BUILDING CODE AT THE ROOF LEVEL ONLY INCLUDING WALL ANCHORAGE, CONTINUITY TIES, AND DRAGS.

THERE IS NO MEZZANINE

THE BUILDING CONSISTS OF A CONCRETE TILT-UP BUILDING WITH A PANELIZED ROOF CONSISTING OF A PLYWOOD DIAPHRAGM SUPPORTED ON 2X RAFTERS SUPPORTED ON 4X PURLINS THAT SPAN TO GLULAM BEAMS. ORIGINAL BUILDING AGE AND BUILDING CODE WAS NOT DETERMINED BUT IS REPORTED TO PRE-DATE THE MID-1970'S.

THERE IS CURRENTLY NO KNOWN JURISDICTIONAL MANDATE FOR SEISMIC STRENGTHENING FOR THIS BUILDING.

STORY DRIFT, DIAPHRAGM STRENGTH, WALL STRENGTHS, ETC. ARE OUT OF SCOPE AND NOT ADDRESSED.

3404.5 Voluntary seismic improvements. Alterations to existing structural elements or additions of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force-resisting system of an *existing structure* or the performance of seismic bracing or anchorage of existing nonstructural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The altered structure and the altered nonstructural elements are no less in compliance with the provisions of this code with respect to earthquake design than they were prior to the *alteration*.
2. New structural elements are detailed and connected to the existing structural elements as required by Chapter 16.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by Chapter 16.
4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

NATIONAL
ENGINEERING & CONSULTING, INC.

	JOB NO: R-Voit-01B	SHEET NO: G - 2
JOB NAME: 1831 Ritchey	ENGINEER: MEO'	DATE: Oct '11
ANALYSIS: General		

Design Criteria

I. Code

A. Chapter A2 of the 2009 International Existing Building Code

II. Lateral Loads

Wind - Not Applicable

III. Allowable Stresses for New Materials

A. Structural Masonry

Walls..... Not Applicable

B. Concrete

(E) Wall panels & Columns ..... f 'c = 2,500 psi at 28 Days Assumed
(E) Slab on grade..... f 'c = 2,000 psi at 28 Days Assumed

C. Reinforcing Steel

Slabs & Footings ..... ASTM A615, Fy = 60 ksi
Welded Bars ..... ASTM A706, Fy = 60 ksi

D. Structural Steel

Structural Shapes (W, M, etc.) ..... ASTM A992, Fy = 50 ksi
Tubes ..... ASTM A500, Fy = 46 ksi
Miscellaneous ..... ASTM A36, Fy = 36 ksi
Pipe ..... ASTM A53, Fy = 35 ksi

E. Timber

Sawn Lumber..... Douglas Fir Larch
Glued Laminated Lumber..... Douglas Fir Larch

F. Soil
Based On Report By:

N/A

33.722733,-117.841008

from Internet

Conterminous 48 States
2009 International Building Code
Latitude = 33.722733
Longitude = -117.84100800000002
Spectral Response Accelerations Ss and S1
Ss and S1 = Mapped Spectral Acceleration Values
Site Class B - Fa = 1.0 ,Fv = 1.0
Data are based on a 0.01 deg grid spacing

Period (sec)	Sa (g)
0.2	1.453 (Ss, Site Class B)
1.0	0.513 (S1, Site Class B)

Conterminous 48 States
2009 International Building Code
Latitude = 33.722733
Longitude = -117.84100800000002
Spectral Response Accelerations SMs and SM1
SMs = Fa x Ss and SM1 = Fv x S1
Site Class D - Fa = 1.0 ,Fv = 1.5

Period (sec)	Sa (g)
0.2	1.453 (SMs, Site Class D)
1.0	0.770 (SM1, Site Class D)

Conterminous 48 States
2009 International Building Code
Latitude = 33.722733
Longitude = -117.84100800000002
Design Spectral Response Accelerations SDs and SD1
SDs = 2/3 x SMs and SD1 = 2/3 x SM1
Site Class D - Fa = 1.0 ,Fv = 1.5

Period (sec)	Sa (g)
0.2	0.968 (SDs, Site Class D)
1.0	0.513 (SD1, Site Class D)

NATIONAL ENGINEERING & CONSULTING, INC.

	JOB NO: R-Voit-01B	SHEET NO:	L - 1
JOB NAME: 1831 Ritchey	ENGINEER: MEO'	DATE:	Oct '11
ANALYSIS: Lateral			

Seismic Design Criteria

Per IBC 2009

Earthquake Loads per CBC 2010 & IBC 2009 Sections 1613 & ACSE 7-05 Sections 12-14

$E = \rho E_H + E_V$	ρ	=	1.00	Redundancy Factor	ASCE 7 12.3.4
$E_M = \Omega_O \times E_H$	Ω_o	=	2.00	Overstrength Factor	ASCE 7 Table 12.2-1 (2.5 minus 0.5 for flex diaphragm per foot note "g") Shall not be less than 2.0
$E_V = 0.2 \times S_{DS} \times D$	E_V	=	0.19 D	Vertical Component	ASCE 7 Section 12.4.2.2

Seismic Base Shear per CBC 2010 & IBC 2009 Sections 1613-1622

				Description	Reference
	S_S	=	1.453	Spectral acceleration short period	IBC Map 1613.5(1)
	S_1	=	0.513	Spectral acceleration 1 sec period	IBC Map 1613.5(2)
Soil Site Class		=	D	Soil Profile Type	from Geotech report
calc'ed	F_a	=	1.00	Site coefficient, Site Class D	IBC Table 1613.5.3(1)
calc'ed	F_V	=	1.50	Site coefficient, Site Class D	IBC Table 1613.5.3(2)
	$S_{MS} = F_a S_S$	=	1.45	Short period max spectral response	
	$S_{M1} = F_V S_1$	=	0.77	1 sec period max spectral response	
	$S_{DS} = 2/3\ S_{MS}$	=	**0.97**	Design short period max spectral response	IBC EQ. 16-39
	$S_{D1} = 2/3\ S_{M1}$	=	**0.51**	Design 1 sec period max spectral response	IBC EQ. 16-40
Bldg height 22 ft	T	=	0.20 sec	Fundamental Period of shearwall	ASCE 7 EQ. 12.8-7
	$T_O = 0.2\ S_{D1} / S_{DS}$	=	0.11 sec		
	$T_S = S_{D1} / S_{DS}$	=	0.53 sec		
	S	=	0.969	Design spectral response acceleration	ASCE 7 Table 12.8-1
	Seismic Use Group	=	II	Group II, typical	ASCE 7 Table 1-1
	Seismic Design Category	=	**D**	ASCE 7 TableS 11.6-1 and 11.6-2	
	I	=	0.75	Importance Factor	IEBC A206.1
	Plan Structural Irregularities	=	None	None	
	Vertical Structural Irregularities	=	None	None	
Intermediate Precast Concrete Bearing Wall	R	=	4.0	Response Modification Coefficient	ASCE 7 Table 12.2-1
	C_d	=	4.0	Deflection Amplification Factor	ASCE 7 Table 12.2-1

Intermediate Precast Concrete Bearing Walls

	$C_S = S_{DS} I / R$	=	0.182 W	Building Base Shear	ASCE 7 EQ. 12.8-2
	$C_S Max = S_{D1} I / (R\ T)$	=	0.47 W	Maximum Base Shear	ASCE 7 EQ. 12.8-3
	$C_S Min = 0.5 S_1 I / R$	=	0.05 W	Minimum Base Shear (S_1 >.6g)	ASCE 7 EQ. 12.8-6
	Ft = 0.07 T V	=	0.000 W	Concentrated Top Force	ASCE 7 EQ. 12.14-13
	V	=	**0.182 W + Ft**	**Governing Base Shear** for flexible diaphragms	Allowable = **0.130 W**

Seismic Diaphragm Shear per CBC 2007 & IBC 2006 Section 1620.1.5

From above			**0.182 W**	Based on Lateral System	**Governs**
Minimum	$F_P = 0.2 S_{DS} I$	=	**0.145 W**	Minimum	
	$F_P = 0.4 S_{DS} I$		**0.291 W**	Max Diaphragm Accel	
			0.182 W	Governing Diaphragm acceleratio	Allowable = **0.130 W**

Seismic Load to Structural Elements per CBC 2010 & IBC 2009 Section 1620.2 (Wall Anchorage)

FP = 0.8SDS I	=	**0.581 W**	Category C & Higher	Allowable = **0.415 W**

***Note - All seismic coefficients are ULTIMATE and must be divided by a factor of 1.4 for Allowable Stress Design.**

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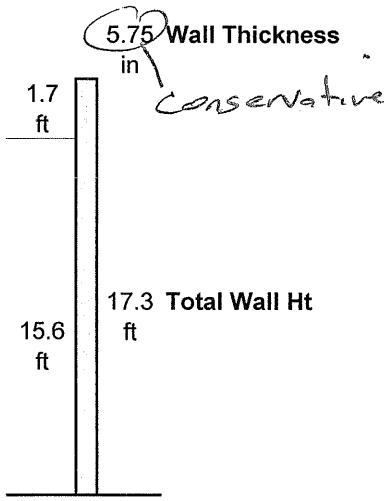
	JOB NO: **R-Voit-01B**	SHEET NO:	**L- 2**
JOB NAME: **1831 Ritchey**	ENGINEER: **MEO'**	DATE:	**Oct '11**
ANALYSIS: **Lateral**			

Tributary Mass for Wall Anchorage per Chapter A2 of IEBC

Purlins - Worst Case



145 pcf **Density of Concrete**

Tributary Mass

$$\frac{17.25^2}{2 * 15.55} * 145 \frac{5.75}{12} = 665 \text{ plf}$$

Wall Anchorage Force per 2010 CBC - Section 12.11 of ASCE 7-05

Fp = 0.8 Sds I W
I= 0.75 linked per A206.1
Sds= 0.97 linked

Fp = 0.8 Sds I W =	0.58 W =	386	plf	Equation 12.11-1
0.1 W =		66	plf	Section 12.11.1
400 Sds I =		291	plf	Section 12.11.2 b
280		280	plf	Section 12.11.2 c

Governs: **386** **plf** **Strength Level**
276 **plf** **Allowable Level**

Steel Elements - use **Allowable Stress Design** and apply a Load Factor of **1.0** per Section A206.2
Steel Demand 276 plf x 1.0 = **276** **plf**

Concrete Elements - use **Strength Design** and apply a Load Factor of **1.0** per Section A206.2
Concrete Demand 386 plf x 1.0 = **386** **plf**

Wood Elements - use **Allowable Stress Design** with no additional Load Factors per Section A206.2
Wood Demand 276 plf x 1.0 = **276** **plf**

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ENGINEERING & CONSULTING, INC.

		JOB NO:	R-Voit-01B	SHEET NO:	L- 3
JOB NAME:	1831 Ritchey	ENGINEER:	MEO'	DATE:	Oct '11
ANALYSIS:	Lateral				

Purlin Wall Anchorage & Continuity Ties

Purlins - Worst Case

Purlin Spacing: 8.0 ft
Continuity Tie Spacing 24.0 ft
Purlin Width 3.5 in
Purlin Depth (Min) 13.25 in
Purlin Span 24.0 ft

Loading per Purlin (based on spacing)

276	plf	2208	lbs Steel Demand
386	plf	3091	lbs Concrete Demand
276	plf	2208	lbs Wood Demand

Wood Type DF #1 (assumed)
per UBC 1982 (assumed)
tension ft: 1200 psi
flexural fb: 1400 psi

Epoxy Check

Demand 3091 lbs **8.0** ft - max spacing of ***concrete*** demand
Capacity of Hilti HIT RE-500 SD based on PROFIS calculation for a **PAIR** of epoxy anchors
Assumes 5.50 inch thick wall with 4.00 inch embedment with 0.625 inch diameter rod and
8.0 inch spacing of anchors. Please see calc sheets
Capacity 4150 lbs **OK** **OK**

Zone 4 Hardware Check - Wall Anchor

Demand 2208 lbs **8.0** ft - max spacing of ***steel*** demand
Capacity of Zone 4 Hardware from City of LA RR# 25334 for a pair of hardware Please see Zone 4 Table
Assumes 3.50 inch thick member 13.25 inch deep member (min)

Hardware	**T2 43-5 (Pair)**			Hardware	**T2 24-6 (Pair)**		
Capacity	5830 lbs	**OK**		Capacity	5071 lbs	**OK**	**OK**
	ICC				ICC		

Zone 4 Hardware Check - Continuity Tie

Demand 6623 lbs **24.0** ft - max spacing of ***steel*** demand
Capacity of Zone 4 Hardware from City of LA RR# 25334 for a pair of hardware Please see Zone 4 Table
Assumes 3.50 inch thick member 13.25 inch deep member (min)

Hardware	**T2 44-6 (Pair)**			Hardware			
Capacity	#### lbs	**OK**		Capacity	lbs		**OK**
	ICC						

Subdiaphragm Check to Purlin Continuity Ties

Demand 4416 lbs **2** purlin bays of ***wood*** demand into subdiaphragm since next wall anchor is on CT line
Assumes 24.0 ft deep subdiaphragm
92 plf **Resulting Subdiphragm Shear Demand**
System **1/2" CDX plywood with 8d @ 6" oc** assumed - worst case
Capacity **270** lbs **OK** **OK**

Check Purlin Continuity Tie for Combined Gravity and Axial Seismic

Axial Wood Demand 6623 lbs **24.0** ft - max spacing of ***wood*** demand
Resulting axial stress for 3.5 in. x 13.25 in. **142.8** psi
Assumed member DL **12.0** psf resulting in uniform loa **96** plf for a span **24.0** ft
For a max moment c **82944** lb-in on a section modulus **102.4** in^3
Resulting flexural stress for 3.5 in. x 13.25 i **809.9** psi

Unity Check axial bending

$$\frac{143}{1200} + \frac{809.9}{1400} = 0.70 < 1.6$$ **OK** **OK**

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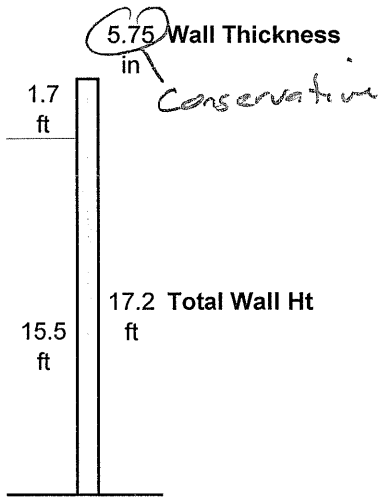
	JOB NO: **R-Voit-01B**	SHEET NO:	**L- 4**
JOB NAME: **1831 Ritchey**	ENGINEER: **MEO'**	DATE:	**Oct '11**
ANALYSIS: **Lateral**			

Tributary Mass for Wall Anchorage per Chapter A2 of IEBC

Subpurlins - Worst Case



145 pcf **Density of Concrete**

Tributary Mass

$\frac{17.24^2}{2 * 15.54} * 145 \frac{5.75}{12}$ = **664** plf

Wall Anchorage Force per 2010 CBC - Section 12.11 of ASCE 7-05

Fp = 0.8 Sds I W
I= 0.75 linked per A206.1
Sds= 0.97 linked

Fp = 0.8 Sds I W =	0.58 W =	386	plf	Equation 12.11-1
0.1 W =		66	plf	Section 12.11.1
400 Sds I =		291	plf	Section 12.11.2 b
280		280	plf	Section 12.11.2 c

Governs: **386** **plf** **Strength Level**
276 **plf** **Allowable Level**

Steel Elements - use **Allowable Stress Design** and apply a Load Factor of **1.0** per Section A206.2
Steel Demand 276 plf x 1.0 = **276** **plf**

Concrete Elements - use **Strength Design** and apply a Load Factor of **1.0** per Section A206.2
Concrete Demand 386 plf x 1.0 = **386** **plf**

Wood Elements - use **Allowable Stress Design** with no additional Load Factors per Section A206.2
Wood Demand 276 plf x 1.0 = **276** **plf**

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JOB NAME:	1831 Ritchey	JOB NO:	R-Voit-01B	SHEET NO:	L- 5
		ENGINEER:	MEO'	DATE:	Oct '11
ANALYSIS:	Lateral				

Subpurlin (Rod) Wall Anchorage & Continuity Ties

Subpurlins - Worst Case

Anchor Line Trib:	6.0	ft				Loading per Anchor Line (based on spacing)	
Purlin Width	1.5	in	276	plf	1655	lbs	Steel Demand
Purlin Depth (Min)	3.5	in	386	plf	2317	lbs	Concrete Demand
Wood Type	DF #1 (assumed)		276	plf	1655	lbs	Wood Demand

Epoxy Check

Demand 2317 lbs **6.0** ft - max trib of *concrete* demand
Capacity of Hilti HIT RE-500 SD based on PROFIS calculation for a **SINGLE** epoxy anchor
Assumes 5.50 inch thick wall with 4.00 inch embedment with 0.625 inch diameter rod and
Capacity 2600 lbs **OK** Please see calc sheets

Development of Anchorage Force into Subdiaphragm - assumes field nailing

Demand 1655 lbs **1** # of rods of *wood* demand adjacent to analyzed rafter line
Assumes 16.0 ft deep subdiaphragm
52 plf **Resulting Subdiaphragm Shear Demand** (note: load split between two rafter lines)
System **1/2" CDX plywood with 8d @ 12"oc** assumed - worst case - **field nailing**
Capacity 135 lbs **OK**

Subdiaphragm Check to GLB Continuity Ties

Demand 6620 lbs **4** # of rods of *wood* demand since the GLB wall anchors are not in subdiaphragm
Assumes 16.0 ft deep subdiaphragm
207 plf **Resulting Subdiaphragm Shear Demand**
System **1/2" CDX plywood with 8d @ 6" oc** assumed - worst case
Capacity 270 lbs **OK**

Zone 4 Hardware Check - Continuity Tie on GLBs

Demand 7172 lbs **26.0** ft - max spacing of ***steel*** demand
Capacity of Zone 4 Hardware from City of LA RR# 25334 for a pair of hardware Please see Zone 4 Table
Assumes 5.125 inch thick member 11.25 inch deep member (min)
Hardware **T2 44-6 (Pair)** Hardware
Capacity #### lbs **OK** Capacity lbs **OK**
ICC

TABLE 2—CT CONTINUITY TIE AND T2 TENSION TIE/HOLD-DOWN TENSION DESIGN CAPACITIES FOR PAIRED CONNECTORS
(Design Capacities are based upon Allowable Stress Design)

CT/T2 Paired Connection (PC) System						CT/T2 Paired Connection (PC) Design Capacities (pounds) (C_D = 1.33) [1,2,3,4,5,9,10,12]						
PC Model Quantity & CT/T2	A307 Bolts Quantity & Diam. (inches)	Min. End Distance [6] (inches)	Anchor Rods [7,11] (C_D = 1.33) A36 (F_u = 58,000 psi) Diam. (inches)	Anchor Rods [7,11] (C_D = 1.33) A36 (F_u = 58,000 psi) Capacity (pounds)	b [8] min. width (depth) (inches)	t (inches), length of bolt in wood member (thickness)						
						1.50	2.50	3.00	3.50	5.125	5.50	7.50
~~(2) 22-5~~	(2) 3/8	2 5/8	(2) 5/8	15030	3.5	2095	2852	c				
(2) 43-5	(4) 3/8				3.5	4190	5830	c				
~~(2) 63-5~~	(6) 3/8				3.5	[5270]	6748	c				
					5.5	6284	c					
~~(2) 83-5~~	(8) 3/8				3.5	[5270]	[8783]	[10539]	11661			
					5.5	[7550]	11661	11661				
					7.25	8379	c					
(2) 24-6	(2) 1/2	3 1/2	(2) 3/4	22503	3.5	2793	4655	5071	c			
(2) 44-6	(4) 1/2				3.5	[5055]	[8424]	[10109]	10365	c		
					5.5	5586	9310	10365				
(2) 64-6	(6) 1/2				3.5	[5055]	[8424]	[10109]	[11794]	[14967]	15548	
					5.5	[7383]	[12272]	[14726]	[15548]	15548	c	
					7.25	8379	13965	15548				
(2) 84-6	(8) 1/2				3.5	[5055]	[8424]	[10109]	[11794]	[14967]	[16082]	20731
					5.5	[7383]	[12272]	[14726]	[17181]	20731	20731	
					7.25	[9206]	[15343]	[18411]	20731	c		
					9.25	[10962]	[18270]	20731				
					11.25	11172	18620					
~~(2) 25-8~~	(2) 5/8	4 3/8	(2) 3/4	22503	5.5	3491	5819	6983	7923	c		
~~(2) 45-8~~	(4) 5/8				5.5	6983	11638	13965	16196	c		
~~(2) 65-8~~	(6) 5/8		(2) 7/8	30598	5.5	[7177]	[11961]	[14353]	[16746]	24294		
					7.25	[9034]	[15056]	[18067]	[21078]	c		
					9.25	10474	17456	20948	24294			
~~(2) 85-8~~	(8) 5/8		(2) 1	39968	5.5	[7177]	[11961]	[14353]	[16746]	[27603]	[29043]	32392
					7.25 / 7.5	[9034]	[15056]	[18067]	[21078]	32392	32392	
					9.25	[10604]	[18007]	[21609]	[25210]	c		
					11.25	[12117]	[20194]	[24233]	[28272]			
					13.25	[12970]	[21616]	[25939]	[30263]			
~~(2) 26-8~~	(2) 3/4	5 1/4	(2) 3/4	22503	5.5	4190	6983	8379	9776	11409	c	
(2) 46-8	(4) 3/4		(2) 1	39968	5.5	[6990]	[11650]	[13981]	[16311]	23822	c	
					7.25	8379	13965	16758	19551			
~~(2) 66-8~~	(6) 3/4		(2) 1 1/8	50607	5.5	[6990]	[11650]	[13981]	[16311]	[26360]	[28288]	34963
					7.25 / 7.5	[8862]	[14769]	[17723]	[20677]	34963	34963	
					9.25	[10647]	[17745]	[21294]	[24842]			
					11.25	[11973]	[19955]	[23946]	[27937]	c		
					13.25	12599	20948	25137	29327			

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N, 1 psi = 6.89 kPa

TABLE 2—CT CONTINUITY TIE AND T2 TENSION TIE/HOLD-DOWN TENSION DESIGN CAPACITIES FOR PAIRED CONNECTORS—(Continued)

CT/T2 Paired Connection (PC) System						CT/T2 Paired Connection (PC) Design Capacities (pounds) (C_D = 1.33) [1,2,3,4,5,9,10,12]						
PC Model Quantity & CT/T2	A307 Bolts Quantity & Diam. (inches)	Min. End Distance [6] (inches)	Anchor Rods [7,11] (C_D = 1.33) A36 (F_u = 58,000 psi) Diam. (inches)	Anchor Rods [7,11] (C_D = 1.33) A36 (F_u = 58,000 psi) Capacity (pounds)	b [8] min. width (depth) (inches)	t (inches), length of bolt in wood member (thickness)						
						1.50	2.50	3.00	3.50	5.125	5.50	7.50
~~(2) 27-8~~	(2) 7/8	6 1/8	(2) 1	39968	5.5	4888	8148	9776	11405	15529	c	
~~(2) 47-8~~	(4) 7/8		(2) 1 1/8	50607	5.5	[6804]	[11340]	[13608]	[15876]	[25557]	[27534]	31744
					7.25 / 7.5	[8889]	[14482]	[17379]	[20275]	31744	31744	c
					9.25	9776	16293	19551	22810			
~~(2) 28-8~~	(2) 1	7	(2) 1	39968	5.5	5586	9310	11172	13034	19066	20282	c
(2) 48-8	(4) 1		(2) 1 1/8	50607	5.5	[6817]	[11029]	[13236]	[15441]	[24954]	[28780]	[36518]
					7.25 / 7.5	[8517]	[14196]	[17035]	[19874]	[34795]	[36850]	41461
					9.25/9.5	[10331]	[17219]	[20663]	[24108]	[37670]	40964	c
					11.25	11172	18620	22344	26068	38171		
(2) 68-10	(6) 1		(2) 1 1/4	62470	5.5	[6817]	[11029]	[13235]	[15441]	[24954]	[28780]	[36518]
					7.25 / 7.5	[8517]	[14196]	[17035]	[19874]	[34795]	[36850]	[52977]
					9.25/9.5	[10331]	[17219]	[20663]	[24108]	[37670]	[41661]	62192
					11.25/11.5	[11666]	[18477]	[23373]	[27268]	[46372]	[51536]	
					13.25/13.5	[12583]	[20971]	[25165]	[29359]	[54953]	[60183]	c
					>15.5	NOT APPLICABLE				57257	61446	

For SI: 1 inch = 25.4 mm, 1 pound = 4.45 N, 1 psi = 6.89 kPa

1 Design capacities have been increased by a 1.33 load duration factor (C_D) in accordance with Section 1612.3.3 of the UBC. Wood member design capacities include consideration of tensile stresses.

2 Maximum bolt design capacities in the minimum size wood member are shown by ##.

3 Maximum bolt design capacities are achieved in smaller size wood members in areas shown by c.

4 Design capacities controlled by the net section tension capacity of the wood member are shown by [##].

5 Maximum design capacities of wood members are achieved with connectors using fewer and/or smaller bolts or both in areas shown by {##}.

6 The minimum end distance, from the end of the wood member to the centerline of the first CT/T2 bolt, is seven (7) CT/T2 bolt diameters. End distance may be increased with no decrease in design capacities.

7 The capacity of the concrete anchor must be equal to or greater than the design capacity of the connector being specified.

8 b = width (depth) of the wood member.

9 The design engineer shall check the wood member's design capacity for use conditions subject to additional loads (i.e. roof and floor dead loads). The applicable formulae and allowable stresses, per the 1991 NDS, should be used when calculating design capacities for wood members subject to a combination of bending about both axes and axial tension or compression.

10 Table is based on wood type and grade, Douglas Fir-Larch, No. 2 typ., No. 1 @ 5 x 5 and larger.

11 For anchor rod design capacities of ASTM A193-B7, A354-BD and A449 the A36 (F_{umin} = 58.0 ksi) tension capacities shown in the tables should be multiplied by the following factors:

Anchor Rod (Diameter)	F_{umin} (ksi)	Factor
ASTM A193-B7 (5/8 - 1 1/2)	125.0	2.155
ASTM A354-BD (5/8 - 1 1/2)	150.0	2.586
ASTM A449 (5/8 - 1)	120.0	2.069
ASTM A449 (1 1/8 - 1 1/2)	105.0	1.810

12 Design capacities are based upon allowable stress design.

NATIONAL
ENGINEERING & CONSULTING, INC.

JOB NAME: 1831 Ritchey	JOB NO: R-Voit-01B	SHEET NO: L- 7
	ENGINEER: MEO'	DATE: Oct '11
ANALYSIS: General		

Wall Angle Brackets at Purlins and GLBS

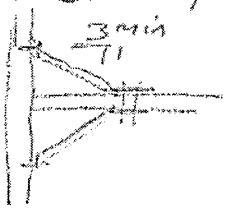
GLB Wall anchorage

FEMA & COLA require that the effects of the pilaster be considered

Regular Trib = 4'
Trib w/ pilaster effects assume double = 8' OK
← This would be 1/3 of panel Length (Conservative)

Epoxy
based on previous calc, each anchor good for 4.0' of Trib
we will be providing a pair of anchors (1 each side)
so capacity is 8' OK

Hardware
due to panel joint & other obstructions, provide angle kickers



Load 8' x 465 plf = 3720# / 2 braces = 1860#/brace

increase due to skew
11 / 3.16 / 3
1860 x √(1²+3²) / 3 = 1960#

L 3x3x 1/4 w/ 1960# tension / compression
per AISC 13th p. 4-173 Table 4-11
capacity for 9' long 6.33 k < 1.96 k OK
(worst)

Hardware bolts 1860# / 2 bolts = 930# in 5/8" GLB

NDS p. 90 Table 11I 5/8", stl, double shear, Z_11, DF, 5/8" ϕ
capacity 2440# 3720# / 2440#/bolt = 1.5 ⇒ 2 bolts (2) 5/8" ϕ MB req'd

www.hilti.us

PROFIS Anchor 2.1.4

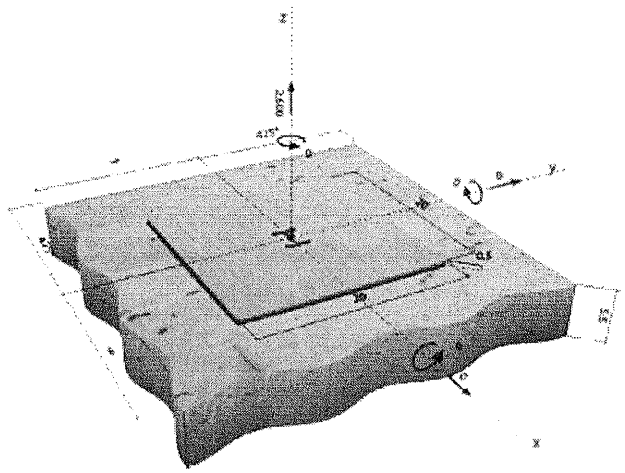
Company:	National Engineering & Consulting	Page:	1
Specifier:	MEO'	Project:	5.5" Thick Concrete
Address:		Sub-Project I Pos. No.:	
Phone I Fax:	- I -	Date:	7/6/2011
E-Mail:			

Specifier's comments:

Input data

Anchor type and diameter:	**HIT-RE 500-SD + HAS, 5/8**
Effective embedment depth:	$h_{ef,act}$ = 4.000 in. ($h_{ef,min}$ = 4.000 in.)
Material:	ASTM F 568M Class 5.8
Evaluation Service Report::	ESR 2322
Issued I Valid:	4/1/2010 I -
Proof:	design method ACI 318 / AC308
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate:	l_x x l_y x t = 20.000 x 20.000 x 0.500 in. (Recommended plate thickness: not calculated)
Profile	S shape (AISC); (L x W x T x FT) = 3.000 in. x 2.330 in. x 0.170 in. x 0.260 in.
Base material:	cracked concrete , 2500, f'_c = 2500 psi; h = 5.500 in., Temp. short/long: 70/70°F
Installation:	hammer drilled hole, installation condition: dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: > No. 4 bar
Seismic loads (cat. C, D, E, or F):	yes (D.3.3.5)

Geometry [in.] & Loading [lb, in.-lb]



Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization [%]	
Loading	Proof	Load	Capacity	β_N/β_V	Status
Tension	Bond Strength	2600	2601	100 / -	OK
Shear	-	-	-	-/-	-

Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

www.hilti.us

PROFIS Anchor 2.1.4

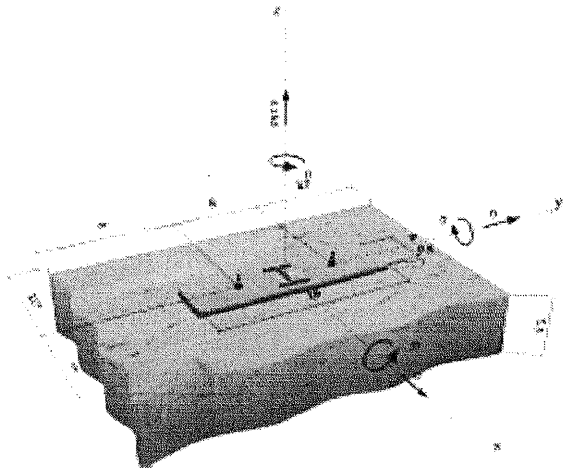
Company:	National Engineering & Consulting	Page:	1
Specifier:	MEO'	Project:	5.5" Thick Concrete
Address:		Sub-Project I Pos. No.:	
Phone I Fax:	- I -	Date:	7/8/2011
E-Mail:			

Specifier's comments:

Input data

Anchor type and diameter:	**HIT-RE 500-SD + HAS, 5/8**
Effective embedment depth:	h_{nom} = 3.719 in. ($h_{ef,act}$ = 4.000 in.)
Material:	ASTM F 568M Class 5.8
Evaluation Service Report::	ESR 2322
Issued I Valid:	4/1/2010 I -
Proof:	design method ACI 318 / AC308
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate:	l_x x l_y x t = 4.000 x 16.000 x 0.500 in. (Recommended plate thickness: not calculated)
Profile	S shape (AISC); (L x W x T x FT) = 3.000 in. x 2.330 in. x 0.170 in. x 0.260 in.
Base material:	cracked concrete , 2500, f'_c = 2500 psi; h = 5.500 in., Temp. short/long: 70/70°F
Installation:	hammer drilled hole, installation condition: dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: > No. 4 bar
Seismic loads (cat. C, D, E, or F):	yes (D.3.3.5)

Geometry [in.] & Loading [lb, in.-lb]



Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization [%]	
Loading	Proof	Load	Capacity	β_N/β_V	Status
Tension	Bond Strength	4150	4152	100 / -	OK
Shear	-	-	-	-/-	-

Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

www.hilti.us

PROFIS Anchor 2.1.4

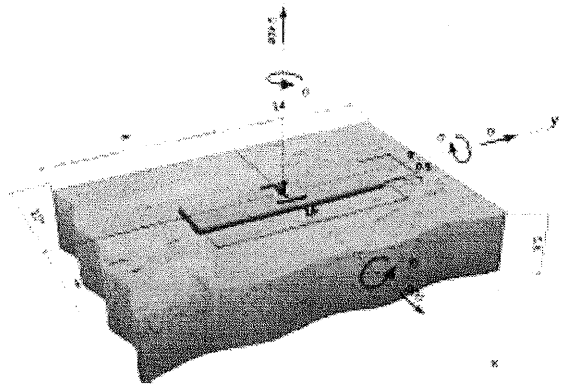
Company:	National Engineering & Consulting	Page:	1
Specifier:	MEO`	Project:	5.5" Thick Concrete
Address:		Sub-Project I Pos. No.:	
Phone I Fax:	- I -	Date:	7/6/2011
E-Mail:			

Specifier's comments:

Input data

Anchor type and diameter:	**HIT-RE 500-SD + HAS, 5/8**
Effective embedment depth:	h_{nom} = 3.766 in. ($h_{ef,act}$ = 4.000 in.)
Material:	ASTM F 568M Class 5.8
Evaluation Service Report::	ESR 2322
Issued I Valid:	4/1/2010 I -
Proof:	design method ACI 318 / AC308
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate:	l_x x l_y x t = 4.000 x 16.000 x 0.500 in. (Recommended plate thickness: not calculated)
Profile	S shape (AISC); (L x W x T x FT) = 3.000 in. x 2.330 in. x 0.170 in. x 0.260 in.
Base material:	cracked concrete , 2500, f'_c = 2500 psi; h = 5.500 in., Temp. short/long: 70/70°F
Installation:	hammer drilled hole, installation condition: dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: > No. 4 bar
Seismic loads (cat. C, D, E, or F):	yes (D.3.3.5)

Geometry [in.] & Loading [lb, in.-lb]



Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization [%]	
Loading	Proof	Load	Capacity	β_N/β_V	Status
Tension	Bond Strength	2400	2448	98 / -	OK
Shear	Steel Strength (without lever arm)	900	4129	- / 22	OK

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.980	0.218	-	100	OK

Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

Planning & Building Agency
Building Safety Division
20 Civic Center Plaza
P.O. Box 1988 (M-19)
Santa Ana, CA 92702
(714) 647-5800
www.santa-ana.org

TENANT IMPROVEMENT PLAN CHECK COMMENTS

PLAN CHECK NO: 10173635,6,7

PROJECT ADDRESS: 1831 S Ritchey St, 1917 E St. Andrews AND 1918 E Glenwood Pl.

PLAN CHECK ENGINEER: Kwak, Jason **TEL: 714** 647-5866

FAX: 714 647-5897

TYPE OF CONSTRUCTION: V B

OCCUPANCY CLASSIFICATION(S): B, S-1

PLAN CHECK DATES:

APPLICATION 11/7/2011

INITIAL REVIEW 11/23/2011

EXPIRATION 5/5/2012

RECHECKS: 1.

2.

3.

REMARKS/RECHECK ITEMS:

PROJECT APPLICANT CONTACT PERSON: Michael Santillan

TEL: (949)716-9990

FAX:

EMAIL: michael.santillan@nationaleng.com

VALUATION: $30,000.00

FLOOD ZONE: X-0602320277J

APPLICABLE CODE: 2010 CALIFORNIA BUILDING CODE (CBC) WITH CITY OF SANTA ANA AMENDMENTS

1. All items noted on this plan check report must be addressed. If you feel that an item is not applicable to your project, note "N/A" and discuss the reason with the plan checker.

2. Please indicate the sheet number and detail to the right of each correction, or note the number on the plans where the correction is made. Resubmit marked original, calculations and this correction sheet. A separate sheet for response may be used.

3. Resubmit 3 corrected sets of plans.

4. Meetings between the project applicant/designer and the plan reviewer shall be by appointment only. Please call (714) 647-5866 for an appointment.

5. The drawings/information submitted for Building Safety Division review is incomplete. The applicant shall, prior to resubmitting, complete all construction documents to show compliance with the 2010 California Building Standards Code with local amendments. – Provide required disabled accessible upgrade proposal with plans.

6. This review does not include mechanical, plumbing, fire sprinkler system, or electrical work. Separate plans, applications, fees, plan checks, and permits are required for mechanical, plumbing, fire sprinkler systems, and electrical work. Call 647-5800 for information. – If applicable.

7. **The applicant shall obtain clearances/approvals for the following prior to building permit issuance**:

   - Planning Division approval on the corrected/final set of drawings (647-5804.) Previously approved plans should be submitted to expedite the process.

   - Fire Department approval on the corrected/final sets of drawings (647-5839 or 647-5700)

   - Proof of Worker's Compensation Insurance shall be required at the time of permit issuance

8. **Show on the plans:**

   - Occupancy Classification(s)
   - Type of Construction
   - Fire Sprinkler System

9. It is the project designer's/property owner's responsibility to show compliance on the drawings with all applicable Federal and State Accessibility Standards.

10. **Drawings submitted to the Building Division for review shall provide the following information to insure compliance with CBC Section 1134B/Chapter 11B:**

    - An accessible entrance
    - An accessible route to the altered area
    - Accessible restrooms
    - Accessible telephone (if any)
    - Accessible drinking fountains, and
    - Parking, signage and alarms

11. Priority shall be given to those elements that will provide the greatest access in the above order.

12. Valuation of proposed project is calculated as $_____. A minimum of 20% of valuation of construction is required to be spent towards providing disabled access in the priority order noted in the immediate previous item as noted in CBC Section 1134B. Revise the drawings to show compliance. Show both existing elements and how they will be upgraded to current standards.

13. Provide completed disabled accessible compliance form (attached) with each project.

14. Provide ICC or LA RR listing number on plans for Zone 4 hardware.

NATIONAL
ENGINEERING & CONSULTING, INC.

December 8, 2011

City of Santa Ana – Building & Safety Division

RE: 1831 S. Ritchey Street
Plan Check # 10173635

Plan check responses:

Comment #5:
The drawings/information submitted for Building Safety Division review is incomplete……- Provide required disable accessible upgrade proposal with plans.
-Response: See sheet A-1, which shows proposed ADA upgrades

Comment #6:
This review does not include mechanical, plumbing, fire sprinkler system, or electrical work….
-Response: That is correct, there is no mechanical, plumbing, fire sprinkler system or electrical work proposed.

Comment #7:
The applicant shall obtain clearances/approvals….
-Response:

Comment #8:
Show on the plans:
- Occupancy Classificaton(s)
- Type of construction
- Fire Sprinkler System
-Response: information is now shown on sheet T-1.

Comment #9:
It is the project designer's/property owner's responsibility to show compliance on the drawings with all applicable Federal and State Accessibility Standards
-Response: Proposed ADA upgrades are now shown on the new sheet A-1

Comment #10:
Drawings submitted to the Building Division for review shall provide the following information to insure compliance with CBC Section 1134B/Chapter 11B:
- *An accessible entrance*
- *An accessible route to the altered area*
- *Accessible restrooms*

27 Orchard, Suite 200 Lake Forest, CA 92630 Phone: (949) 716-9990 Fax: (949) 716-9997

- *Accessible telephone (if any)*
- *Accessible drinking fountains, and*
- *Parking, signage and alarms*

-Response: see sheet A-1

Comment #11:
Priority shall be given to those elements that will provide the greatest access in the above order.
-Response: see sheet A-1

Comment #11:
Valuation of proposed project is calculated as $30,000. A minimum of 20% of valuation of construction is required to be spent toward providing disable access….
-Response: see sheet A-1

Comment #13:
Provide completed disabled accessible compliance form (attached) with each project.
-Response: see the enclosed forms

Comment #14:
Provide ICC or LARR listing number on plans for Zone 4 hardware
Response: Complied. The LARR is 25334 and approved as of November 1, 2011. See structural plans detail 4/SD-1. As part of this approval, Zone4 revamped their product line and developed new capacities which I have attached.

- **The old continuity tie T2-44-6 is now a T2-44-5 with greater capacity (Details 2 & 6/SD1).**
- **The old wall anchor T2-24-6 is now a T2-24-4 with greater capacity (Detail 4/SD1).**

Since the Zone4 tension rod diameter is now smaller, the epoxy needs to be rechecked at the purlin wall anchors. The subpurlin and glulam wall anchorage were not changed. New calculations for the ½" dia epoxied wall anchor in the Zone4 hardware has been recalculated and attached.

Sincerely,

Michael O'Brien, S.E.
National Engineering & Consulting, Inc.

Michael Santillan, Architect
National Engineering & Consulting, Inc.
27 Orchard
Lake Forest, CA 92630
(714) 803-8454

NATIONAL
ENGINEERING & CONSULTING, INC.

Plan Check #1

Structural Calculations

Roof Seismic Strengthening - Partial Concrete Tilt-up Building

1831 Ritchey Street (Bldg B)

Santa Ana, CA

R-Voit-01B

12/6/11

Revision

1

December 5, 2011

27 Orchard, Suite 200
Lake Forest, CA 92630
Phone: (949) 716-9990 Fax: (949) 716-9997
www.national-eng.com

TABLE B - COLA Chapter 91 & 96 CT or T2 PAIRED CONNECTION ASD CAPACITIES [1, 2, 3, 4, 5, 6, 7, 8]
DF-L No. 2 Grade typ., No. 1 @ 5x5 & larger

CT Model [2] 2 req'd	A36 Anchor Rod Diam, 2 req'd (1/8" increments) [4]	A307 Bolts Quantity & Diameter (in)	b min. width of attached member (depth) req'd (in)	CT Paired Connection ASD Design Capacities (pounds)								
				min. t (in), length of bolt in wood members each side of CT (thickness)							Δ_0 @ max. strength capacity [7]	Δ_{ASD} @ max. allow. capacity [7]
				1.5	2.5	3	3.5	5.125	5.5	7.25/7.50		
CT or T2-43	4	(4) 3/8	3.5	5,010	6,260 [6]	6,260 [6]	6,260 [6]	6,260 [6]	6,260 [6]	6,260 [6]	0.169	0.120
CT or T2-24	4	(2) 1/2		3,360	5,600	6,235	6,235	6,235	6,235	6,235	0.229	0.164
CT or T2-44	5	(4) 1/2		6,637	11,116	11,606 [6]	11,606 [6]	11,606 [6]	11,606 [6]	11,606 [6]	0.194	0.139
CT or T2-64	6	(6) 1/2		[7,138]	[11,897]	[14,276]	15,577 [6]	15,577 [6]	15,577 [6]	15,577 [6]	0.173	0.124
			5.5	9,679	15,577 [6]	15,577 [6]	15,577 [6]	15,577 [6]	15,577 [6]	15,577 [6]		
CT or T2-84	7	(8) 1/2	3.5	[7,138]	[11,897]	[14,276]	[16,656]	17,358 [6]	17,358 [6]	17,358 [6]	0.153	0.110
			5.5	[10,662]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]		
			7.25/7.5	12,377	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]		
CT or T2-46	8	(4) 3/4	5.5	9,749	10,315 [6]	10,315 [6]	10,315 [6]	10,315 [6]	10,315 [6]	10,315 [6]	0.133	0.095
CT or T2-48	9	(4) 1	5.5	[9,345]	[15,576]	[18,691]	[21,806]	[30,020]	30,249 [6]	30,249 [6]	0.142	0.101
			7.25/7.5	[12,029]	[20,048]	[24,057]	[28,067]	30,249 [6]	30,249 [6]	30,249 [6]		
			9.25/9.5	12,591	21,513	25,939	30,249 [6]	30,249 [6]	30,249 [6]	30,249 [6]		
CT or T2-68	11	(6) 1	5.5	[9,345]	[15,576]	[18,691]	[21,806]	[30,020]	30,474 [6]	30,474 [6]	0.126	0.090
			7.25/7.5	[12,029]	[20,048]	[24,057]	[28,067]	30,474 [6]	30,474 [6]	30,474 [6]		
			9.25/9.5	[14,590]	[24,317]	[29,180]	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]		
			11.25/11.5	[16,504]	[27,506]	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]		
			13.25/13.5	18,622	29,652	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]		

For SI: 1 inch (in) = 25.4 mm, 1 pound = 4.45 N.

Wood design capacities have been increased by a 1.60 load duration factor (C_D).

CT a-b-y

CT = paired continuity tie
a = number of bolts
b = diameter of bolts (in 1/8 inch increments)
y = diameter of All-thread/Anchor Rod specified by designer (in 1/8 inch increments)

Design capacity controlled by the net cross-section tension capacity of the wood member at bolts are shown by [##]

The capacity of the concrete anchor must be equal to or greater than the design capacity of the connector being specified.

The minimum end distance, from the end of the wood member to the centerline of the first CT bolt, is seven (7) CT bolt diameters. End distance may be increased with no decrease in design capacities.

Values are controlled by device capacity @ 1/8" deflection, as tested in a steel jig, divided by 5

Deflections at loads less than maximum P_D or P_{ASD} may be determined by multiplying by the ratio of the lesser load to the maximum load. Strength loads are the P_{ASD} shown times1.4. Tabulated displacement consists of deformation and rotation of the hold-down (tie-down), and fastener slip of (bolt rotation) used to attach the hold-down (tie-down) to the wood member. Shrinkage of supporting wood members and anchor bolt/rod elongation shall be the responsibility of the Engineer of Record.

The user should note that hold-downs used in series shall account for the cumulative deformation of all hold-downs (tie-downs) within said series.

The assembly must have an allowable strength equal to or greater than the required strength of the assembly under the action of the ASD load combinations referenced in the applicable code.

New		Old		
Wall tie T2-24-4	6235#	5071# T2-24-6		OK
Cont tie T2-44-5	11,606	10365 T2-44-6		OK

Epoxy Anchorage Design

In accordance with Section 1908.1.9 of the 2010 CBC, the epoxy anchorage to the wall need only be designed for the applied design force without consideration of the usual requirement for either a ductile (steel) failure or an Omega overstrength factor. Therefore, the Seismic loads switch for seismic design categories C, D, E & F can be turned off (set to "no") on the Hilti Profis design. Seismic loads (cat. C, D, E, or F): no

1908.1.9 ACI 318, Section D.3.3. Modify ACI 318, Sections D.3.3.4 and D.3.3.5 to read as follows:

D.3.3.4 – Anchors shall be designed to be governed by the steel strength of a ductile steel element as determined in accordance with D.5.1 and D.6.1, unless either D.3.3.5 or D.3.3.6 is satisfied.

Exceptions:

1. *Anchors in concrete designed to support nonstructural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section D.3.3.4.*

2. *Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 need not satisfy Section D.3.3.4.*

www.hilti.us

PROFIS Anchor 2.2.3

Company:	National Engineering & Consulting	Page:	1
Specifier:	NAL	Project:	5.5" Thck cnc 2-.5-in r
Address:		Sub-Project I Pos. No.:	
Phone I Fax:	- I -	Date:	12/5/2011
E-Mail:			

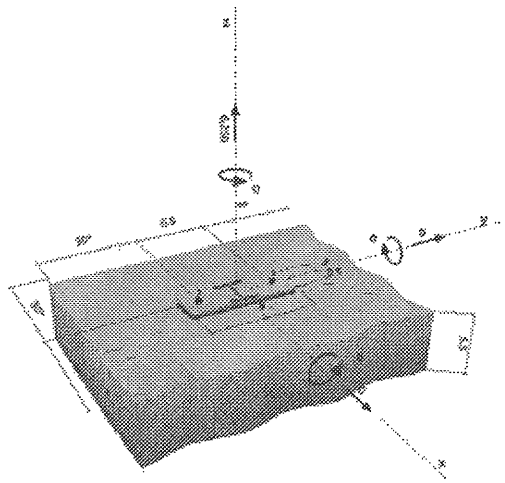
Specifier's comments:

3.75" embed required > OK
4" embed used

Input data

Anchor type and diameter:	HIT-RE 500-SD + HAS, 1/2
Effective embedment depth:	h_{nom} = 3.750 in. (h_{nom} = - in.)
Material:	ASTM F 568M Class 5.8
Evaluation Service Report::	ESR 2322
Issued I Valid:	4/1/2010 I -
Proof:	design method ACI 318 / AC308
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate:	l_x x l_y x t = 3.000 x 9.000 x 0.500 in. (Recommended plate thickness: not calculated)
Profile	S shape (AISC); (L x W x T x FT) = 3.000 in. x 2.330 in. x 0.170 in. x 0.260 in.
Base material:	cracked concrete , 2500, f_c' = 2500 psi; h = 5.500 in., Temp. short/long: 70/70°F
Installation:	hammer drilled hole, installation condition: dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F):	no

Geometry [in.] & Loading [lb, in.-lb]



Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization [%]	
Loading	Proof	Load	Capacity	β_N/β_V	Status
Tension	Concrete Breakout Strength	6250	6330	99 / -	OK
Shear	-	-	-	-	-

demand per L-3
3091 #
OK

Warnings

Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

NATIONAL
ENGINEERING & CONSULTING, INC.

Plan Check #1

Structural Calculations

Roof Seismic Strengthening - Partial
Concrete Tilt-up Building
1831 Ritchey Street (Bldg B)
Santa Ana, CA

R-Voit-01B

12/6/11

Revision
1

December 5, 2011

27 Orchard, Suite 200
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TABLE B - COLA Chapter 91 & 96 CT or T2 PAIRED CONNECTION ASD CAPACITIES [1, 2, 3, 4, 5, 6, 7, 8]
DF-L No. 2 Grade typ., No. 1 @ 5x5 & larger

CT Model [2] 2 rqd	ASD Anchor Rod Diam, 2 rqd (1/8" increments) [4]	A307 Bolts Quantity & Diameter (in)	b min. width of attached member (depth) rqd (in)	CT Paired Connection ASD Design Capacities (pounds)								
				min. t (in), length of bolt in wood members each side of CT (thickness)							Δ_5 @ max. strength capacity [7]	Δ_{ASD} @ max. allow. capacity [7]
				1.5	2.5	3	3.5	5.125	5.5	7.25/7.50		
CT or T2-43	4	(4) 3/8	3.5	5,010	6,260 [6]	6,260 [6]	6,260 [6]	6,260 [6]	6,260 [6]	6,260 [6]	0.169	0.120
CT or T2-24	4	(2) 1/2		3,360	5,600	6,235	6,235	6,235	6,235	6,235	0.229	0.164
CT or T2-44	5	(4) 1/2		6,637	11,116	11,606 [6]	11,606 [6]	11,606 [6]	11,606 [6]	11,606 [6]	0.194	0.139
CT or T2-64	6	(6) 1/2		[7,138]	[11,897]	[14,276]	15,577 [6]	15,577 [6]	15,577 [6]	15,577 [6]	0.173	0.124
			5.5	9,679	15,577 [6]	15,577 [6]	15,577 [6]	15,577 [6]	15,577 [6]	15,577 [6]		
CT or T2-84	7	(8) 1/2	3.5	[7,138]	[11,897]	[14,276]	[16,656]	17,358 [6]	17,358 [6]	17,358 [6]	0.153	0.110
			5.5	[10,662]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]		
			7.25/7.5	12,377	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]	17,358 [6]		
CT or T2-46	8	(4) 3/4	5.5	9,749	16,315 [6]	16,315 [6]	16,315 [6]	16,315 [6]	16,315 [6]	16,315 [6]	0.133	0.095
CT or T2-48	9	(4) 1	5.5	[9,345]	[15,576]	[18,691]	[21,806]	[30,020]	30,249 [6]	30,249 [6]	0.142	0.101
			7.25/7.5	[12,029]	[20,048]	[24,057]	[28,067]	30,249 [6]	30,249 [6]	30,249 [6]		
			9.25/9.5	12,581	21,513	25,939	30,249 [6]	30,249 [6]	30,249 [6]	30,249 [6]		
CT or T2-68	11	(6) 1	5.5	[9,345]	[15,576]	[18,691]	[21,806]	[30,020]	30,474 [6]	30,474 [6]	0.126	0.090
			7.25/7.5	[12,029]	[20,048]	[24,057]	[28,067]	30,474 [6]	30,474 [6]	30,474 [6]		
			9.25/9.5	[14,590]	[24,317]	[29,180]	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]		
			11.25/11.5	[16,504]	[27,506]	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]		
			13.25/13.5	16,622	29,652	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]	30,474 [6]		

For SI: 1 inch (in) = 25.4 mm, 1 pound = 4.45 N

Wood design capacities have been increased by a 1.60 load duration factor (C_D).

CT xb-y

CT = paired continuity tie
a = number of bolts
b = diameter of bolts (in 1/8 inch increments)
y = diameter of All-thread/Anchor Rod specified by designer (in 1/8 inch increments)

Design capacity controlled by the net cross-section tension capacity of the wood member at bolts are shown by [##]

The capacity of the concrete anchor must be equal to or greater than the design capacity of the connector being specified.

The minimum end distance, from the end of the wood member to the centerline of the first CT bolt, is seven (7) CT bolt diameters. End distance may be increased with no decrease in design capacities.

Values are controlled by device capacity @ 1/8" deflection, as tested in a steel jig, divided by 5

Deflections at loads less than maximum P_5 or P_{ASD} may be determined by multiplying by the ratio of the lesser load to the maximum load. Strength loads are the P_{ASD} shown times1.4. Tabulated displacement consists of deformation and rotation of the hold-down (tie-down), and fastener slip of (bolt rotation) used to attach the hold-down (tie-down) to the wood member. Shrinkage of supporting wood members and anchor bolt/rod elongation shall be the responsibility of the Engineer of Record.

The user should note that hold-downs used in series shall account for the cumulative deformation of all hold-downs (tie-downs) within said series.

The assembly must have an allowable strength equal to or greater than the required strength of the assembly under the action of the ASD load combinations referenced in the applicable code.

New		Old		
Wall anchor T2-24-4	6235#	5071# T2-24-6		ok
Cont tie T2-44-5	11,606	10365 T2-44-6		ok

Epoxy Anchorage Design

In accordance with Section 1908.1.9 of the 2010 CBC, the epoxy anchorage to the wall need only be designed for the applied design force without consideration of the usual requirement for either a ductile (steel) failure or an Omega overstrength factor. Therefore, the Seismic loads switch for seismic design categories C, D, E & F can be turned off (set to "no") on the Hilti Profis design. Seismic loads (cat. C, D, E, or F): no

1908.1.9 ACI 318, Section D.3.3. Modify ACI 318, Sections D.3.3.4 and D.3.3.5 to read as follows:

D.3.3.4 – Anchors shall be designed to be governed by the steel strength of a ductile steel element as determined in accordance with D.5.1 and D.6.1, unless either D.3.3.5 or D.3.3.6 is satisfied.

Exceptions:

1. *Anchors in concrete designed to support nonstructural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section D.3.3.4.*

2. *Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 need not satisfy Section D.3.3.4.*

www.hilti.us

PROFIS Anchor 2.2.3

Company:	National Engineering & Consulting	Page:	1
Specifier:	NAL	Project:	5.5" Thck cnc 2-.5-in r
Address:		Sub-Project I Pos. No.:	
Phone I Fax:	- I -	Date:	12/5/2011
E-Mail:			

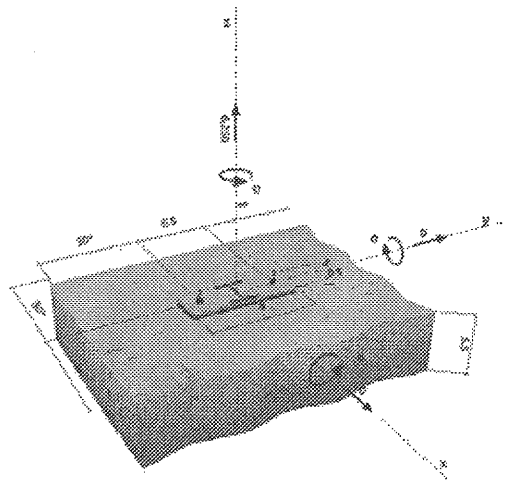
Specifier's comments:

Input data

3.75" embed required
4" embed used > OK

Anchor type and diameter:	HIT-RE 500-SD + HAS, 1/2
Effective embedment depth:	h_{nom} = 3.750 in. (h_{nom} = - in.)
Material:	ASTM F 568M Class 5.8
Evaluation Service Report:	ESR 2322
Issued I Valid:	4/1/2010 I -
Proof:	design method ACI 318 / AC308
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate:	l_x x l_y x t = 3.000 x 9.000 x 0.500 in. (Recommended plate thickness: not calculated)
Profile	S shape (AISC); (L x W x T x FT) = 3.000 in. x 2.330 in. x 0.170 in. x 0.260 in.
Base material:	cracked concrete , 2500, f'_c = 2500 psi; h = 5.500 in., Temp. short/long: 70/70°F
Installation:	hammer drilled hole, installation condition: dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F):	no

Geometry [in.] & Loading [lb, in.-lb]



Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization [%]	
Loading	Proof	Load	Capacity	β_N/β_V	Status
Tension	Concrete Breakout Strength	6250	6330	99 / -	OK
Shear	-	-	-	-	-

demand per L-3
3091 # OK

Warnings

Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

VOLUNTARY SEISMIC STRENGTHENING

AN INDUSTRIAL BLDG. RETROFIT

1831 S. RITCHEY ST. BLDG. B

SANTA ANA CA. 92705-5138

PROJECT TEAM:

OWNER:

OWNER: ROB SOCCI
ADDRESS: 3500 W. ORANGEWOOD AVE.
CITY, STATE ZIP: ORANGE, CA 92868
PHONE: (714) 935-2314

APPLICANT:

NAME: NATIONAL ENGINEERING & CONSULTING, INC.
ADDRESS: 27 ORCHARD
CITY, STATE ZIP: LAKE FOREST, CA 92630-8304
PHONE: (949) 766-9990 X. 510
FAX: (949) 716-9997
CONTACT: MIKE O'BRIEN
E-MAIL: mike.obrien@nationaleng.com

STRUCTURAL ENGINEER:

NAME: NATIONAL ENGINEERING & CONSULTING, INC.
ADDRESS: 27 ORCHARD
CITY, STATE ZIP: LAKE FOREST, CA 92630-8304
PHONE: (949) 766-9990 X. 570
FAX: (949) 716-9997
CONTACT: MIKE O'BRIEN
E-MAIL: mike.obrien@nationaleng.com

ARCHITECT:

NAME: NATIONAL ENGINEERING & CONSULTING, INC.
ADDRESS: 27 ORCHARD
CITY, STATE ZIP: LAKE FOREST, CA 92630-8304
PHONE: (949) 766-9990 X. 510
FAX: (949) 716-9997
CONTACT: MICHAEL SANTILLAN
E-MAIL: michael.santillan@nationaleng.com

PROJECT DESCRIPTION:

THE BUILDING CONSISTS OF A CONCRETE TILT-UP BUILDING WITH A PANELIZED WOOD ROOF DIAPHRAGM. THE PROJECT CONSISTS OF A VOLUNTARY PARTIAL SEISMIC REHABILITATION OF AN EXISTING INDUSTRIAL BUILDING. THE SCOPE OF THE PROJECT IS LIMITED TO WALL ANCHORAGE AND CONTINUITY TIES.

THE PARTIAL SEISMIC REHABILITATION IS BEING PERFORMED ON A VOLUNTARY BASIS DUE TO OWNER'S REQUEST. THERE IS CURRENTLY NO MANDATE FOR SEISMIC STRENGTHENING FROM THE CITY OF SANTA ANA FOR THIS PROPERTY. THE DESIGN OF THE REHABILITATION IS BASED ON THE REQUIREMENTS OF INTERNATIONAL EXISTING BUILDING CODE CHAPTER A2.

ALSO, WORK INCLUDES MINOR ADA UPGRADES:

1. RE-STRIPE (E) HC PARKING SPACES TO MEET CURRENT CODE STANDARDS.
2. REMOVE (E) LAVATORY CABINET AT (2) RESTROOMS. INSTALL (N) ACCESSIBLE SINK.
3. REPLACE (2) DOORKNOBS W/ (N) 'LEVER-TYPE' HARDWARE.

CODE COMPLIANCE:

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

1. 2010 CALIFORNIA ADMINISTRATIVE CODE.
2. 2010 CALIFORNIA BUILDING CODE (CBC).
3. 2010 CALIFORNIA ELECTRICAL CODE (CEC).
4. 2010 CALIFORNIA ENERGY CODE.
5. 2010 CALIFORNIA MECHANICAL CODE (CMC).
6. 2010 CALIFORNIA PLUMBING CODE (CPC).
7. ANSI/TIA-222-G LIFE SAFETY CODE NFPA-101
8. LOCAL BUILDING CODE
9. CITY/COUNTY ORDINANCES

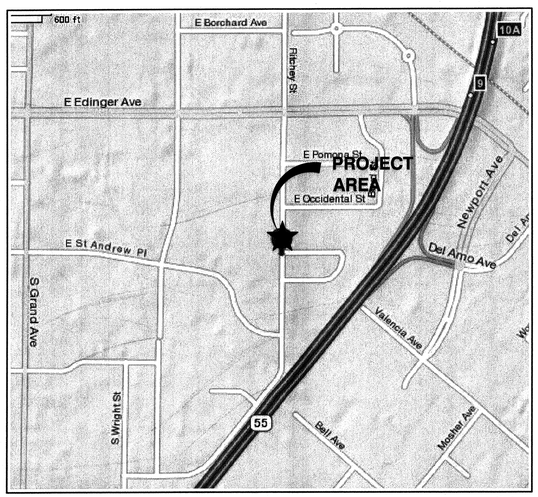
PROJECT INFORMATION:

PROPERTY INFORMATION:

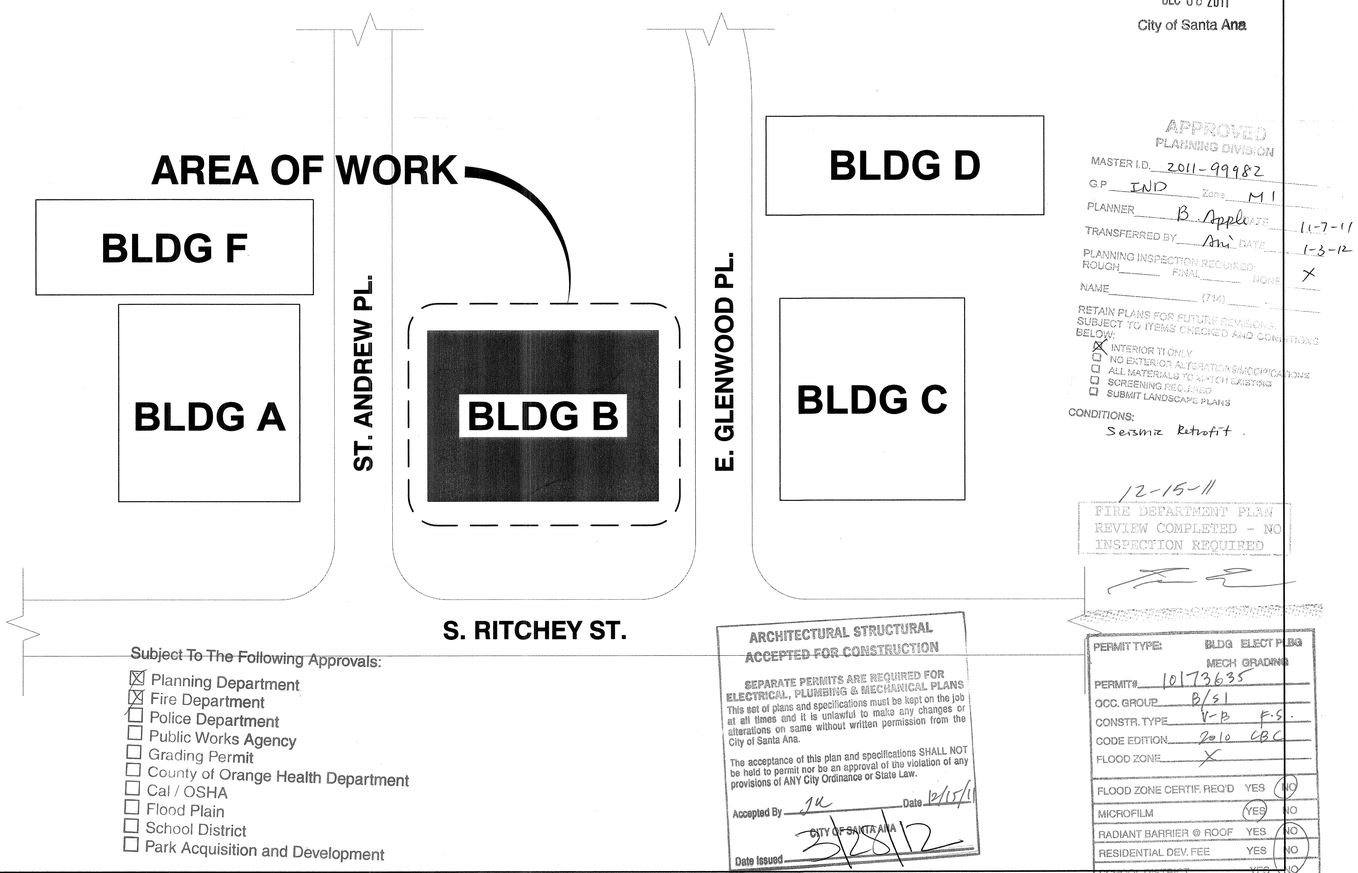
JURISDICTION:	CITY OF SANTA ANA
BUILDING AREA:	24,082 FT.
LOT AREA:	50,137.56 FT.
CURRENT ZONING:	(UNCHANGED)
CONSTRUCTION TYPE:	V-B (UNCHANGED)
OCCUPANCY GROUP:	B, S-1 (UNCHANGED)
SPRINKLERS:	YES
NO. OF STORIES:	1 (UNCHANGED)
HEIGHT:	19'± (UNCHANGED)
APN:	403-042-02

SHEET INDEX:

	DESCRIPTION:
T-1	TITLE SHEET
T-2	ALTA SURVEY (FOR REFERENCE ONLY)
A-1	ADA UPGRADES
SN-1	GENERAL NOTES & SPECIFICATIONS
S-1	ROOF FRAMING PLAN
SD-1	DETAILS



VICINITY MAP
NTS



SITE PLAN (FOR REFERENCE ONLY)
NTS

Subject To The Following Approvals:

- [X] Planning Department
- [X] Fire Department
- [ ] Police Department
- [ ] Public Works Agency
- [ ] Grading Permit
- [ ] County of Orange Health Department
- [ ] Cal / OSHA
- [ ] Flood Plain
- [ ] School District
- [ ] Park Acquisition and Development

RECEIVED
DEC 06 2011
City of Santa Ana

APPROVED
PLANNING DIVISION
MASTER I.D. 2011-99982
G.P. IND Zone M1
PLANNER B Applegate DATE 11-7-11
TRANSFERRED BY Ana DATE 1-3-12
PLANNING INSPECTION REQUIRED:
ROUGH ____ FINAL ____ NONE X
NAME ____ (714) ____
RETAIN PLANS FOR FUTURE REVISIONS.
SUBJECT TO ITEMS CHECKED AND CONDITIONS BELOW:
- [X] INTERIOR TI ONLY
- [ ] NO EXTERIOR ALTERATIONS/MODIFICATIONS
- [ ] ALL MATERIALS TO MATCH EXISTING
- [ ] SCREENING REQUIRED
- [ ] SUBMIT LANDSCAPE PLANS

CONDITIONS:
Seismic Retrofit.

12-15-11
FIRE DEPARTMENT PLAN REVIEW COMPLETED - NO INSPECTION REQUIRED

ARCHITECTURAL STRUCTURAL
ACCEPTED FOR CONSTRUCTION
SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING & MECHANICAL PLANS
This set of plans and specifications must be kept on the job at all times and it is unlawful to make any changes or alterations on same without written permission from the City of Santa Ana.
The acceptance of this plan and specifications SHALL NOT be held to permit nor be an approval of the violation of any provisions of ANY City Ordinance or State Law.
Accepted By ____ Date 12/15/11
CITY OF SANTA ANA
Date Issued 12/28/12

PERMIT TYPE: BLDG ELECT PLBG MECH GRADING
PERMIT# 10173635
OCC. GROUP B/S1
CONSTR. TYPE V-B F.S.
CODE EDITION 2010 CBC
FLOOD ZONE X
FLOOD ZONE CERTIF. REQ'D YES (NO)
MICROFILM (YES) NO
RADIANT BARRIER @ ROOF YES (NO)
RESIDENTIAL DEV. FEE YES (NO)
SCHOOL DISTRICT YES (NO)

NATIONAL ENGINEERING & CONSULTING, INC.
27 ORCHARD
LAKE FOREST, CA. 92630
PHONE: (949) 716-9990
FAX: (949) 716-9997

Voluntary Seismic Strengthening
AN INDUSTRIAL BLDG. RETROFIT
1831 S. RITCHEY ST. BLDG. B
SANTA ANA CA. 92705-5138

JOB NO. R-Voit-001-B

REVISION:		
	10/11/11	CITY SUBMITTAL
1	12/5/11	RE-SUBMITTAL

REGISTERED PROFESSIONAL ENGINEER MICHAEL F. O'BRIEN S 004468 EXP. 12-31-2012 STRUCTURAL STATE OF CALIFORNIA 12/8/11

SHEET TITLE:
TITLE PAGE

SHEET NUMBER:
T-1

SET 1
CITY COPY
10/7/12 Revised

BASIS OF BEARINGS:

THE BEARING NORTH 01° 20' 57" EAST BEING THE CENTERLINE OF RITCHEY STREET AS SHOWN ON PARCEL MAP NO. 796 RECORDED IN BOOK 52, PAGE 33 FILED IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY.

FLOOR SPACE RESTRICTIONS:

NONE

LEGEND:

N.	–	NORTH
S.	–	SOUTH
E.	–	EAST
W.	–	WEST
TYP.	–	TYPICAL
O.R.	–	OFFICIAL RECORDS
P.L.	–	PROPERTY LINE
CONC.	–	CONCRETE
C.L.	–	CENTER LINE
R.	–	RECORD
M.	–	MEASURED
FD.	–	FOUND
T.E.	–	TRASH ENCLOSURE
G.I.	–	GRATE INLET
TYP.	–	TYPICAL
SV	–	STEEL VAULT
W.M.	–	WATER METER
EPB	–	ELECTRICAL PULL BOX
M.H.	–	MANHOLE
MW	–	MONITORING WELL
L.S.	–	LIGHT STANDARD
S.L.	–	STREET LIGHT
F.H.	–	FIRE HYDRANT
PP	–	POWER POLE
P.A.	–	PLANTER AREA
T	–	TRANSFORMER
P.I.V.	–	POST INDICATOR VALVE
G.M.	–	GAS METER
F.D.C.	–	FIRE DEPARTMENT CONNECTION
W.I.F.	–	WROUGHT IRON FENCE
FSR	–	FIRE SPRINKLER RISER
SMH	–	SEWER MANHOLE
———	–	PROPERTY LINE
——	–	CENTERLINE
— —	–	PARKING STALL
----	–	EASEMENT LINE
⌐	–	BUILDING LINE

LAND AREA:

PARCEL 1 :		PARCEL 6 :	
51,575.04	SQUARE FEET	68,171.40	SQUARE FEET
1.184	ACRES NET	1.565	ACRES NET
PARCEL 2 :		PARCEL 8 :	
31,537.44	SQUARE FEET	51,052.32	SQUARE FEET
0.724	ACRES NET	1.172	ACRES NET
PARCEL 5 :		PARCEL 9 :	
50,137.56	SQUARE FEET	30,492.00	SQUARE FEET
1.151	ACRES NET	0.70	ACRES NET

TOTAL LAND AREA:

282,965.76 SQUARE FEET
6.496 ACRES NET

PARKING STALLS		
PARCEL NO.	REGULAR	HANDICAP
1	55	3
2	38	1
5	47	3
6	129	5
8	61	3
9	26	2
TOTAL	356	17
GRAND TOTAL = 373		

TOTAL PARKING REQUIRED = 204
TOTAL PARKING PROVIDED = 373

SITE RESTRICTIONS:

SETBACKS :

FRONT	–	10'
SIDE	–	N/A
REAR	–	N/A
ZONE	–	M-1 (LIGHT MANUFACTURING)
HEIGHT	–	35'

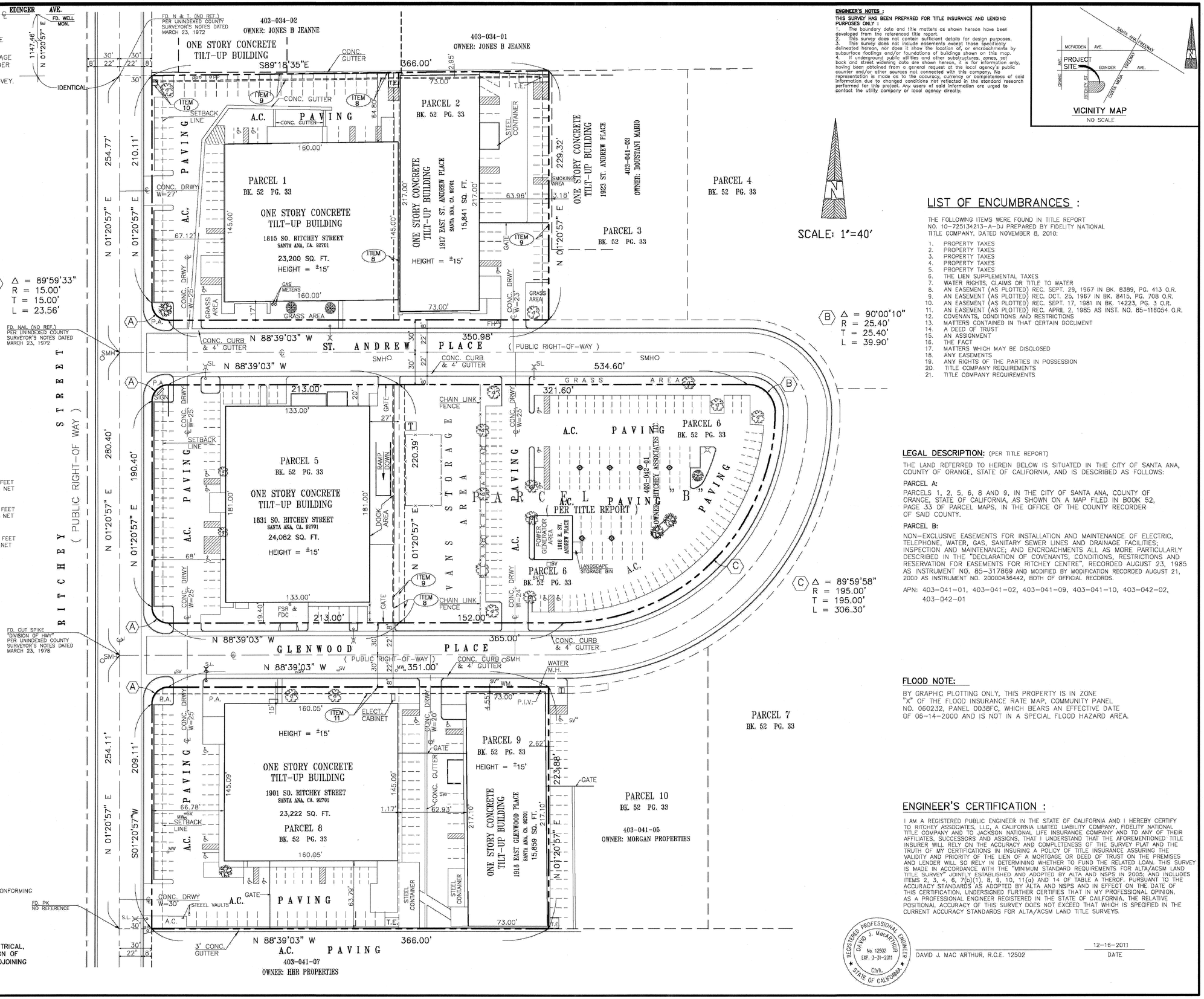
ALL SITE RESTRICTIONS WERE OBTAINED FROM THE CITY OF SANTA ANA (PLANNING DEPARTMENT)

NOTE:

THE LANDSCAPE BUFFER SETBACK IS LEGAL AND NON-CONFORMING

UTILITY NOTE :

ALL UTILITY SERVICES (SEWER, WATER, GAS, ELECTRICAL, TELEPHONE, CABLE) REQUIRED FOR THE OPERATION OF THE PREMISES ENTER THE PREMISES THROUGH ADJOINING PUBLIC STREETS AND DEDICATED EASEMENTS.



SCALE: 1"=40'

ENGINEER'S NOTES :

THIS SURVEY HAS BEEN PREPARED FOR TITLE INSURANCE AND LENDING PURPOSES ONLY :

1. The boundary data and title matters as shown hereon have been developed from the referenced title report.
2. This survey does not contain sufficient details for design purposes.
3. This survey does not include easements except those specifically delineated hereon, nor does it show the location of, or encroachments by subsurface footings and/or foundations of buildings shown on this map.
4. If underground public utilities and other substructures, zones, set back and street widening data are shown hereon, it is for information only, having been obtained from a general request at the local agency's public counter and/or other sources not connected with this company. No representation is made as to the accuracy, currency or completeness of said information due to changed conditions not reflected in the standard research performed for this project. Any users of said information are urged to contact the utility company or local agency directly.

VICINITY MAP
NO SCALE

LIST OF ENCUMBRANCES :

THE FOLLOWING ITEMS WERE FOUND IN TITLE REPORT NO. 10-725134213-A-DJ PREPARED BY FIDELITY NATIONAL TITLE COMPANY, DATED NOVEMBER 8, 2010:

1. PROPERTY TAXES
2. PROPERTY TAXES
3. PROPERTY TAXES
4. PROPERTY TAXES
5. PROPERTY TAXES
6. THE LIEN SUPPLEMENTAL TAXES
7. WATER RIGHTS, CLAIMS OR TITLE TO WATER
8. AN EASEMENT (AS PLOTTED) REC. SEPT. 29, 1967 IN BK. 8389, PG. 413 O.R.
9. AN EASEMENT (AS PLOTTED) REC. OCT. 25, 1967 IN BK. 8415, PG. 708 O.R.
10. AN EASEMENT (AS PLOTTED) REC. SEPT. 17, 1981 IN BK. 14223, PG. 3 O.R.
11. AN EASEMENT (AS PLOTTED) REC. APRIL 2, 1985 AS INST. NO. 85-116054 O.R.
12. COVENANTS, CONDITIONS AND RESTRICTIONS
13. MATTERS CONTAINED IN THAT CERTAIN DOCUMENT
14. A DEED OF TRUST
15. AN ASSIGNMENT
16. THE FACT
17. MATTERS WHICH MAY BE DISCLOSED
18. ANY EASEMENTS
19. ANY RIGHTS OF THE PARTIES IN POSSESSION
20. TITLE COMPANY REQUIREMENTS
21. TITLE COMPANY REQUIREMENTS

LEGAL DESCRIPTION: (PER TITLE REPORT)

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SANTA ANA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL A:

PARCELS 1, 2, 5, 6, 8 AND 9, IN THE CITY OF SANTA ANA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP FILED IN BOOK 52, PAGE 33 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL B:

NON-EXCLUSIVE EASEMENTS FOR INSTALLATION AND MAINTENANCE OF ELECTRIC, TELEPHONE, WATER, GAS, SANITARY SEWER LINES AND DRAINAGE FACILITIES; INSPECTION AND MAINTENANCE; AND ENCROACHMENTS ALL AS MORE PARTICULARLY DESCRIBED IN THE "DECLARATION OF COVENANTS, CONDITIONS, RESTRICTIONS AND RESERVATION FOR EASEMENTS FOR RITCHEY CENTRE", RECORDED AUGUST 23, 1985 AS INSTRUMENT NO. 85-317869 AND MODIFIED BY MODIFICATION RECORDED AUGUST 21, 2000 AS INSTRUMENT NO. 2000436442, BOTH OF OFFICIAL RECORDS.

APN: 403-041-01, 403-041-02, 403-041-09, 403-041-10, 403-042-02, 403-042-01

FLOOD NOTE:

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 060232, PANEL 0038FC, WHICH BEARS AN EFFECTIVE DATE OF 06-14-2000 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

ENGINEER'S CERTIFICATION :

I AM A REGISTERED PUBLIC ENGINEER IN THE STATE OF CALIFORNIA AND I HEREBY CERTIFY TO RITCHEY ASSOCIATES, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY, FIDELITY NATIONAL TITLE COMPANY AND TO JACKSON NATIONAL LIFE INSURANCE COMPANY AND TO ANY OF THEIR AFFILIATES, SUCCESSORS AND ASSIGNS, THAT I UNDERSTAND THAT THE AFOREMENTIONED TITLE INSURER WILL RELY ON THE ACCURACY AND COMPLETENESS OF THE SURVEY PLAT AND THE TRUTH OF MY CERTIFICATIONS IN INSURING A POLICY OF TITLE INSURANCE ASSURING THE VALIDITY AND PRIORITY OF THE LIEN OF A MORTGAGE OR DEED OF TRUST ON THE PREMISES AND LENDER WILL SO RELY IN DETERMINING WHETHER TO FUND THE RELATED LOAN. THIS SURVEY IS MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS" JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS IN 2005; AND INCLUDES ITEMS 2, 3, 4, 6, 7(b)(1), 8, 9, 10, 11(a) AND 14 OF TABLE A THEROF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED IN THE CURRENT ACCURACY STANDARDS FOR ALTA/ACSM LAND TITLE SURVEYS.

REGISTERED PROFESSIONAL ENGINEER
DAVID J. MacARTHUR
No. 12502
EXP. 3-31-2011
CIVIL
STATE OF CALIFORNIA

DAVID J. MAC ARTHUR, R.C.E. 12502 — 12-16-2011 DATE

NATIONAL
ENGINEERING & CONSULTING, INC.
27 CROSSKARD
LAKE FOREST, CA. 92630
PHONE: (949) 716-9990
FAX: (949) 716-9997

Voluntary Seismic Strengthening
AN INDUSTRIAL BLDG. RETROFIT
1831 S. RITCHEY ST. BLDG. B
SANTA ANA CA. 92705-5138

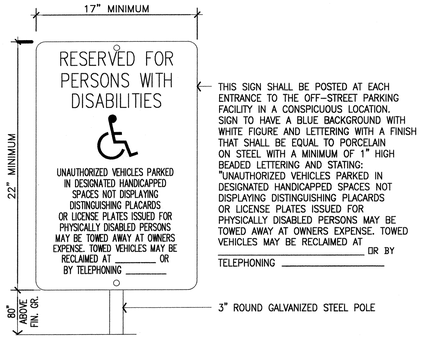
JOB NO. R-Voit-001-B

REVISION:		
	10/11/11	CITY SUBMITTAL
1	12/5/11	RE-SUBMITTAL

FOR REFERENCE ONLY

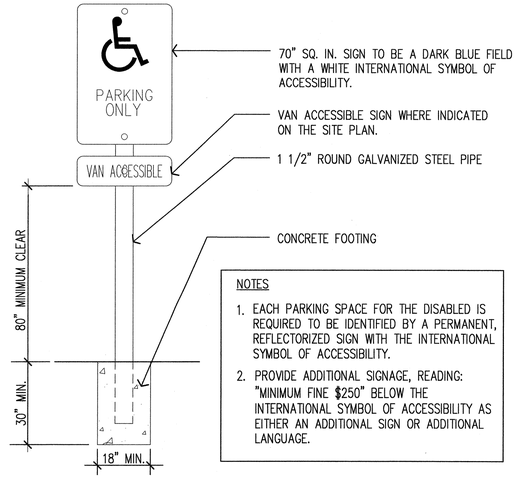
SHEET TITLE:
ALTA SURVEY

SHEET NUMBER:
T-2



PARKING ENTRANCE SIGN

SCALE: 8

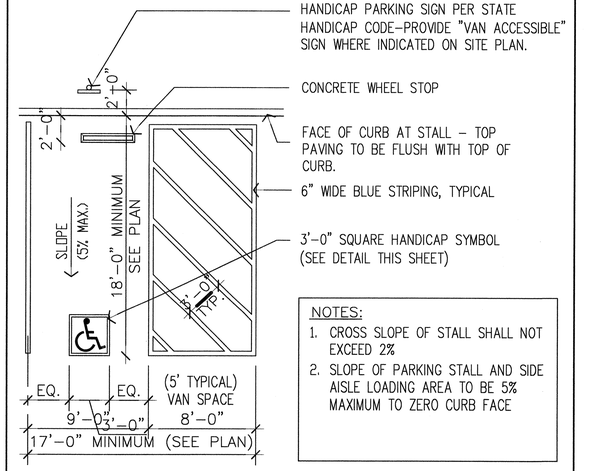


NOTES

1. EACH PARKING SPACE FOR THE DISABLED IS REQUIRED TO BE IDENTIFIED BY A PERMANENT, REFLECTORIZED SIGN WITH THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.
2. PROVIDE ADDITIONAL SIGNAGE, READING: "MINIMUM FINE $250" BELOW THE INTERNATIONAL SYMBOL OF ACCESSIBILITY AS EITHER AN ADDITIONAL SIGN OR ADDITIONAL LANGUAGE.

ACCESSIBLE SIGNAGE

SCALE: N.T.S. 7

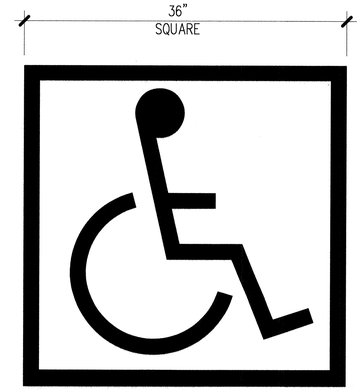


NOTES:

1. CROSS SLOPE OF STALL SHALL NOT EXCEED 2%
2. SLOPE OF PARKING STALL AND SIDE AISLE LOADING AREA TO BE 5% MAXIMUM TO ZERO CURB FACE

ACCESSIBLE PARKING (TYP.)

SCALE: N.T.S. 6



1 3/4" WIDE STRIPES – COLOR PER STATE HANDICAP ACCESSIBILITY STANDARDS

SYMBOL OF ACCESIBILITY

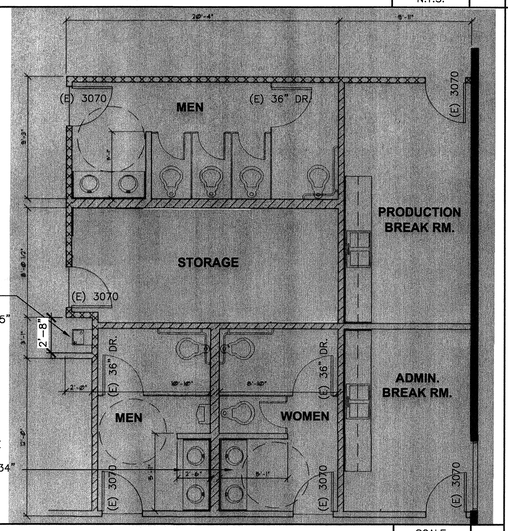
SCALE: N.T.S. 5

1. STRIPE (2) NEW H.C. SPACES W/ 8'–0" WIDE AISLE AND NEW STRIPING PATH ACROSS DRIVEWAY. (6/–)
2. PROVIDE (N) ADA SIGNAGE (7/–)
3. PROVIDE (N) ADA SIGNAGE AT MAIN PARKING ENTRANCE (8/–)
4. REMOVE (E) H.C. SPACE. RE–STRIPE FOR STANDARD PARKING SPACE TO DIMENSIONS SHOWN.
5. RE–STRIPE (E) H.C. SPACE PER DETAILS: (5/– , 6/–)
6. REPLACE (E) NON–COMPLIANT DOORKNOBS INDICATED ON PLAN WITH "LEVER–TYPE" HARDWARE TO MATCH BUILDING STANDARD.
7. (E) ACCESSIBLE DRINKING FOUNTAIN: REPAIR BROKEN HANDLE OR REPLACE ENTIRE UNIT AS NEEDED. NEW FOUNTAIN TO BE ACCESSIBLE.

NOTES:

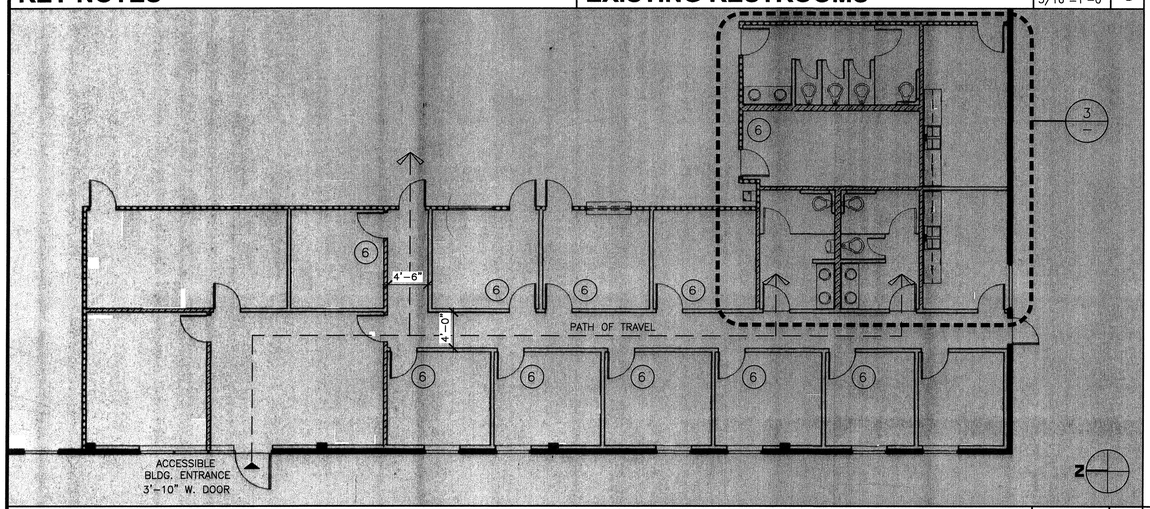
1. EXISTING PARKING SPACES: 52 SPACES TOTAL
   HC SPACES REQUIRED: 2 SPACES
   HC SPACES PROVIDED: 2 SPACES (INCLUDES 1 VAN ACCESSIBLE SPACE)

KEY NOTES



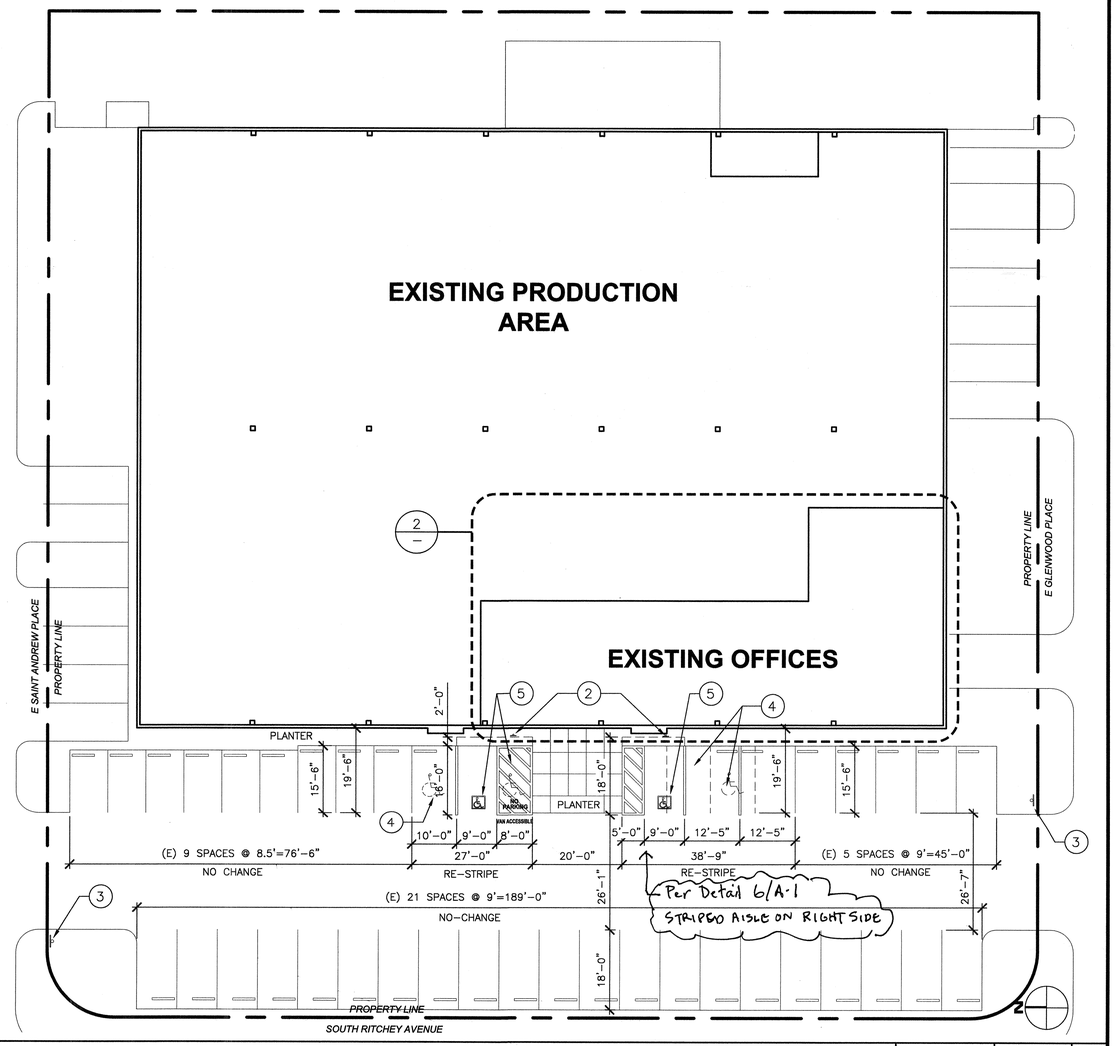
EXISTING RESTROOMS

SCALE: 3/16"=1'–0" 3



ENLARGED OFFICE AREA / FLOOR PLAN

SCALE: 1/8"=1'–0" 2



EXISTING SITE / PARKING PLAN

0 2' 4' 8'

SCALE: 1/16"=1'–0" 1

NATIONAL
ENGINEERING & CONSULTING, INC.
27 ORCHARD
LAKE FOREST, CA. 92630
PHONE: (949) 716-9990
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Voluntary Seismic Strengthening
AN INDUSTRIAL BLDG. RETROFIT
1831 S. RITCHEY ST. BLDG. B
SANTA ANA CA. 92705-5138

JOB NO. R–Voit–001–B

REVISION:		
	10/11/11	CITY SUBMITTAL
1	12/5/11	RE–SUBMITTAL
2	12/15/11	PLN CHK COMM

LICENSED ARCHITECT MICHAEL SANTILLAN NO. C–23337 EXP. 10/12 STATE OF CALIFORNIA

SHEET TITLE:

ADA UPGRADES PLAN

SHEET NUMBER:

A–1

STRUCTURAL STEEL

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 13TH EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION, WHICH INCLUDES THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, THE CODE OF STANDARD PRACTICE AND THE AWS STRUCTURAL WELDING CODE. IDENTIFY AND MARK STEEL PER CBC 2203.

2. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER/ ARCHITECT PRIOR TO FABRICATION.

3. GROUTING OF COLUMN BASE PLATES: BASE PLATES SHALL BE DRYPACKED OR GROUTED WITH NON-SHRINK, NON-FERROUS GROUT. MINIMUM COMPRESSIVE STRENGTH SHALL BE 4,000 PSI AT 28 DAYS. ALL SURFACES SHALL BE PROPERLY CLEANED OF FOREIGN MATERIAL PRIOR TO GROUTING.

4. ALL EXPOSED WELDS SHALL BE FILLED AND GROUND SMOOTH WHERE METAL COULD COME IN CONTACT WITH THE PUBLIC.

5. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THRU STRUCTURAL STEEL MEMBERS. BOLT HOLES SHALL CONFORM TO AISC SPECIFICATION, AND SHALL BE STANDARD HOLES UNLESS OTHERWISE NOTED. NO CUTTING OR BURNING OF STRUCTURAL STEEL WILL BE PERMITTED WITHOUT PRIOR CONSENT OF THIS ENGINEER. HOLES IN STEEL SHALL BE DRILLED OR PUNCHED. ALL SLOTTED HOLES SHALL BE PROVIDED WITH SMOOTH EDGES. BURNING OF HOLES AND TORCH CUTTING AT THE SITE IS NOT PERMITTED.

6. WELDING: CONFORM TO AWS D1.1. WELDERS SHALL BE CERTIFIED IN ACCORDANCE WITH WABO REQUIREMENTS.

7. BOLTING:
ASTM A307 BOLTS SHALL BE INSTALLED "SNUG TIGHT" PER AISC. SECTION RCSC 8(C) ASTM A325 BOLTS SHALL CONFORM TO THE RCSC SPECIFICATION SECTION 8 (D).

8. FABRICATION: CONFORM TO AISC SPECIFICATION SEC M2 "FABRICATION" AND AISC CODE SEC 6 "FABRICATION AND DELIVERY" PERFORM WORK ON PREMISES OF A FABRICATOR APPROVED BY THE BUILDING OFFICIAL.

9. GALVANIZING: ALL EXPOSED STEEL OUTSIDE THE BUILDING ENVELOPE SHALL BE HOT-DIPPED GALVANIZED. APPLY FIELD TOUCH-UPS PER SPECIFICATIONS. PER ASTM A153.

10. ALL FRAMING CONNECTORS SUCH AS CONCRETE ANCHORS, HOLD-DOWNS, POST BASES, FRAMING CAPS, HANGER AND OTHER MISCELLANEOUS STRUCTURAL METALS SHALL BE AS MANUFACTURED BY SIMPSON STRONG TIE CO. OR APPROVED EQUAL.

11. ALL STRUCTURAL STEEL EXPOSED TO EARTH SHALL HAVE 3" CONCRETE COVER.

12. ALL EXTERIOR STEEL SHALL BE HOT-DIPPED GALVANIZED.

13. MATERIALS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

ANCHOR BOLTS/ RODS:	ASTM F1554, GRADE 36
BARS & PLATES:	ASTM A36
BOLTS IN WOOD:	ASTM A307
C-, M-, AND ANGLE SHAPES:	ASTM A36
GROUT:	EMBECO OR EQUIVALENT
OTHER STRUCTURAL SHAPES:	ASTM A36
WELDING ELECTRODES:	E70XX FOR STRUCTURAL STEEL E80XX FOR REINFORCING BARS E60XX FOR LIGHT GAUGE AND METAL DECK

14. ALL STEEL SHALL BE GALVANIZED AND ALL HARDWARE SHALL HAVE THE ZMAX FINISH FROM SIMPSON

FRAMING

1. ALL LUMBER SHALL BE GRADE MARKED DOUGLAS FIR-LARCH AND SHALL HAVE THE FOLLOWING MINIMUM GRADES:

JOISTS AND RAFTERS	#1
BEAMS AND STRINGERS	#1
PLATES	#2
STUDS (2X4, 3X4, 2X6)	#1
POSTS, COLUMNS AND TIMBER	#1

2. ALL FRAMING EXPOSED TO THE WEATHER OR IN CONTACT WITH MASONRY OR CONCRETE SHALL BE PRESSURE-TREATED IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS ASSOCIATION SPECIFICATIONS. WHERE POSSIBLE, ALL CUTS AND HOLES SHOULD BE COMPLETED BEFORE TREATMENT. CUTS AND HOLES DUE TO ON-SITE FABRICATION SHALL BE BRUSHED WITH 2 COATS OF COPPER NAPHTHENATE SOLUTION CONTAINING A MINIMUM OF 2% METALLIC COPPER IN SOLUTION (PER AWPA STD. M4).

3. CUTTING OR NOTCHING OF WOOD STUDS OR PLATES SHALL NOT EXCEED 25% OF THE STUD/PLATE WIDTH AT EXTERIOR OR BEARING WALLS AND SHALL NOT EXCEED 40% OF THE STUD/PLATE WIDTH IN NONBEARING PARTITIONS. BORED HOLE DIAMETERS ARE LIMITED TO 40% OF THE STUD WIDTH IN ANY STUD AND MAY BE 60% IN NONBEARING PARTITIONS OR WHEN THE BORED STUD IS DOUBLED.

4. DO NOT NOTCH JOISTS, RAFTERS, OR BEAMS EXCEPT WHERE SHOWN ON THE DETAILS. BORED HOLES THROUGH JOISTS SHALL NOT EXCEED 1/3 OF MEMBER DEPTH AND BE LOCATED AT LEAST 2" FROM THE TOP AND BOTTOM OF THE MEMBER.

5. ALL BLOCKING AND BRIDGING SHALL BE PROVIDED AS REQUIRED PER GOVERNING CODE OR STANDARD OF PRACTICE.

6. ALL JOIST, RAFTER & MISC. FRAMING SHALL HAVE FULL-DEPTH (OR METAL) BRIDGING AT ALL SUPPORTS, MIDSPAN AND AT A MAXIMUM SPACING OF 8'-0" O/C IN BETWEEN UNLESS NOTED OTHERWISE.

7. THE CONTRACTOR SHALL CAREFULLY SELECT LUMBER TO BE USED IN LOADBEARING APPLICATIONS. THE LENGTH OF SPLIT ON THE WIDE FACE OF 2" NOMINAL LOADBEARING FRAMING SHALL BE LIMITED TO LESS THAN 1/2 OF THE WIDE FACE DIMENSION. THE LENGTH OF SPLIT ON THE WIDE FACE OF 3" (NOMINAL) AND THICKER LUMBER SHALL BE LIMITED TO 1/2 OF THE NARROW FACE DIMENSION.

8. BOLT HOLES SHALL BE CAREFULLY CENTERED AND DRILLED NOT MORE THAN 1/16" LARGER THAN THE BOLT DIAMETER. (INSPECTOR TO VERIFY). PROVIDE WASHERS BETWEEN BOLT HEADS OR NUTS AND WOOD. BOLTED CONNECTIONS SHALL BE SNUGGED TIGHT BUT NOT TO THE EXTENT OF CRUSHING WOOD UNDER WASHERS.

9. ALL BOLTS SHALL BE RE-TIGHTENED PRIOR TO APPLICATION OF PLASTER, PLYWOOD, ETC. AND BEFORE CLOSING IN COMPLETION OF THE JOB.

10. PREFABRICATED METAL JOIST HANGERS, HURRICANE CLIPS, HOLD-DOWN ANCHORS AND OTHER ACCESSORIES SHALL BE AS MANUFACTURED BY "SIMPSON STRONG-TIE COMPANY" OR APPROVED EQUAL. INSTALL ALL ACCESSORIES PER THE MANUFACTURER'S REQUIREMENTS. ALL STEEL SHALL HAVE A MINIMUM THICKNESS OF 0.04 INCHES (PER ASTM A446, GRADE A) AND BE GALVANIZED (COATING G60).

11. STRUCTURAL STEEL PLATE CONNECTORS SHALL CONFORM TO ASTM A-36 SPECIFICATIONS AND BE 1/4" THICK UNLESS OTHERWISE INDICATED.

12. ALL PLATES, ANCHORS, NAILS, BOLTS, NUTS, WASHERS, AND OTHER MISCELLANEOUS HARDWARE THAT ARE EXPOSED OR IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT DIP GALVANIZED.

13. BOLTS IN WOOD SHALL BE A MINIMUM OF 7 BOLT DIAMETERS FROM THE ENDS AND 4 BOLT DIAMETERS FROM THE EDGES.

14. ALL SILL BOLTS SHALL BE PLACED STARTING 9" FROM THE ENDS OF A BOARD OR FROM A NOTCH AND SPACED AT INTERVALS AS NOTED ON THE PLANS.

15. ALL SILL PLATE ANCHOR BOLTS AND HOLD-DOWN CONNECTOR BOLTS AT ALL ALL PLYWOOD SHEAR PANELS SHALL HAVE THE FOLLOWING PLATE WASHERS.

BOLT SIZE	PLATE WASHER SIZE (ASTM A-36)
5/8"	1/4" X 2-1/2" X 2-1/2"
3/4"	5/16" X 2-3/4" X 2-3/4"
7/8"	5/16" X 3" X 3"
1"	3/8" X 3-1/2" X 3-1/2"

16. ALL NAILS SHALL BE COMMON WIRE NAILS U.N.O. SEE FRAMING PLANS OR DETAILS FOR NAIL SIZES AND SPACING. NAILS THAT ARE NOT DETAILED OR NOTED SHALL BE IN ACCORDANCE WITH IBC TABLE 2304.9.1. FASTENING SCHEDULE. HOLES FOR NAILS SHALL BE PREDRILLED AT A SMALLER DIAMETER THAN THE NAIL WHERE NECESSARY TO PREVENT SPLITTING.

FRAMING CONTINUED......

17. LAG BOLTS SHALL HAVE LEAD HOLES BORED AS FOLLOWS:

SHANK PORTION	SAME DIAMETER AND LENGTH AS SHANK
THREADED PORTION	0.6-0.75 OF DIAMETER OF THREAD

18. ALL EXISTING WOOD MATERIALS WHICH WILL BE A PART OF THE STRENGTHENING WORK SHALL BE IN GOOD CONDITION AND FREE FROM DEFECTS WHICH SUBSTANTIALLY REDUCE THE CAPACITY OF THE MEMBER. ANY WOOD MATERIAL FOUND TO CONTAIN FUNGUS INFECTION SHALL BE REMOVED AND REPLACED WITH NEW MATERIAL. ANY WOOD MATERIAL FOUND TO BE INFESTED WITH INSECTS OF TO HAVE BEEN INFESTED SHALL BE STRENGTHENED OR REPLACED WITH NEW MATERIALS TO PROVIDE A NET DIMENSION OF SOUND WOOD AT LEAST EQUAL TO ITS UNDAMAGED ORIGINAL DIMENSION.

EPOXY AND EXPANSION ANCHORS

1. EPOXY OR EXPANSION ANCHORS SHALL NOT BE USED EXCEPT WHERE SPECIFICALLY SHOWN ON THE PLANS OR WHEN APPROVED IN ADVANCE BY THE STRUCTURAL ENGINEER.

2. DRILLED HOLES SHALL BE PREPARED AND ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE CURRENT ICC REPORT.

3. SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH BUILDING CODE AND IN THE SPECIFIC SPECIAL INSPECTION REQUIREMENTS SET FORTH IN THE CURRENT ICC REPORT.

4. ANCHOR RODS USED FOR EPOXY ANCHORS SHALL BE THE TYPE SPECIFIED IN THE REFERENCED ICC REPORT.

5. THE ANCHOR SIZE AND EMBEDMENT SHALL BE AS INDICATED ON THE PLANS.

6. WHERE PERMITTED, EPOXY ANCHORING SHALL BE COMPLETED WITH THE FOLLOWING ALLOWED PRODUCT(S):
HILTI RE-500 SD (ICC # ESR-2322, LARR 25700) – CONCRETE ONLY
SIMPSON SET-XP (ICC # ESR-2508, LARR 25744)

7. WHERE PERMITTED, THE FOLLOWING EXPANSION ANCHORS MAY BE USED:
HILTI KWIK BOLT TZ (ICC# ESR-1917, LARR 25701) – CONCRETE ONLY
HILTI KWIK BOLT 3 (ICC# ESR-1385, LARR 25577) – GROUT FILLED MASONRY ONLY

8. ANCHORS SHALL BE INSTALLED WITH THE PLATE WASHER INSTALLED BETWEEN THE NUT AND SILL PLATE. THE NUT SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION AFTER CURING IS COMPLETE FOR ADHESIVE ANCHORS AND AFTER EXPANSION WEDGE ENGAGEMENT FOR EXPANSION ANCHORS. THE INSTALLATION OF NUTS ON ALL ANCHORS SHALL BE SUBJECT TO VERIFICATION BY THE SUPERINTENDENT OF BUILDING. TORQUE TESTING SHALL BE PERFORMED FOR 25% OF ALL ADHESIVE OR EXPANSION ANCHORS. MINIMUM TEST VALUES SHALL BE 30 FOOT-POUNDS FOR ½-INCH AND 40 FOOT-POUNDS FOR 5/8-INCH DIAMETER ANCHORS.
ANCHOR SIDE PLATES SHALL BE PERMITTED WHEN CONDITIONS PREVENT ANCHOR INSTALLATION VERTICALLY THROUGH THE SILL PLATE. ANCHOR SIDE PLATES SHALL BE SPACED AS REQUIRED FOR ADHESIVE OR EXPANSION ANCHORS BUT ONLY ONE ANCHOR SIDE PLATE IS REQUIRED ON INDIVIDUAL PIECES OF SILL PLATE LESS THAN 32-INCHES IN LENGTH. WOOD STRUCTURAL PANEL SHIMS SHALL BE USED ON SILL PLATES FOR SINGLE PLATE ANCHOR SIDE PLATES WHEN THE FOUNDATION STEM WALL IS FROM 3/16-INCH TO ¾-INCH WIDER THAN THE SILL PLATE. THE SHIM LENGTH SHALL EXTEND A MINIMUM OF TWO-INCHES PAST EACH END OF THE ANCHOR SIDE PLATE. TWO PLATE ANCHOR SIDE PLATES SHALL BE USED WHEN THE TOTAL THICKNESS OF THE REQUIRED SHIM EXCEEDS ¾-INCH.
ALL ANCHOR SIDE PLATES, WHICH USE LAG OR WOOD SCREW SHALL PRE-DRILL THE SILL PLATE TO PREVENT SPLITTING AS REQUIRED PER SECTION 2304.9. LAG OR WOOD SCREWS SHALL BE INSTALLED IN THE CENTER OF THE THICKNESS OF THE EXISTING SILL PLATE. SIMPSON SDS SCREWS SHALL BE CONSIDERED TO FULFILL THE PRE-DRILLING REQUIREMENT.

STATEMENT OF SPECIAL INSPECTIONS PER THE 2009 IBC / 2010 CBC

1. THE OWNER OR REGISTERED DESIGN PROFESSIONAL OF RECORD WILL EMPLOY THE SERVICES OF ONE OR MORE SPECIAL INSPECTORS TO PROVIDE SPECIAL INSPECTIONS DURING CONSTRUCTION FOR THE ITEMS IN THE SPECIAL INSPECTION TABLE BELOW.
2. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL RESPONSIBLE FOR THE DESIGN OF THE STRUCTURE, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
3. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
   A. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS. THE INSPECTOR MAY NOT ALTER, MODIFY, ENLARGE OR WAIVE ANY OF THE REQUIREMENTS OF THE DOCUMENTS.
   B. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, THE PROFESSIONAL OF RECORD, AND THE CONTRACTOR. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, SUBMIT A COMPLETE LIST OF ALL OUTSTANDING DISCREPANCIES ON A WEEKLY BASIS TO THE OWNER, THE BUILDING OFFICIAL, AND THE PROFESSIONAL OF RECORD UNTIL ALL CORRECTIONS HAVE BEEN COMPLETED.
   C. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.
4. WHERE SPECIAL INSPECTION REQUIREMENTS DUPLICATE THE REQUIREMENTS OF SPECIFIED QUALITY ASSURANCE TESTING, DUPLICATE INSPECTIONS SHALL NOT BE REQUIRED.
5. OBSERVATIONS OR SITE VISITS PERFORMED BY THE ENGINEER OR ARCHITECT DUE NOT CONSTITUTE SPECIAL INSPECTIONS.
6. THE CONTRACTOR SHALL PROVIDE ADEQUATE NOTIFICATION OF SCHEDULE OF WORK REQUIRING INSPECTION OR TESTING TO THE SPECIAL INSPECTION TO ALLOW COORDINATION.
7. THE MATERIALS, SYSTEMS, COMPONENTS AND WORK REQUIRED TO HAVE SPECIAL INPSECTION OR TESTING ARE OUTLINED ON THESE DRAWINGS ALONG WITH THE TYPE AND EXTENT OF EACH INSPECTION AND TEST AND WHETHER IT IS CONTINUOUS OR PERIODIC IN NATURE. IF IT IS NOT INDICATED OTHERWISE, INSPECTION SHALL BE CONTINUOUS.
8. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND- OR SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND- OR SEISMIC-RESISTING COMPONENT SHALL PROVIDE A WRITTEN STATEMENT OF RESPONSIBILITY TO THE OWNER AND THE BUILDING OFFICIAL PRIOR TO COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT AS REQUIRED BY IBC/CBC SECTION 1706.

SPECIAL INSPECTION	FREQUENCY	REFERENCED STANDARD
CONCRETE		
1. INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED	CONTINUOUS	
2. INSPECT EPOXY ANCHORS AND EXPANSION ANCHORS INSTALLED IN HARDENED CONCRETE.	CONTINUOUS	PRODUCT ICC-ES REPORT

ADDITIONAL SEISMIC RESISTANCE CASES:

SEISMIC DESIGN CATEGORIES REQUIRED IN	THE FOLLOWING IS A SUMMARY OF THE SEISMIC SYSTEMS, SEISMIC COMPONENTS AND SEISMIC-FORCE-RESISTING SYSTEMS
SEISMIC FORCE RESISTING SYSTEMS	
C, D, E, F	A. ALL MOMENT FRAMES, BRACED FRAMES, CANTILEVERED COLUMNS, SHEARWALLS, AND THEIR FOUNDATIONS, AND DRAGS, CHORDS, FLOOR AND ROOF DIAPHRAGMS
C, D, E, F	B. ALL DRAGS, CHORDS, FLOOR AND ROOF DIAPHRAGMS
D, E, F	C. ALL FREE STANDING MASONRY WALLS
ADDITIONAL SYSTEMS AND COMPONENTS	
C, D, E, F	A. ANCHORAGE OF ELECTRICAL EQUIPMENT USED FOR EMERGENCY OR STANDBY POWER SYSTEMS INCLUDING TELECOM CABINETS
D, E, F	B. EXTERIOR WALL PANELS AND THEIR ANCHORAGE
D, E, F	C. SUSPENDED CEILING SYSTEMS AND THEIR ANCHORAGE

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE 2010 CBC AND ALL OTHER GOVERNING CODES. THESE NOTES SHALL BE CONSIDERED A PART OF THE WRITTEN SPECIFICATIONS.

2. THE CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY ERRORS, OMISSIONS, OR DISCREPANCIES AS THEY MAY BE DISCOVERED IN THE PLANS, SPECIFICATIONS, & NOTES PRIOR TO STARTING CONSTRUCTION, INCLUDING BUT NOT LIMITED BY DEMOLITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY ERROR, OMISSION, OR INCONSISTENCY AFTER THE START OF CONSTRUCTION WHICH HAS NOT BEEN BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER AND SHALL INCUR ANY EXPENSES TO RECTIFY THE SITUATION. THE METHOD OF CORRECTION SHALL BE APPROVED BY THE ARCHITECT/ENGINEER.

3. PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR HAS THE RESPONSIBILITY TO LOCATE ALL EXISTING UTILITIES, WHETHER OR NOT SHOWN ON THE PLANS, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR OR SUBCONTRACTOR SHALL BEAR THE EXPENSE OF REPAIRING OR REPLACING ANY DAMAGE TO THE UTILITIES CAUSED DURING THE EXECUTION OF THE WORK. WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, UTILITIES SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.

4. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND SHALL BE CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF THE ENGINEER.

5. A COPY OF THE APPROVED PLANS SHALL BE KEPT IN A PLACE SPECIFIED BY THE GOVERNING AGENCY, AND BY LAW SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL CONSTRUCTION SETS REFLECT THE SAME INFORMATION AS THE APPROVED PLANS. THE CONTRACTOR SHALL ALSO MAINTAIN ONE SET OF PLANS AT THE SITE FOR THE PURPOSE OF DOCUMENTING ALL AS-BUILT CHANGES, REVISIONS, ADDENDUMS, OR CHANGE ORDERS. THE CONTRACTOR SHALL FORWARD THE AS-BUILT/HIRED DRAWINGS TO THE ARCHITECT/ENGINEER AT THE CONCLUSION OF THE PROJECT.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE SITE WHILE THE WORK IS IN PROGRESS UNTIL THE JOB IS COMPLETE.

7. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE TEMPORARY POWER, WATER, AND TOILET FACILITIES AS REQUIRED BY THE PROPERTY OWNER OR GOVERNING AGENCY.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL SAFETY PRECAUTIONS AND REGULATIONS DURING THE WORK. THE ENGINEER WILL NOT ADVISE ON, NOR PROVIDE DIRECTION, AS TO SAFETY PRECAUTIONS AND PROGRAMS.

9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES AND SEQUENCING AND COORDINATING ALL PORTIONS OF THE WORK UNDER THE PROJECT. FURTHERMORE, THE STRUCTURE IS DESIGNED AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBILE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

10. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS WITH RESPECT TO THE WORK TO COMPLETE THE PROJECT. BUILDING PERMIT APPLICATIONS SHALL BE FILED BY THE OWNER OR HIS REPRESENTATIVE. CONTRACTOR SHALL OBTAIN THE PERMIT AND MAKE FINAL PAYMENT OF SAID DOCUMENT(S).

11. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUINT OF LOAD IMPOSED ON THE STRUCTURAL FRAMING AND STRUCTURE DURING CONSTRUCTION. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED. TEMPORARY SHORING OR BRACING SHALL BE PROVIDED WHERE THE STRUCTURE OR SOIL HAS NOT ATTAINED THE DESIGN STRENGTH FOR THE CONDITIONS PRESENT. THE CONTRACTOR SHALL ALSO RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.

12. ALL DIMENSIONS TAKE PRECEDENCE OVER SCALE UNLESS OTHERWISE NOTED.

13. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY FRAMING, BACKING, HANGERS, BLOCKING OR SUPPORTS FOR INSTALLATION OF ITEMS INDICATED ON THE DRAWINGS.

14. THE CONTRACTOR SHALL PROVIDE FIRE MARSHALL APPROVED MATERIALS TO FILL/SEAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES.

15. NEW CONSTRUCTION ADDED TO EXISTING CONSTRUCTION SHALL BE MATCHED IN FORM, TEXTURE, MATERIAL AND PAINT COLOR EXCEPT AS NOTED IN THE PLANS.

16. WHERE SPECIFIED, MATERIALS TESTING SHALL BE TO THE LATEST STANDARDS AVAILABLE AS REQUIRED BY THE LOCAL GOVERNING AGENCY RESPONSIBLE FOR RECORDING THE RESULTS.

17. ALL GENERAL NOTES AND STANDARD DETAILS ARE THE MINIMUM REQUIREMENTS TO BE USED IN CONDITIONS WHICH ARE NOT SPECIFICALLY SHOWN OTHERWISE.

18. ALL DEBRIS AND REFUGE IS TO BE REMOVED FROM THE PROJECT. PREMISES SHALL BE LEFT IN A CLEAN BROOM FINISHED CONDITION AT ALL TIMES.

19. ALL SYMBOLS AND ABBREVIATIONS ARE CONSIDERED CONSTRUCTION INDUSTRY STANDARDS. IF A CONTRACTOR HAS A QUESTION REGARDING THEIR EXACT MEANING, THE ARCHITECT/ENGINEER SHALL BE NOTIFIED FOR CLARIFICATIONS.

20. CONTRACTORS SHALL VISIT THE SITE PRIOR TO BID TO ASCERTAIN CONDITIONS WHICH MAY ADVERSELY AFFECT THE WORK OR COST THEREOF.

21. THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSIONS, ELEVATIONS, ETC. NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE NEW PORTION OF THE WORK TO THE EXISTING WORK. THE CONTRACTOR SHALL MAKE ALL MEASUREMENTS NECESSARY FOR FABRICATION AND ERECTION OF STRUCTURAL MEMBERS. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT/ ENGINEER.

22. REPRESENTATIONS OF TRUE NORTH SHALL NOT BE USED TO IDENTIFY OR ESTABLISH THE BEARING OF TRUE NORTH AT THE SITE. THE CONTRACTOR SHALL RELY SOLELY ON THE PLOT OF SURVEY DRAWING AND ANY SURVEYOR'S MARKINGS AT THE SITE FOR THE ESTABLISHMENT OF TRUE NORTH, AND SHALL NOTIFY THE ARCHITECT/ ENGINEER PRIOR TO PROCEEDING WITH THE WORK. IF ANY DISCREPANCY IS FOUND BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND THE TRUE NORTH ORIENTATION AS DEPICTED ON THE CIVIL SURVEY, THE CONTRACTOR SHALL ASSUME SOLE LIABILITY FOR ANY FAILURE TO NOTIFY THE ARCHITECT/ENGINEER.

23. NO CHANGES ARE TO BE MADE TO THESE PLANS WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF THE ARCHITECT/ ENGINEER. UNAUTHORIZED CHANGES RENDER THESE DRAWINGS VOID. THIS INCLUDES THAT THE CONTRACTOR SHALL NOT BE RELIEVED OF ANY DEVIATION FROM THE PLANS BY THE PROFESSIONAL'S OF RECORD REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC. UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE PROFESSIONAL OF RECORD OF SUCH DEVIATION IN WRITING AT THE TIME OF SUBMISSION, AND THE PROFESSIONAL OF RECORD HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.

24. ANY REFERENCE TO THE WORDS "APPROVED" OR "APPROVAL" IN THESE DOCUMENTS SHALL BE HERE DEFINED TO MEAN GENERAL ACCEPTANCE OR REVIEW AND SHALL NOT RELIEVE THE CONTRACTOR AND/OR HIS SUB-CONTRACTORS OF ANY LIABILITY IN FURNISHING THE REQUIRED MATERIALS OR LABOR SPECIFIED.

25. RELOCATE ALL ELECTRICAL, PLUMBING AND MECHANICAL ITEMS AND OTHER OBSTRUCTIONS AS REQUIRED.

26. THE CONSTRUCTION SHALL NOT RESTRICT A FIVE-FOOT CLEAR AND UNOBSTRUCTED ACCESS TO ANY WATER OR POWER DISTRIBUTION FACILITIES (POWER POLES, PULL-BOXES, TRANSFORMERS, VAULTS, PUMPS, VALVES, METERS, APPURTENANCES ETC.) OR TO THE LOCATION OF THE HOOK-UP. THE CONSTRUCTION SHALL NOT BE WITHIN TEN FEET OF ANY POWER LINES-WHETHER OR NOT THE LINES ARE LOCATED ON THE PROPERTY. FAILURE TO COMPLY MAY CAUSE CONSTRUCTION DELAYS AND/OR ADDITIONAL EXPENSES.

DESIGN CRITERIA

2010 CALIFORNIA BUILDING CODE (SECTION 3404.5) AND 2009 INTERNATIONAL EXISTING BUILDING CODE (CHAPTER A2)

1. DEAD LOADS
   ROOF – N/A
   FLOOR – N/A
2. MINIMUM ROOF LIVE LOADS
   NOT APPLICABLE – NO NEW ROOF – 20 PSF (REDUCIBLE)
3. SNOW LOADS
   NOT APPLICABLE – NO SNOW LOAD
4. WIND LOADS
   NOT APPLICALBE – NOT IN SCOPE OF WORK
5. Ss = 1.453
   SOIL SITE CLASS D
   Sds = 0.968
   I = 0.75 (PER IEBC A206.1)
   WALL ANCHORAGE Fp = 0.8 Sds I = 0.581
6. DESIGN LOAD COMBINATIONS
   K. D
   L. D + Lr
   M. D + (W OR 0.7E)
   N. D + 0.75(W OR 0.7E) + 0.75(Lr OR S OR R)
   O. 0.6D + W
   P. 0.6D + 0.7E
   ALLOWABLE STRESS INCREASES ARE NOT PERMITTED WHEN USING THE ABOVE LOAD COMBINATIONS.

SITE PREPARATION NOTES:

1. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT ALL AREAS FROM DAMAGE WHICH MAY OCCUR DURING CONSTRUCTION. ANY DAMAGE TO NEW OR EXISTING SURFACES, STRUCTURES OR EQUIPMENT SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF THE PROPERTY OWNER. THE CONTRACTOR SHALL BEAR THE EXPENSE OF REPAIRING OR REPLACING ANY DAMAGED AREAS.

2. BEFORE PROCEEDING WITH ANY WORK WITHIN THE EXISTING FACILITY, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH EXISTING STRUCTURAL AND OTHER CONDITIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NECESSARY BRACING, SHORING AND OTHER SAFEGUARDS TO MAINTAIN ALL PARTS OF THE EXISTING WORK IN A SAFE CONDITION DURING THE PROCESS OF DEMOLITION AND CONSTRUCTION AND TO PROTECT FROM DAMAGE THOSE PORTIONS OF THE EXISTING WORK WHICH ARE TO REMAIN.

SUBMITTALS

SUBMITTALS: SUBMITTALS FOR SHOP DRAWINGS, MILL TESTS, PRODUCT DATA, ETC. FOR ITEMS DESIGNED BY THE ARCHITECT/ ENGINEER OF RECORD SHALL BE MADE TO THE ARCHITECT/ENGINEER PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REVIEW THE SUBMITTAL BEFORE FORWARDING TO THE ARCHITECT. SUBMITTALS SHALL BE MADE IN TIME TO PROVIDE A TWO-WEEK REVIEW PERIOD FOR THE ARCHITECT/ ENGINEER. SUBMITTALS REQUIRED FOR EACH SECTION OF THESE NOTES ARE SPECIFIED IN THAT SECTION.

STRUCTURAL OBSERVATION:

1. STRUCTURAL OBSERVATIONS BY AN INDEPENDENT ENGINEER OR THE ENGINEER OF RECORD SHALL BE MADE IN ACCORDANCE WITH SECTION 1709 OF THE CITY OF LOS ANGELES BUILDING CODE AT THE EXPENSE OF THE OWNER TO REVIEW THE CONSTRUCTION OF THE PROJECT. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTUAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES, AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR(S).
2. THE OWNER SHALL EMPLOY THE CIVIL OR STRUCTURAL ENGINEER OR THE ARCHITECT OF RECORD OR THEIR DESIGNATED AGENT TO PERFORM THE STRUCTURAL OBSERVATION.
3. EVIDENCE OF EMPLOYMENT BY THE OWNER SHALL BE PROVIDED TO THE BUILDING INSPECTOR BEFORE THE FIRST SITE VISIT.
4. WHEN A PRECONSTRUCTION MEETING IS REQUIRED, IT SHALL BE ATTENDED BY THE GENERAL CONTRACATOR, APPROPRIATE SUBCONTRACTORS, AND DEPUTY INSPECTORS. THE MAJOR STRUCTURAL ELEMENTS AND CONNECTIONS WHICH REQUIRE STRUCTURAL OBSERVATION WILL BE IDENTIFIED. A RECORD OF THE MEETING SHALL BE INCLUDED IN THE FIRST OBSERVATION REPORT.
5. REQUIRED OBESRVATIONS ARE TO OCCUR AT THE FOLLOWING STAGES OF CONSTRUCTION AS A MINIMUM, FOR EACH BUILDING. NOTIFY THE ENGINEER 72 HOURS PRIOR TO EACH OBSERVATION.

REQUIRED IF CHECKED	ITEMS
	A. PRECONSTRUCTION MEETING SHALL BE ATTENDED BY THE STRUCTURAL OBSERVER OF RECORD.
	B. PRIOR TO PLACEMENT OF CONCRETE FOR THE FIRST FOUNDATION POUR.
	C. PRIOR TO PLACEMENT OF CONCRETE IN WALL FORMS.
	D. UPON COMPLETION OF WELDING AT STEEL MOMENT FRAMES.
	E UPON COMPLETED ERECTION OF ALL STRUCTURAL STEEL.
	F. AFTER NAILING OF ALL PLYWOOD SHEAR WALLS AND ALL HOLDOWNS, DRAGS, STRAPS ARE IN PLACE, AND PRIOR TO COVERING ANY OF THE SHEAR WALLS.
	G. AFTER NAILING OF FLOOR PLYWOOD DIAPHRAGM(S); PRIOR TO COVERING.
	H. AFTER NAILING OF ROOF PLYWOOD DIAPHRAGM(S); PRIOR TO COVERING.
	I. PRIOR TO ROOFING OR PLACEMENT OF CONCRETE FILL OVER METAL DECK ROOFS OR FLOORS.
●	J. FINAL WALK THROUGH UPON COMPLETION OF ALL STRUCTURAL ASPECTS OF THE PROJECT PRIOR TO ARCHITECTURAL FINISHES INCLUDING ROOFING.
	K. NO STRUCTURAL OBSERVATION REQUIRED

6. A REPORT PREPARED ON DEPARTMENT FORMS OR FORMS PREPARED BY THE ENGINEER OR ARCHITECT OF RECORD FOR EACH SIGNIFICANT STAGE OF CONSTRUCTION OBSERVED, SHALL BE LEFT AT THE PROJECT SITE FOT THE CONTRACTOR TO FORWARD TO THE BUILDING INSPECTOR. THE FORMS SHALL BE WET SIGNED AND SEALED BY THE RESPONSIBLE STRUCTURAL OBSERVER, ONE SIGNED COPY OF THE REPORT SHALL BE PROVIDED TO THE OWNER, CONTRACTOR, AND DEPUTY INSPECTOR, AS REQUESTED.
7. A FINAL OBSERVATION REPORT MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND THE STRUCTURAL SYSTEM GENERALLY CONFORMS TO THE APPROVED PLANS AND SPECIFICATIONS.
8. IF THE OWNER ELECTS TO CHANGE THE STRUCTUAL OBSERVER OF RECORD, THE OWNER SHALL:
   A. NOTIFY BUILDING INSPECTOR IN WRITING BEFORE THE NEXT INSPECTION.
   B. CALL AN ADDITIONAL PRECONSTRUCTION MEETING, AND FURNISH THE REPLACEMENT STRUCTURAL OBSERVER WITH A COPY OF PREVIOUS OBSERVER'S REPORTS.
   C. THE NEW OBSERVER SHALL BE RESPONSIBLE FOR APPROVAL OF THE CORRECTION OF ALL THE ORIGINAL OBSERVED NOTED DEFICIENCIES.
9. THE ENGINEER OR ARCHITECT OF RECORD SHALL DEVELOP ALL CHANGES TO THE STRUCTURAL SYSTEMS AT THE CONTRACTOR'S EXPENSE.
10. STRUCTURAL OBSERVATION SHALL BE PERFORMED BY NATIONAL ENGINEERING & CONSULTING, INC.
11. STRUCTURAL OBSERVATION PER SECTION 1709 ISREQUIRED FOR THIS PROJECT. THE ENGINEER OF RECORD SHALL PREPARE AN INSPECTION PROGRAM, INCLUDING THE NAME(S) OF THE INDIVIDUALS OR FIRMS WHO WIL PERFORM THE WORK. THE INSPECTION PROGRAM SHALL BE SHOWN ON THE FIRST SHEET OF THE STRUCTURAL PLANS.

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JOB NO. R-Voit-001-B

REVISION:		
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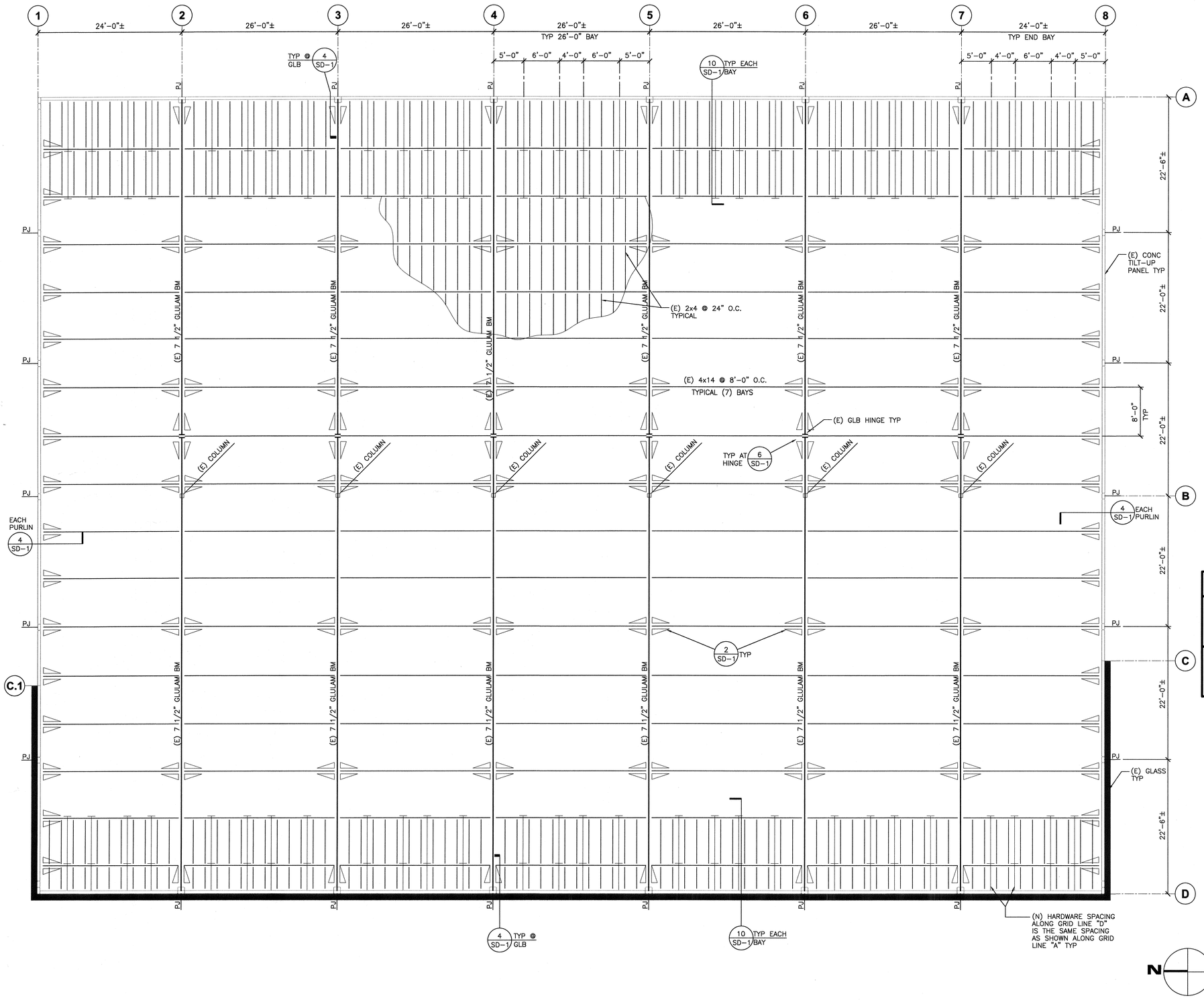
△1	12/5/11	RE-SUBMITTAL

S 004468
EXP. 12-31-2012
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE:
GENERAL NOTES & SPECIFICATIONS

SHEET NUMBER:
SN-1



ROOF FRAMING NOTES

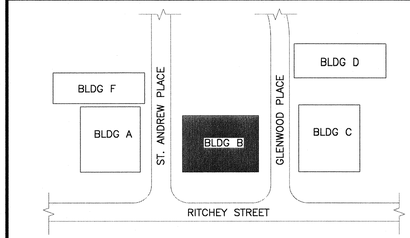
1. CONTRACTORS RESPONSIBLE FOR THE CONSTRUCTION OF A WIND OR SEISMIC FORCE RESISTING SYSTEM/COMPONENT LISTED IN THE "STATEMENT OF SPECIAL INSPECTION" SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE LADBS INSPECTORS AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON SUCH SYSTEM OR COMPONENT PER SEC 1706.1
2. CONTINUOUS SPECIAL INSPECTION BY A REGISTERED DEPUTY INSPECTOR IS REQUIRED FOR FIELD WELDING, CONCRETE STRENGTH F"C>2500 PSI, HIGH STRENGTH BOLTING, SPRAYED ON FIREPROOFING, ENGINEERED MASONRY, HIGH LIFT GROUTING, PRE-STRESSED CONCRETE, HIGH LOAD DIAPHRAGMS AND EPOXY ANCHORS.
3. IF ADVERSE SOIL CONDITIONS ARE ENCOUNTERED, A SOILS INVESTIGATION REPORT MAY BE REQUIRED.

LEGEND

- : INDICATES (N) STEEL ROD UNO
- : INDICATES (N) CONTINUITY TIE
- : INDICATES (N) WALL ANCHORAGE OR TIES AND SUB-PURLIN CONTINUITY
- : INDICATES (N) WALL ANCHORAGE OR TIES AND SUB-PURLIN CONTINUITY ALTERNATE
- : INDICATES (E) GLASS WALL ATTACHED TO (E) CONCRETE TILT-UP PANEL

WALLS	(E) WALL THICKNESS	TOP OF CONCRETE PARAPET ELEVATION	TOP OF ROOF ELEVATION
@ GRID A @ GRID 1, FROM A TO C.1 @ GRID 8, FROM A TO C	5-1/2"	± 17'-4"	VARIES BETWEEN 15'-8" AND 17'-0"
@ GRID D @ GRID 1, FROM C.1 TO D @ GRID 8, FROM C TO D	5-1/2"	± 17'-4" (GLASS TO 18'-6")	VARIES BETWEEN 15'-8" AND 17'-0"

KEY PLAN



ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

1

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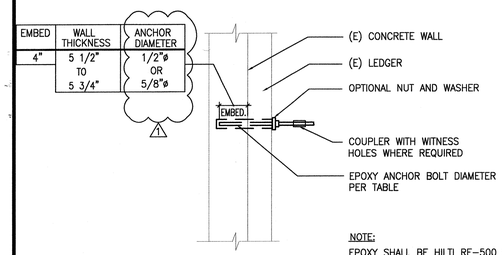
REGISTERED PROFESSIONAL ENGINEER MICHAEL R. GRATTON S 004468 EXP. 12-31-2012 STRUCTURAL STATE OF CALIFORNIA

SHEET TITLE:
ROOF FRAMING PLAN

SHEET NUMBER:
S-1



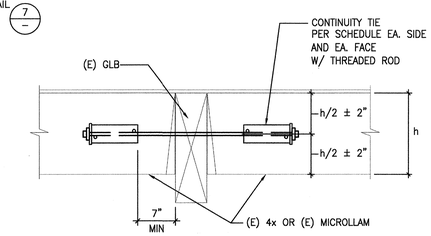
NOTE:
EPOXY SHALL BE HILTI RE-500 SD (LARR# 25700, ICC ESR-2322) SPECIAL INSPECTION REQUIRED

NOTE:
PATCH AND PAINT ALL SPALLS CAUSED BY HAMMER DRILLING TO MATCH EXISTING.

DETAIL

SCALE 3/4"=1'-0". 1

SHIM IF REQUIRED OR IF EITHER OR BOTH MEMBERS ARE MICROLLAMS PER DETAIL 7/–



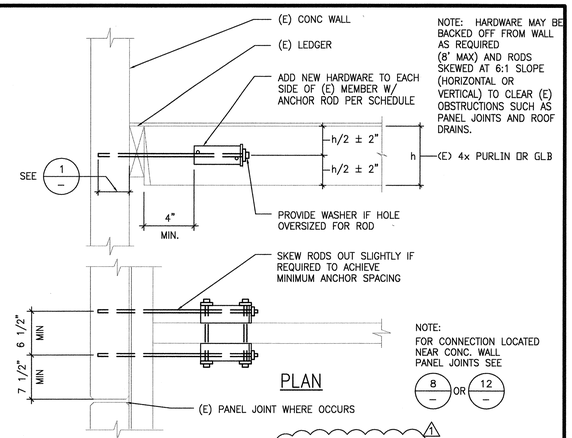
CONTINUITY TIE SCHEDULE

MARK	MIN MEMBER THICKNESS	HARDWARE MANUFACTURER	HARDWARE	ANCHOR ROD SIZE (MIN)
DEFAULT	4x	ZONE 4	T2 44-5	5/8"ø
ALTERNATIVE	4x	ZONE 4	T2 46-8	3/4"ø

CONTINUITY TIE

SCALE 3/4"=1'-0". 2

SCALE N.T.S. 3

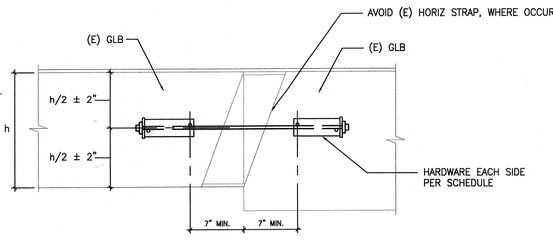


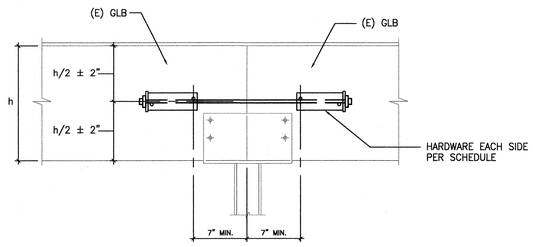
CONTINUITY TIE SCHEDULE

MARK	MIN MEMBER THICKNESS	HARDWARE MANUFACTURER	HARDWARE	ANCHOR ROD SIZE	LARR #
DEFAULT	4x	ZONE 4	T2 24-4	1/2"ø	25334

WALL ANCHORAGE

SCALE 3/4"=1'-0". 4





CONTINUITY TIE SCHEDULE

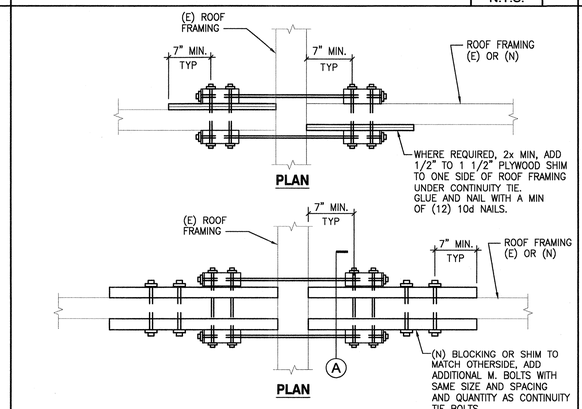
MARK	MIN MEMBER THICKNESS	HARDWARE MANUFACTURER	HARDWARE	ANCHOR ROD SIZE (MIN)
DEFAULT	5 1/8"	ZONE 4	T2 44-5	5/8"ø
ALTERNATIVE	5 1/8"	ZONE 4	T2 46-8	3/4"ø

SHIM IF REQUIRED PER DETAIL 7/–

BEAM SPLICE AT COLUMN

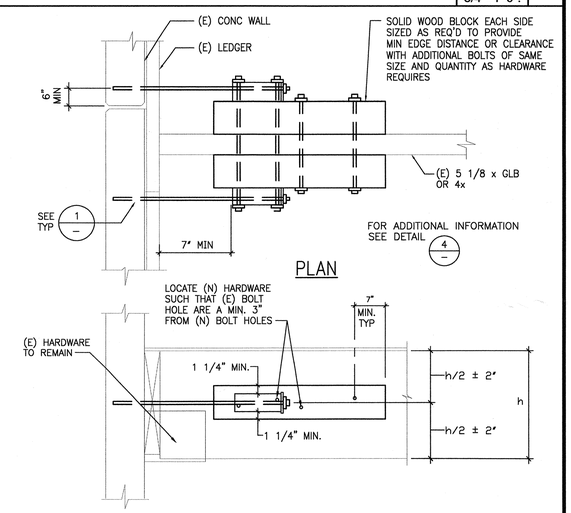
GLB CONTINUITY TIE

SCALE 3/4"=1'-0". 6



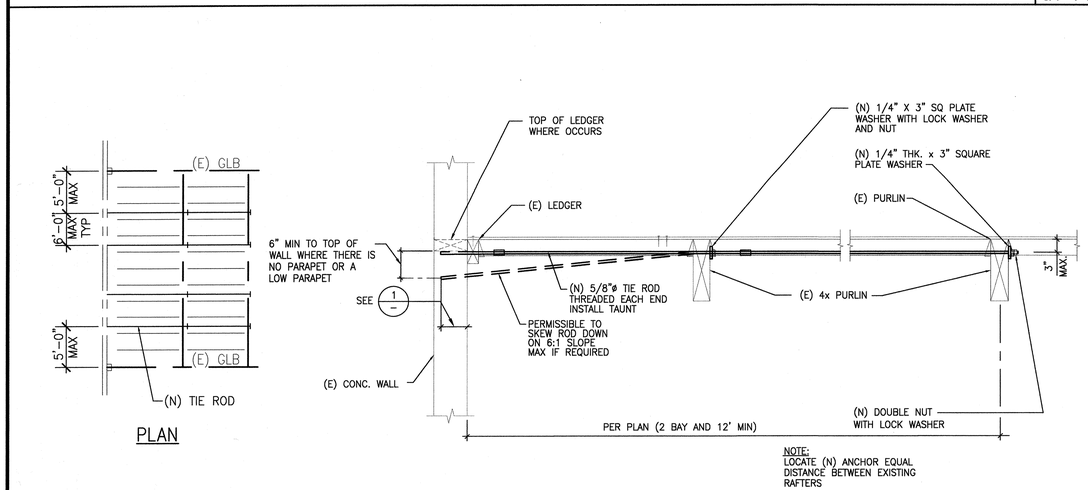
CONTINUITY TIE SHIM DETAIL

SCALE 3/4"=1'-0". 7



WALL ANCHOR SHIM DETAIL

SCALE 3/4"=1'-0". 8

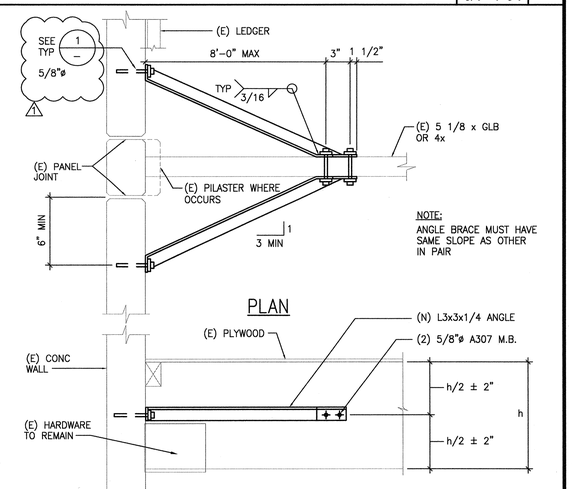


DETAIL

SCALE 3/4"=1'-0". 10

NOT USED

SCALE - 11



ALTERNATIVE WALL ANCHOR DETAIL

SCALE 3/4"=1'-0". 12

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