# Structural Analysis

RECEIVED

City of Santa Ana

Project Name: Addition

Building Address: 923 Clemensen Ave. Santa Ana

Date: 10/14/2011

**Project No.: 11-0815** 



10173676

OWNER: PROJECT:

PAGE <u>|A</u> OF <u>|A</u>
DATE <u>|2-27-20||</u>
JOB NO. ! |-08|5

#### ROOF RAFTERS TIE

Ceiling Joist Span= 25 ft

Uniform Load = 36.00 plf

Pitch = 4:12

 $T = (w^*L/4)^*(12/pitch) = Tension$ : 675 lbs

16d provides 141 lbs = of 16d = 3.8

Use FIVE 16d @ every Roof Rafter and Ceiling Joist & Splice

OWNER: PROJECT:

PAGE | OF | 9 DATE | 10-14-2011 JOB NO. | 11-0815

## LOADING ANALYSIS (TYPICAL MATERIAL UNLESS NOTED OTHERWISE)

ROOF LOAD		
	ROOFING TYPE: PITCH:	comp 4 :12
DEAD LOAD		
	Roofing = Sheathing = Framing = Misc =	3.0 psf 1.5 psf 1.1 psf 1.4 psf
DEAD LOAD	SUB TOTAL:	7.0 psf
LIVE LOAD		20 PSF
TOTAL LOAD	:	27 PSF

CEILING LOAD		
DEAD LOAD		5 PSF
	SUB TOTAL:	5 PSF
LIVE LOAD		10 PSF
TOTAL LOAD	:	15 PSF

OWNER : PROJECT : 

#### LOADING ANALYSIS (TYPICAL MATERIAL UNLESS NOTED OTHERWISE)

#### ROOF RAFTERS (SLOPED w/ RIDGE BD)

MAX SPAN = 12.5 FT

LL = 20 psf

DL = 7 psf

SPACING = 16 in

Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI

D.F. #2	Size F	₽b	d	А	S	l
2X4	1.5	900	3.5	5.25	3.06	5.36
2X6	1.3	900	5.5	8.25	7.56	20.80
2X8	1.2	900	7.25	10.88	13.14	47.63
2X10	1.1	900	9.25	13.88	21.39	98.93
2X12	1	900	11.25	16.88	31.64	178.00
2X14	0.9	900	13.25	19.88	43,89	290.80

CD = Duration Factor = 1.25 Cr = Repetitive use = 1.15 CF = Size Factor = 1.3

Uniform Load W= 36.00 PLF
Reaction, R = 225 LBS
V = W\*L/2= 225 LB
M = W\*L^2/8 = 703 LB-FT
Inertia Selected = 20.8 IN^4

 $A = 1.5*V/(Fv * CD.) = S = M*12 / (Fb*CD*Cr*CF) = \Delta = (5/384)*(W*L^4)*1728/(E*I) =$ 

1.5 IN<sup>2</sup> 5.02 IN<sup>3</sup> 0.594 IN < 8.25 IN^2 < 7.56 IN^3 < L\*12/120 IN OK OK .25 IN OK

\* Table 1604.3 in 2010 California Building Code

#### USE 2X6 D.F. #2 @ 16" O.C

#### JOISTS

#### **Ceiling Joists**

MAX SPAN = 25 FT

LL = 10 psf

DL = 5 psf

SPACING = 16 in

Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI

D.F. #2	Size F	Fb	d	А	S	l I
2X4	1.5	900	3.5	5.25	3.06	5.36
2X6	1.3	900	5.5	8.25	7.56	20.80
2X8	1.2	900	7.25	10.88	13.14	47.63
2X10	1.1	900	9.25	13:88	21.39	98.93
2X12	1	900	11.25	16.88	31.64	178.00
2X14	0.9	900	13.25	19.88	43.89	290.80

 CD = Duration Factor =
 1.25

 Cr = Repetitive use =
 1.15

 CF = Size Factor =
 1.1

Uniform Load W= 20,00 PLF
Reaction, R = 250 LBS
V = W\*L/2= 250 LB
M = W\*L^2/8 = 1563 LB-FT
Inertia Selected = 98.93 IN/4

 $A = 1.5*V/(Fv * CD.) = S = M *12 / (Fb*CD*Cr*CF) = \Delta = (5/384)*(W*L^4)*1728/(E*I) =$ 

1.7 IN^2 13.18 IN^3 1.111 IN < 13.88 IN^2 < 21.39 IN^3 < L\*12/180 IN

OK OK 1.67 IN OK

\* Table 1604.3 in 2010 California Building Code

USE 2X10 D.F. #2 @ 16" O.C.

OWNER: PROJECT:

#### ROOF RAFTERS (Patio)

MAX SPAN = 12.5 FT

LL = 20 psf

DL = 7 psf

SPACING = 24 in

Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI D.F. #2 Size F Fb d Α 2X4 1.5 900 3.5 5.25 3.06 5.36 2X6 8.25 7.56 20.80 1.3 900 5.5 47.63 7.25 13.14 2X8 900 10.88 1.2 2X10 1.1 900 9.25 13.88 21.39 98.93 2X12 900 11.25 16.88 31.64 178.00 2X14 0.9 900 13.25 19.88 43.89 290.80

CD = Duration Factor = 1.25 Cr = Repetitive use = 1.15 CF = Size Factor = 1.3

 $A = 1.5*V/(Fv * CD.) = S = M *12 / (Fb*CD*Cr*CF) = \Delta = (5/384)*(W*L^4)*1728/(E*I) = 0$ 

2.3 IN^2 7.53 IN^3 0.891 IN

11 FT

< 8.25 IN^2 < 7.56 IN^3 < L\*12/120 IN OK OK 1.25 IN OK

#### USE 2X6 D.F. #2 @ 24" O.C

#### JOISTS

#### Ceiling Joists

LL = 10 psf DL = 5 psf SPACING = 24 in

> Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI

D.F. #2	Size F	Fb	d	А	S	
2X4	1.5	900	3.5	5.25	3.06	5.36
2X6	1.3	900	5.5	8.25	7.56	20.80
2X8	1.2	900	7.25	10.88	13.14	47.63
2X10	1.1	900	9.25	13.88	21.39	98.93
2X12	1	900	11.25	16.88	31.64	178.00
2X14	0.9	900	13.25	19.88	43.89	290.80

CD = Duration Factor = 1.25 Cr = Repetitive use = 1.15 CF = Size Factor = 1.3

MAX SPAN ≂

Cr = Repetitive use = 1.15 CF = Size Factor = 1.3

Uniform Load W = 30.00 PLF
Reaction, R = 165 LBS
V = W\*L/2= 165 LB
M = W\*L^2/8 = 454 LB-FT
Inertia Selected = 20.8 IN/4

 $A = 1.5*V/(Fv * CD.) = S = M *12 / (Fb*CD*Cr*CF) = \Delta = (5/384)*(W*L^4)*1728/(E*I) =$ 

1.1 IN^2 3.24 IN^3 0.297 IN < 8.25 IN^2 < 7.56 IN^3 < L\*12/180 IN

OK OK 0.73 IN OK

\* Table 1604.3 in 2010 California Building Code

USE 2X6 D.F. #2 @ 24" O.C

## PIN-CHING LI & ASSOCIATES REGISTERED CIVIL ENGINEER OWNER: PROJECT:

#### Ceiling Framing Beams and Headers

BM 1 (@ Kit/Dining)					
MAX SPAN L=	12.50 FT				
Roof LL =	20 psf	Ceiling LL =	0 psf		
Roof DL =	7 psf	Ceiling DL ≃	5 psf		
Roof Tributary =	6.50 FT	Ceiling Tributary = Wall DL =	6.50 FT 15 psf		
		Wall Height =	0 FT		
		, , , , , , , , , , , , , , , , , , ,			
Fb =[	1350 PSI				
Fv =	170 PSI	•			
E =	1.6E+06 PSI				
CD = Duration Factor = CF = Size Factor =	1.25				
CF = Size Faciol =[	<u></u>				
Uniform Load W=	208 PLF				
Reaction R=	1300 LBS				
V = W*L /2 =	1300 LB				
$M = W*L^2/8 =$	4063 LB-FT				
Inertia Selected = [	392.96 IN^4				
A = 1.5*V/(Fv * CD.) =	9.18 IN^2	< 52.25 IN	<b>1</b> ^2		OK
S = M *12 / (Fb*CD*CF) =	28.89 IN^3	< 82.73 IN	1v3		OK
$\Delta = (5/384)^*(W^*L^4)^*1728/(E^*I) =$	0.182 IN	< L*12/180 =	8.0	3 IN	OK

USE 6X10 D.F. #1

OWNER: **PROJECT:**  PAGE 5 OF **DATE** JOB NO.

Hip Beam, HB1		
Span, L =	17.5 ft 20 psf 7 psf 8.75 ft	Wmax = 236.25 plf V = 2067 lbs Vmax = 1378 lbs Mmax = 4641 lbs-ft
fb = fv = fv = CD = Duration Factor = CF = Size Factor =	1000 psi 180 psi 60E+06 psi 1.25	Ra = 1378 lbs Rb = 689 lbs Inertia Selected = 230.8 in^4
$A = 1.5^{*}V/(Fv \cdot CD.) = S = M \cdot 12 / (Fb \cdot CD \cdot CF) = \Delta = (5/384)^{*}(W \cdot L^{4})^{*}1728/(E^{*}!) =$	9.19 in^2 37.13 in^3 1.350 IN	<ul> <li>32.38 in<sup>2</sup> OK</li> <li>49.91 in<sup>3</sup> OK</li> <li>L*12/120 = 1.75 IN OK</li> <li>* Table 1604.3 in 2010 California Building Code</li> </ul>

#### USE 4X10 D.F. #1

#### BM2 (Supporting HB1 x2)

MAX SPAN, L =

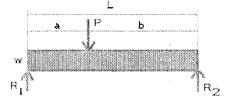
8 ft

P = 2756 lbs Located (from R1) = 4 ft a = 4 ft b = 4 ft

1000 psi Fb = 180 psi Fv = E = 1.7E+06 psi CD = Duration Factor = 1.25 CF = Size Factor =

\*Table 1607.1 Footnote (i) CBC 2010 For attics without storage, this live load need not be assumed to act concurrently with any other live load

0 plf Uniform Load W = R1 = W\*L/2+P\*b/L =1378 lbs R2 =W\*L /2+P\*a/L = 1378 lbs V = 1378 lbs  $Mmax = W*L^2/8+(P*a*b)/L =$ 5513 lbs-ft Inertia Selected = 230.8 in^4



A = 1.5\*V/(Fv \* CD.) =9.19 in^2  $S = M * 12 / (Fb*CD*CF) = \Delta = (5/384)*(W*L^4)*1728/(E*I) +$ 44.10 in^3

 $(P^*a^2^*b^2)/(3^*E^*l^*L) =$ 

0.13 in

32.38 in^2 49.91 in^3 OK OΚ

OK 0.53

\* Table 1604.3 in 2010 California Building Code

USE 4X10 D.F.#1

OWNER: PROJECT:

PAGE 6 OF 19 DATE \_\_\_\_\_\_ JOB NO. 11-0315

BM 3 @ Patio		·····			
MAX SPAN L = Roof LL = Roof DL = Roof Tributary =	25.00 FT 20 psf 7 psf 6.00 FT	Ceiling LL = Ceiling DL = Ceiling Tributary = Wall DL = Wall Height =	0 psf 5 psf 0.00 FT 15 psf 0 FT		
Fb = Fv = E = CD = Duration Factor = CF = Size Factor =	1350 PSI 170 PSI 1.6E+06 PSI 1.25				
Uniform Load W= Reaction R= V = W*L /2 = M = W*L^2/8 = Inertia Selected =	162 PLF 2025 LBS 2025 LB 12656 LB-FT 950.55 IN <sup>4</sup>				
A = 1.5*V/(Fv * CD.) = S = M *12 / (Fb*CD*CF) = 5/384)*(W*L^4)*1728/(E*I) =	14.29 IN^2 90.00 IN^3 0.936 IN	< 86.25 IN/ < 165.31 IN/ < L*12/120 =		IN	OK OK
	USE 8X12 D.F.#	1			
BM 4 @ Patio					
MAX SPAN L = Roof LL = Roof DL = Roof Tributary =	12.50 FT 20 psf 7 psf 6.00 FT	Ceiling LL = Ceiling DL = Ceiling Tributary = Wall DL = Wall Height =	0 psf 5 psf 0.00 FT 15 psf 0 FT		
Fb = Fv = E = CD = Duration Factor = CF = Size Factor =	1350 PSI 170 PSI 1.6E+06 PSI 1.25				
Uniform Load W= Reaction R= V = W*L /2 = M = W*L^2/8 = Inertia Selected =	162 PLF 1013 LBS 1013 LB 3164 LB-FT 950.55 IN^4	·			
A = 1.5*V/(Fv * CD.) = S = M *12 / (Fb*CD*CF) = 5/384)*(W*L^4)*1728/(E*I) =	7.15 IN^2 22.50 IN^3 0.059 IN	< 86.25 IN' < 165.31 IN' < L*12/120 =		IN	OK OK OK
	USE 8X12 D.F.#	1.5 5 .75 .			

### PIN-CHING LI & ASSOCIATES REGISTERED CIVIL ENGINEER OWNER: PROJECT:

#### Wind Load Calculation

#### **Seismic Coefficient**

$$V = (F*Sds/R)*W$$
 # of Stories =  $\boxed{1}$ 

$$F = \boxed{1}$$

$$12.14.8 \text{ ASCE Standard 7-05 , P 141}$$

$$R = \boxed{6.5}$$

$$Table 12.2-1 \text{ ASCE Standard 7-05, P. 120}$$

$$I = \boxed{1}$$

$$Table 11.5-1 \text{ ASCE Standard 7-05, P. 116}$$

$$SMs = \boxed{1.381}$$

$$USGS*$$

$$Sds = \boxed{0.921}$$

$$V = 0.142 \text{ W}$$

$$\rho = 1.3$$

Design V = V \* W \* $\rho$ \*0.7 (Working Stress) =

ASCE 7-05 Section 12.3.4.2, P. 126

0.129 W

<sup>\*</sup>From Seismic Hazard Curves Response Parameteres and Deisgn Parameters

OWNER: PROJECT:

PAGE _	3_	OF	army-	9_	_
DATE					
JOB NO.	ar Tacallon	1-0	8	) 5	

#### Lateral Analysis (Y-Y Direction)

Line 1

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
i	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	2.84	270

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
5.67	12.33	35	90

from: EXISTING

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
0	0	0	0

Seismic Shear (LBS)  $\Sigma = 90$ 

:.	Wind Governs	Governing Shear =	270 lbs

Shear Wall Segment					Total	Unit Shear
1	2	3	4	5	L (FT)	(PLF)
6.33					6.3 ·	43

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	32	" O.C.	

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	6.33	43	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	2.84	5	2.84	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs) Negligible
1	2164	3086	.67	15	Negligible
		• .			

OWNER: PROJECT:

PAGE _	9	_OF	1	9
DATE				
JOB NO	<b>).</b> 1	1-0	3	15

#### Lateral Analysis (Y-Y Direction)

 	_		_	 -
Lin	ie	2		

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
Ī	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	5.335	509

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
5.67	12.33	35	90

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
5 .	6.25	15.625	40

 $\Sigma = \frac{\text{Seismic Shear (LBS)}}{130}$ 

: . Wind Governs	Governing Shear =		509 lbs
Shear Wall Segment		Total	Unit Shear

Shear Wall Segment					Total	Unit Shear
1	2	3	4	5	L (FT)	(PLF)
6					6.0	85

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	32	" O.C.	

Uplift				
Wali	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	6	85	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	2.84	5	2.84	15	8
					·	
***************************************	***************************************					
				<u> </u>		

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	4072	2773	.67	369	Negligible
				_	

OWNER: PROJECT:

PAGE _	10	_OF	1	9_
DATE				
JOB NO	). 1	1-0	3	15

#### Lateral Analysis (Y-Y Direction)

Line	3

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	2.5	239

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	. 5	8	2.58

from: NEW

-	X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
	5	6	15	39

from: EXISTING

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
0	0	0	0

Seismic Shear (LBS)  $\Sigma = 39$ 

:.	Wind Governs	Governing Shear =	239 lbs
•			

Shear Wall Segment					Total	Unit Shear
1	2	3	4	5	L (FT)	(PLF)
6					6.0	40

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @ 32 " O	.c.

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	6	40	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	2.50	5	2.50	15	8 .
			·			

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	1908	2700	.67	17	Negligible
		·			

OWNER: PROJECT:

PAGE _		_OF	1	9	
DATE					_
JOB NO.	}	1-0	8	15	

#### Lateral Analysis (Y-Y Direction)

 	-	_	***	
Li		4		

Wind	Design Wind Pressure (PSF)	Roof Height (FT) Story Height (FT)		# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)	
95	12.75	1216	

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	18	229.5	592

from: New Patio

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	13.5	172.125	444

Seismic Shear (LBS)  $\Sigma = 1036$ 

: 4	Wind Governs	Gover	ning Shear =	1216 1	os
_					
			,		

	She	ar Wall Segn	Total	Unit Shear		
1	2	3	. 4	5	L (FT)	(PLF)
8					8.0	152

USE:	∆ <b>10</b>	SHEAR PANEL	and Simpson A-35 @	16	" O.C.	

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	8	152	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	12.75	5	12.75	15	8
	•••••••••••••					

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	
1	9731	8736	.67	485	Negligible

OWNER: **PROJECT:** 

PAGE _	12	_OF	19_
DATE			
JOB NO	<b>)</b> . 1	1-0	815

#### Lateral Analysis (Y-Y Direction)

Line !	5

Wind	Design Wind Pressure (PSF)	Roof Height (FT) Story Height (		# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	. 8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	12.75	1216

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	18	229.5	592

from: New Patio

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)	
25.5	13.5	172.125	444	

Seismic Shear (LBS) 1036

: . Wind Governs	verns Governing Shea		1216 lbs
			1. 1. 0.
Shear Wall Segment		Total	Unit Shear

Shear Wall Segment					Total	Unit Shear
1	2	3	4	5	L (FT)	(PLF)
5.5					5.5	221

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	16	" O.C.	

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	5.5	221	1
			·····	

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	12.75	5	12.75	15	8

Wali	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE	Provides (lbs)
1	9731	4129	.67	1266	HDU2	3075

OWNER: PROJECT:

PAGE 1	3	OF	*	9	
DATE _	i				_
JOB NO	. )	1-0	8	15	

#### Lateral Analysis (X-X Direction)

Line	Α	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)	
	15.9	4.00	8	1	6.00	

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	6.17	588

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

1	X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
1	10.67	12.33	66	170

from: Existing

Wind Governs

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
0	0	0	0

Seismic Shear (LBS)  $\Sigma = 170$ 

	·					
Shear Wall Segment				Total	Unit Shear	
	2	3	4	5	L (FT)	(PLF)
	·				0.0	See Perf Shear Design

I	1155.	A 10	SHEAR PANEL	and Simpson A-35 @	32	" Q.C.

Governing Shear =

588 lbs

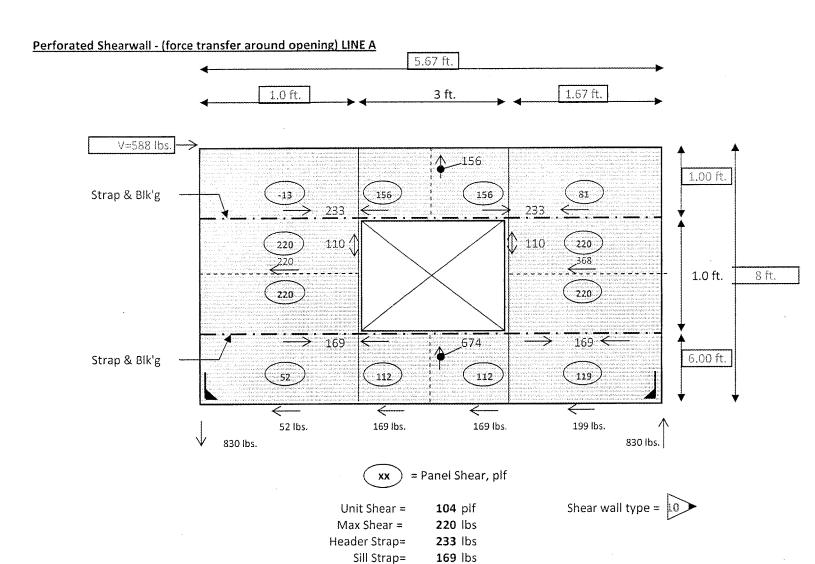
Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1, N=0)
1	8	0.0	See Perf Shear Design	0
			******	

SEE NEXT PAGE

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1						

Wali	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE	Provides (lbs)
1						

OWNER: PROJECT:



OWNER: PROJECT:

#### Lateral Analysis (X-X Direction)

	_		_	
Lin	e	В		

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
ſ	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	19.5	1860

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
10.67	12.33	66	170

from: Existing

Wind Governs

X Width (FT)			Shear (LBS)	
55	55 1 16		1135	

Seismic Shear (LBS)  $\Sigma = 1304$ 

***************************************						•
						_
 Shea	ar Wall Segm	ient		Total	Unit Shear	l
2	3	4	5	L (FT)	(PLF)	l

1 2 3 4 5 L(FT) (PLF)	1	Sne	rotar	Onit Shear			
4 67 4 25 8 9 209	1	2	3	4	5	L (FT)	
4.07	4.67	4.25				8.9	209

USE:	Δ 11	SHEAR PANEL	and Simpson A-3	IS @	16	" O.C.	

Governing Shear =

1860 lbs

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	4.67	209	1
2	8	4.3	209	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	8.0	5	8.0	15	8
2	7	8.0	5	8.0	15	8
			····			

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	7792	2355	.67	1331	HDU2 3075
2	7091	1951	.67	1361	HDU2 3075
-				,	

OWNER: PROJECT:

PAGE 16 OF 19 DATE \_\_\_\_\_\_\_ JOB NO. 11-0815

#### Lateral Analysis (X-X Direction)

Line C

Wind	Design Wind Pressure (PSF)	Roof Height (FT) Story Height (FT)		# of Stories (FT) Height for Cald	
	15.9	4.00	8	1	6.00

Wind L	oad (PLF)	Trib Width (FT)	Wind Shear (LBS)
9	95	15.5	1479

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	31	395.25	1019

from: New Patio

Wind Governs

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	13.5	172.125	444

Seismic Shear (LBS)  $\Sigma = 1463$ 

	She	ar Wall Segm	ent		Total	Unit Shear
1	2	3 .	4	5	L (FT)	(PLF)
4	4.0				8.0	185

				***********
USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	16 " O.C.

Governing Shear ≃

1479 lbs

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
. 1	8	. 4	185	0
2	8	4.0	185	0
		~		
		•		

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1 .	7	0.0	5	0.0	15	8
2	7	0.0	5	0.0	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE	Provides (lbs)
1	5915	960	.67	1318	HDU2	3075
2	5915	960	67	1318	HDU2	3075

OWNER: PROJECT:

PAGE 1	$\overline{\mathcal{L}}$	0	F 1	9	
DATE					_
JOB NO.	-	-	08	15	

#### Lateral Analysis (X-X Direction)

	ine	0	
	.11116	v	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	6.00	8	1	7.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
111	12.5	1391

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	18	229.5	592

from: Existing

X Width (FT)	Y Length (FT)	Haif Area (FT^2)	Shear (LBS)
55	12	330	851

Seismic Shear (LBS)  $\Sigma = 1443$ 

: . Seismic Governs	Governing Shear =	1443 lbs
Sharr Wall Comment	Total	Unit Chaar

	She	ar Wall Segm	Total	Unit Shear		
1	2	3	4	5	L (FT)	(PLF)
10					10.0	144

USE:	Δ 10		SHEAR PANEL	ar	nd Simpson A-35 @	32	" O.C.	

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	10	144	1
		The state of the s		
<b></b>		· · · · · · · · · · · · · · · · · · ·		
			1	

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	6.5	5	6.5	15	8
			·····			

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	11543	9900	.9	263	Negligible

OWNER: PROJECT: PAGE 18 OF 19 DATE JOB NO. 11-08

#### Roof Diaphragm

Seismic V =

2.58 psf

		p				
I		Length (ft)	Load (psf)			
I	Y-Dir	18	46			
Ī	X-Dir	25.5	66			

Wind Load

	Wind Load (PLF)
Y-Dir	95
X-Dir	95

	Governing Load (psf)	X-Dir Length (L1, ft)	Y-Dir Length (L2, ft)
Y-Dir	95	25,5	18
X-Dir	95	25.5	18

LONG

 $w^*L1/(2^*L2) =$ 

68 lbs/ft

SHORT

w\*L2/(2\*L1) =

34 lbs/ft

USE 15/32" CDX PLYWOOD OR OSB w/ 8d @ 6" and 12" PROVIDES = 240#/ft UNBLOCKED

\*Table 2306.2.1(1) CBC 2010

LONG

Tension = Compression =  $w^L1^2/(L2^8) =$ 

431 lbs

SHORT

Tension = Compression =  $w^L2^2/(L1^*8) =$ 

152 lbs

USE ST22	PROVIDES =	1420 lbs	
ST22	PROVIDES =	1420 lbs	

#### FOUNDATION ANALYSIS: (ASSUME SOIL BEARING PRESSURE 1500 PSF)

7 psf

#### **Continous Footing**

Roof DL = Roof LL = 19 psf

Roof Tributary = 12.75 ft Ceiling DL = 5 psf

Ceiling Tributary = 12.75 ft

Floor DL =

40 psf Floor LL = 10 psf

Floor Tributary = 0.00 ft Wall DL = 15 psf

Wall Height = 8 ft

> W max = 515 plf

1500 psf Soil Bearing Pressure =

> 0.34 ft Width =

> > 4.12 inches

USE 12"x12"deep w/ #4 T.&B. MIN.

1 Pad Support BM 3 and BM 4 @ Patio

P max =

3038 lbs

A req =

1.42 sq ft

A req = 17.08 sq in

USE 24"x24"x12" w/ 2 #4 E.W.

OWNER: PROJECT:

PAGE _	9	_OF	1	9
DATE _	,			
JOB NO		1-08	8/	5

#### SHEAR PANEL SCHEDULE (SEISMIC) C. B. C. 2010 EDITION TABLE 2306.3

NO.	MATERIAL	NAILING	LB/FT	SOLE NAILING	A.B. SPACING
			S/W	16d @ O.C.	5/8" @ O.C
10	3/8" STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 6" O.C. EDGE & 12" FIELD	280	6"	32"
2.0		OR 10d BOX OR 12d SINKER			
11	3/8" STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 4" O.C. EDGE & 12" FIELD	350	4"	24"
		OR 10d BOX OR 12d SINKER			
12	3/8" STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 4" O.C. EDGE & 12" FIELD	430*	4"	24"
12		OR 10d BOX OR 12d SINKER			
13	3/8"STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 3" O.C. EDGE & 12" FIELD	550*	3"	16"
7.3		OR 10d BOX OR 12d SINKER			
14	15/32" STRUCTURAL 1 PLYWOOD OR OSB	10d COMMON @ 3" O.C. Edge & 12" FIELD	665*	2"	12"
147		OR 16d SINKER			
15	15/32" STRUCTURAL 1 PLYWOOD OR OSB	10d COMMON @ 2" O.C. Edge & 12" FIELD	870*	2"	8"
73	·	OR 16d SINKER			

<sup>\*</sup> FRAMING AT ADJOINING PANEL EDGES AND SILL PLATE SHALL BE 3x\_\_\_ OR WIDER AND NAILS SHALL BE STAGGERED (IF SHEAR WALL EXCEED 350#/FT).

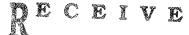
#### NOTES:

- A. PROVIDE 2x BLOCKING AT HORIZONTAL PLYWOOD PANEL JOINTS
- B. WHERE PLYWOOD IS APPLIED ON BOTH FACES OF WALL AND NAIL SPACING IS LESS THAN A 6" OC, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS OR FRAMING SHALL BE 3x\_\_\_ OR WIDER (OR 2-2x\_\_) AND NAILS STAGGERED ON EACH SIDE.
- C. WHERE NAILS ARE SPACED AT 2" OC, THEY SHALL BE STAGGERED AND 3x\_\_\_ OR WIDER FRAMING MEMBERS SHALL BE USED AT ADJOINING PANEL EDGES
- D. USE .229"x3"x3" SQUARE WASHER FOR 5/8"X10" ANCHOR BOLTS

### **BUILDING ENERGY ANALYSIS REPORT**

#### **PROJECT:**

SINGLE HOUSE ADDITION 923 CLEMENSEN SANTA ANA, CA 92705



NOV 102011

City of Santa Ana

### **Project Designer:**

KENS DESIGNS 4482 LARO LN. YORBA LINDA, CA 92886 (714) 931-0295

### **Report Prepared by:**

Perfect Design PERFECT DESIGN & DEVELOPMENT, INC. 2416 W Valley Blvd Alhambra, Ca 91803 (626)289-8808

Job Number:

F11-1001R

Date:

10/12/2011



The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2008 Building Energy Efficiency Standards.

This program developed by EnergySoft, LLC - www.energysoft.com.

User Number: 1919 EnergyPro 5.1 by EnergySoft

RunCode: 2011-10-12T15:31:54

ID: F11-1001R

# TABLE OF CONTENTS

Cover Page	1
Table of Contents	2
Form CF-1R Certificate of Compliance	3
Form MF-1R Mandatory Measures Summary	8
HVAC System Heating and Cooling Loads Summary	11
Room Load Summary	13
Room Heating Peak Loads	15
Room Cooling Peak Loads	17

EnergyPro 5.1 by EnergySoft

Job Number: ID: F11-1001R

User Number: 1919

		NCE CE	RTIFICA						1 of 5)	CF-1
Project Na		E ADDITION	ı	Build	ding Type			<ul><li>☐ Addition Alone</li><li>☑ Existing+ Additi</li></ul>	on/Alteration	Date 10/12/20
Project Ac	ddress				fornia Ene			otal Cond. Floor Area		# of Stori
		EN SANTA			A Clima		e 08	2,194	381	1
FIELD	) INSP	ECTION	<b>ENERG</b>	Y CHE	CKLIS	ST				
☐ Yes	✓ No	HERS M	easures	If Yes,	A CF-4	IR mus	st be pro	vided per Parl	2 of 5 of the	his form.
□ Yes	☑ No	Special F	eatures -	If Yes,	see Pa	art 2 of	5 of this	form for detail	ls.	
INSUL	ATION			-		Area	Spec	ial		
	ruction	Type		Cav	ity	$(ft^2)$	-	res (see Part	2 of 5)	Status
Roof	Wood Fre	amed Attic		R-30		1,813				Existing
Vall	Wood Fre	amed		R-11		1,229				Existing
Slab	Unheated	l Slab-on-Grade		None		1,813	Perim = 17	75'		Existing
Roof	Wood Fra	amed Rafter		R-30		381				New
Wall	Wood Fre	amed	wasternamen .	R-13		547				New
Slab	Unheated	d Slab-on-Grade		None		381	Perim ≈ 84	4'		New
	OTD 4 TI	<u> </u>						Fulada	***************************************	
	STRATI	_	U-	ence	Overh	2004	Sidefin	Exterior s Shades		Status
Orient	auon	Area(ft²)		SHGC		iany				
Right (W)		16.0	1.190	0.83	none		none	Bug Screen		Existing
Left (E)		36.0	1.190	0.83	none		none	Bug Screen		Existing
Left (E)		54.0	0.300	0.21	none		none	Bug Screen		New
Front (N)	····	37.2	1.190	0.83	none		none	Bug Screen		Existing
Rear (S)		40.2 117.5	0.300	0.83 0.21	none		none	Bug Screen Bug Screen		Existing New
Rear (S)		0.0	0.300	0.21	none		none	Bug Screen	·	New
Right (W) Front (N)		0.0	0.300	0.21	none none		none none	Bug Screen		New
r tont (N)		0.0	0.500	0.21	none		none	Day Goreen		
						·····	,,			
<del></del>										
HVAC	SYSTE	MS						***************************************		we.
Qty.	Heating	g	Min. E	ff Co	oling		Min. l	Eff The	ermostat	Status
1	Central Fu	rnace	94% AFU	IE Spi	it Air Cond	litioner	15.0 SE	ER Setba	ck	Altered
1	Central Fu	тасе	96% AFU	IE Spi	it Air Cond	ditioner	15.0 SE	ER Setba	ck	New
		IBUTION		_		_			Duct	0.5 1
Locati			ating	~	oling		t Locati		R-Value	Status
EXISTING		Ducted		Duc			Ceiling Ins, ve		6.0	New
	V AREA	Ducted	<del></del>	Duo	ted	Attic, (	Ceiling Ins, ve	ented	6.0	New
ADDITION										
	D HEV	TING								
	R HEA	TING	G	allons	Min.	Fff	Distribu	ıtion		Status

PERFORMANCE CERTIFICATE:	Resider	itiai	(Part 2 of 5)	CF-1R
Project Name	Building Type	☑ Single Family		Date
SINGLE HOUSE ADDITION		☐ Multi Family	☑ Existing+ Addition/Alteration	10/12/2011
SPECIAL FEATURES INSPECTION	ON CHEC	KLIST		
The enforcement agency should pay special attention	to the items s	pecified in this che	ecklist. These items require spec	ial written
justification and documentation, and special verification determines the adequacy of the justification, and may	on to be used v	vith the performan	nce approach. The entorcement a	agency
the special justification and documentation submitted	· reject a buildii ·	ig or design that t	otherwise compiles based on the	adequacy of
			10.1.1000000000000000000000000000000000	
				44
		····		
			AND THE RESERVE OF THE PARTY OF	
	~~~~			
HERS REQUIRED VERIFICATIO				
Items in this section require field testing and/or completed CF-4R form for each of the measure	verification by	a certified HER	IS Rater. The inspector must	receive a
completed CF-4H form for each of the measure	s listed below	To ma to be g	IVOII.	
		· ALMIN' · · · · · ·		
	A4 6 6 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			
			mcr	
	•			
			nacestrowns	
//_/// // // // // // // // // // // //				
			- <u>.</u>	
		***************************************		
EnergyPro 5.1 by EnergySoft User Number: 1919	RunCode: 201	1-10-12T15:31:54	ID: F11-1001R	Page 4 of 18

ANNUAL ENERGY USE SUMMARY  TDV (kBtuff*.yg) Space Cooling 16.80 16.20 0.60 Fans 5.94 6.39 -0.45 Domestic Hot Water 18.86 18.56 0.00 Pumps 7 Totals 50.85 49.77 0.68 Percent Better Than Standard 1.7%  Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Area Precladard Site: 1.7%  Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Area Area Site) on Grade Area: 0 (S) 4444 159 Raised Floor Area: 0 (S) 444 159 Raised Floor Area: 0 (S) 744	ANNUAL ENERGY USE SUMMARY  TDV (kBtutrl²-yr) Space Hoating 9.35 8.62 0.73 Space Cooling 16.80 16.20 0.60 Fars 5.94 6.39 0.46 Domestic Hot Water 18.56 18.56 0.00 Pumps Totals 50.65 48.77 0.88 Percent Better Than Standard: 1.7%  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation. (N) 0 deg Ext. Walls/Roof Wall Area Area Number of Dwelling Units: 1.00 (N) 444 15 Space Average SHG: 0.48 Fenestration Average U-Factor: 0.88 Fenestration Average SHGC: 0.48 Fenestration is accurate and designer.  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24. Parts 1 the Administrative Regulations. Average SHGC: 0.48 Fenestration Average SHGC: 0.48 Fenestration is accurate and designer.  Procumentation author hereby certifies that the documentation is accurate and designer. Space 2416 W Velby Bhd Name Perfect Design A Decuments is consistent with the other compliance forms and worksheets, with the specification of confidence in this so of construction documents is consistent with the other compliance forms and worksheets, with the specification and field verification in stallation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Designer or Owner (per Business & Professions Code)	I LIN VIN	MANCE (	CERT	IFICATE	: Residen			rt 3 of 5)	CF-1R
ANNUAL ENERGY USE SUMMARY  TDV (kBttuft²-yr)  Space Heating Space Cooling 16.80 16.20 0.60 Fans 59.44 6.39 0.04 Ensemble Hot Water 18.65 18.55 18.55 19.77 0.88  Percent Better Than Standard: 1.7%  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Fenestration Number of Dwelling Units: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	ANNUAL ENERGY USE SUMMARY  TDV (kBtu/ft²-yr)  Space Heating  9.35 8.62 0.73  Space Cooling  1.60 16.20 0.60  Fans  5.94 6.39 -0.45  Domestic Hot Water  1.805 18.55 0.00  Pumps  Totals  5.065 49.77 0.98  Percent Better Than Standard:  1.776  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation:  (N) 0 deg Ext. Walls/Roof Wall Area  Area  Number of Dwelling Units:  1.00 (N) 4444 414  Area  Area  Area  Area  Area  Area  Alea  Alea  Average SHoor Area:  5.194 (W) 594 9.7  Average Ceiling Height:  8.0 Roof 2.194  Average Ceiling Height:  8.0 Roof 2.194  Average SHGC:  0.48 Fenestration/CFA Ratio:  1.37.5  REMARKS   STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obtinities  Documentation Author  Company  FerreFECT DESIGN & DEVELOPMENT. INK  Address  2416 W Valley Bivd  Name Perfect Design  Date  The individual with overall design responsibility hereby certifies that the proposed building feating in represented in this of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refigerant charge, insulation installation quality, and building envelope sealing require installation quality, and building envelope sealing require installation and recognizes that compliance using duct design, duct sealing, verification of refigerant charge, insulation installation quality, and building envelope sealing require		USE ADDIT	TION		Building Type				
TDV (kBtw/ff*-yr)  Space Heating	TDV ((RBtuff*-yr)  Space Heating 9.35 8.62 0.73  Space Cooling 16.80 16.20 0.60  ans 5.94 6.39 - 0.45  Domestic Hot Water 18.56 18.56 0.00  Pumps 0.00 0.00 0.00  Totals 50.65 49.77 0.88  Percent Better Than Standard: 1.7%  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0.69 Ext. Walls/Roof Wall Area Area  Area  Sulding Front Orientation: (N) 0.69 Ext. Walls/Roof Wall Area Area  Area  Area  Area  Area  Area  Area  Area  Area  Area  Area  Slab on Grade Area: (2.194 (W) 594 71  Slab on Grade Area: 2.194 (W) 594 71  Average Celling Height: 8.0 Roof 2.194 71  Average SHGC: 0.48 Fenestration/CFA Ratio: 13.79  REMARKS   STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Bind Name Perfect Design  Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Bind Name Perfect Design  Documentation Author (2.194 Name Perfect Design Name Name Perfect Design Name Perfect Design Name Name Perfect Design Name Name Per				RY		La Water army	EL EXISTING T	Addition/Alteration	10/12/201
Space Heating 9.35 8.62 0.73 pace Cooling 16.80 16.20 0.60 rans 5.94 6.39 -0.45 Domestic Hot Water 18.56 18.56 0.00 Pumps Totals 50.65 49.77 0.88 Percent Better Than Standard: 1.7%  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Area Area (N) 444 138 Region of Dwelling Units: 1.00 (N) 444 158 Raised Floor Area: 0 (S) 444 158 Raised Floor Area: 0 (R) 594 16 Recentration Average U-Factor: 0.68 TOTAL: 301 Fenestration Average SHGC: 0.49 Fenestration/CFA Raitio: 13.7%  REMARKS  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obtained the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obtained the California Code of Regulations.  The documentation author hereby certifies that the proposed building lesign represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, Just esseling, verification of refigerant charge, insulation installation quality, and building envelope sealing require restaller testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Designer or Owner (per Business & Professions Code)	Space Heating 9.35 8.62 0.73 pace Cooling 16.80 16.20 0.60 ans 5.04 6.39 -0.45 Domestic Hot Water 18.56 18.56 0.00 Pumps 0.00 0.00 0.00  Totals 50.65 49.77 0.88 Percent Better Than Standard: 1.7%  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0.69 Ext. Walls/Roof Wall Area Area Number of Dwelling Units: 1.00 (N) 444 15 Alaised Floor Area: (S) 594 99 Alaised Floor Area: (S) 444 15 Slab on Grade Area: 2.194 (M) 594 17 Average Celling Height: 8.0 Roof 2.194 17 Average Celling Height: 8.0 Roof 2.194 17 Average SHGC: 0.46 Fenestration/CFA Ratio: 137.73  TEMARKS  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and outside the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and outside the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and outside the California Code of Regulations.  The documentation author hereby certifies that the proposed building design represented in this sofi construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with his permit application, and recognizes that compliance using duct design verification of refigerant charge, insulation installation quality, and building envelope sealing require rostaler testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Domegary Kens Designs  Markes Des					Margin				
STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations. Average SHGC:  O.48  **STATEMENT OF COMPLIANCE**  The documentation author hereby certifies that the documentation is accurate and obsigned and the proposed building design represented in this see of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that the proposed building design represented in this see of construction documents is consistent with the other compliance forms and worksheets, with the specification, and with any other calculations submitted with this permit application, and recognizes that compliance ensured and duting envelope sealing require mistaller testing and certification of refrigerant charge, insulation installation quality, and building envelope sealing require mistaller testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  **EMARKS**  **Percent Better Than Standards**  **Internation**  **Inter	STATEMENT OF COMPLIANCE This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  PERMARKS  STATEMENT OF COMPLIANCE The documentation author hereby certifies that the proposed building design represented in this of construction documents is consistent with the other compliance forms and worksheets. With the specification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Menand Specifics  London Code Specification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Menand Specifics  London Code Specification and field verification by an approved HERS rater.  London Code Specification and field verification by an approved HERS rater.  London Code Specification and field verification by an approved HERS rater.  London Code Specification and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  London Code Specification Specification and proved HERS rater.  London Code Specification Specification and field verification by an approved HERS rater.  London Code Specification Specification and field verification by an approved HERS rater.  London Code Specification Code Specification Specificati	TDV (kBti	ı/ft <sup>2</sup> -yr)							
Fans 5.94 6.39 -0.45  Domestic Hot Water 18.56 18.56 0.00  Pumps 50.50 49.77 0.88  Percent Better Than Standard: 1.7%  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0.69 Ext. Walls/Roof Wall Area Number of Dwelling Units: 1.00 (N) Wall Area Number of Dwelling Units: 1.00 (N) Wall Area Number of Dwelling Units: 1.00 (N) 444 37  Fenestration Preserved at 3the: Natural Gas (E) 594 90  Raised Floor Area: 0 (S) 4444 185  Slab on Grade Area: 2.194 (W) 594 16  Average Gelling Height: 8.0 Roof 2.194 0  Average Gelling Height: 8.0 Roof 2.194 0  Average Gelling Height: 7.00  Average Gelling Height: 7.00  Fenestration Average U-Factor: 0.68 Fenestration/CFA Ratio: 13.7 %  REMARKS  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and outsplets  Documentation Author Company PERFECT Design  Perfect Design Name Perfect Design  Name Perfect Design Signed Date  Documentation Author Company Signed Date  Date  Date  Date  Date  Date  Date  Date  Chystate/Zip Alhambra. Ca 91803 Phone (628)289-8808 Signed Company Sig	Fans 5.94 6.39 -0.45  Domestic Hot Water 18.56 18.56 0.00  Totals 50.65 49.77 0.88  Percent Better Than Standard: 1.7%  Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Area Steller Standard Steller	Space Heating	g	9.35	8.62	0.73	•••••	•••••	***************************************	
Totals 50.65 49.77 0.86 Percent Better Than Standard: 1.7%  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) dep	Demestic Hot Water 18.56 18.56 0.00 Pumps 0.00 0.00 0.00 Totals 50.65 49.77 0.88 Percent Better Than Standard: 1.7 %  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Area 3 Fuel Available at Site: Natural Gas (E) 504 9.71 Raised Floor Area: 0 0 (S) 444 15. Raised Floor Avea: 0 0 (S) 444 15. Raised Plant Roof Average Celling Height: 8.0 Roof 2.194 (W) 594 16. Reenestration Average U-Factor: 0.68 TOTAL: 30 Average SHGC: 0.48 Fenestration/CFA Ratio: 13.73  REMARKS  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and campleto.  Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INX  Raddress 2416 W Valley Blod Name Perfect Design Phone (626)289-8808 Signed Date  The Individual with overall design responsibility hereby certifies that the proposed building design represented in this of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations authirited with this permit application, and worksheets, with the specifications installation quality, and building envelope sealing require mistaller testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  **ENS DESIGNS**  **ABCLARO IN.**  **No DESIGNS**  **ABCLARO IN.*  **No DESIGNS**			16.80	16.20	0.60				
Totals 50.65 49.77 0.88  Percent Better Than Standard: 1.7%  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Area  Rumber of Dwelling Units: 1.00 (N) 444 Area  Frenestration Number of Dwelling Units: 1.00 (N) 444 Area  Frenestration Average Called a Site: Natural Gas (E) 594 90  Raised Floor Area: 0 (S) 4444 188  Slab on Grade Area: 2.194 (N) 594 76  Fenestration Average U-Factor: 0.68 Roof 2.194 0  Average Celling Height: 8.0 Roof 2.194 0  Average SHGC: 0.48 Fenestration/CFA Ratio: 13.7%  REMARKS  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obtained by the California Code of Regulations.  The documentation Author Perfect Design Decumentation Author Perfect Design Phone (26)289-8608 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS 4482 LARO LN. Name	Totals 50.65 49.77 0.88  Percent Better Than Standard: 1.7 %  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0 deg	- ans	-	5.94	6.39	-0.45				
Totals 50.65 49.77 0.88  Percent Better Than Standard: 1.7%  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0 dex (N) (N) 0 dex (N	Totals 50.65 49.77 0.88  Percent Better Than Standard: 1.7 %  BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Area Area (E) 594 9.5  Fenestration Puelling Units: 1.00 (N) 444 3.3  Fuel Available at Site: Natural Gas (E) 594 9.5  Raised Floor Area: 0 (S) 444 15  Sale on Grade Area: 2.194 (W) 594 17  Average Celling Height: 8.0 Roof 2.194 70TAL: 30  Average Celling Height: 8.0 Roof 2.194 70TAL: 30  Average SHGC: 0.48 Fenestration/CFA Ratio: 13.73  REMARKS   STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and one of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and one of the California Code of Regulations.  The documentation author hereby certifies that the proposed building design represented in this of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Kens Designs  4decress 4482 LAROLN Name	Domestic Hot	Water	18.56	18.56	0.00				
BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0 deg (N) 444 Area Area Area Area Area Area Area Area	BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: Number of Dwelling Units: 1,00 N) deg Number of Dwelling Units: 1,00 N) 444 158 Bales of Ison Area: 0 (S) 444 158 Bales of Ison Area: 0 (S) 444 158 Bales of Ison Area: 0 Roof 1,194 Neverage Celling Height: 1,00 Roof 1,00 Ro	Pumps		0.00	0.00	0.00				
BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Number of Dwelling Units: 1.00 (N) 444 437  Fenestration Area Number of Dwelling Units: 1.00 (N) 444 437  Fuel Available at Site: Natural Gas (E) 594 90  Alsied Floor Area: 0 (S) 444 158  Slab on Grade Area: 2.194 (W) 594 16  Average Celling Height: 8.0 Roof 2.194 0  Fenestration Average U-Factor: 0.68 TOTAL: 301  Average SHGC: 0.48 Fenestration/CFA Ratio: 13.7 %  REMARKS   STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and preference of the California Code of Regulations.  The documentation Author  Company  PERFECT DESIGN & DEVELOPMENT, INK Address 2416 W Valley Bird Name Perfect Design Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this serior compliance of orms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, fluct sealing, verification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company  KENS DESIGNS  Address 4482 LARO LM. Name	BUILDING COMPLIES - NO HERS VERIFICATION REQUIRED  Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Number of Dwelling Units: 1.00 (N) 444 43  3  Tuel Available at Site: Natural Gas (E) 594 9  Salased Floor Area: 2,194 (M) 594 17  Average Celling Height: 8.0 Roof 2,194 7  Average Celling Height: 8.0 Roof 2,194 7  Average SHGC: 0.48 Fenestration/CFA Ratio: 13.7 s  REMARKS  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and complete the California Code of Regulations.  The documentation Author  Company  PERFECT DESIGNS & DEVELOPMENT, INC Address 2416 W Valley Blrd  Name Perfect Design Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, fuct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS  Address 4482 LARO LIN. Name	1	Totals	50.65	49.77	0.88				
Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Area Number of Dwelling Units: 1.00 (N) 4444 37 Fuel Available at Site: Natural Gas (E) 594 90 Raised Floor Area: 0 (S) 4444 158 Slab on Grade Area: 2,194 (W) 594 16 Average Celling Height: 8.0 Roof 2,194 0 Fenestration Average U-Factor: 0.68 TOTAL: 301 Average SHGC: 0.48 Fenestration/CFA Ratio: 13.7 %  REMARKS  STATEMENT OF COMPLIANCE This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obsigned Efficiency Standards of the California Code of Regulations.  The documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INK Address 2416 W Valley Blid Name Perfect Design Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this send with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification and field verification and part perfect Design Perfect Design and certification and recognizes that compliance using duct design, duct sealing, verification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS 4482 LARO LN. Name	Building Front Orientation: (N) 0 deg Ext. Walls/Roof Wall Area Fenestration Number of Dwelling Units: 1.00 (N) 444 44 3  Fuel Available at Site: Natural Gas (E) 594 9  Raised Floor Area: 0 (S) 4444 15  Slab on Grade Area: 2,194 (W) 594 17  Average Ceiling Height: 8.0 Roof 2,194 17  Average Ceiling Height: 8.0 Roof 2,194 17  Average SHGC: 0.48 TOTAL: 30  Average SHGC: 0.48 Fenestration/CFA Ratio: 13.7 9  REMARKS  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and original to the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and original to the California Code of Regulations.  The documentation author Pereby certifies that the documentation is accurate and original to the California Code of Regulations.  The individual with overall design responsibility hereby certifies that the proposed building design represented in this of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS Address 4482 LARO LIN. Name	Percent Bette	er Than Stai	ndard:		1.7 %				
STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations.  The documentation author hereby certifies that the documentation is accurate and obspiete.  Documentation author hereby certifies that the documentation is accurate and obspiete.  Documentation author hereby certifies that the proposed building design represented in this sed of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, werification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  4482 LARO LN. Name	Building Front Orientation: (N) 0 deg (N) 444 33  Fuel Available at Site: 1.00 (N) 444 15  Fuel Available at Site: 1.00 (S) 444 15  Falsed Floor Area: 0 (S) 444 15  Falsed Floor Area: 2.194 (W) 594 75  Falsed Floor Area: 2.194 (W) 594 75  Falsed Floor Area: 3.0 Roof 2.194 75  Faverage Celling Height: 8.0 Roof 2.194 75  Faverage Celling Height: 8.0 Roof 2.194 75  Fenestration Average U-Factor: 0.68 TOTAL: 30  Average SHGC: 0.48 Fenestration/CFA Ratio: 13.79  FEMARKS   STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and complete to the California Code of Regulations.  The documentation Author PERFECT DESIGN & DEVELOPMENT, INC 2416 W Valley Blvd Name Perfect Design Phone (626)289-8808 Signed Date Date The individual with overall design responsibility hereby certifies that the proposed building design represented in this city of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, fucut sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installations and worksheets, with the specifications and worksheets, with the specifications and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, the specification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS 4482 LARO LIN. Name	BU	ILDING	COM	<b>IPLIES</b>	- NO HE	RS VERIF	CATION	N REQUIR	ED
Number of Dwelling Units: 1.00 (W) 444 37  Tuel Available at Site: Natural Gas (E) 594 90  Raised Floor Area: 0 (S) 444 158  Siab on Grade Area: 2.194 (W) 594 16  Average Ceiling Height: 8.0 Roof 2.194 0  Fenestration Average U-Factor: 0.68 TOTAL: 301  Average SHGC: 0.48 Fenestration/CFA Ratio: 13.7 %  REMARKS  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obtapies to the California Code of Regulations.  The documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INK Address 2416 W Veiley Bivd Name Perfect Design Phone (626)289-8808 Signed Total Date  The individual wint overall design responsibility hereby certifies that the proposed building design represented in this sed of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installated resign and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS 482 LARO LIN. Name	Number of Dwelling Units: 1.00 (N) 444 3 Tuel Available at Site: Neutral Gas (E) 594 9 Rajsed Floor Area: 0 (S) 444 15 Slab on Grade Area: 2,194 (W) 594 1 Average Ceiling Height: 8.0 Roof 2,194 (W) 594 1 Average Ceiling Height: 8.0 Roof 2,194 (W) 594 1 Average SHGC: 0.68 TOTAL: 30 Average SHGC: 0.48 Fenestration/CFA Ratio: 13.79  REMARKS  STATEMENT OF COMPLIANCE This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obsiples  Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC Name Perfect Design Address 2416 W Valley Bivd Name Perfect Design Phone (626)289-8808 City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 The individual with overall design responsibility hereby certifies that the proposed building design represented in this of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS 4482 LARO LN. Name	<u></u>								
Fuel Available at Site: Natural Gas (E) 594 90 Raised Floor Area: 0 (S) 444 158 Slab on Grade Area: 2,194 (W) 594 16 Average Ceiling Height: 8.0 Roof 2,194 0 Average Ceiling Height: 8.0 Roof 2,194 0 Average SHGC: 0.48 Fenestration/CFA Ratio: 13.7 %  REMARKS   STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and official of the California Code of Regulations.  The documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Blvd Name Perfect Design Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this see of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name	Fuel Available at Site: Natural Gas (E) 594 9.  Raised Floor Area: 0 (S) 444 15.  Slab on Grade Area: 2,194 (W) 594 1.  Average Celling Height: 8.0 Roof 2,194 TOTAL: 30.  Average Celling Height: 0.68 TOTAL: 30.  Average SHGC: 0.48 Fenestration/CFA Ratio: 13.79  REMARKS   STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obtained by the California Code of Regulations.  The documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC Name Perfect Design 216 Minembra, Ca 91803 Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name	-			(			oof Wa		
Raised Floor Area: 2,194 (W) 594 16 Average Ceiling Height: 8,0 Roof 2,194 00 Fenestration Average U-Factor: 0,68 TOTAL: 301 Average SHGC: 0,48 Fenestration/CFA Ratio: 13.7%  REMARKS  STATEMENT OF COMPLIANCE This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and consistent with the documentation accurate and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation Author Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Blvd Name Perfect Design City/State/Zip Alhambra, Ca 91803 Phone (C66)289-8808 Signed Date The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code) Company KENS DESIGNS Address 4482 LARO LN Name	Raised Floor Area: Slab on Grade Area: 2.194 (W) 594 17 Average Ceiling Height: 8.0 Roof 2.194 17 Average SHGC: 0.68 TOTAL: 30 Average SHGC: 0.48 Fenestration Average SHGC: 13.79  REMARKS  STATEMENT OF COMPLIANCE This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obside the Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Blvd Name Perfect Design City/State/Zip Alhambra, Ca 91803 Phone (620)289-8808 The individual with overall design responsibility hereby certifies that the proposed building design represented in this so of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct design, cluck sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS 4482 LARO LN. Name		_	:						
Stab on Grade Area: 2,194 (W) 594 16 Average Ceiling Height: 8.0 Reof 2,194 0 Fenestration Average U-Factor: 0.68 TOTAL: 301 Average SHGC: 0.48 Fenestration/CFA Ratio: 13.7 %  REMARKS  STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and on specifications because of the California Code of Regulations.  The documentation Author PERFECT DESIGN & DEVELOPMENT, INC 2416 W Veilley Bivd Name Perfect Design Construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LAROLN Name	State on Grade Area:  2,194  Average Ceiling Height: 8.0  Roof 2,194  Fenestration Average U-Factor: 0.68  Average SHGC: 0.48  Fenestration/CFA Ratio: 13.79  REMARKS   STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and desirables.  Documentation Author  Company  PERFECT DESIGN & DEVELOPMENT, INK Address  Address  Address  Professions Code)  Company  KENS DESIGNS  Address  Professions Code)  Company  KENS DESIGNS  Address  Professions Code)  Company  KENS DESIGNS  Address  Page 1.94  Address  Average U-Factor:  8.0  Roof 2,194  Fenestration/CFA Ratio: 13.79  Fenestration/CFA Ration/CFA Fenestration/CFA Fenestration/CFA Fenestration/CFA Fenestration/CFA Fenestration/CFA Fenestration/CFA Fenestration/CFA F				Na					
Average Ceiling Height:  Average U-Factor:  Average SHGC:  0.48  Fenestration/CFA Ratio:  13.7 %  REMARKS   STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and Carplete  Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC  Address 2416 W Valley Bivd  Name Perfect Design  Company Perfect Design Substitute of Construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name	Average Ceiling Height:  8.0 Roof 2,194 Fenestration Average U-Factor: 0.68 TOTAL: 30 Average SHGC: 0.48 Fenestration/CFA Ratio: 13.79  REMARKS  STATEMENT OF COMPLIANCE This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obligate to the Company PERFECT DESIGN & DEVELOPMENT, INK 2416 W Valley Blvd Name Perfect Design Company Perfect Design Capital With overall design responsibility hereby certifies that the proposed building design represented in this sof construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code) Company KENS DESIGNS Address 4482 LAROLN. Name					-				
STATEMENT OF COMPLIANCE This certificate of compliance lists the building features and specifications needed to comply with Tritle 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and outplete  Documentation Author Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Veiley Blvd Name Perfect Design City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 Signed Date The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS Address 4482 LARO LN. Name	STATEMENT OF COMPLIANCE This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and outside it.  Documentation Author Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Blvd Name Perfect Design (526)289-8808 Signed Date The individual with overall design responsibility hereby certifies that the proposed building design represented in this sof construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name					,				
STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obspice.  Documentation Author Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Blvd Name Perfect Design Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS Address 4482 LARO LN. Name	STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Blvd Name Perfect Design Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LM. Name	-					Roof			-
STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and part of the Company Perfect Design & Development, Inc.  Address 2416 W Valley Bird Name Perfect Design Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name	STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and obspice Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Blvd Name Perfect Design Phone (626)289-8808  The individual with overall design responsibility hereby certifies that the proposed building design represented in this sof construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS Address 4482 LARO LN. Name	Fenestration	_		•					
STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and Complete Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Blvd Name Perfect Design  City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name	STATEMENT OF COMPLIANCE  This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 the Administrative Regulations and Part 6 the Efficiency Standards of the California Code of Regulations.  The documentation author hereby certifies that the documentation is accurate and complete.  Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC Address 2416 W Valley Bivd Name Perfect Design City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name		Average S	SHGC:		0.48	F	enestration/C	FA Ratio:	13.7 %
The documentation author hereby certifies that the documentation is accurate and complete.  Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC  Address 2416 W Velley Blvd Name Perfect Design  City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name	The documentation author hereby certifies that the documentation is accurate and dominated.  Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC  Address 2416 W Valley Blvd Name Perfect Design  City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this sof construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name									
Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC  Address 2416 W Valley Blvd Name Perfect Design  City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company KENS DESIGNS  Address 4482 LARO LN. Name	Documentation Author  Company PERFECT DESIGN & DEVELOPMENT, INC  Address 2416 W Valley Blvd Name Perfect Design  City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this sof construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS  Address 4482 LARO LN. Name	This certificate	e of complia n Title 24, Pa	nce lists arts 1 the	the building Administra	tive Regulation		ded	ON YESSICA.	
Company Address  2416 W Valley Blvd  Name Perfect Design  Name Perfect Design  Name Perfect Design  Name Perfect Design  Name Name Name Name Name Name Name Nam	Company Address  PERFECT DESIGN & DEVELOPMENT, INC 2416 W Valley Blvd  Name Perfect Design  Name Name Perfect Design  Name Name Name Name Name Name Name Nam	This certificate to comply with Efficiency Sta	e of complian n Title 24, Pa andards of the	nce lists arts 1 the e Califor	the building Administra nia Code of	tive Regulation Regulations.	s and Part 6 the			
Address 2416 W Valley Blvd Name Perfect Design  City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS  Address 4482 LARO LN. Name	Address 2416 W Valley Blvd Name Perfect Design  City/State/Zip Alhambra, Ca 91803 Phone (626)289-8808 Signed Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this soft construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS  Address 4482 LARO LN. Name	This certificate to comply with Efficiency Sta	e of compliant Title 24, Pandards of the station author	nce lists arts 1 the e Califor  r hereby	the building Administra nia Code of	tive Regulation Regulations.	s and Part 6 the	and complet	6. 46. 14-175 13 / 20	
City/State/Zip Alhambra, Ca 91803  Phone (626)289-8808  Signed  Date  The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  Company  KENS DESIGNS  Address  Name	The individual with overall design responsibility hereby certifies that the proposed building design represented in this soft construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS  Address  Name	This certificate to comply with Efficiency Sta The document	e of complian  Title 24, Paundards of the  Intation author  ation Auth	nce lists arts 1 the e Califor r hereby	the building Administra nia Code of certifies tha	tive Regulation Regulations.  at the document	s and Part 6 the	and complet	6. 46. 14-175 13 / 20	
The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS  Address  Address  Name	The individual with overall design responsibility hereby certifies that the proposed building design represented in this soft construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS  Address  Address  Name	This certificate to comply with Efficiency Sta  The document  Document  Company	e of compliant Title 24, Pandards of the station authoration Authernation Designation Complex	nce lists arts 1 the e Califor r hereby hor	the building Administra nia Code of certifies tha	tive Regulation Regulations. at the document	s and Part 6 the	and complet	6. 1/2-1/5 1-3 No. 1/2-1/5 1-3 No. 06 1-0 1-1 No. 06 1-0 1-1	0/12/2011
The individual with overall design responsibility hereby certifies that the proposed building design represented in this se of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS  Address  Address  Name	The individual with overall design responsibility hereby certifies that the proposed building design represented in this soft construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application, and recognizes that compliance using duct design, duct sealing, verification of refrigerant charge, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.  Designer or Owner (per Business & Professions Code)  KENS DESIGNS  Address  Address  Name	This certificate to comply with Efficiency Sta  The document  Company  Pi  Address  24	e of compliant Title 24, Paudards of the station authoritation Authorita	nce lists arts 1 the e Califor r hereby hor GN & DEVI	the building Administra nia Code of certifies tha	ative Regulation: Regulations.  At the document  No.  Name Perfect	s and Part 6 the tation is accurate  Design	and complet	6. 1/2-1/5 1-3 No. 1/2-1/5 1-3 No. 06 1-0 1-1 No. 06 1-0 1-1	0/12/2011
Company KENS DESIGNS Address 4482 LARO LN. Name	Company KENS DESIGNS Address 4482 LARO LN. Name	This certificate to comply with Efficiency Sta  The document  Company  Pi  Address	e of compliant Title 24, Paudards of the station authoritation Authorita	nce lists arts 1 the e Califor r hereby hor GN & DEVI	the building Administra nia Code of certifies tha	ative Regulation: Regulations.  At the document  No.  Name Perfect	s and Part 6 the tation is accurate  Design	and complet	6. 1/2-1/5 1-3 No. 1/2-1/5 1-3 No. 06 (30) 1.6	
Address 4482 LARO LN. Name	Address 4482 LARO LN. Name	This certificate to comply with Efficiency Sta  The document Company Address City/State/Zip The individua of constructio with any other duct sealing,	e of compliant Title 24, Parandards of the station authoritation Authoritation Authoritation Authoritation Authoritation Authoritation W Valley Bl. I with overall I with overall n documents or calculations overification of	nce lists arts 1 the e Califor r hereby hor GN & DEVI lvd 803 I design I s is cons s submitt f refriger	the building Administration Code of Certifies the Certifie	tive Regulation: Regulations.  At the document  No  Name Perfect Phone (626)28  ty hereby certificate the other complicate insulation instal	besign  Besign	and complet  Signed sed building worksheets, we that completed building end buildin	design represente with the specificate pliance using duc	Date ed in this setions, and t design,
		This certificate to comply with Efficiency Star The document Company Address 24 City/State/Zip Al The individua of constructio with any other duct sealing, installer testin Designer C	e of compliant Title 24, Parandards of the station authoritation Authoritation Authoritation Authoritation Authoritation Authoritation Calculations of and certification of Company (Company Company C	nce lists arts 1 the e Califor r hereby hor GN & DEVI lvd 803 I design I s is cons s submitt of refriger cation ar	the building Administration Code of Certifies the Certifie	tive Regulations. Regulations.  at the document  No  Name Perfect Phone (626)28  by hereby certifiche other complication instatication by an application.	Design 9-8808 es that the proporance forms and vition, and recognizallation quality, are oproved HERS re	and complet  Signed sed building worksheets, we that completed building end buildin	design represente with the specificate pliance using duc	Date ed in this settions, and t design,
City/State/7in YURMA (MIJA CA 9788) - Shane 1774) U31-0705 - Shaned - Channel - Date	City/State/Zip 10KBA LINUA, CA 92886 Phone (114) 931-0295 Signed License # Da	This certificate to comply with Efficiency State The document Company Address City/State/Zip Aldress The individua of constructio with any other duct sealing, installer testin Designer Company	e of compliant Title 24, Parameter Authoritation authoritation Authoritation Authoritation Authoritation Authoritation Authoritation Walley Blambra, Ca 911 I with overall in documents realculations werification on and certification of and certification of and certification of Complex (ENS DESIGNS	nce lists arts 1 the e Califor r hereby hor GN & DEVI lvd 803 I design I s is cons s submitt of refriger cation ar	the building Administration Code of Certifies the Certifie	tive Regulations. Regulations. It the document NC Name Perfect Phone (626)28 Ity hereby certification by an appropriate application by an appropriate	Design 9-8808 es that the proporance forms and vition, and recognizallation quality, are oproved HERS re	and complet  Signed sed building worksheets, we that completed building end buildin	design represente with the specificate pliance using duc	Date ed in this settions, and t design,

CEI	RTIFI	CA	TE C	)FC	OMPL	JAN	CE: F	Resid	enti	al			(Par	t 4 c	of 5)		CF	-1R
SING	t Name GLE HC						Bui	lding Typ		Single Multi F	Family ( amily (	⊐ Add Zi Exis	lition Ak sting+ A	one dditior	n/Alterat	ion	Date 10/12	2/2011
OPA	QUE SI	JRF	ACE D	ETAIL	.S													
Surfa			_ U-	<u> </u>		nsulatio					01-1	J	oint App	endix			<b>'</b> O	
Typ Roof		ea 813	Factor 0.032	_	Exterior	Frame	Interior	Frame	Azm 0	Tilt 25	Status Existing	4.2.1	4 -48			Cation,		ments
Nall	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	436	0.110						270		Existing	4.3.1				TING		
Nall		292	0.110						90	90	Existing	4.3.1				TING I		
Nall		407	0.110						0		Existing	4.3.1				TING I		
Nall		94	0.110			1	<del> </del>		180		<del></del>	4.3.1				TING I		
Slab Roof		813 381	0.730 0.036			<del>-</del>		<u> </u>	0			4.4.7				TING I		<u> </u>
Nall		142	0.102			<del> </del>	+	-	270	_	1	4.3.1				FLOC		
Vall		212	0.102						90	-	New	4.3.1			.,	FLOC		
Vall		0	0.102			<u> </u>			0			4.3.1				/FLOC		
Wall	_	192	0.102		ļ				180	<del>-</del>		4.3.1				FLOC		
Slab		381	0.730	None		<b></b>			0	180	New	4.4.7	-A1		NEW	FLOC	)R	
					1		+			<u> </u>	╁	-						
-																		
FEN		TIO	N SUR		DETAIL		************		·					*********	**********			
ID	Туре		Area	U-Fa			GC <sup>2</sup>	Azm	State			zing 1	• •			tion/C		ents
	Window	4-	16.0		Default		Default		Existin		ngle Meta				XISTING			
	Window Window	+	36.0 24.0	0.300	Default NEDC	~~~~~~~	Default NFRC		Existin New		ngle Meta ouble Non				XISTING			
	Window	+	37.2		Default		Default		Existin		ngle Meta				XISTING			
	Window	1	40.2		Default		Default		Existir		ngle Meta				XISTING			
6	Window		20.0	0.300			NFRC		New		ouble Non	~~~~				ISTING FLOOR		
7	Window	$\bot$	0.0	0.300			NFRC		New		ouble Non					W FLOOR		
8 9	Window Window		30.0 0.0	0.300			NFRC NFRC		New New		ouble Non ouble Non					V FLOOR V FLOOR		
10	Window	╁┈	97.5	0.300			NFRC		New		ouble Non					V FLOOR		
		+						<del> </del>										
		+																
	1) U-Fa				= Default													
	2) SHG				= Default	l able fro	m Standa	ırds, NHH	C = Lai	beled V	alue							
EXI	ERIOR	5H/	ADING	DETA	ILS	\A/:I			O ls				1 - 4 5			D:-		
ID	Evtori	or Si	hade Ty	me !	SHGC	Wind Hgt			Overh lat	ang LExt	RExt	Dist	Left Fir Len	Hgt	Dist		ht Fin	Hgt
~~~~	Bug Scre		ilade i y	pe ,	0.76	1,91	***	-011 1	igi	LLA	TILAL	Dist	LOIT	rigi	1 0131		***	, igt
	Bug Scre				0.76					-							$\dashv$	
	Bug Scre				0.76													
	Bug Scre				0.76											4		
	Bug Scre				0.76 0.76													
	Bug Scre Bug Scre				0.76													
	Bug Scre				0.76													
	Bug Scre	Y		0.76														
10	Bug Scre	en			0.76													
															-			
	<u> </u>															-		
																-		
																		ļ
Energ	yPro 5.1	by E.	nergySol	t Us	er Numbe	r: 1919	Run	Code: 20	<u> </u>	<u> 12T15:</u>	31:54	ID:	F11-100	11R			Page	6 of 18

CERTIFICATE	OF	CC	MP	LIAN	CE	: Re	esid	en	tial				(P	art (	of	5)	С	F-1R
Project Name SINGLE HOUSE A	\DDI7	TION				Buildir	Building Type  Single Family  Addition Alone						Iteration	Dat 10/	e 12/2011			
<b>BUILDING ZONE IN</b>	<b>IFOR</b>	MATI	ON			L					********							
										Floor A	rea (	ft <sup>2</sup> )		*******				
System Name			Zor	ne Name	)		Nev	٧	Ex	isting	Al	tered	R	emov	ed	Volume		ear Built
EXISTING AREA		EXIST	ING FL	OOR PL	AN					1,813						14,504	1950	)
ADDITION AREA		NEW F	LOOR	PLAN				381	<u> </u>							3,048		
									<u> </u>									
				<u> </u>					<u> </u>									
								men	-									
									-									
						-			<del>                                     </del>									
									1				<u> </u>					
					****													
													1					
										4 0 4 0			-					
LIVAO OVOTEMO					10	tals		381	1	1,813			0		0		L	
HVAC SYSTEMS		Otiv	Llo	ating Ty	20 3	Min. I	-# 1		Coolin	g Type		Min.	⊏ff	т	aarma	stat Type		Status
System Name EXISTING AREA		Qty.		atting Tyl						nditioner		15.0 S				stat Type		Altered
pre-altered for above		,		l Furnace			<del></del>			nditioner		10.0 \$					ď	
ADDITION AREA		1		l Furnace				·	~~~~	nditioner		15.0 S						Vew
								·									$\neg$	
<b>HVAC DISTRIBUTI</b>	ON																	
									_					Duc		Ducts	,	0
System Name EXISTING AREA		Ducted	Hea	iting		Coo Ducted	ling	Λ 44;		uct Loc ing Ins, v			-	R-Va	ue 6.0	Tested		Status Vew
pre-altered for above		Ducted				Ducted				ing ins, v			+		4.2			vew
ADDITION AREA		Ducted				Ducted				ing Ins, v			+		6.0		-	Vew
NODITION AIREN		Duoto				<u> </u>		1	3, 00	<u>, , , , , , , , , , , , , , , , , , </u>	0,1101						Ť	
<b>WATER HEATING</b>	SYST	EMS			•	353												
	T													$\top$		Ext.		
										ated	Tar		nerg		tandby			
System Name	Qty	.	Тур	<u>_</u>	ı	Distribi	ution			put tuh)	Ca (ga		acto or RE		oss or Pilot	Insul. Value		Status
EXISTING WATER HEA			ll Gas		~~~~	pes Ins	~~~~		\ <del>-</del>	37,000	50		0.53	-	n/a	n/a	$\rightarrow$	Existing
***************************************		· · · · · · · · · · · · · · · · · · ·																
MULTI-FAMILY WA	<b>ATER</b>	HEA.	TING							HYDF	ON	IC HE	ATI	NG S	YSTE	M PIPIN	G	
						Piping	Lengt	th	_									
			<u> </u>		$\overline{}$	(ft)	т —		2" Itio									
			Eff. Premium						Add ½" Insulation						Pipe	Pipe	3	Insul.
Control	Qty.	HP	Eff.	Plenur	n l o	utside	Buri	ed	ΑË	s	yste	m Nar	ne		Length			Thick.
							ļ			ļ								
			<del>       </del>				<b></b>		무									
		l		L						L								l
EnergyPro 5.1 by Energ	vSoft.	Hear	Numb	er 1919		RunC	ode: 2	Λ11 <sub>-</sub>	10-12	T15:31:5	4	ID:	F11_	1001R			Par	ne 7 of 18

MANDATORY MEASURES SUMMARY: Residential

(Page 1 of 3)

MF-1R

Project Name SINGLE HOUSE ADDITION Date 10/12/2011

NOTE: Low-rise residential buildings subject to the Standards must comply with all applicable mandatory measures listed, regardless of the compliance approach used. More stringent energy measures listed on the Certificate of Compliance (CF-1R, CF-1R-ADD, or CF-1R-ALT Form) shall supersede the items marked with an asterisk (\*) below. This Mandatory Measures Summary shall be incorporated into the permit documents, and the applicable features shall be considered by all parties as minimum component performance specifications whether they are shown elsewhere in the documents or in this summary. Submit all applicable sections of the MF-1R Form with plans.

#### **Building Envelope Measures:**

- §116(a)1: Doors and windows between conditioned and unconditioned spaces are manufactured to limit air leakage.
- §116(a)4: Fenestration products (except field-fabricated windows) have a label listing the certified U-Factor, certified Solar Heat Gain Coefficient (SHGC), and infiltration that meets the requirements of §10-111(a).
- §117: Exterior doors and windows are weather-stripped; all joints and penetrations are caulked and sealed.
- §118(a): Insulation specified or installed meets Standards for Insulating Material. Indicate type and include on CF-6R Form.
- §118(i): The thermal emittance and solar reflectance values of the cool roofing material meets the requirements of §118(i) when the installation of a Cool Roof is specified on the CF-1R Form.
- \*§150(a): Minimum R-19 insulation in wood-frame ceiling or equivalent U-factor.
- §150(b): Loose fill insulation shall conform with manufacturer's installed design labeled R-Value.
- \*§150(c): Minimum R-13 insulation in wood-frame wall or equivalent U-factor.
- \*§150(d): Minimum R-13 insulation in raised wood-frame floor or equivalent U-factor.
- §150(f): Air retarding wrap is tested, labeled, and installed according to ASTM E1677-95(2000) when specified on the CF-1R Form.
- §150(g): Mandatory Vapor barrier installed in Climate Zones 14 or 16.
- §150(I): Water absorption rate for slab edge insulation material alone without facings is no greater than 0.3%; water vapor permeance rate is no greater than 2.0 perm/inch and shall be protected from physical damage and UV light deterioration.

#### Fireplaces, Decorative Gas Appliances and Gas Log Measures:

- §150(e)1A: Masonry or factory-built fireplaces have a closable metal or glass door covering the entire opening of the firebox.
- §150(e)1B: Masonry or factory-built fireplaces have a combustion outside air intake, which is at least six square inches in area and is equipped with a with a readily accessible, operable, and tight-fitting damper and or a combustion-air control device.
- §150(e)2: Continuous burning pilot lights and the use of indoor air for cooling a firebox jacket, when that indoor air is vented to the outside of the building, are prohibited.

#### Space Conditioning, Water Heating and Plumbing System Measures:

- §110-§113: HVAC equipment, water heaters, showerheads, faucets and all other regulated appliances are certified by the Energy Commission.
- §113(c)5: Water heating recirculation loops serving multiple dwelling units and High-Rise residential occupancies meet the air release valve, backflow prevention, pump isolation valve, and recirculation loop connection requirements of §113(c)5.
- §115: Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces, household cooking appliances (appliances with an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt), and pool and spa heaters.
- §150(h): Heating and/or cooling loads are calculated in accordance with ASHRAE, SMACNA or ACCA.
- §150(i): Heating systems are equipped with thermostats that meet the setback requirements of Section 112(c).
- §150(j)1A: Storage gas water heaters rated with an Energy Factor no greater than the federal minimal standard are externally wrapped with insulation having an installed thermal resistance of R-12 or greater.
- §150(j)1B: Unfired storage tanks, such as storage tanks or backup tanks for solar water-heating system, or other indirect hot water tanks have R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
- §150(j)2: First 5 feet of hot and cold water pipes closest to water heater tank, non-recirculating systems, and entire length of recirculating sections of hot water pipes are insulated per Standards Table 150-B.
- §150(j)2: Cooling system piping (suction, chilled water, or brine lines),and piping insulated between heating source and indirect hot water tank shall be insulated to Table 150-B and Equation 150-A.
- §150(j)2: Pipe insulation for steam hydronic heating systems or hot water systems >15 psi, meets the requirements of Standards Table
- §150(j)3A: Insulation is protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.
- §150(j)3A: Insulation for chilled water piping and refrigerant suction lines includes a vapor retardant or is enclosed entirely in conditioned space.
- §150(j)4: Solar water-heating systems and/or collectors are certified by the Solar Rating and Certification Corporation.

MANDATORY MEASURES SUMMARY: Residential	(Page 2 of 3)	MF-1R
Project Name		Date
SINGLE HOUSE ADDITION		10/12/2011

§150(m)1: All air-distribution system ducts and plenums installed, are sealed and insulated to meet the requirements of CMC Sections 601, 602, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall be sealed with mastic, tape or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape shall be used

§150(m)1: Building cavities, support platforms for air handlers, and plenums defined or constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms shall not be compressed to cause reductions in the cross-sectional area of the ducts.

§150(m)2D: Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.

§150(m)7: Exhaust fan systems have back draft or automatic dampers.

§150(m)8: Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers.

§150(m)9: Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.

§150(m)10: Flexible ducts cannot have porous inner cores.

§150(o): All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2-2007 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings. Window operation is not a permissible method of providing the Whole Building Ventilation required in Section 4 of that Standard.

#### **Pool and Spa Heating Systems and Equipment Measures:**

§114(a): Any pool or spa heating system shall be certified to have: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater; a permanent weatherproof plate or card with operating instructions; and shall not use electric resistance heating or a pilot light.

§114(b)1: Any pool or spa heating equipment shall be installed with at least 36" of pipe between filter and heater, or dedicated suction and return lines, or built-up connections for future solar heating.

§114(b)2: Outdoor pools or spas that have a heat pump or gas heater shall have a cover.

§114(b)3: Pools shall have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.

§150(p): Residential pool systems or equipment meet the pump sizing, flow rate, piping, filters, and valve requirements of §150(p).

#### **Residential Lighting Measures:**

§150(k)1: High efficacy luminaires or LED Light Engine with Integral Heat Sink has an efficacy that is no lower than the efficacies contained in Table 150-C and is not a low efficacy luminaire as specified by §150(k)2.

§150(k)3: The wattage of permanently installed luminaires shall be determined as specified by §130(d).

§150(k)4: Ballasts for fluorescent lamps rated 13 Watts or greater shall be electronic and shall have an output frequency no less than 20 kHz.

§150(k)5: Permanently installed night lights and night lights integral to a permanently installed luminaire or exhaust fan shall contain only high efficacy lamps meeting the minimum efficacies contained in Table 150-C and shall not contain a line-voltage socket or line-voltage lamp holder; OR shall be rated to consume no more than five watts of power as determined by §130(d), and shall not contain a medium screw-base socket.

§150(k)6: Lighting integral to exhaust fans, in rooms other than kitchens, shall meet the applicable requirements of §150(k).

§150(k)7: All switching devices and controls shall meet the requirements of §150(k)7.

§150(k)8: A minimum of 50 percent of the total rated wattage of permanently installed lighting in kitchens shall be high efficacy. EXCEPTION: Up to 50 watts for dwelling units less than or equal to 2,500 ft2 or 100 watts for dwelling units larger than 2,500 ft2 may be exempt from the 50% high efficacy requirement when: all low efficacy luminaires in the kitchen are controlled by a manual on occupant sensor, dimmer, energy management system (EMCS), or a multi-scene programmable control system; and all permanently installed luminaries in garages, laundry rooms, closets greater than 70 square feet, and utility rooms are high efficacy and controlled by a manual-on occupant sensor.

§150(k)9: Permanently installed lighting that is internal to cabinets shall use no more than 20 watts of power per linear foot of illuminated cabinet.

EnergyPro 5.1 by EnergySoft User Number: 1919 **RunCode: 2011-10-12T15:31:54** ID: F11-1001R Page 9 of 18

MANDATORY MEASURES SUMMARY: Residential	(Page 3 of 3)	MF-1R
Project Name		Date
SINGLE HOUSE ADDITION		10/12/2011

§150(k)10: Permanently installed luminaires in bathrooms, attached and detached garages, laundry rooms, closets and utility rooms shall be high efficacy.

EXCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided that they are controlled by a manual-on occupant sensor certified to comply with the applicable requirements of §119.

EXCEPTION 2: Permanently installed low efficacy luminaires in closets less than 70 square feet are not required to be controlled by a manual-on occupancy sensor.

§150(k)11: Permanently installed luminaires located in rooms or areas other than in kitchens, bathrooms, garages, laundry rooms, closets, and utility rooms shall be high efficacy luminaires. EXCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided they are controlled by either a dimmer switch that complies with the applicable requirements of §119, or by a manual-on occupant sensor that complies with the applicable requirements of §119. EXCEPTION 2: Lighting in detached storage building less than 1000 square feet located on a residential site is not required to comply with §150(k)11.

§150(k)12: Luminaires recessed into insulated ceilings shall be listed for zero clearance insulation contact (IC) by Underwriters Laboratories or other nationally recognized testing/rating laboratory; and have a label that certifies the lumiunaire is airtight with air leakage less then 2.0 CFM at 75 Pascals when tested in accordance with ASTM E283; and be sealed with a gasket or caulk between the luminaire housing and ceiling.

§150(k)13: Luminaires providing outdoor lighting, including lighting for private patios in low-rise residential buildings with four or more dwelling units, entrances, balconies, and porches, which are permanently mounted to a residential building or to other buildings on the same lot shall be high efficacy. EXCEPTION 1: Permanently installed outdoor low efficacy luminaires shall be allowed provided that they are controlled by a manual on/off switch, a motion sensor not having an override or bypass switch that disables the motion sensor, and one of the following controls: a photocontrol not having an override or bypass switch that disables the photocontrol; OR an astronomical time clock not having an override or bypass switch that disables the astronomical time clock; OR an energy management control system (EMCS) not having an override or bypass switch that allows the luminaire to be always on EXCEPTION 2: Outdoor luminaires used to comply with Exception1 to §150(k)13 may be controlled by a temporary override switch which bypasses the motion sensing function provided that the motion sensor is automatically reactivated within six hours. EXCEPTION 3: Permanently installed luminaires in or around swimming pool, water features, or other location subject to Article 680 of the California Electric Code need not be high efficacy luminaires.

§150(k)14: Internally illuminated address signs shall comply with Section 148; OR not contain a screw-base socket, and consume no more than five watts of power as determined according to §130(d).

§150(k)15: Lighting for parking lots and carports with a total of for 8 or more vehicles per site shall comply with the applicable requirements in Sections 130, 132, 134, and 147. Lighting for parking garages for 8 or more vehicles shall comply with the applicable requirements of Sections 130, 131, 134, and 146.

§150(k)16: Permanently installed lighting in the enclosed, non-dwelling spaces of low-rise residential buildings with four or more dwelling units shall be high efficacy luminaires. EXCEPTION: Permanently installed low efficacy luminaires shall be allowed provided that they are controlled by an occupant sensor(s) certified to comply with the applicable requirements of §119.

EnergyPro 5.1 by EnergySoft User Number: 1919 RunCode: 2011-10-12T15:31:54 ID: F11-1001R Page 10 of 18

HVAC SYSTEM HE	ATING	AND COOLING LOAD	S SUM	MARY			
Project Name SINGLE HOUSE ADDITION						Date 10/	12/2011
System Name EXISTING AREA		12 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -					Area 1,813
ENGINEERING CHECKS		SYSTEM LOAD		· · · · · · · · · · · · · · · · · · ·			.,
Number of Systems	1		COIL	COOLING P	EAK	COIL H	ΓG. PEAK
Heating System			CFM	Sensible	Latent	CFM	Sensible
Output per System	75,000	Total Room Loads	689	14,590	1,022	531	20,789
Total Output (Btuh)	75,000	Return Vented Lighting		0			
Output (Btuh/sqft)	41.4	Return Air Ducts		539			1,080
Cooling System		Return Fan		0			0
Output per System	46,000	Ventilation	0	0	0	0	0
Total Output (Btuh)	46,000	Supply Fan		0			0
Total Output (Tons)	3.8	Supply Air Ducts		539			1,080
Total Output (Btuh/sqft)	25.4						
Total Output (sqft/Ton)	473.0	TOTAL SYSTEM LOAD		15,668	1,022		22,950
Air System							
CFM per System	1,600	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	1,600	CARRIER 38TDB-048/58MVP-080-20		33,622	9,334		75,000
Airflow (cfm/sqft)	0.88						
Airflow (cfm/Ton)	417.4						***************************************
Outside Air (%)	0.0 %	Total Adjusted System Output		33,622	9,334		75,000
Outside Air (cfm/sqft)	0.00	(Adjusted for Peak Design conditions)					
Note: values above given at ARI	conditions	TIME OF SYSTEM PEAK			Aug 3 PM		Jan 1 AM
		(Airstream Temperatures at Time	of Heating	Peak)	·		
Outside Air O cfm Supply Fan 1,600 cfm	67 °F  Heating (	105 °F 	<b>→</b> []		R	MOC	04 °F
	OMETICS (	Airstream Temperatures at Time o	f Cooling I	Poak)			
COOLING STOTEM FOTORN			1 Cooming F	canj		***********	
91 / 70 °F 75 / 6	2°F 75	5/61°F 55/54°F					
			<b>⊸</b> FFT		Ē		7
Outside Air		The state of the s	, AT		H		↓
0 cfm	Supply Fan 1,600 cfm	Cooling Coil		46.2 °	% R(	55 <b>DOM</b>	/ 54 °F
75 / 62 °F						75	/61°F 
EnergyPro 5.1 by EnergySoft	User Number:	1919 RunCode: 2011-10-12T15	5:31:54	ID: F11-100	1R	F	Page 11 of 18

<b>HVAC SYSTEM HE</b>	ATING	AND COOLING LOAD	S SUM	MARY			
Project Name SINGLE HOUSE ADDITION	NC					Date 10/	12/2011
System Name ADDITION AREA						Floor	Area 381
ENGINEERING CHECKS		SYSTEM LOAD					301
Number of Systems	1	STOTEM LOAD	COIL	COOLING P	EAV	COIL H	rg. PEAK
Heating System	<u>'</u>		CFM	Sensible	Latent	CFM	
Output per System	37,000	Total Room Loads	242		531	170	Sensible 6,702
Total Output (Btuh)	37,000	Return Vented Lighting		0,102			0,702
Output (Btuh/sqft)	97.1	Return Air Ducts		190			348
Cooling System		Return Fan		0			0
Output per System	22,400	Ventilation	0	0	0	0	0
Total Output (Btuh)	22,400	Supply Fan		0			0
Total Output (Tons)	1.9	Supply Air Ducts		190			348
Total Output (Btuh/sqft)	58.8						
Total Output (sqft/Ton)	204.1	TOTAL SYSTEM LOAD		5,533	531		7,399
Air System							
CFM per System	800	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	800	CARRIER 38TDB-024/58MVP-040-14		16,219	4,693		37,000
Airflow (cfm/sqft)	2.10						
Airflow (cfm/Ton)	428.6						
Outside Air (%)	0.0 %	Total Adjusted System Output		16,219	4,693	L	37,000
Outside Air (cfm/sqft)	0.00	(Adjusted for Peak Design conditions)					<del></del> -
Note: values above given at ARI		TIME OF SYSTEM PEAK (Airstream Temperatures at Time			Aug 3 PM		Jan 1 AM
33 °F 68 °F	68 °F	105 °F	<b>→</b>				7
Outside Air 0 cfm Supply Far 800 cfm	Heating (	Coil	<b>Lag</b>		R	MOC	<b>★</b> 05 °F 1
	<b></b>						<u></u>
COOLING SYSTEM PSYCHR	OMETICS (A	Airstream Temperatures at Time of	f Cooling F	Peak)			
91 / 70 °F 75 / 6  Outside Air 0 cfm	2 °F 75 Supply Fan 800 cfm	Cooling Coil	<b>→</b> []	46.2 9	6 RO	55 <b>DOM</b>	/ 54 °F
75 / 62 °F	Ilor Nussia	1010	24.54		<u></u>	75	/61°F
EnergyPro 5.1 by EnergySoft	User Number:	1919 RunCode: 2011-10-12T15	:37:54	ID: F11-100	iK	F	age 12 of 18

<b>ROOM LOAD</b>	SUMMARY									
Project Name SINGLE HOUSE	ADDITION							Date	10/12/2	2011
System Name  EXISTING AREA								Floor	Area 1,81	3
ROOM LOAD SUM	MARY									
			ROOI	M COOLING	3 PEAK	COIL	COOLING	PEAK	COIL H	TG. PEAK
Zone Name	Room Name	Mult.	CFM	Sensible	Latent	CFM	Sensible		CFM	Sensible
EXISTING FLOOR	EXISTING FLOOR PLAN	1	689	14,590		689	14,590		531	20,789
L. 490.04										
			<u> </u>							
		~~~~	<b> </b>							
										~~~~
Market & Town State   100 Market   100 Marke				<b></b>	<b></b>					
					***************************************			***************************************		
					·					
										·····
					•	<b></b>				
						<b></b>				
			· <del> </del>							
			<u> </u>			<u> </u>				
			<b>-</b>			<b></b>				
			<b></b>			<b></b>				
5.13.51			<u> </u>							
****			ļ							
					-					
						1				
	1	l		L	······	J	ł	<b></b>		L
				PAGE TOT		200	14.590	4 000	504	20.7

\* Total includes ventilation load for zonal systems.

EnergyPro 5.1 by EnergySoft User Number: 1919 RunCode: 2011-10-12T15:31:54 ID: F11-1001R Page 13 of 18

**TOTAL**\*

1,022

531

20,789

14,590

689

ROOM LOAD Project Name	JUININAN I							Date		
SINGLE HOUSE	ADDITION								10/12/2	2011
System Name								Floor		
ADDITION AREA									381	1
ROOM LOAD SUM	IMARY	1	<u> </u>							
				/ COOLING			COOLING			TG. PEAK
Zone Name	Room Name	Mult.	CFM	Sensible	Latent	CFM	Sensible	Latent	CFM	Sensible
NEW FLOOR	NEW FLOOR PLAN	1	242	5,152	531	242	5,152	531	170	6,702
		_								
		_								
		_								
4444										
								·		
		_								
		-								
		_								
		-								
			<b></b>			<b></b>				
			<b></b>							
			-							
						<b></b>				
			<b></b>							
e sufficience a management source and an annual surface.			<b></b>							
						<u> </u>				
				Part Control						
		-	-			<b> </b>				
			-							
			-							
			<b></b>			<b></b>				
			-							
***************************************						<b></b>		-	<b> </b>	ļ
••••••			<u> </u>			İ	L	<u> </u>	L	L
				PAGE TO	<b>TAL</b>	242	5,152	531	170	6,702
				TOTA		242		531	170	
* Total includes ventilati	ion load for zonal systems.				-	•		L	<b>A</b>	······································
EnergyPro 5.1 by Energ		0 0	unCodo:	2011-10-12T	15.21.51	ID.	F11-1001R		P.	age 14 of 18

ROOM HEATING PEA	K LOADS		
Project Name			Date 4.0/4.2/2044
SINGLE HOUSE ADDITION		I DECICAL CONDITIONS	10/12/2011
ROOM INFORMATION	EVICTING ELOOP DI ANI	DESIGN CONDITIONS	lond All
Room Name	EXISTING FLOOR PLAN		Jan 1 AM
Floor Area	1,813.0 ft²		rature 33 °F
Indoor Dry Bulb Temperature	68 °F		
Conduction	Area	U-Value	ΔT °F Btu/hr
Default Roof 1950 to Present	1,813.0	0.0320 X	35 = 2,031
Default Wall 1950 to Present	1,229.0	O X 0.1100 X	35 = 4,732
Single Metal Clear	129.4	4 X 1.1900 X	35 = 5,390
Double Non Metal Clear (6)	44.0	0.3000 X	35 = 462
Slab-On-Grade	perim = 175.3	3 X 0.7300 X	35 = 4,479
		xx	=
		X X	=
		x x	=
		x	=
		x x	=
		xx	=
		x	=
		x	=
			=
		$\mathbf{x}$	=
		x	=
		x	=
		x	=
		x	=
		x	
		x	
		x	
		x	
		$\begin{vmatrix} \hat{x} \\ x \end{vmatrix}$	
<u> </u>			
		<del></del>	
		<b></b>	
		X	=
		X	
		X X	=
		X	
		_ x x [	
Items shown with an asterisk (*) denot	e conduction through an interior sur	face to another room	Page Total 17,093
Infiltration: 1.00 X	1.075 <b>X</b> 1,813	8.00 X 0.406	/ <b>60 ]</b> X 35 = 3,697
Schedule Fraction	Air Sensible Area	Ceiling Height ACH	ΔΤ
TOTAL HOURLY HEAT LOSS	EOR ROOM	10011-0	20,789
TOTAL HOURLT HEAT LUSS			20,789
EnergyPro 5.1 by EnergySoft User I	Number: 1919 RunCode: 20	11-10-12T15:31:54 ID: F	-11-1001R Page 15 of 18

ROOM HEATING PEAK L	_OADS						
Project Name SINGLE HOUSE ADDITION						Da	te 10/12/2011
ROOM INFORMATION		~~~~	GIGN CONDITIO	NS			
Room Name	NEW FLOOR PLAN	Time	e of Peak				Jan 1 AM
Floor Area	381.0 ft²	Outo	door Dry Bulb Te	mpe	rature		33 °F
Indoor Dry Bulb Temperature	68 °F						
Conduction	Area		ป-Value		ΔT°F		Btu/hr
R-30 Roof(R.30.2x12.16)	381.0	x	0.0360	х	35	_	480
R-13 Wall	546.9	-	0.1020			=	1,952
	127.5	- I	0.3000	X	35 35	=	1,339
Double Non Metal Clear (6)		-1 ^` I		X		=	
Slab-On-Grade	perim = 84.3	7 1	0.7300	X	35	=	2,154
		_ X		X		=	
		X		X		=	
		X		X		=	
		_ X		X		=	
		_ x		X		=	
		X		X		=	
		X		Χ		Ξ	
		X		Х		=	
15 JOHNSON 1997 - 7 1		X		х		=	
		X		X		=	
		$\frac{1}{x}$		X			
		-				=	
		_ X		X		=	
		X		X		=	
		X		Х		=	
		X		X		=	
		_  X		X		=	
		X		X		=	
		X		X		=	
		_ x		X		=	
		Х		Х		=	
***		X		Х		=	
		x		х		=	
		X		X		=	***************************************
				X		=	
			••••••				
		X		X		=	
		X		X		=	
		_ X		X	L	=	
Items shown with an asterisk (*) denote cond	duction through an interior surf	face to	another room		Page To	otal	5,925
Infiltration: 1.00 X	1.075 X 381 X	. [	8.00 <b>X</b> 0.	406	/601 x	38	777
	ensible Area		ling Height AC		Δ		J = L
Fraction							
TOTAL HOURLY HEAT LOSS FOR	ROOM						6,702
EnerayPro 5.1 by EneraySoft User Numb	er: 1919 RunCode: 201	11_10	12715:31:54	ID: I	=11-1001R		Page 16 of 18

RESIDENTIAL ROO	M COOLING L	OAD SU	JM	M	ARY									
Project Name	A (										[	Date	140	10044
SINGLE HOUSE ADDITION ROOM INFORMATION	V		DEC	101	N CONDI	TI	ONIC					70	/12	/2011
	EXISTING FLO	0.0.0/ 44/												91 °F
Room Name					Dry Bulk		-							70 °F
Floor Area					Wet Bull		-	eratu	re					26 °F
Indoor Dry Bulb Temperature		70 7	Outo	1001	Daily Ra	ng	je:							20 /
Opaque Surfaces	Orientation	Area			U-Fac	to	r			CLT	'D¹			Btu/hr
Default Roof 1950 to Present	(N)	1,81	3.0	X		0.	0320	Х			38.0	=		2,205
Default Wall 1950 to Present	(W)	43	6.0	X		0.	1100	Х			14.0	=		671
Default Wall 1950 to Present	(E)	29	2.0	X		0.	1100	X			14.0	=		450
Default Wall 1950 to Present	(N)	40	6.8	X		0.	1100	х			4.0	=		179
Default Wall 1950 to Present	(S)	9	4.2	X		0.	1100	х			7.0	=		73
	``			Х			$\neg$	х				=		
				Х				Χ				=		
				X				χ				=		
			$\dashv$	X			$\neg$	X				=		
		L			<b></b>		لــــــــــــــــــــــــــــــــــــــ	!	P	age	Total	-	-	3,577
Items shown with an asterisk (*) dend		n interior surfac	e to	anotl	her room.				•	-g-			L	
Cooling Load Temperature Difference	erence (GLTD)	s	hade	ed					Unsh	nade	ed			
Fenestration	Orientation	Area			GLF			Area			GLF			Btu/hr
WINDOWS	(W)	0.	.0 X		32.3	+			16.0	$ \mathbf{x} $		30.2	_ [	1,284
WINDOWS	(E)	0.	.o x		32.3	+		***	36.0	x	8	30.2	_ [	2,889
WINDOWS-1	(E)	0	.o <b>x</b>		8.7	+			24.0	X		21.7	_	520
WINDOWS	(N)		.0 X		32.3	+			37.2	X		32.3	_	1,200
WINDOWS	(S)	0	.0 X	-	32.3	+			40.2	X		38.1	_	1,532
WINDOWS-1	(S)	<u> </u>	.0 X	-	8.7	+			20.0	X		10.2	=	205
	(-)		X			+				X			=	
		<b></b>	$\exists \hat{x}$	_		+				X		$\dashv$	_	
			$\exists_{x}$							X	***************************************	$\dashv$	_	
		L	<b>^</b> ^	` <u></u>		_	L				Page To	tal	_	7,629
to be some at Online											J		۳.	D4/b
Internal Gain Occupants 2.	0 Occupant	s X					230	Btuh	1/000			=	<u> </u>	Btu/hr 460
Equipment 1.		-	~ <del>~~</del>				1,600	Btu	# <b>UU</b> U	•		=		1,600
Equipment	o Dweining (	JIII. X					1,000	וטונט				_	_	1,000
Infiltration: 1.075 X	0.68 X	112.26 X			16 =									1,323
Air Sensible	CFM CFM	ELA		ΔΤ										1,020
TOTAL HOURLY SENSIBLE	HEAT GAIN FOR I	HOOM												14,590
Latent Gain														Btu/hr
Occupants 2.	0 Occupant	s <b>X</b>					200	Btuh	/occ.			=		400
													Γ	
Infiltration: 4,822 X Air Sensible	0.68 <b>X</b> CFM	112.26 X	L	<i>Ο.</i> ΔV	00168 =								L	622
THE OPTIONS	Or Of			42	•									
TOTAL HOURLY LATENT H	EAT GAIN FOR RO	OM												1,022
					w/m */ = :			F44 :	100:5					
EnergyPro 5.1 by EnergySoft 119	ser Number: 1919	RunCode: 20	77_1(	J-177	175.31.54		ID.	F11-1	0015	•			Par	ne 17 of 18

<b>RESIDENTIAL ROO</b>	M COOLING L	OAD S	UMN	//ARY								
Project Name										Dat		12/2011
SINGLE HOUSE ADDITION ROOM INFORMATION	V	Т	DESI	GN CON	ידום	ONG					0/7	2/2011
Room Name	NEW FLO			or Dry B				·~				91 °F
Floor Area	,,_,,,			or Dry B		-						70 °F
Indoor Dry Bulb Temperature		75.05		or Daily		-	ciatul	•				26 °F
moor bry bails reinperature		I.	Outue	or Duny	· ruiiş	<del>,</del>						
Opaque Surfaces	Orientation	Area		U-1	acto	r	-		CLI	TD <sup>1</sup>	_	Btu/hr
R-30 Roof(R.30.2x12.16)	(N)	38	31.0	·	0.	.0360	x			38.0		521
R-13 Wall	(W)	14	12.4	<b>(</b>	0.	1020	Х			14.0 =		203
R-13 Wall	(E)	21	12.4	·	0.	.1020	Х			14.0 =	:	303
R-13 Wall	(S)	19	2.1	·	0.	1020	X			7.0	: L	137
				<b>(</b>			X			=	:	
			>	·			x			=		
			>	<b>、</b>			X			=	: L	
			>	·			х			=	:	
				( <u> </u>			Χ			=	:	
				46				Pa	age	Total		1,165
Items shown with an asterisk (*) den 1. Cooling Load Temperature Diffe		interior surfa	ce to ar	nother roor	n.							
	,	S	Shaded	Ė			ι	Jnsh	ade	ed		
Fenestration	Orientation	Area		GLF			Area		г	GLF	_	Btu/hr
WINDOWS	(W)	<i>C</i>	).0 X	8	.7 +			0.0	X	21.	<u> </u>	0
WINDOWS	(E)		<u>).0</u> <b>X</b>	ε	.7 +			30.0	Х	21.	<u>7</u> ] =	650
WINDOWS	(N)		).0 X	8	.7 +			0.0	X	8.	<u> </u>	0
WINDOWS	(S)		2.0 X	8	.7 +			97.5	X	10.	2 =	999
		v	x		_  +	ļ			x		_  =	
			x		_  +				X		<b>」</b> =	
			X		+				X		_  =	
			_ x		_ +				X		<b>」</b> =	
			x[		+				X		_] =	
									i	Page Total		1,649
Internal Gain												Btu/hr
	0 Occupants	s x				230	Btuh	locc		=	. Г	460
Equipment 1.		1				1,600	1	,000.		-		1,600
Equipment	5 Dwelling C	7				1,000	<sub>j</sub> Dia			-	- L	1,000
Infiltration: 1.075 X	0.68 X	23.59 <b>X</b>		16	_						Г	278
Air Sensible	CFM CFM	ELA	· L	ΔT	-						<u>L</u>	
TOTAL HOURLY SENSIBLE	HEAT GAIN FOR F	ROOM										5,152
Latent Gain												Btu/hr
Occupants 2	0 Occupants	s x				200	Btuh	/occ			. r	400
		- <u>~ L</u>						2501		_	L.	
Infiltration: 4,822 X	0.68 X	23.59 <b>X</b>			=						Γ	131
Air Sensible	CFM	ELA		ΔW							b	
TOTAL HOURLY LATENT H	IEAT GAIN FOR PO	OM										20.4
IVIAL HOURLT LAIENI F	IEAT GAIN FUN NU	OIVI										531
EnergyPro 5.1 by EnergySoft Us	ser Number: 1919	RunCode: 20	)11-10-	12T15:31:	54	ID:	F11-1	001R			F	Page 18 of 18

# DATA

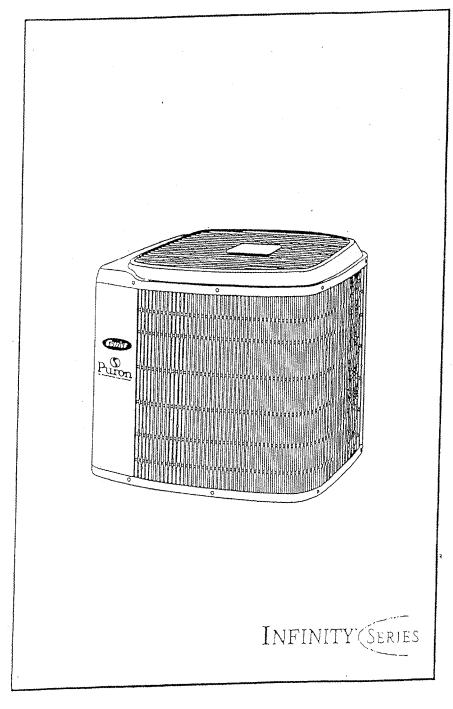
# SHEET



# Product Data

## Infinity<sup>™</sup> 18 38TDB (60 Hz) Two-Speed Air Conditioner with Puron<sup>®</sup> Refrigerant

Sizes 024, 036, 037, 048, and 060



The Model 38TDB Infinity<sup>TM</sup> Air Conditioner incorporates innovative two-speed compressor technology with Puron® refrigerant, providing quiet, efficient cooling performance. Built into these units are features most desired by homeowners today, including SEER ratings up to 18.0 when matched with a VARIABLE SPEED indoor Carner product. All models are listed with UL (U.S. and Canada), ARI and CEC. The 38TDB exceeds the Energy Star® requirements for energy efficiency.

### FEATURES/BENEFITS

Electrical Range — All units are offered in 208/230v single phase. Simplified field-stripped lead wire connections facilitate ease of installation.

Range of Sizes — Available in 5 nominal sizes: 024, 036, 037, 048, and 060 to meet the needs of residential applications.

Carrier's Infinity M Controls—
These industry-leading controls, when installed with Carrier's Ideal Humidity M variable-speed furnaces or fan coils, provide the homeowner with:
—unparalleled control of temperature, humidity, indoor air quality, and zoning—unprecedented ease of use—simple operation through on-screen, text-based service reminders—worry-free equipment malfunction alert on the two-speed outdoor section
Optional remote access through telephone or Internet is also available when combined with a remote connectivity kit,

Weather Armor MI System is a three component system—The casing steel is galvanized and coated with a layer of zinc phosphate. A modified polyester powder coating is then applied and baked on, providing each unit with a hard, smooth finish that will last for many years.

All screws on the cabinet exterior are SermaGuard™ coated for a long lasting.

Combination ratings

UNIT	INDOOR		OOR AIR CFM	TOTAL (	CAPACITY BTUH		100
SIZE	SECTION *FV4BNF003	High	Low	High	Low	SEER	EEF
	CCEA/CDEAA024 CC5A/CDEAA030 CC5A/CDEAA030 CC5A/CDEAW030 CC5A/CDEAW030 CC5A/CDEAW030 CCE3AA024 CE3AA030 CE3AA036 CF5AA036 CF5AA036 CK3BA024 CK3BA036 CK3BA036 CK3BA036 CK3BA036 CK3BA036 CK3BA036 CK5A/CK5BA030 CK5A/CK5BA030 CK5A/CK5BA030 CK5A/CK5BA030 CK5A/CK5BW030 CK5A/CK5BW030 CK5A/CK5BW030 CK5A/CK5BW030 CK5A/CK5BW036 CK5PA036 CK5PA036 CK5PA036 CK5PA036 CK5PW036 CK5PW036 FE4ANF002 FE4ANF002 FE4ANF002 FE4ANF002 40FKB/FK4DNF002	735 835 900 900 885 900 900 885 900 900 900 900 900 900 900 900 900 90	440 475 520 475 475 475 475 475 475 475 475 475 475	24,000 23,600 24,000	12,000 11,400 11,400 11,400 11,400 11,400 11,400 11,400 11,600	15.00 12.35 12.35 12.50 12.35 12.50	11.7 10.1 10.3 10.1 10.3 10.1 10.2 10.1 10.3 10.1 10.3 10.1 10.5 10.5 10.5 10.5 10.5 10.5 10.5
024-80	CC5A/CD5AA024 CC5A/CD5AA030 CC5A/CD5AA030 CC5A/CD5AA036 CC5A/CD5AW024 CC5A/CD5AW030 CE3AA030 CE3AA030 CE3AA036 CK3BA036 CK3BA036 CK3BA036 CK5BA030 CK3BA036 CK5A/CK5BA030 CK5A/CK5BA030 CK5A/CK5BA030 CK5A/CK5BA030 CK5A/CK5BA030 CK5A/CK5BA036 CK5A/CK5BT036 CK5A/CK5BW024 CK5A/CK5BW030 CK5A/CK5BW030 CK5A/CK5BW030 CK5PA036 CK5PA038 CK5PA038 CK5PT038 CK5PT038	700 700 700 700 700 700 700 700 700 700	525 525 525 525 525 525 525 525 525 526 526	23,000 23,400 24,000 23,200 23,400 23,400 23,600 24,000	11,500 11,500 11,500 11,500 11,500 11,500 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000 12,000	14.00 14.00 14.00 14.00 14.00 14.50 14.50 14.50 14.50 14.50 14.50 14.50 14.50 14.50 14.50 14.50 14.50 14.50 14.50 14.50	11.00 11.25 11.10 11.25 11.10 11.30 11.40 11.55 11.55 11.55 11.55 11.55 11.55 11.55
	CC5A/CD5AA024 CC5A/CD5AA036 CC5A/CD5AA036 CC5A/CD5AW024 CC5A/CD5AW036 CC5A/CD5AW036 CE3AA036 CE3AA036 CE3AA036 CE3AA036 CK3BA032 CK3BA039 CK3BA039 CK3BA036 CK5A/CK5BA024 CK5A/CK5BA036 CK5A/CK5BA036 CK5A/CK5BA036 CK5A/CK5BA036 CK5A/CK5BA036 CK5A/CK5BW036 CK5A/CK5BW036 CK5A/CK5BW036 CK5A/CK5BW036 CK5A/CK5BW036 CK5A/CK5BW036 CK5A/CK5BW036 CK5A/CK5BW036 CK5A/CK5BW036 CK5PA036 CK5PA036 CK5PA036 CK5PA036 CK5PA036	700 700 700 700 700 700 700 700 700 700	525 525 525 525 525 525 625 625 525 625 525 5	23,200 23,500 24,000 23,200 23,600 24,000 23,400 23,600 24,000	11,800 11,800 12,000 11,800 11,800 11,800 12,000 11,600 12,000	14.00 14.50	11.10 11.30 11.30 11.15 11.30 11.60 11.40 11.40 11.45 11.65 11.65 11.65 11.65 11.65 11.65 11.65

See notes on pg.18.

## Combination ratings continued

•					ARIS	TANDARD R	ATINGS	t .		,		
		Cooling						Heating				7
			Sea	sonal Effic	ency St	ER				T .		7
UNITSIZE- INDOOR		Factory- Supplied Enhance- Standar		Field-Supplied Accessory ‡			High-Temp		Low-Temp		Seasonal Efficiency	
SERIES	UNIT	TC	ment	Rating	TXV	TXV & TDR**	EER	TC	COP	TC	COP	HSPF
	*FK4DNB006 FC4CNB054 FK4DNF005	47,500 47,000 47,500	TDR&TXV TDR&TXV TDR&TXV	14.00 13.00 13.50			12.00 11.20 11.65	50,000 50,000 50,000	3.70 3.56 3.26	29,400 30,000 30,200	2.54 2.44 2.08	9.0 8.5 7.5
		dala	COJLS +	56CV(A'X)	110-22 V	ARIABLES	EED FU					
04832, 33	CK5A/CK5BX060	47,000	NONE		13.70		11.80	51,000	3.22	30,000	2,16	7.7
			COILS	58CV(A,X)	135-22 <sup>-</sup> V	ARIABLE SE	EEDIFU	FNACE				
	CC5A/CD5AW060 CK5A/CK5BX060	46,000 47,000	NONE NONE		13,30 13.60		11.50 11.70	49,500 51,000	3.30 3.22	29,800 30,200	2,32 2,14	8.0 7.7
				58CV(A.X)	1515 Y212 V	APIABLE SP	elajo eloj	RNACE				
	CC5A/CD5AW060	46,000	NONE		13.50		11.60	50,000	3.32	29,800	2.34	8.0

Outdoor section/indoor section combination tested in accordance with DOE test procedures for heat pumps. Ratings for other combinations are determined under DOE computer simulation procedures.

\*\* Requires hard shutoff TXV; based on computer simulation.

SEER — Seasonal Energy Efficiency Ratio
COP — Coefficient of Performance

HSPF -- Heating Seasonal Performance Factor

TC - Total Capacity (Btuh)

TXV — Thermostatic Expansion Valve TDR — Time-Delay Relay

Patings are not values reflecting the effects of circulating fan heat. Supplemental electric heat is not included. Ratings are based on:

Cooling Standard: 80°F (27°C) db 67°F (19°C) wb indoor entering air temperature and 95°F (35°C) db air entering outdoor unit.

High-Temp Heating Standard: 70°F (21°C) db indoor entering air temperature and 47°F (8°C) db 43°F (6°C) wb air entering outdoor unit.

Low-Temp Heating Standard: 70°F (21°C) db indoor entering air temperature and 17°F (–9°C) db 15°F (–10°C) wb air entering outdoor unit.

In most cases, only 1 method should be used to achieve TDR function. Using more than 1 method in a system may cause degradation in performance. The object of the circulation of the content of the circulation of the ci

mance. Use either the accessory Time-Delay Relay KAATD0101TDR or a furnace equipped with TDR. All Carrier furnaces are equipped with TDR except for the 58GFA.

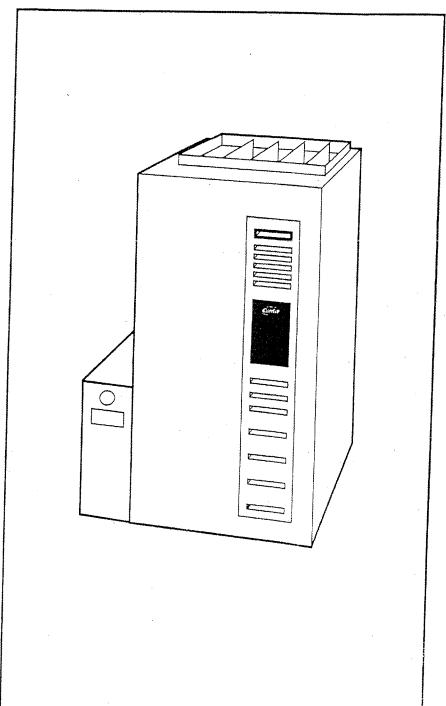


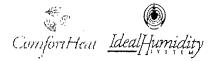
## Product Data

## Infinity™ 96 Model 58MVP

## Deluxe 4-Way Multipoise Direct-Vent Variable-Speed Deluxe Condensing Gas Furnace

Series 170 Input Capacities: 40,000 thru 120,000 Btuh





## Comfort Heat<sup>™</sup> technology, the ultimate in heating comfort...

The Carrier Infinity 96 with ComfortHeat technology achieves the optimum combination of comfort and efficiency.

The Infinity 96 achieves industryleading ultra-high efficiency at up to 96.6 percent Annual Fuel Utilization Efficiency (AFUE). Efficient performance is enhanced through the variable-speed design. To maintain ideal comfort. ComfortHeat technology automatically adjusts the heating level, maximizing the use of low heating levels that produce near silent furnace operation while meeting the exact heating needs. This unit is designed to keep the indoor temperature within I degree of the thermostat setpoint. Because it operates in low heat most of the time, the Infinity 96 uses up to 80% less power than single-capacity furnaces.

In addition to providing ultimate comfort, the Infinity 96 has a sealed combustion system. This system brings combustion air from outdoors to the furnace and vents flue gases safely outside the home. Because it is sealed, operational noise is minimal. A sealed combustion system also means fewer cold drafts and less air infiltration.

Quality materials are the key behind the Infinity 96's outstanding performance. Carrier stands behind quality. We offer lifetime warranty protection\* on the heat exchangers, the heart of the Infinity 96. The rest of the unit is backed by a limited 5-year warranty.

The Infinity 96 is available in 6 heat/airflow combinations. The unit has a 4-way multipoise design and can

## Physical data

UNITORIZE		040-14	060-145	0801476	080-20	100-26	120-20			
OUTPUT CAPACITY BTUH+ (ICS) Low	Upflow	25,000	37,000	49,000	49,000	61.000	73,000			
(Shaded capacities are	ownflow	25,000	36,000	49,000	49,000	61,000	73,000			
specified on rating plate) Hi	orizontal	25,000.4	36:000E	49,000	49.000	61000	7 5 7 3 10 0 a 5 1			
High	Upflow	38,000	57,000	75,000	75,000	94,000	113,000			
: <del>-</del> _	ownflow -	37,000	56,000	75,000	75,000	94,000	113,000			
	orizontal	37,000	56,000	75 000 00	54 76 000 F	93.000%	55 112 000°			
AFUE%*	Upflow	96.6	94.1	94.1	94.1	94.1	94,1			
	ownflow	95,0	92.7	92.7	92.7	92.7	92.7			
Ho	orizontal	96.1	93,7	93.7	93.7	93.7	93.7			
INPUT BTUHT	Low	26,000	39,000	52,000	52,000	65,000	78,000			
	High	_40,000	60,000	80,000	80,000	100,000	_ 120,000			
SHIPPING WEIGHT (Lb)		205	170	182	· 204	203	234			
CERTIFIED TEMP RISE RANGE (°F)	Low	25 — 55	50 80	50 80	50 — 80	50 — 80	50 80			
	High	30 60	35 — 65	35 65	35 <del>~</del> 65	45 75	45 75			
ကြောင့် မြောက်သော ကြောင်းကြောင့် မြောက်သော မြောက်သော မြောက်သော မြောက်သော မြောက်သော မြောက်သော မြောက်သော မြောက်သ	Heating	0.10	0.12	0.15	0.15	0.20	0.20			
	Cooling	0.50	0.50	0.50	0.50	0.50-	0.50			
	ing Low	585(690**)	500 (590**)	720 (850**)	705 (830**)	920 (1085**)	1160 (1370**)			
•	ng High	800	1065	1500	1500	1525	1880			
	g (Max)	1400	1400	1395	1990	2000	2100			
LIMIT CONTROL		·		SPS	171					
HEATING BLOWER CONTROL (Off Delay)		·	<del></del>	ble 90, 120, 150	, or 180 Sec Int	ervals	·			
BURNERS (Monoport)		2	3	4	4	5	,6			
GAS CONNECTION SIZE				1/2-in.		* .	-			
GAS VALVE (Redundant) Manufacturer		White-Rodgers								
Minimum Inlet Pressure (In. wc)	1			4.5 (Natur						
Maximum Inlet Pressure (in. wc)		13.6 (Natural Gas)								
IGHTI ON DEVICE		Hot Surface								

Capacity in accordance with U.S. Government DOE test procedures.

† Gas input ratings are certified for elevations to 2000 ft. For elevations above 2000 ft, reduce ratings 2 percent for each 1000 ft above sea level. In Canada, derate the unit 5 percent for elevations from 2000 to 4500 ft above sea level:

‡ Airflow shown is for bottom only return-air supply with factory-supplied 1-in. washable filter(s). For air delivery above 1800 CFM, see Air Delivery table for other options.

\*\* Low heat CFM when low-heat rise adjustment switch (SW1-3) on furnace control is used.

## Performance data

UNITESIZE	040-14	060-1448	Castopolianes	/ £080-20 %	les tannon si	ara aprezio esta
DIRECT-DRIVE MOTOR Hp (EGM)	1/2	1/2	1/2		1	1
MOTOR FULL LOAD AMPS	7.7	7.7	7.7	12.8	12.8	12.8
RPM (Nominal) — SPEEDS	er isak s		Variable 2	50 — 1300		· · ·
BLOWER WHEEL DIAMETER * WIDTH (in.)	11 x 10	. 10 x 7	11 x 10	11 x 10	11 x 10	11 x 10
FILTER SIZE (In.) NOMINAL (Washable)	(1) 24 x 25 x 1	(1) 16 x 25 x 1	(1) 20 x 25 x 1	(1) 20 x 25 x 1	(1) 20 x 25 x 1	(1) 24 × 25 × 1

ECM — Electronically Commutated Motor



City of Santa Ana

## Structural Analysis

Project Name: Addition

Building Address: 923 Clemensen Ave. Santa Ana

**Date:** 10/14/2011

Project No.: 11-0815



OWNER: PROJECT:

PAGE | OF | 9 DATE | 10-14-2011 JOB NO. 11-0815

### LOADING ANALYSIS (TYPICAL MATERIAL UNLESS NOTED OTHERWISE)

ROOF LOAD		
	ROOFING TYPE: PITCH:	comp 4 :12
DEAD LOAD		
	Roofing = Sheathing = Framing = Misc =	3.0 psf 1.5 psf 1.1 psf 1.4 psf
DEAD LOAD	SUB TOTAL:	7.0 psf
LIVE LOAD		20 PSF
TOTAL LOAD	:	27 PSF

CEILING LOAD		
DEAD LOAD		5 PSF
	SUB TOTAL:	5 PSF
LIVE LOAD	:	10 PSF
TOTAL LOAD	:	15 PSF

OWNER: PROJECT:

### LOADING ANALYSIS (TYPICAL MATERIAL UNLESS NOTED OTHERWISE)

#### ROOF RAFTERS (SLOPED w/ RIDGE BD)

MAX SPAN = 12.5 FT

LL = 20 psf

DL = 7 psf

SPACING = 16 in

Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI

D.F. #2	Size F	Fb	d	А	S	ı
2X4	1.5	900	3.5	5.25	3.06	5.36
2X6	1,3	900	5.5	8.25	7.56	20.80
2X8	1.2	900	7.25	10.88	13.14	47.63
2X10	1.1	900	9.25	13.88	21.39	98.93
2X12	1	900	11.25	16.88	31.64	178.00
2X14	0.9	900	13.25	19.88	43.89	290,80

CD = Duration Factor = 1.25
Cr = Repetitive use = 1.15
CF = Size Factor = 1.3

Uniform Load W = 36.00 PLF
Reaction, R = 225 LBS
V = W\*L/2= 225 LB
M = W\*L^2/8 = 703 LB-FT
Inertia Selected = 20.8 IN^4

 $\begin{array}{ccc} A = 1.5^{*}V/(Fv ^{*}CD.) = & 1.5 & IN^{2}\\ S = M ^{*}12 / (Fb ^{*}CD ^{*}Cr ^{*}CF) = & 5.02 & IN^{3}\\ \Delta = (5/384)^{*}(W ^{*}L ^{4}) ^{*}1728/(E^{*}I) = & 0.594 & IN \end{array}$ 

8.25 IN^2 OK 7.56 IN^3 OK L\*12/120 IN ≈ 1.25 IN OK

\* Table 1604.3 in 2010 California Building Code

#### USE 2X6 D.F. #2 @ 16" O.C

#### JOISTS

### Ceiling Joists

MAX SPAN = 25 FT

LL = 10 psf

DL = 5 psf

SPACING = 16 in

Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI

D.F. #2	Size F	Fb	d	Α	S	1
2X4	1.5	900	3.5	5.25	3.06	5.36
2X6	1.3	900	5.5	8.25	7.56	20.80
2X8	1.2	900	7.25	10.88	13.14	47.63
2X10	1.1	900	9.25	13.88	21,39	98.93
2X12	1	900	11.25	16.88	31.64	178.00
2X14	0.9	900	13.25	19.88	43.89	290.80

CD = Duration Factor = 1.25

Cr = Repetitive use = 1.15

CF = Size Factor = 1.1

Uniform Load W = 20.00 PLF
Reaction, R = 250 LBS
V = W\*L/2= 250 LB
M = W\*L^2/8 = 1563 LB-FT
Inertia Selected = 98.93 IN^4

 $A = 1.5 \text{ V}/(\text{Fv} \times \text{CD.}) = 1.7 \text{ IN}^2$   $S = M *12 / (\text{Fb} \times \text{CD} \times \text{Cr} \times \text{CF}) = 13.18 \text{ IN}^3$   $\Delta = (5/384) \times (\text{W} \times \text{L}^4) \times 1728 / (\text{E}^4) = 1.111 \text{ IN}$ 

< 13.88 IN^2 < 21.39 IN^3 < L\*12/180 IN

ОК ОК

1.67 IN

\* Table 1604.3 in 2010 California Building Code

USE 2X10 D.F. #2 @ 16" O.C

#### ROOF RAFTERS (Patio)

MAX SPAN = 12.5 FT

LL = 20 psf

DL = 7 psf

SPACING = 24 in

Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI

D.F. #2	Size F	Fb	d	A	S	l
2X4	1.5	900	3.5	5.25	3.06	5.36
2X6	1.3	900	5.5	8.25	7.56	20.80
2X8	1.2	900	7.25	10.88	13.14	47.63
2X10	1.1	900	9.25	13.88	21.39	98.93
2X12	1	900	11.25	16.88	31.64	178.00
2X14	0.9	900	13.25	19.88	43.89	290.80

CD = Duration Factor = 1.25 Cr = Repetitive use = 1.15 CF = Size Factor = 1.3

Uniform Load W= 54.00 PLF
Reaction, R = 338 LBS
V = W\*L/2= 338 LB
M = W\*L^2/8 = 1055 LB-FT
Inertia Selected = 20.8 IN/4

 $A = 1.5^{\circ}V/(FV ^{\circ}CD.) = 2.3 IN^{\circ}2$   $S = M^{\circ}12/(Fb^{\circ}CD^{\circ}Cr^{\circ}CF) = 7.53 IN^{\circ}3$  $\Delta = (5/384)^{\circ}(W^{\circ}L^{\circ}A)^{\circ}1728/(E^{\circ}I) = 0.891 IN$  8.25 IN^2 OK 7.56 IN^3 OK L\*12/120 IN = 1.25 IN OK

\* Table 1604.3 in 2010 California Building Code

#### USE 2X6 D.F. #2 @ 24" O.C

### JOISTS

### Ceiling Joists

> Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI

D.F. #2	Size F	Fb	d	А	S	I
2X4	1.5	900	3.5	5.25	3.06	5.36
2X6	1.3	900	5.5	8.25	7.56	20.80
2X8	1.2	900	7.25	10.88	13.14	47.63
2X10	1.1	900	9.25	13.88	21.39	98.93
2X12	1	900	11.25	16.88	31.64	178.00
2X14	0.9	900	13.25	19.88	43.89	290.80

CD = Duration Factor = 1.25 Cr = Repetitive use = 1.15 CF = Size Factor = 1.3

Uniform Load W = 30.00 PLF
Reaction, R = 165 LBS
V = W\*L/2= 165 LB
M = W\*L^2/8 = 454 LB-FT
Inertia Selected = 20.8 IN^4

 $A = 1.5^{*}V/(Fv * CD.) = 1.1 IN^{2}$   $S = M *12 / (Fb^{*}CD^{*}Cr^{*}CF) = 3.24 IN^{3}$   $\Delta = (5/384)^{*}(W^{*}L^{4})^{*}1728/(E^{*}I) = 0.297 IN$ 

< 8.25 IN<sup>2</sup> OK < 7.56 IN<sup>3</sup> OK < L\*12/180 IN = 0.73 IN OK

\* Table 1604.3 in 2010 California Building Code

USE 2X6 D.F. #2 @ 24" O.C

### **Ceiling Framing Beams and Headers**

	· · · · · · · · · · · · · · · · · · ·			
12.50 FT				
20 psf 7 psf 6.50 FT	Ceiling LL = Ceiling DL = Ceiling Tributary = Wall DL = Wall Height =	0 psf 5 psf 6.50 FT 15 psf 0 FT		
1350 PSI 170 PSI 1.6E+06 PSI 1.25				
208 PLF 1300 LBS 1300 LB 4063 LB-FT 392.96 IN^4				
9.18 IN^2 28.89 IN^3 0.182 IN	< <u>82.73</u> IN' < L*12/180 =		IN	OK OK OK
	20 psf 7 psf 6.50 FT 1350 PSI 170 PSI 1.6E+06 PSI 1.25 1 208 PLF 1300 LBS 1300 LB 4063 LB-FT 392.96 IN <sup>4</sup> 9.18 IN <sup>2</sup> 28.89 IN <sup>3</sup> 0.182 IN	20 psf	20 psf	20 psf

USE 6X10 D.F. #1

Hip Beam, HB1				
Span, L = LL = DL = Tributary =	17.5 ft 20 psf 7 psf 8.75 ft	Wmax = V = Vmax = Mmax =	236.25 plf 2067 lbs 1378 lbs 4641 lbs-ft	
fb =	1000 psi	Ra =	1378 lbs	
fv =	180 psi	Rb = _	689 lbs	
	.60E+06 psi	Inertia Selected =	230.8 in^4	
CD = Duration Factor =	1.25			
CF = Size Factor =	1.2			
A = 1.5*V/(Fv * CD.) =	9.19 in^2	< 32.38 in	^2	OK
S = M *12 / (Fb*CD*CF) =	37.13 in^3	< 49.91 in	^3	OK
$\Delta = (5/384)*(W*L^4)*1728/(E*I) =$	1.350 IN	< L*12/120 =	1.75 IN	OK
		* Table 1604.	3 in 2010 California Building Cod	ie

USE 4X10 D.F. #1

#### BM2 (Supporting HB1 x2)

MAX SPAN, L = 8 ft

P = 2756 lbs
Located (from R1) = 4 ft
a = 4 ft
b = 4 ft

Fb = 1000 psi Fv = 180 psi E = 1.7E+06 psi CD = Duration Factor = 1.25 CF = Size Factor = 1.2

Uniform Load W = 0 plf R1 = W\*L /2+P\*b/L = 1378 lbs R2 = W\*L /2+P\*a/L = 1378 lbs V = 1378 lbs Wmax = W\*L^2/8+(P\*a\*b)/L = 5513 lbs-ft

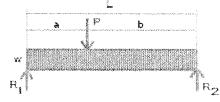
 $A = 1.5^{+}V/(Fv + CD.) = 9.19 \text{ in}^{2}$   $S = M + 12/(Fb + CD + CF) = 44.10 \text{ in}^{3}$   $\Delta = (5/384)^{+}(W + L^{4})^{+}1728/(E + 1) + 44.10 \text{ in}^{3}$ 

 $(P^*a^2^*b^2)/(3^*E^*I^*L) =$ 

Inertia Selected =

For attics without storage, this live load need not be assumed to act concurrently with any other live load

\*Table 1607.1 Footnote (i) CBC 2010



< 32.38 in^2 OK < 49.91 in^3 OK < L\*12/180 = 0.53 in OK

\* Table 1604.3 in 2010 California Building Code

USE 4X10 D.F.#1

230.8 in^4

0.13 in

PAGE 6 OF 19 DATE \_\_\_\_\_\_ JOB NO. ||-0815

```
BM 3 @ Patio
              MAX SPAN L =
                                   25.00 FT
                     Roof LL =
                                                             Ceiling LL =
                                                                                 0 psf
                                      20 psf
                    Roof DL =
                                       7 psf
                                                             Ceiling DL =
                                                                                 5 psf
                                                        Ceiling Tributary =
                                                                              0.00 FT
                                    6.00 FT
               Roof Tributary =
                                                               Wall DL =
                                                                                15 psf
                                                            Wall Height =
                                                                                 0 FT
                         Fb =
                                    1350 PSI
                         Fv =
                                     170 PSI
                                 1.6E+06 PSI
                         E =
         CD = Duration Factor =
                                    1.25
             CF = Size Factor =
                                     162 PLF
              Uniform Load W=
                Reaction R=
                                   2025 LBS
                V = W*L/2 =
                                   2025 LB
                M = W*L^2/8 =
                                  12656 LB-FT
              Inertia Selected = [
                                  950.55 IN^4
                                                                86.25 IN^2
                                                                                                         OK
          A = 1.5*V/(Fv * CD.) =
                                   14.29 IN^2
      S = M *12 / (Fb*CD*CF) =
                                   90.00 IN^3
                                                                165.31 IN^3
                                                                                                         0K
\Delta = (5/384)*(W*L^4)*1728/(E*I) =
                                   0.936 IN
                                                               L*12/120
                                                                                       2.50
                                                                                                         OK
                                   USE 8X12 D.F. #1
          BM 4 @ Patio
             MAX SPAN L =
                                   12.50 FT
                                      20 psf
                                                             Ceiling LL =
                                                                                 0 psf
                     Roof LL =
                     Roof DL =
                                       7 psf
                                                             Ceiling DL =
                                                                                 5 psf
                                    6.00 FT
                                                        Ceiling Tributary =
                                                                               0.00 FT
               Roof Tributary ≈
                                                               Wall DL =
                                                                                15 psf
                                                                                 0 FT
                                                            Wall Height =
                                    1350 PSI
                         Fb =
                                     170 PSI
                         Fv =
                          E =
                                 1.6E+06 PSI
                                    1.25
         CD = Duration Factor =
             CF = Size Factor =
                                       1
                                     162 PLF
              Uniform Load W=
                                   1013 LBS
                Reaction R=
                V = W*L/2 =
                                   1013 LB
                M = W^*L^2/8 =
                                   3164 LB-FT
                                  950.55 IN^4
              Inertia Selected =
                                                                86.25 IN^2
165.31 IN^3
                                                                                                         OK
          A = 1.5*V/(Fv * CD.) =
                                    7.15 IN^2
      S = M*12/(Fb*CD*CF) =
                                   22.50 IN<sup>3</sup>
                                                                                                         OK
\Delta = (5/384)^*(W^*L^4)^*1728/(E^*I) =
                                                                                       1.25
                                                                                                         OK
                                   0.059 IN
                                                              L*12/120 =
                                                                                             IN
```

USE 8X12 D.F. #1

### Wind Load Calculation

### Seismic Coefficient

V=(F\*Sds/R)\*W# of Stories = 1 F= 1 12.14.8 ASCE Standard 7-05, P 141 R = 6.5Table 12.2-1 ASCE Standard 7-05, P. 120 1=1 Table 11.5-1 ASCE Standard 7-05, P. 116 SMs = 1.381 USGS\* Sds = 0.9210.142 W 1.3 V =  $\rho =$ Design  $V = V * W * \rho * 0.7$  (Working Stress) = 0.129 W ASCE 7-05 Section 12.3.4.2, P. 126

<sup>\*</sup>From Seismic Hazard Curves Response Parameteres and Deisgn Parameters

OWNER: PROJECT:

PAGE _	8	_OF	19_
DATE			
JOB NO	·	1-0	815

### Lateral Analysis (Y-Y Direction)

Line	1	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)	
	15.9	4.00	8	1	6.00	l

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	2.84	270

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
5.67	12.33	35	90

from: EXISTING

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
0	0	0	0

Seismic Shear (LBS)  $\Sigma = 90$ 

	<del></del>	
:. Wind Governs	Governing Shear =	270 lbs

	Shear Wall Segment				Total	Unit Shear	
1	1	2	3	4	5	L (FT)	(PLF)
	6.33					6.3	43

USE:	$\Delta$ 10	SHEAR PANEL	and Simpson A-35 @	32	" O.C.

Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
8	6.33	43	1
	Wall Height (ft) 8		

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	2.84	5	2.84	15	8

Wali	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	2164	3086	.67	15	Negligible

OWNER: PROJECT:

PAGE_	9	_OF	A	9
DATE				
JOB NO	<b>)</b> .	1-08	3	15

Lateral Analysis (Y-Y Direction)

		 -	 -
Line	2		

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	5.335	509

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
5.67	12.33	35	90

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
5	6.25	15.625	40

 $\Sigma = \frac{\text{Seismic Shear (LBS)}}{130}$ 

: .	Wind Governs		Governing Shear =	509 lbs	1
- 1		l			 

Shear Wall Segment				Total	Unit Shear	
1	2	3	4	5	L (FT)	(PLF)
6					6.0	85

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	32	" O.C.	

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	6	85	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	2.84	5	2.84	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	<b>USE</b> Provides (lbs)	
1	4072	2773	.67	369	Negligible	

OWNER: PROJECT:

### Lateral Analysis (Y-Y Direction)

 		-
Line	3	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	2.5	239

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2 <b>.</b> 58

from: NEW

1	X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
1	5	6	15	39

from: EXISTING

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
0	0	0	0

Seismic Shear (LBS)  $\Sigma = 39$ 

:.	Wind Governs	Governing Shear =	239 lbs	

Shear Wall Segment					Total	Unit Shear
1	2	3	4	5	L (FT)	(PLF)
6					6.0	40

USE:	 Δ 10	10.5	SHEAR PANEL	Sing	and Simpson A-35 @	32 "	o.c.	福首

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	6	40	1
				ļ

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	2.50	5	2.50	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	1908	2700	.67	17	Negligible

OWNER: PROJECT:

PAGE _	Allena	_OF	1	9
DATE				
JOB NO.	, and the same	1-0	8	15

### **Lateral Analysis (Y-Y Direction)**

-			
Ł	.ine	4	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
I	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	12.75	1216

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	18	229.5	592

from: New Patio

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	13.5	172.125	444

Seismic Shear (LBS)  $\Sigma = 1036$ 

1		C		
: .	Wind Governs	Governing Shear	= 1210 105	
				_

Shear Wall Segment				Total	Unit Shear	
1	2	3	4	5	L (FT)	(PLF)
8					8.0	152

USE:	∆ 10	SHEAR PANEL	and Simpson A-35 @	16	" O.C.

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	8	152	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Celling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	12.75	5	12.75	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	9731	8736	.67	485	Negligible

OWNER: PROJECT:

### **Lateral Analysis (Y-Y Direction)**

Lir	1e 5	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	12.75	1216

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	18	229.5	592

from: New Patio

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	13.5	172.125	444

Seismic Shear (LBS)  $\Sigma = 1036$ 

:.	Wind Governs		Governing Shear	=	1216	lbs	7.	44.
		•						

	Shea	Total	Unit Shear			
1	2	3	4	5	L (FT)	(PLF)
5.5					5.5	221

USE:	Δ.10	SHEAR PANEL	and Simpson A-35 @	16	" O.C.	1

Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
8	5.5	221	1
	Wall Height (ft) 8		

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	12.75	5	12.75	15	8

Wali	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	9731	4129	.67	1266	HDU2 3075

OWNER: PROJECT:

PAGE_	13	OF.	19_
DATE			
JOB NO	).	1-0	815

### Lateral Analysis (X-X Direction)

~~~~~	~~~~		
	Line	Α	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	6.17	588

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
10.67	12.33	66	170

from: Existing

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
0	0	0	0

 $\Sigma = \frac{\text{Seismic Shear (LBS)}}{170}$ 

Part	
:. Wind Governs	Governing Shear = 588 lbs

Shear Wall Segment					Total	Unit Shear
1	2	3	4	5	L (FT)	(PLF)
					0.0	See Perf Shear Design

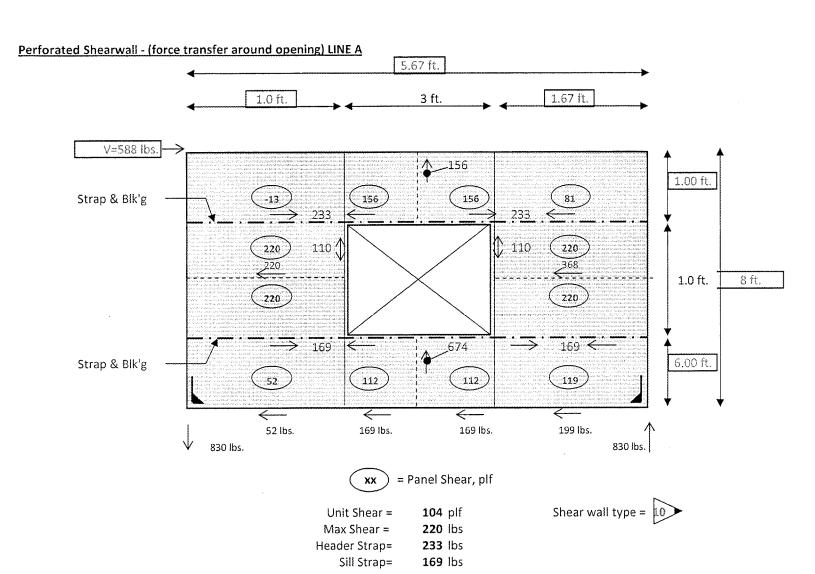
ı							_
ı	USE:	∆ <b>10</b>	SHEAR PANEL	and Simpson A-35 @	32	" O.C.	

Uplift					_
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)	
1	8	0.0	See Perf Shear Design	0	SEE NEXT PAGE
					]

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1						

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1					
					1

OWNER: PROJECT:



OWNER: PROJECT:

PAGE 15 OF 19 DATE JOB NO. 11-0815

### Lateral Analysis (X-X Direction)

1	ine	R	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
1	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	19.5	1860

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
10.67	12.33	66	170

from: Existing

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
55	16	440	1135

Seismic Shear (LBS)  $\Sigma = 1304$ 

:. Wind Governs	Governing Shear =	1860 lbs	100
1	<u> </u>		

Shear Wall Segment				Total	Unit Shear	
1	2	3	4	5	L (FT)	(PLF)
4.67	4.25				8.9	<b>20</b> 9

1	1 44	SHEAR PANEL	and Simpson A-35 @	16	"00
USE:	$\Delta$ 11	SHEAK PANEL	and Simpson A-55 @	70	U.C.
,					

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	4.67	209	1
2	8	4.3	209	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	8.0	5	8.0	15	8
2	7	8.0	5	8.0	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	7792	2355	.67	1331	HDU2 3075
2	7091	1951	.67	1361	HDU2 3075
					말이 이번 바다 밖에는 밝혀질째 함
				+	

OWNER: PROJECT:

PAGE 16 OF 19 DATE JOB NO. 11-0815

### Lateral Analysis (X-X Direction)

Line C

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
I	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	15.5	1479

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

1	X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
1	25.5	31	395.25	1019

from: New Patio

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	13.5	172.125	444

 $\Sigma = \frac{\text{Seismic Shear (LBS)}}{1463}$ 

:.	Wind Governs	Governing Shear =	1479 lbs
		•	

Shear Wall Segment					Total	Unit Shear
1	2	3	4	5	L (FT)	(PLF)
4	4.0				8.0	185

USE:	Δ:10	SHEAR PANEL	and Simpson A-35 @	16	" O.C.

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	4	185	0
2	8	4.0	185	0

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	0.0	5	0.0	15	8
2	7	0.0	5	0.0	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE	Provides (lbs)
1	5915	960	.67	1318	HDU2	3075
2	5915	960	.67	1318	HDU2	3075
					1.00	

OWNER: PROJECT:

### **Lateral Analysis (X-X Direction)**

1	line	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	6.00	8	1	7.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
111	12.5	1391

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	18	229.5	592

from: Existing

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
55	12	330	851

 $\Sigma = \frac{\text{Seismic Shear (LBS)}}{1443}$ 

			_
:.	Seismic Governs	Governing Shear ≈ 1443 lbs	

	She	ar Wall Segn	Total	Unit Shear		
1	2	3	4	5	L (FT)	(PLF)
10					10.0	144

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	32	" o.c.

Uplift				
Wali	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1, N=0)
1	8	10	144	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	6.5	5	6.5	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	11543	9900	.9	263	Negligible

**OWNER: PROJECT:**  PAGE 18 OF 19 DATE JOB NO. 11-08/

### Roof Diaphragm

2.58 psf Seismic V =

•	CIDITIO V	2.00 ps.	
		Length (ft)	Load (psf)
	Y-Dir	18	46
	X-Dir	25.5	66

Wind Load

	Wind Load (PLF)
Y-Dir	95
X-Dir	95

	Governing Load (psf)	X-Dir Length (L1, ft)	Y-Dir Length (L2, ft)
Y-Dir	95	25.5	18
X-Dir	95	25.5	18

LONG

w\*L1/(2\*L2) =

68 lbs/ft

SHORT

 $w^*L2/(2^*L1) =$ 

34 lbs/ft

USE 15/32" CDX PLYWOOD OR OSB w/ 8d @ 6" and 12" PROVIDES = 240#/ft UNBLOCKED

\*Table 2306.2.1(1) CBC 2010

LONG

Tension = Compression = w\*L1^2/(L2\*8) =

431 lbs

SHORT

Tension = Compression =  $w^L2^2/(L1^*8) =$ 

152 lbs

USE ST22 ST22 PROVIDES = PROVIDES =

1420 lbs 1420 lbs

### FOUNDATION ANALYSIS: (ASSUME SOIL BEARING PRESSURE 1500 PSF)

### **Continous Footing**

Roof DL = 7 psf

Roof LL = 19 psf

Roof Tributary = 12.75 ft

Ceiling DL = 5 psf

Ceiling Tributary = 12.75 ft

> Floor DL = 40 psf

Floor LL = 10 psf

Floor Tributary = 0.00 ft

Wall DL = 15 psf

Wall Height =

8 ft

W max =

Soil Bearing Pressure =

515 plf

1500 psf 0.34 ft

Width =

4.12 inches

USE 12"x12"deep w/ #4 T.&B. MIN.

1 Pad Support BM 3 and BM 4 @ Patio

P max =

3038 lbs

A req =

1.42 sq ft

A req =

17.08 sq in

USE 24"x24"x12" w/ 2 #4 E.W.

OWNER: PROJECT:

PAGE 1	9	_O	F _	19	
DATE _	,				
JOB NO.		- (	38	15	

### SHEAR PANEL SCHEDULE (SEISMIC) C. B. C. 2010 EDITION TABLE 2306.3

NO.	MATERIAL	NAILING	LB/FT	SOLE NAILING	A.B. SPACING
			S/W	16d @ O.C.	5/8" @ O.C
10	3/8" STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 6" O.C. EDGE & 12" FIELD	280	6"	32"
7.10		OR 10d BOX OR 12d SINKER			
44	3/8" STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 4" O.C. EDGE & 12" FIELD	350	4"	24"
<u> </u>		OR 10d BOX OR 12d SINKER			
12	3/8" STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 4" O.C. EDGE & 12" FIELD	430*	4"	24"
12		OR 10d BOX OR 12d SINKER			
13	3/8"STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 3" O.C. EDGE & 12" FIELD	550*	3"	16"
13		OR 10d BOX OR 12d SINKER			
14	15/32" STRUCTURAL 1 PLYWOOD OR OSB	10d COMMON @ 3" O.C. Edge & 12" FIELD	665*	2"	12"
147		OR 16d SINKER			
15	15/32" STRUCTURAL 1 PLYWOOD OR OSB	10d COMMON @ 2" O.C. Edge & 12" FIELD	870*	2"	8"
<u> </u>		OR 16d SINKER			

<sup>\*</sup> FRAMING AT ADJOINING PANEL EDGES AND SILL PLATE SHALL BE 3x\_\_\_ OR WIDER AND NAILS SHALL BE STAGGERED (IF SHEAR WALL EXCEED 350#/FT).

#### NOTES:

- A. PROVIDE 2x\_\_\_ BLOCKING AT HORIZONTAL PLYWOOD PANEL JOINTS
- B. WHERE PLYWOOD IS APPLIED ON BOTH FACES OF WALL AND NAIL SPACING IS LESS THAN A 6" OC, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS OR FRAMING SHALL BE 3x\_\_\_ OR WIDER (OR 2-2x\_\_\_) AND NAILS STAGGERED ON EACH SIDE.
- C. WHERE NAILS ARE SPACED AT 2" OC, THEY SHALL BE STAGGERED AND 3x\_\_\_ OR WIDER FRAMING MEMBERS SHALL BE USED AT ADJOINING PANEL EDGES
- D. USE .229"x3"x3" SQUARE WASHER FOR 5/8"X10" ANCHOR BOLTS

### **CITY OF SANTA ANA**

## **BUILDING PERMIT WORKSHEET**

PLEASE PRINT		1/14/09:form	s/Bldg.App.Worksheet
PROJECT ADDRESS: 923 CLEMENSEN	92705 SUITE:	SAPIN# (O	73676
USE OF BUILDING: RESIDENTIAL COMMERCIAL	INDUSTRIAL OTHER		
		MASTER ID#	
NATURE OF WORK: NEW ADD ALTER/T.I. DE	MO REROOF REPAIR	SIGN MISO	)
NEW/ADDITION/ALTERATION:			/
10)	7 44 3	D. OF STORIES: .DG. HEIGHT:	
		ROPOSED USE:	
TOTAL OF OTHER FLS:SF RES. REMOD  GARAGE/CARPORT:SF ALTER/T.I.:	SF @	.0. 0000 0000	
JOB DESCRIPTION (non-residential projects see reverse sig	de of this application) : Roa	m addition	
90 Existing house.			
U			
BUILDING OWNER'S NAME:  MATTHEW & JEANIFER FRAM	UKCIN	PHONE NO: 538	8-8559
BUILDING OWNER'S NAME:  MATTHEW + JEWIFER FRAM  ADDRESS:923 ELEMENSEN	CITY: SA	STATE:	型2205
123 CLEWIEN SEN		DUONE NO:	72.00
TENANT'S NAME (Comm/ind):		PHONE NO:	
CONTRACTOR'S NAME:	STATE CONTR.#:	LICENSE CLASS:	PHONE NO:
15iRchwood Feilders	424933	<i>13</i>	714) 342-4814
CONTRACTOR'S NAME: Sikchwood Builders ADDRESS: Box 1939, PUSTOR	CITY:	STATE: CA	92781
WORKERS COMP. POLICY#: EXP. DATE:	INSURANCE COMPANY:	SANTA ANA BUS. L	
ARCHITEOTENGINEER PINCHING LI	STATE LICENSE#: 38408	PHONE NO: (562) 860	-03/1
ADDRESS.		STATÉ:	
ADDRESS: 20332 E. CRESTLINE	CITY: WACLUT	CH	ZIP: 91789
CONTACT NAME: STEVE GNADT	PHONE NO:	14) 342.	-4814
E-MAIL ADDRESS: Stevenadi@birchwood-b	viklous. FAX NO:	AND COLOR OF THE PROPERTY OF T	-
<b>V</b>	Com	DIDO EEE A	
OFFICE USE ONLY: ACC OR SPC (CIRCLE ONE)	HRS PER	BLDG. FEE \$	22516
OCC. GROUP: RECEIPT#:	58379	P/C FEE PD \$	000
TYPE OF CONSTR: VALUATION: \$_	29,000	SUBMITTAL DATE:_	(10
FIRE SPKR: YES / NO A/C: YES / NO FLOOD ZONE:	AE	PROCESSED	ICH
RES. DEV. FEE: YES / NO PRIOR DWELLING UNIT: YES /	NO COMMENTS:		
PLANNING OK TO CHECK & DATE	BLDG. DEPT. APPROVAL 8	DATE ———	***************************************
PLNG CONDITIONS:			

## PLEASE CHECK ALL THAT APPLY TO YOUR PROJECT

JOB	DESCRIPTION CHECKLIST:		
	Additional square footage		Partition walls
	Awnings		Rated corridors
	Canopy		Rated shafts
	Ceiling work		Roof mounted equipment
	Change of occupancy (use)		Security bars
	Disabled accessible (H/C) restrooms		Screening for equipment
	Dust collector		Skylights
	Elevator shaft		Stairs
	Exterior doors or windows		Storefront/facade improvements
	Equipment pads		Storage racks or shelving over 5'-9"
	Interior demo		Walk-in coolers
	Kitchen equipment		
ITEN	IS REQUIRING SEPARATE BUILDING PE	RMIT APPLICATIO	NC.
		IN ALL LICATIO	
	Block wall		
Ш	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		
<u> </u>	Signs		
	Spray booth		
	Temporary power pole		
	Trash enclosure		

### FEE CHECKLIST WORKSHEET

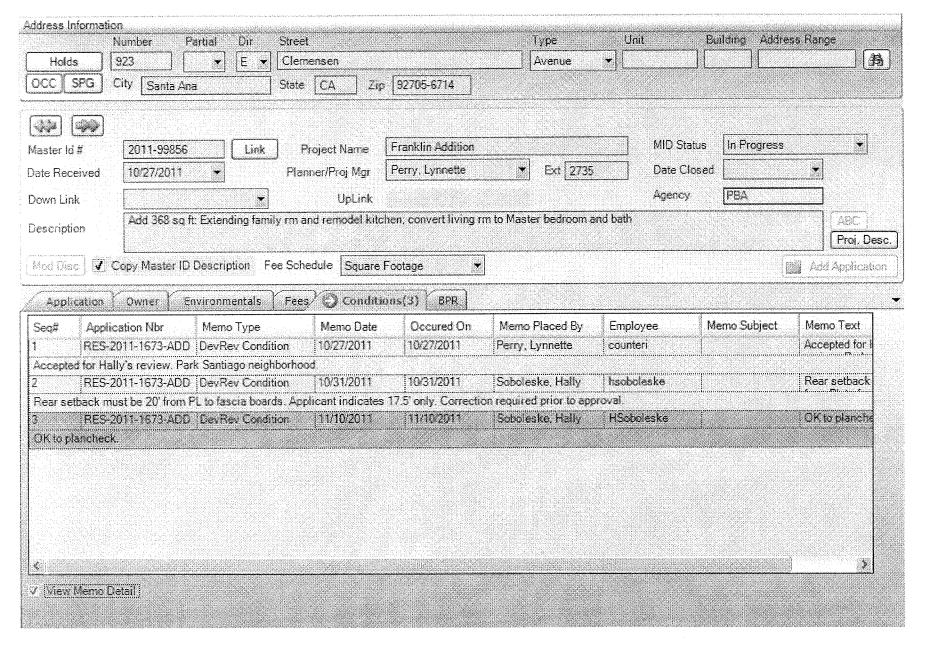
	FEE CHECKLIS	I WOKNSHEE	. 1	
Received by:	KH	SAPIN#:	1017	3676
	FEE TYPE  Plan Check Fee Disability Fee SMIP Fee Res. Dev. Fee Fire Facility Fee	REQUIRED Yes No  III		
	School Distr. Fee Microfilm FCWP Surcharge			
cost/sq		TION AREA L SQ FT =	valuation 28, 994	

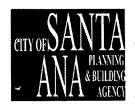
Counter computations/valuation \$ 29,000

Plan checker computation/final\_valuation \$\_\_\_\_\_

## CITY OF SANTA ANA PLAN CHECK - CHECKLIST

JOB ADDRE	1 - 1 - 2	E Clen 676	nenlen	/	1-10-11
TRACKING #		PLANCHECK STA			
PLEASE INIT	TAL EACH ITE	M BELOW			
1.	payment is not				nderstanding that this fee is not refundable
A2.	This plancheck		an in-house plan		additional cost to me. e intention of reducing
1/3.	calculated) will		the plancheck pro	cess and that s	and permit fees are said valuation shall be egulations.
h_4.		at I shall submit <b>sep</b> plan check is require		ications and p	lancheck fees for the
A _		Plans - 2 complete se Plans - 3 complete se		chanical Plans - ding Plans - 3 co	2 complete sets omplete sets
5.	inspection of the permit I am requ	e property is required	<ol> <li>I understand th Works Agency ap</li> </ol>	at prior to the is proval if my pro	verify whether a field suance of the Building ject valuation exceeds eds 500 sq.ft.
AGREED TO J	BY APPLICANT (	PRAGENT 9	p		
Applicant's Sig	nature A	eve /m	Eele- Oo	9	10
Print Name	17111	342-481	Address P	Box 193	g, WSTW TE
Telephone Nur		ecklist of items disc	rax	VAI & & EEE& I	PEOLIBED: Y/N
· · · · · · · · · · · · · · · · · · ·	•				
1. Planning   2. Public Wo	Department orks Agency	7. Title 24 (Ene 8 4 Title 24 (Dis		15/4/Res.	str. Act. Req. Dev. Fees
3. Fire Depa	artmemt	9MRoof Mounte	ed Equip.	16. SMIF	•
4. M Police De 5 M School Di		10. List of Subco		17. Micro	ofilming st. Debris Recyc.
6. MHealth De		12. Summary of 13. FY Informati	Appr. Req.	19. <u></u> FCW	/P Surcharge /Owner-Builder Ver.
PERMIT TECH	HNICIAN	KHern	inder		





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

## RESIDENTIAL PLAN CHECK COMMENTS

	10	10173676				
PLAN CHECK		923 E Clemensen Ave				
PROJECT ADD		George Moran		TEL:	711	667-2771
PLAN CHECK I	ENGINEER.		- Control of the Cont	FAX:		647-5897
TYPE OF CONS	TDUCTION:		V B			047-3897
OCCUPANCY (		10N/S)·	R-3, U	·····		
PLAN CHECK		1014(3).		REM	ARKS	/RECHECK ITEMS:
APPLICATION		0/2011		IXE.		ALONEON FILMO.
		5/2011				1193141499137
EXPIRATION	***************************************	5/8/2012				
RECHECKS:	1.			PROJECT APPLICANT CONTACT PERSON:		
_	2.		Steve Gnadt			
3.				TEL:	_	(714)342-4814
				FAX	_	
VALUATION:	\$29,000.00		EMA	15 L -	stevegnadt@birchwood- builders.com	
FLOOD ZONE:	AE-0602320	163J				

Note: Numbers in parenthesis (unless otherwise noted) refer to code sections of the 2010 California Residential Code (CRC); 2010 California Building Code (CBC); CMC = 2010 California Mechanical Code; CPC = 2010 California Plumbing Code; CEC = 2010 California Electrical Code; T = Table; ICC = International Code Council.

- 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.
- 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) 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 and to clearly indicate the scope of work under this building permit application. There may be additional requirements when complete construction drawings and supporting data is submitted for Building Safety Division review.
- 6. All drawings and supporting documents shall be prepared, stamped, and signed by a California licensed architect or registered professional engineer. (CRC R301.1.3, CBC 107.1 and 107.3.4.1).
- 7. All persons preparing plans for others shall sign those plans. Business and Professions Code Chapter 3, Division 3, Section 5536.1 (a).
- 8. This review does not include mechanical, plumbing or electrical work. Separate plans, applications, fees, plan checks, and permits are required for mechanical, plumbing, and electrical work. Call 647-5800 for information.
- 9. 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.
  - Public Works Agency approval (647-5039).
  - Proof of Worker's Compensation Insurance shall be required at the time of permit issuance.
- 10. Show the complete legal description and assessor's parcel number on the plans.
- 11. Provide an Index of drawings on cover sheet.
- 12. List the use of each room or area.
- 13. Provide wall legend to distinguish between new / existing / demo walls.
- 14. Provide window and door schedule. Callout sizes and types of openings and if new or existing.
- 15. Show location of heating equipment on the plans. (CRC R303.8)
- For an FAU located in the attic provide a minimum access of 22 x 30 inches, a 24-inch wide walkway, a 30-inch deep work platform, and electric light outlet adjacent to the furnace and switched by the opening. (CMC 904.11 & 305)
- 17. Interior spaces intended for human occupancy shall be provided with heating facilities capable of maintaining a room temperature of 68 degrees Fahrenheit at a point 3 feet above the floor and 2 feet from exterior walls in all habitable rooms. (CRC R303.8)
- 18. Glazing in door and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathrooms, showers less than 5' above the standing surface shall have a minimum category classification of II (CPSC 16 CFR 1201). (CRC TR308.3.1 (1) & 308.4(5))

- Provide cross ventilation for attic and each enclosed rafter space as specified in CRC Section R806.
- 20. Callout attic vent locations, sizes and types on plans. Provide attic ventilation calculation to show minimum ventilation is provided. (CRC R806.2)
- 21. On the drawings, provide Nailing Schedule in conformance with CRC Table R602.3(1).
- 22. Provide a minimum of two No. 4 bars at top and at bottom of continuous footing.
- 23. Revise footing detail to show bottom rebar at least 3" CLEAR from ground below. (1907.5)
- 24. Provide detail of post support with positive connections. (1203.3)
- 25. Provide a weep screed for stucco at the foundation plate line a minimum of 4 inches above the earth or 2 inches above paved areas. (2512.1.2)
- 26. Post-beam connections must be detailed on the drawings ensuring against uplift and lateral displacement (2304.9.7)
- 27. Detail how the interior shear walls are connected to the roof/floor diaphragm(s). (1603)
- 28. The City has encountered a large number of inspection problems arising from a lack of specific framing details. The following listed items are required to be shown on the plans (CBC 107.1):
  - All plumbing walls are to be framed with a minimum of 6" studs.
  - Permissible notching and boring of joists are to be shown on the plans and shall not exceed CBC Section 2308.10.4.2 allowances.
  - Notching of exterior and bearing/nonbearing walls shall not exceed 25%/40% respectively. Bored holes in bearing/nonbearing walls shall not exceed 40%/60% respectively. In no case shall the edge of the bored hole be nearer than 5/8 inch to the edge of the stud. (2308.9.10 and 2308.9.11)
  - Header and trimmer details for doors and windows are to be shown with full length trimmers, specifying the size of the header and trimmer. (2308.10.4.3)
- 29. Fasteners for preservative treated and fire treated wood shall be of hot dipped zinc coated galvanized steel, silicon bronze or copper. The coating weights for zinc coated fasteners shall be in accordance with ASTM A 153. CRC R317.3
- 30. Provide details for retrofit shear and tension anchor bolts on plans. Provide calculations as needed
- 31. Provide continuous operating exhaust fan in the bathroom with required ventilation rate per Section 150-o, Table 4-7 of 2008 Residential Compliance Manual. Ventilation air must come directly from the outdoors and not from attic or crawl spaces.

32. Revise plans to indicate how separate combustion air is provided for FAU located in attic. (CMC 701.3)



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

### RESIDENTIAL PLAN CHECK COMMENTS

		A CONTRACTOR				September 1990
						39/5-411-27
PLAN CHECK I	NO:	10173676				35°
PROJECT ADD	RFSS:	923 E Clem	ensen Ave			
PLAN CHECK I		George Mor	ran	TEL:	714	667-2771
FLAN CHLON	LINGINEEK.			-		CAT 500T
			VB	FAX:	/ 14	647-5897
TYPE OF CONS	STRUCTION:					
OCCUPANCY (	CLASSIFICATI	ON(S):	R-3, U	117		
PLAN CHECK				REM	ARKS/I	RECHECK ITEMS:
APPLICATION	11/10	/2011		Flo	eod 7	ione A.
INITIAL REVIE	N 12/6/2	2011				
EXPIRATION	5/8/20	)12		*****	1 a Si	ALLT
RECHECKS:	1.	-2012		-3 (		PPLICANT CONTACT PERSON:
NEONEONO.	2.	LOIL			Gnadt	FFLICANI CONTACT FERSON.
	3.			TEL:	(	714)342-4814
				FAX:		
VALUATION:	\$29,000.00			EMA	1 L v	tevegnadt@birchwood- uilders.com
FLOOD ZONE:	AE-06023201	.63J				
Residential Code	e (CRC); 2010 fornia Plumbin	California Bu	ilding Code (CBC	); CMC	= 2010	s of the 2010 California California Mechanical Code; de; T = Table; ICC =
1. All items to your p	noted on this p	lan check rep A" and discus	oort must be address the reason with	essed. I the plar	f you fe check	el that an item is not applicable

✓ 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) for an appointment.

Revise plans to indicate how separate combustion air is provided for FAU located in attic. (CMC 701.3)

NELY 24 1 X 14 AIR INTAKE

SEE FLOOR PLAN SHEET 3

IN FAMILY ROOM

Panding
(34) on left elevation show Bedrooms windows and Maximum
44" sill height.



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

### RESIDENTIAL PLAN CHECK COMMENTS

				39/0- AN-21
PLAN CHECK NO:	10173676	***************************************		(9)
PROJECT ADDRESS:	923 E Clen			
PLAN CHECK ENGINEER:	George Mo	oran 	TEL: 714	667-2771
			FAX: 714	647-5897
TYPE OF CONSTRUCTION:		V B		
OCCUPANCY CLASSIFICAT	ION(S):	R-3, U		
PLAN CHECK DATES:	( )		REMARKS	S/RECHECK ITEMS:
	0/2011		Flood	Zone A
INITIAL REVIEW 12/6/	2011			-
EXPIRATION 5/8/29	012		-> / 9	St Add Tin
4	-2012		PROJECT	APPLICANT CONTACT PERSON:
2.			Steve Gna	dt
3.			TEL:	(714)342-4814
	***************************************		FAX:	33 30 30 30 30 30 30 30 30 30 30 30 30 3
<b>VALUATION:</b> \$29,000.00			EMAIL:	stevegnadt@birchwood- builders.com
FLOOD ZONE: AE-0602320	163J			
CPC = 2010 California Plumbin International Code Council.  1. All items noted on this p to your project, note "Note"  2. Please indicate the she	California Bung Code; CEC plan check re 'A" and discu et number artion is made.	uilding Code (CBC C = 2010 Californing port must be address the reason with and detail to the righ Resubmit marked	e); CMC = 20 a Electrical C essed. If you the plan chect t of each corr	10 California Mechanical Code; Code; T = Table; ICC = feel that an item is not applicable

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

3. Resubmit 3 corrected sets of plans.

7/18/2012 Page 2 of 4 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 and to clearly indicate the scope of work under this building permit application. There may be additional requirements when complete construction drawings and supporting data is submitted for Building Safety Division review. All drawings and supporting documents shall be prepared, stamped, and signed by a California licensed architect or registered professional engineer. (CRC R301.1.3, CBC 107.1 and 107.3.4.1). All persons preparing plans for others shall sign those plans. Business and Professions Code Chapter 3, Division 3, Section 5536.1 (a). 8. This review does not include mechanical, plumbing or electrical work. Separate plans, applications, fees, plan checks, and permits are required for mechanical, plumbing, and electrical work. Call 647-5800 for information. 9. 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. - Public Works Agency approval (647-5039). Proof of Worker's Compensation Insurance shall be required at the time of permit issuance. Show the complete legal description and assessor's parcel number on the plans. SHEET I @ PLOT PLAN Provide an Index of drawings on cover sheet. INDEX AT TOP LEFT OF SHEET I List the use of each room or area. SHEET 34413. Provide wall legend to distinguish between new / existing / demo walls. SHEET 3 科. Provide window and door schedule. Callout sizes and types of openings and if new or existing. 好底气下 🧣 ్రోవ్. Show location of heating equipment on the plans. (CRC R303.8) 16. For an FAU located in the attic provide a minimum access of 22 x 30 inches, a 24-inch wide walkway, a 30-inch deep work platform, and electric light outlet adjacent to the furnace and switched by the opening. (CMC 904.11 & 305) OK SEE SHEET 3 IN EXIST'6 ATTIC

Interior spaces intended for human occupancy shall be provided with heating facilities capable of maintaining a room temperature of 68 degrees Fahrenheit at a point 3 feet above the floor and 2 feet from exterior walls in all habitable rooms. (CRC R303.8)

feet from exterior walls in all habitable rooms. (CRC R303.8) YES NEW FAU IN ATIC

FEL T-24 SEE SHEETS 748

Glazing in door and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathrooms, showers
less than 5' above the standing surface shall have a minimum category classification of II (CPSC 16

CFR 1201). (CRC TR308.3.1 (1) & 308.4(5)) OK SEE SHEET 3 SHE

SCHEDULE

	1-18-12
18.	Provide cross ventilation for attic and each enclosed rafter space as specified in CRC Section R806. PROVIDER VENTS SEE SHEET 5 4 6
√26. V	Callout attic vent locations, sizes and types on plans. Provide attic ventilation calculation to show minimum ventilation is provided. (CRC R806.2)
V 21.	On the drawings, provide Nailing Schedule in conformance with CRC Table R602.3(1).
122.	Provide a minimum of two No. 4 bars at top and at bottom of continuous footing.
1 / /	Revise footing detail to show bottom rebar at least 3" CLEAR from ground below. (1907.5)
24	Provide detail of post support with positive connections. (1203.3)
1/25.	Provide a weep screed for stucco at the foundation plate line a minimum of 4 inches above the earth or 2 inches above paved areas. (2512.1.2) OF DTL A SHEET
26.	Post-beam connections must be detailed on the drawings ensuring against uplift and lateral displacement (2304.9.7)  ECCL SEE DTL E SHEET 4
\$ 27.	Detail how the interior shear walls are connected to the roof/floor diaphragm(s). (1603)
28	The City has encountered a large number of inspection problems arising from a lack of specific framing details. The following listed items are required to be shown on the plans (CBC 107.1):
<b>3</b>	All plumbing walls are to be framed with a minimum of 6" studs.  OK SEE FLOOR PLAN SHEET 3 & FRAMING PLAN SHEET 4
	- Permissible notching and boring of joists are to be shown on the plans and shall not exceed CBC Section 2308.10.4.2 allowances.
5	- Notching of exterior and bearing/nonbearing walls shall not exceed 25%/40% respectively. Bored holes in bearing/nonbearing walls shall not exceed 40%/60% respectively. In no case shall the edge of the bored hole be nearer than 5/8 inch to the edge of the stud. (2308.9.10 and 2308.9.11)
	- Header and trimmer details for doors and windows are to be shown with full length trimmers, specifying the size of the header and trimmer. (2308.10.4.3)
8/2	Footoness for annual first translated and first translated and all the first translated and tran
1/29. 1/26	Fasteners for preservative treated and fire treated wood shall be of hot dipped zinc coated galvanized steel, silicon bronze or copper. The coating weights for zinc coated fasteners shall be in accordance with ASTM A 153. CRC R317.3 OF NOTE SHEET A UNICENTED SHEET SHEET A UNICENTED SHEET
30.	Provide details for retrofit shear and tension anchor bolts on plans. Provide calculations as needed
V31.	Provide continuous operating exhaust fan in the bathroom with required ventilation rate per Section 150-o, Table 4-7 of 2008 Residential Compliance Manual. Ventilation air must come directly from the outdoors and not from attic or crawl spaces.
	OK SOCIETY

Revise plans to indicate how separate combustion air is provided for FAU located in attic. (CMC 701.3)  Revise plans to indicate how separate combustion air is provided for FAU located in attic. (CMC 701.3)  Revise plans to indicate how separate combustion air is provided for FAU located in attic. (CMC 701.3)
Panding  34) on left elevation 8how Bedrooms windows and Maximum  44" Sill height.   FES   HANE CHANGED  WINDOW 15 A 30 MINE X 4" TALL  BUT WINDOW 15 A 30 MINE X 4" TALL  BUT WINDOW 15 A 30 MINE X 4" TALL  BUT WINDOW 15 A 30 MINE X 4" TALL  BUT WINDOW 15 A 30 MINE X 4" TALL  GEB STAPE WIN THE OTHER  MAIN FIRE ESCAPE WIN THE OTHER  MAIN FIRE ESCAPE WIN THE OTHER  SY 40 KIN IN SEDROOM 15  5° X 4° KIN IN SEDROOM 15  GEB ELEN ON SHEET 6
2-13-92 8-2012  Aprovide Cheer transfer detail (Gable Roof) at the back of the Family room.  Change Framing Based on omiting Patio Cover. for whee Par Family room.  all Kny posi



Planning and Building Agency Planning Division 20 Civic Center Plaza P.O. Box 1988 (M-20) Santa Ana, CA 92702 (714) 647-5804 www.santa-ana.org

### PATIOS AND ARCHITECTURAL FEATURES

### Sec. 41-605. Same—Patios and architectural features.

- (a) Cornices, eaves, chimneys, and similar architectural features may extend into the required yards of the A1, RE, and R1 districts as follows: A distance not to exceed forty-eight (48) inches into any required front, rear, and/or side yard of the street side of a corner lot; and a distance not to exceed eighteen (18) inches into any other required side yard. The aforesaid architectural features may extend into the required yards of the R2 and R3 districts as follows: A distance not to exceed forty-eight (48) inches into any required front, rear, and/or side yard of the street side of a corner lot; and a distance not to exceed six (6) inches into any other required side yard.
- (b) A wholly or partly enclosed covered patio attached to a residence shall maintain the same yards as required for the main building, except as set forth in subsection (c) of this section. A patio with a roof having open-frame or eggcrate construction shall be considered a covered patio.
- (c) A landing place may extend into any yard to a distance of six (6) feet across one-half (1/2) of the width or depth of the lot; provided that such landing place shall have its floor no higher than the entrance floor of the building. Stairs leading from the ground to said landing place may project beyond said six (6) feet. Further, an open railing no higher than three (3) feet may be placed around said landing place. A covered patio may encroach up to ten (10) feet into the required rear yard. Nothing herein shall prohibit the extension of an unenclosed, nonroofed, open patio into any and all required side and rear yards.
- (d) Any cornice, eave, chimney, or similar architectural feature, patio cover or canopy may extend into any other required open space provided for in this chapter, other than required yards, a distance not to exceed two (2) feet; provided, however, nothing herein shall prohibit the full extension of an uncovered patio into said required open space.

### From the office of Pin Ching Li

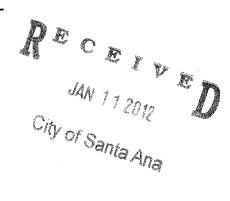
I have been informed of a change on the Franklin Project at 923 Clememson, Santa Ana, CA. The patio cover and new master bathroom and closet have been eliminated from this job. The engineering of the family room addition will not be affected by these changes. Calculations are ok as is.

Pin Ching Łi

Date



### Structural Analysis



Project Name: Addition

Building Address: 923 Clemensen Ave. Santa Ana

Date: 10/14/2011

**Project No.: 11-0815** 



91981101

### PIN-CHING LI & ASSOCIATES REGISTERED CIVIL ENGINEER OWNER: PROJECT:

PAGE <u>| A</u> OF <u>| A</u>
DATE <u>| 12-27-20| |</u>
JOB NO. 11-0815

### ROOF RAFTERS TIE

Ceiling Joist Span= 25 ft

Uniform Load = 36.00 plf

Pitch = 4:12

 $T = (w^*L/4)^*(12/pitch) = Tension : 675 lbs$ 

16d provides 141 lbs = of 16d = 3.8

Use FIVE 16d @ every Roof Rafter and Ceiling Joist & Splice

OWNER: PROJECT:

PAGE OF 19 DATE 10-14-2011 JOB NO. 11-0815

### LOADING ANALYSIS (TYPICAL MATERIAL UNLESS NOTED OTHERWISE)

ROOF LOAD		
·	ROOFING TYPE: PITCH:	comp 4 :12
DEAD LOAD		
	Roofing = Sheathing = Framing = Misc =	3.0 psf 1.5 psf 1.1 psf 1.4 psf
DEAD LOAD	SUB TOTAL:	7.0 psf
LIVE LOAD		20 PSF
TOTAL LOAD	:	27 PSF

CEILING LOAD		
DEAD LOAD		5 PSF
	SUB TOTAL:	5 PSF
LIVE LOAD	:	10 PSF
TOTAL LOAD	;	15 PSF

OWNER: PROJECT:

### LOADING ANALYSIS (TYPICAL MATERIAL UNLESS NOTED OTHERWISE)

D.F. #2

2X4

2X6

2X8

2X10

2X12

2X14

#### ROOF RAFTERS (SLOPED w/ RIDGE BD)

CF = Size Factor =

MAX SPAN = 12.5 FT

LL = 20 psf

DL = 7 psf

SPACING = 16 in

Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI

E = 1.60E+06 PSI

CD = Duration Factor = 1.25

Cr = Repetitive use = 1.15

Uniform Load W= 36.00 PLF
Reaction, R = 225 LBS
V = W\*L/2= 225 LB
M = W\*L^2/8 = 703 LB-FT
Inertia Selected = 20.8 IN/4

 $A = 1.5*V/(Fv * CD.) = S = M *12 / (Fb*CD*Cr*CF) = \Delta = (5/384)*(W*L^4)*1728/(E*I) =$ 

1.5 IN<sup>2</sup> 5.02 IN<sup>3</sup> 0.594 IN

1.3

< 8.25 IN<sup>2</sup> < 7.56 IN<sup>3</sup> < 1.12/120 IN

Size F

1.5

1.3

1.2

1.1

0.9

Fb

900

900

900

900

900

1.25 IN

A

5.25

8.25

10.88

13.88

16.88

19.88

d

3.5

5.5

7.25

9.25

11.25

13,25

S

3,06

7.56

13.14

21.39

31.64

43,89

5.36

20.80

47.63

98.93

178.00

290.80

OK OK

\* Table 1604.3 in 2010 California Building Code

#### USE 2X6 D.F. #2 @ 16" O.C

#### JOISTS

#### Ceiling Joists

MAX SPAN = 25 FT

LL = 10 psf

DL = 5 psf

SPACING = 16 in

Fb = 900 PSI Fv = 180 PSI E = 1.60E+06 PSI

D.F. #2	Size F	Fb	d	А	S	1
2X4	1.5	900	3.5	5.25	3.06	5.36
2X6	1.3	900	5.5	8.25	7.56	20.80
2X8	1.2	900	7.25	10.88	13.14	47.63
2X10	1.1	900	9.25	13.88	21.39	98.93
2X12	1	900	11.25	16.88	31.64	178.00
2X14	0.9	900	13.25	19.88	43.89	290.80

CD = Duration Factor = 1.25 Cr = Repetitive use = 1.15 CF = Size Factor = 1.1

Uniform Lond W - 20.00 PLF
Reaction, R = 250 LBS
V = W\*L/2= 250 LB
M = W\*L^2/8 = 1563 LB-FT
Inertia Selected = 98.93 IN^4

 $A = 1.5^{*}V/(Fv * CD.) = S = M *12 / (Fb^{*}CD^{*}Cr^{*}CF) = \Delta = (5/384)^{*}(W^{*}L^{4})^{*}1728/(E^{*}I) = 0$ 

1.7 IN^2 13.18 IN^3 1.111 IN < 13.88 IN^2 < 21.39 IN^3 < L\*12/180 IN

OK OK 1.67 IN OK

\* Table 1604.3 in 2010 California Building Code

USE 2X10 D.F. #2 @ 16" O.C

**OWNER:** PROJECT: PAGE 3 OF DATE JOB NO. 11-081

#### ROOF RAFTERS (Patio)

MAX SPAN = 12.5 FT LL = 20 psf DL = 7 psf SPACING = 24 in

> Fb = 900 PSI Fv = 180 PSI 1.60E+06 PSI E =

CD = Duration Factor = 1.25 1.15 Cr = Repetitive use = CF = Size Factor = 1.3

> 54.00 PLF Uniform Load W= Reaction, R = 338 LBS V = W\*L/2= 338 LB  $M = W^*L^2/8 =$ 1055 LB-FT Inertia Selected = 20.8 IN^4

A = 1.5\*V/(Fv \* CD.) =S = M \*12 / (Fb\*CD\*Cr\*CF) =  $\Delta = (5/384)^*(W^*L^4)^*1728/(E^*I) =$ 

2.3 IN^2 7.53 IN^3 0.891 IN

8.25 IN^2 7.56 IN^3

L\*12/120 IN \* Table 1604.3 in 2010 California Building Code OK ÖK

OK

D.F. #2

2X4

2X6

2X8

2X10

2X12

2X14

Size F

1.5

1.3

1.2

1,1

0.9

Fb

900

900

900

900

900

900

d

3.5

5.5

7.25

9.25

11.25

13.25

5.25

8.25

10.88

13.88

16.88

19.88

1 25 IN

3.06

7.56

13.14

21.39

31.64

43.89

5.36

20.80

47.63

98.93

178,00

290.80

### USE 2X6 D.F. #2 @ 24" O.C

#### JOISTS

### Ceiling Joists

MAX SPAN = 11 FT LL = 10 psf DL = 5 psf SPACING = 24 in

> 900 PSI Fb = 180 PSI Fv = 1.60E+06 PSI

D.F. #2	Size F	Fb	d	A	S	
2X4	1.5	900	3.5	5.25	3.06	5.36
2X6	1.3	900	5.5	8.25	7.56	20.80
2X8	1.2	900	7.25	10.88	13.14	47.63
2X10	1.1	900	9.25	13.88	21.39	98.93
2X12	1	900	11.25	16.88	31.64	178.00
2X14	0.9	900	13.25	19.88	43.89	290.80

CD = Duration Factor = 1.25 Cr = Repetitive use = 1.15 CF = Size Factor = 1.3

> 30.00 PLF Uniform Load W= 165 LBS Reaction, R = V = W\*L/2= 165 LB  $M = W^*L^2/8 =$ 454 LB-FT Inertia Selected = 20.8 IN^4

A = 1.5\*V/(Fv \* CD.) =S = M \*12 / (Fb\*CD\*Cr\*CF) =  $\Delta = (5/384)*(W*L^4)*1728/(E*I) =$ 

1.1 IN^2 3.24 IN^3 0.297 IN

8.25 IN^2 7.56 IN^3 L\*12/180 IN

0.73 IN

OK

ΟK

OK

Table 1604.3 in 2010 California Building Code

USE 2X6 D.F. #2 @ 24" O.C

OWNER: PROJECT:

PAGE \_\_\_\_\_ OF \_\_\_\_\_\_ DATE \_\_\_\_\_\_ JOB NO. \_\_\_\_\_\_\_5\_

### Ceiling Framing Beams and Headers

BM 1 (@ Kit/Dining)					
MAX SPAN L =	12.50 FT				
Roof LL = Roof DL = Roof Tributary =	20 psf 7 psf 6.50 FT	Ceiling LL = Ceiling DL = Ceiling Tributary =	0 psf 5 psf 6.50 FT		
Noor Hibutary	0.00 1 1	Wall DL = Wall Height =	15 psf 0 FT		
Fb = Fv =	1350 PSI 170 PSI				
E = CD = Duration Factor = CF = Size Factor = CF = C	1.6E+06 PSI 1.25				
Uniform Load W= Reaction R= V = W*L /2 =	208 PLF 1300 LBS . 1300 LB				
M = W*L^2/8 = Inertia Selected = [	4063 LB-FT 392.96 IN^4				
A = 1.5*V/(Fv * CD.) = S = M *12 / (Fb*CD*CF) =	9.18 IN^2 28.89 IN^3	< 52.25 IN^2 < 82.73 IN^3			OK OK
$\Delta = (5/384)^*(W^*L^4)^*1728/(E^*I) =$	0.182 IN	< L*12/180 =	0.83	IN	OK
	USE 6X10 D.F.	.#1 ·			

PROJECT:

Hip Beam, HB1 236.25 plf Span, L = 17.5 ft Wmax = 20 psf V = 2067 lbs LL = 7 psf DL = Vmax = 1378 lbs Tributary = 8.75 ft Mmax = 4641 lbs-ft 1000 psi Ra = 1378 lbs fh = 689 lbs fv = 180 psi Rb ≈ 230.8 in^4 E = 1.60E+06 psi Inertia Selected ≈ CD = Duration Factor = 1.25 CF = Size Factor = A = 1.5\*V/(Fv \* CD.) =9.19 in^2 32.38 in^2 OK OK. S = M \*12 / (Fb\*CD\*CF) =37.13 in^3 49.91 in^3  $\Delta = (5/384)*(W*L^4)*1728/(E*I) =$ 1.350 IN L\*12/120 1.75 IN OK \* Table 1604.3 in 2010 California Building Code

USE 4X10 D.F. #1

#### BM2 (Supporting HB1 x2)

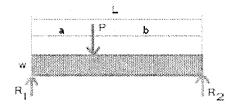
MAX SPAN, L = 8 ft

P = 2756 lbs
Located (from R1) = 4 ft
a = 4 ft
b = 4 ft

Fb = 1000 psi
Fv = 180 psi
E = 1.7E+06 psi
CD = Duration Factor = 1.25
CF = Size Factor = 1.2

\*Table 1607.1 Footnote (i) CBC 2010
For attics without storage, this live load need not be assumed to act concurrently with any other live load

Uniform Load W = 0 plf
R1 = W\*L /2+P\*b/L = 1378 lbs
R2 = W\*L /2+P\*a/L = 1378 lbs
V = 1378 lbs
V = 1378 lbs
Mmax = W\*L^2/8+(P\*a\*b)/L = 5513 lbs-ft
Inertia Selected = 230.8]in^4



 $A = 1.5*V/(Fv * CD.) = 9.19 in^2$   $S = M *12 / (Fb*CD*CF) = 44.10 in^3$   $\Delta = (5/384)*(W*L^4)*1728/(E*I) + (P*a^2*b^2)/(3*E*I*L) = 0.13 in$ 

32.38 in<sup>2</sup> OK
 49.91 in<sup>3</sup> OK
 L\*12/180 = 0.53 in OK
 \* Table 1604.3 in 2010 California Building Code

USE 4X10 D.F.#1

OWNER: PROJECT:

	BM 3 @ Patio					
	MAX SPAN L = Roof LL = Roof DL = Roof Tributary =	25.00 FT 20 psf 7 psf 6.00 FT	Ceiling LL = Ceiling DL = Ceiling Tributary = Wall DL = Wall Height =	0 psf 5 psf 0.00 FT 15 psf 0 FT		
	Fb = Fv = Fv = E = CD = Duration Factor = CF = Size Factor = Facto	1350 PSI 170 PSI 1.6E+06 PSI 1.25				
	Uniform Load W=	162 PLF 2025 LBS 2025 LB 12656 LB-FT 950.55 IN^4				
	$A = 1.5*V/(Fv * CD.) = S = M *12 / (Fb*CD*CF) = \Delta = (5/384)*(W*L^4)*1728/(E^1) =$	14.29 IN^2 90.00 IN^3 0.936 IN	< 86.25 IN^2 < 165.31 IN^3 < L*12/120 =	2.50	IN	OK OK
		USE 8X12 D.F. #1				
	BM 4 @ Patio					
•	MAX SPAN L = Roof LL = Roof DL = Roof Tributary =	12.50 FT 20 psf 7 psf 6.00 FT	Ceiling LL = Ceiling DL = Ceiling Tributary = Wall DL = Wall Height =	0 psf 5 psf 0.00 FT 15 psf 0 FT		
	Fb = Fv = Fv = E = CD = Duration Factor = CF = Size Factor =	1350 PSI 170 PSI 1.6E+06 PSI 1.25				
	Uniform Load W=	162 PLF 1013 LBS 1013 LB 3164 LB-FT 950.55 IN^4				
	$A = 1.5*V/(Fv*CD.) = \\ S = M*12 / (Fb*CD*CF) = \\ \Delta = (5/384)*(W*L^4)*1728/(E*I) = \\$	7.15 IN^2 22.50 IN^3 0.059 IN	< 86.25 IN^2 < 165.31 IN^3 < L*12/120 =	1.25	IN	OK OK

USE 8X12 D.F. #1

OWNER: PROJECT:

PAGE 7 OF 19 DATE \_\_\_\_\_\_ JOB NO. | | - 2815

### Wind Load Calculation

Basic Wind Speed = 85 mph Exposure = Pitch = 4 12 Roof Angle = 18.43 degrees Importance Factor, I = ASCE Standard 7-05 pg 116 Table 11.5-1 1 1 ASCE Standard 7-05 pg 40 Figure 6-2 Adjustment Factor, I = 13.67 ft Mean Roof Height, h = ASCE Standard 7-05 pg 26 Section 6.5.7.2 Topographic Factor, Kzt = 1  $Kzt = (1+K1*K2*K3)^2 =$ 1 ASCE Standard 7-05 pg 45 Figure 6-4 Design Wind Pressure, Ps30 = 15.9 psf ASCE Standard 7-05 pg 24 Section 6.4.2.1 Ps = I\*Kzt\*I\*Ps30 = I15.9 psf

### **Seismic Coefficient**

$$V = (F*Sds/R)*W$$
# of Stories = 1
$$F = 1$$

$$12.14.8 \text{ ASCE Standard 7-05 , P 141}$$

$$R = 6.5$$

$$Table 12.2-1 \text{ ASCE Standard 7-05 , P. 120}$$

$$I = 1$$

$$Table 11.5-1 \text{ ASCE Standard 7-05 , P. 116}$$

$$SMs = 1.381$$

$$USGS*$$

$$Sds = 0.921$$

$$V = 0.142 \text{ W}$$

$$\rho = 1.3$$

$$Design V = V*W*\rho*0.7 \text{ (Working Stress)} = 0.129 \text{ W}$$

\*From Seismic Hazard Curves Response Parameteres and Deisgn Parameters

ASCE 7-05 Section 12.3.4.2, P. 126

OWNER: PROJECT:

### Lateral Analysis (Y-Y Direction)

Line	1

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)	
ſ	15.9	4.00	8	1	6.00	

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	2.84	270

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
5.67	12.33	35	90

from: EXISTING

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
0	0	0	0

Seismic Shear (LBS)  $\Sigma = 90$ 

: . Wind Governs	Governing Shear =	270 lbs

Shear Wall Segment				Total	Unit Shear	
1	2	3	4	5	L (FT)	(PLF)
6.33					6.3	43

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	32	" O.C.

Uplift		,		
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	6.33	43	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	2.84	5	2.84	15	8
	······				***************************************	
				<del> </del>	······	

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)	
1	2164	3086	.67	15	Negligible	
					1	

OWNER: PROJECT:

PAGE _	9	_OF	1	9
DATE ]				
JOB NO	<b>).</b>	1-0	3	15

Lateral Analysis (Y-Y Direction)

Line	2	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	5.335	509

Seismic

1	Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
1	0.129	7	. 5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Haif Area (FT^2)	Shear (LBS)
5.67	12.33	35	90

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
5	6.25	15.625	40

 $\Sigma = \frac{\text{Seismic Shear (LBS)}}{130}$ 

: . Wind Governs	Governing Shear =	509 lbs	

	Shear Wall Segment					Unit Shear
1	2	3	4	5	L (FT)	(PLF)
6					6.0	85

|--|

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	6	85	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	2.84	5	2.84	15	8
						*

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)		Provides (lbs)
1	4072	2773	.67	369	Negligible	

OWNER: PROJECT:

### **Lateral Analysis (Y-Y Direction)**

Line	3	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	2.5	<b>2</b> 39

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
5	6	15	39

from: EXISTING

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
0	0	0	0

Seismic Shear (LBS)  $\Sigma = 39$ 

: . Wind Governs	Governing Shear ≈	239 lbs	

	She	ar Wall Segm	Total	Unit Shear		
1	2	3	4	5	L (FT)	(PLF)
6					6.0	40

USE:	<b>∆</b> 10	SHEAR PANEL	and Simpson A-35 @	32 " O.C.	

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	6	40	1

Wali	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	2.50	5	2.50	15	8
			·			

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE	Provides (lbs)	
11	1908	2700	.67	17	Negligible		

OWNER: PROJECT:

PAGE | OF 19 DATE | JOB NO. | 1 - 0815

### Lateral Analysis (Y-Y Direction)

Line 4	
--------	--

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	. 6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	12.75	1216

#### Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

#### from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	18	229.5	592

#### from: New Patio

X Width (FT)	Y Length (FT)	Haif Area (FT^2)	Shear (LBS)
25.5	13.5	172.125	444

	Seismic Shear (LBS)
Σ=	1036

-			
:.	Wind Governs	Governing Shear =	1216 lbs

Shear Wall Segment					Total	Unit Shear
1	2	3	4	5	L (FT)	(PLF)
8					8.0	152

<del></del>	<del></del>	<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>				***
USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	16	" o.c.	
<del></del>					,	_

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	. 8	152	1
				<del> </del>

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7 ·	12.75	5	12.75	15	8
		·				

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	9731	8736	.67	485	Negligible
			·		
					·

OWNER: PROJECT:

PAGE _	12	(	OF	1	9	
DATE _						
JOB NO	).	A-modes	-0	8	) 42	5

### Lateral Analysis (Y-Y Direction)

L	ine	5	

Wind	Design Wind Pressure (PSF)	Roof Height (FT) Story Height (FT)		# of Stories (FT)	Height for Calc (FT)	
ſ	15.9	4.00	8	1	6.00	

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	12.75	1216

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

Ī	X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)	
	25.5	18	229.5	592	

from: New Patio

X Width (FT) Y Length (FT)		Half Area (FT^2)	Shear (LBS)	
25.5	13.5	172.125	444	

Seismic Shear (LBS)  $\Sigma = 1036$ 

: . Wind Governs	Governing Shear =	1216 lbs
Shear Wall Segment	Total	Unit Shear

Shear Wall Segment			Total	Unit Shear		
1	2	3	4	5	L (FT)	(PLF)
5.5					5.5	221

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	16	" O.C.	

Uplift		•		
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	5.5	221	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	12.75	5	12.75	15	8 .

Wall 1	Overturning Moment (ft-lbs) 9731	Resistance Moment (ft-lbs) 4129	Adjustment Factor	Uplift (lbs)	USE Provides (lbs) HDU2 3075

OWNER: PROJECT:

PAGE	3_	OF	19	,
DATE				
JOB NO.	)	1-0	813	

### Lateral Analysis (X-X Direction)

Line	Α

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	6.17	588

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2,58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
10.67	12.33	66	170

from: Existing

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
0	0	0	0

Seismic Shear (LBS)  $\Sigma = 170$ 

-			~~~
:.	Wind Governs	Governing Shear = 588 lbs	
	According to the second		(majorini)

Shear Wall Segment				Total	Unit Shear	
1	2	3	4	5	L (FT)	(PLF)
					0.0	See Perf Shear Design

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	32	" O.C.	

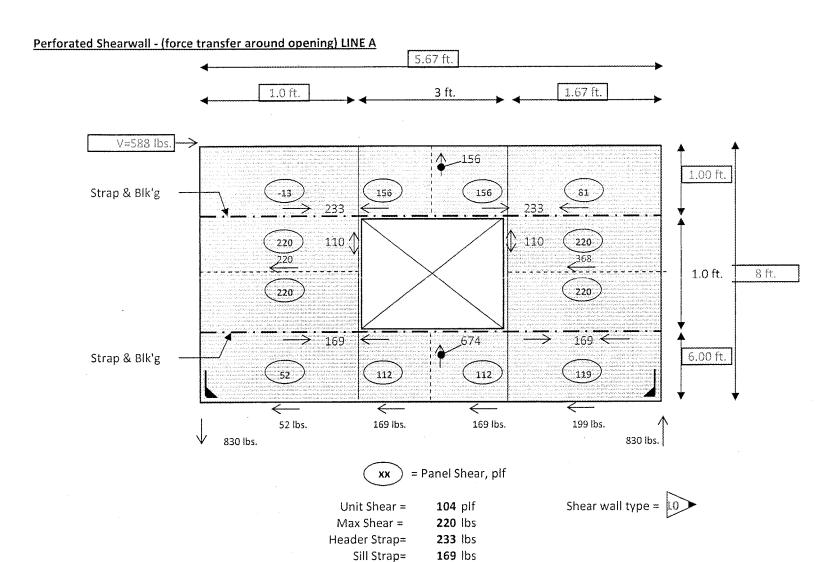
Uplift					_
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)	
1	8	0.0	See Perf Shear Design	0	SE
				***************************************	
		554456411111111111111111111111111111111			1
1					

SEE NEXT PAGE

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1						

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1					
		4404			

OWNER: PROJECT:



OWNER: PROJECT:

PAGE 15 OF 19 DATE JOB NO. 11-0815

### Lateral Analysis (X-X Direction)

L	.ine	В	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	19.5	1860

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)	
10.67	12.33	66	170	

from: Existing

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
55	16	440	1135

Seismic Shear (LBS)  $\Sigma = 1304$ 

: . Wind Governs	Governing Shear = 1860 lbs	
AUCTORISM AND		-

	She	ar Wall Segn	Total	Unit Shear		
1	2	3	4	5	L (FT)	(PLF)
4.67	4.25				8.9	209

п			 			
ļ	USE:	Δ 11	SHEAR PANEL	and Simpson A-35 @	16	" O.C.

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1, N=0)
1	. 8	4.67	209	1
2	8	4.3	209	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	8.0	5	8.0	15	8
2	7	8.0	5	8.0	15	8

Wali	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE Provides (lbs)
1	7792	2355	.67	1331	HDU2 3075
2	7091	1951	.67	1361	HDU2 3075

OWNER: PROJECT:

PAGE 16 OF 19 DATE JOB NO. 11-0815

### Lateral Analysis (X-X Direction)

Line	С	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	4.00	8	1	6.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
95	15.5	1479

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	31	395.25	1019

from: New Patio

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	13.5	172.125	444

Seismic Shear (LBS)  $\Sigma = 1463$ 

:. Wind Governs	Governing Shear =	1479 lbs

Shear Wall Segment			Total	Unit Shear		
1	2	3	4	5	L (FT)	(PLF)
4	4.0				8.0	185

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	16 " O.C.	

Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1, N=0)
8	4	185	0
8	4.0	185	0
	Wall Height (ft)  8 8	Wall Height (ft)  8  4  8  4.0	8 4 185

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	0.0	5	0.0	15	8
2	7	0.0	5	0.0	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE	Provides (lbs)	
1	5915	960	.67	1318	HDU2	3075	
2	5915	960	.67	1318	HDU2	3075	

OWNER: PROJECT:

### **Lateral Analysis (X-X Direction)**

Line	e D	

Wind	Design Wind Pressure (PSF)	Roof Height (FT)	Story Height (FT)	# of Stories (FT)	Height for Calc (FT)
	15.9	6.00	8	1	7.00

Wind Load (PLF)	Trib Width (FT)	Wind Shear (LBS)
111	12.5	1391

Seismic

Design V	Roof DL (PSF)	Ceiling DL (PSF)	Half Wall DL (PSF)	V (PSF)
0.129	7	5	8	2.58

from: NEW

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
25.5	18	229.5	592

from: Existing

: . Seismic Governs

X Width (FT)	Y Length (FT)	Half Area (FT^2)	Shear (LBS)
55	12	330	851

Seismic Shear (LBS)  $\Sigma = 1443$ 

time to the common temperature and the common te	 		
Shear Wall Segment	Total	Unit Shear	
	 	7-1-1	

Shear Wall Segment				Total	Unit Shear	
1	2	3	4	5	L (FT)	(PLF)
10					10.0	144

USE:	Δ 10	SHEAR PANEL	and Simpson A-35 @	32	" O.C.	

Governing Shear =

1443 lbs

Uplift				
Wall	Wall Height (ft)	Wall Segment (ft)	Unit Shear (lbs/ft)	Bearing? (Y=1. N=0)
1	8	10	144	1

Wall	Roof D.L. (psf)	Roof Tributary (ft)	Ceiling D.L. (psf)	Ceiling Tributary (ft)	Wall D.L. (psf)	Tot. Wall Height (ft)
1	7	6.5	5	. 6.5	15	8

Wall	Overturning Moment (ft-lbs)	Resistance Moment (ft-lbs)	Adjustment Factor	Uplift (lbs)	USE	Provides (lbs)	
1	11543	9900	9900 .9				

OWNER: **PROJECT:**  PAGE 18 OF 17 DATE JOB NO. 11-0名)

### Roof Diaphragm

Seismic V = 2.58 psf

	Length (ft)	Load (psf)
Y-Dir	18	46
X-Dir	25.5	66

Wind Load

·	Wind Load (PLF)
Y-Dir	95
X-Dir	95

	Governing Load (psf)	X-Dir Length (L1, ft)	Y-Dir Length (L2, ft)
Y-Dir	95	25.5	18
X-Dir	95	25.5	18

LONG

 $w^*L1/(2^*L2) =$ 

68 lbs/ft

SHORT

 $w^*L2/(2^*L1) =$ 

34 lbs/ft

USE

15/32" CDX PLYWOOD OR OSB w/ 8d @ 6" and 12"

PROVIDES = 240#/ft UNBLOCKED

\*Table 2306.2.1(1) CBC 2010

LONG

Tension = Compression =  $w*L1^2/(L2*8) =$ 

431 lbs

SHORT

Tension = Compression =  $w*L2^2/(L1*8) =$ 

152 lbs

USE	ST22
	ST22

PROVIDES = PROVIDES = 1420 lbs 1420 lbs

### FOUNDATION ANALYSIS: (ASSUME SOIL BEARING PRESSURE 1500 PSF)

### **Continous Footing**

Roof DL = 7 psf Roof LL ≃ 19 psf Roof Tributary = 12.75 ft Ceiling DL = 5 psf Ceiling Tributary = 12.75 ft Floor DL = 40 psf Floor LL = 10 psf

Floor Tributary = 0.00 ft

Wall DL = 15 psf Wall Height = 8 ft

W max =

515 plf Soil Bearing Pressure = 1500 psf

Width =

0.34 ft

4.12 inches

USE 12"x12"deep w/ #4 T.&B. MIN.

1 Pad Support BM 3 and BM 4 @ Patio

3038 lbs P max = A reg = 1.42 sq ft A reg = 17.08 sq in

USE 24"x24"x12" w/ 2 #4 E.W.

OWNER: PROJECT:

PAGE 1	9	_OF		9	
DATE					_
JOB NO.	1	-0	81	Samuel	

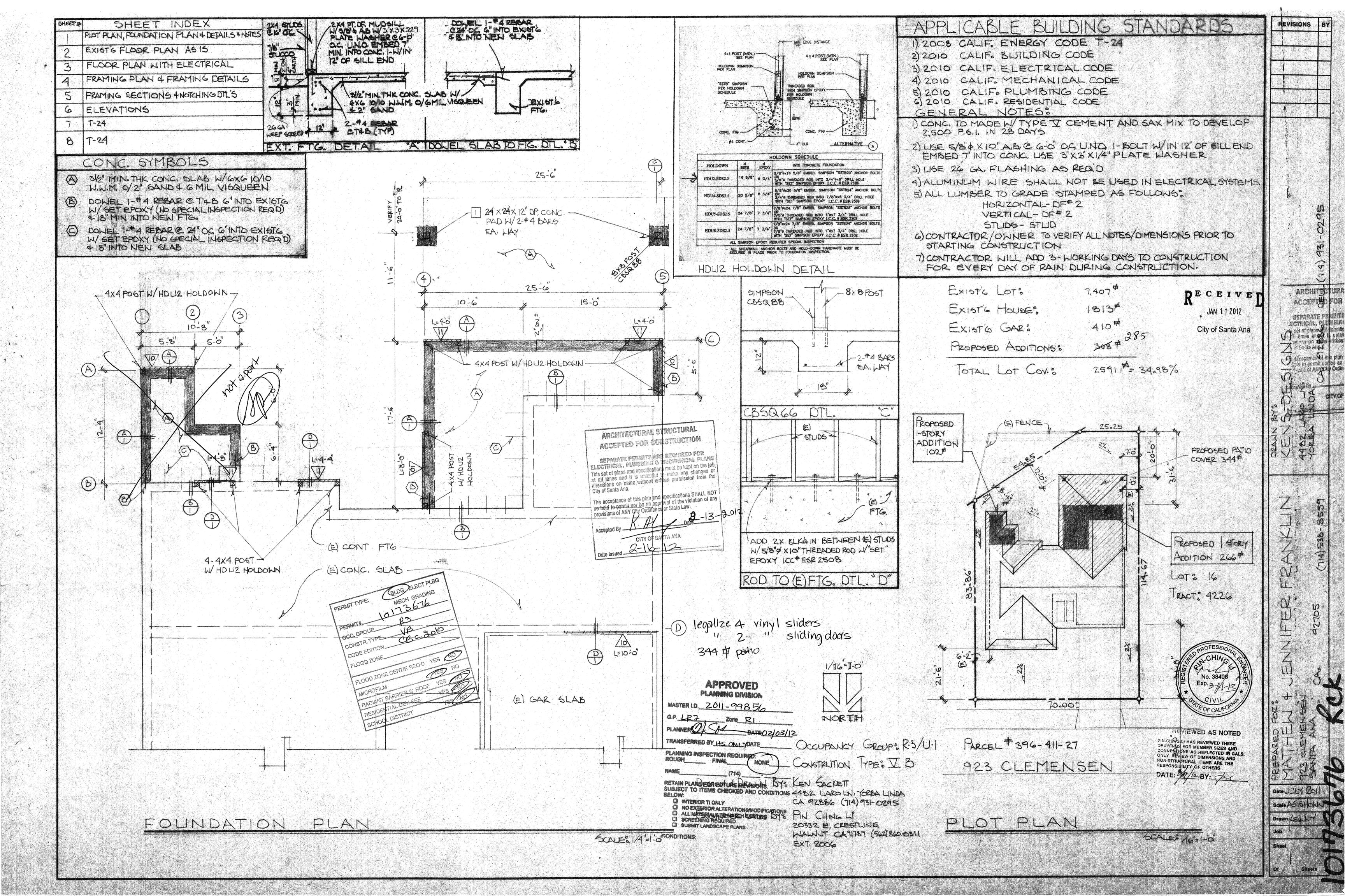
### SHEAR PANEL SCHEDULE (SEISMIC) C. B. C. 2010 EDITION TABLE 2306.3

NO.	MATERIAL	NAILING	LB/FT	SOLE NAILING	A.B. SPACING
l			S/W	16d @ O.C.	5/8" @O.C
10	3/8" STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 6" O.C. EDGE & 12" FIELD	280	6"	32"
7.0		OR 10d BOX OR 12d SINKER			
44	3/8" STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 4" O.C. EDGE & 12" FIELD	350	4"	24"
4.1		OR 10d BOX OR 12d SINKER			
12	3/8" STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 4" O.C. EDGE & 12" FIELD	430*	4"	24"
Z 12		OR 10d BOX OR 12d SINKER			
13	3/8"STRUCTURAL 1 PLYWOOD OR OSB	8d COMMON @ 3" O.C. EDGE & 12" FIELD	550*	3"	16"
4.13		OR 10d BOX OR 12d SINKER			
14	15/32" STRUCTURAL 1 PLYWOOD OR OSB	10d COMMON @ 3" O.C. Edge & 12" FIELD	665*	2"	12"
K 147		OR 16d SINKER			
15	15/32" STRUCTURAL 1 PLYWOOD OR OSB	10d COMMON @ 2" O.C. Edge & 12" FIELD	870*	2"	8"
13		OR 16d SINKER			

<sup>\*</sup> FRAMING AT ADJOINING PANEL EDGES AND SILL PLATE SHALL BE 3x\_\_\_ OR WIDER AND NAILS SHALL BE STAGGERED (IF SHEAR WALL EXCEED 350#/FT).

#### NOTES:

- A. PROVIDE 2x\_\_\_ BLOCKING AT HORIZONTAL PLYWOOD PANEL JOINTS
- B. WHERE PLYWOOD IS APPLIED ON BOTH FACES OF WALL AND NAIL SPACING IS LESS THAN A 6" OC, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS OR FRAMING SHALL BE 3x\_\_\_ OR WIDER (OR 2-2x\_\_) AND NAILS STAGGERED ON EACH SIDE.
- C. WHERE NAILS ARE SPACED AT 2" OC, THEY SHALL BE STAGGERED AND 3x\_\_\_ OR WIDER FRAMING MEMBERS SHALL BE USED AT ADJOINING PANEL EDGES
- D. USE .229"x3"x3" SQUARE WASHER FOR 5/8"X10" ANCHOR BOLTS



### TABLE R602.3(1) FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER <sup>4, 5, 5</sup>	SPACING OF FASTENERS
7	Roof  Blocking between joists or rafters to top plate, toe nail	8-6 (2 <sup>1</sup> /2" × 0:113")	
2	Ceiling joists to plate, toe nail	3-85 (2 <sup>1</sup> / <sub>2</sub> ° × 0.113°)	
<u>د</u> 3	Ceiling joists not attached to parallel rafter, laps over	3-10d	
4	partitions, face nail  Coller tie rafter, face nail or 1 1/4" × 20 gage ridge step	\$40d (3" × 0.128")	
5	Rafter to plate, toe nail	2-18d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	
6	Roof rafters to ridge, valley at hip rafters: toe nail face nail	#-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135") 3-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	
	9/all		
7	Built-up comer studs	10d (3" × 0.128")	24" o.c.
8	Built-up header, two pieces with 1/2" spacer	16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	16" o.c. along each edge
9	Continued header, two pieces	16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	16" o.c. along each edge
10	Continuous header to stud, toe nail	4-8d (2 <sup>1</sup> / <sub>2</sub> * × 0.113*)	
11	Double studs, face nail	10d (3" × 0.128")	2 <b>4°</b> 0¢,
12	Double top plates, face nail	10d (3" × 0.128")	24'66
13	Double top plates, minimum 48-inch offset of end joints, face nail in lapped area	8-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	
14	Sole plate to joint or blocking, face nail	16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	18° o.c.
15	Sole plate to joist or blocking at braced wall panels	3-16d (3 <sup>1</sup> / <sub>4</sub> " × 0.135")	16 <b>°</b> o.c.
16	Stud to sole plate, toe nail	3-8d (2 <sup>1</sup> / <sub>3</sub> " × 0.113") == 2-16d (3 <sup>1</sup> / <sub>3</sub> " × 0.135")	
17	Top or sole plate to stud, end nail	2-16d (3 <sup>1</sup> / <sub>2</sub> × 0.135°)	
18	Top plates, laps at comers and intersections, face nail	2-10d (3° × 0.128°)	
19	1" brace to each stud and plate, face nail	2-8d (2 <sup>1</sup> / <sub>2</sub> / <sub>2</sub> × 0.113") 2 stappes 1 <sup>3</sup> / <sub>4</sub> "	
20	1" × 6" sheathing to each bearing, face nail	2-8d (2 <sup>1</sup> / <sub>2</sub> ° × 0.113°) 2 stagles 1 <sup>3</sup> / <sub>4</sub> *	
21	1" × 8" sheathing to each bearing, face nail	2-8d (2 5" × 0.113") 3 staples 1 <sup>3</sup> /4"	
22	Wider than 1" × 8" sheathing to each bearing, face nail	3-8d (# ½" × 0,113") 4 staples 1"/;"	
	Floor	agrande and a state paragraph of the forest material and a state paragraph of the state of the s	
23	Joist to sill or girder, toe nail	5-86 (2 <sup>1</sup> /2* × 0.113*)	A CONTRACTOR OF THE PROPERTY O
24	1" × 6" subfloor or less to each joint, face nail	2-66 (2 <sup>1</sup> / <sub>2</sub> " = 0.113") 2 staples 1 <sup>3</sup> / <sub>4</sub> "	
25	2° subfloor to joist or girder, blind and lisce nail	2-16d (3 <sup>1</sup> / <sub>2</sub> " × 0.135")	
26	Rim joist to top plate, toe nail (roof applications also)	8# (2 <sup>1</sup> / <sub>2</sub> " × 0,113")	6° 33.C.
27	2" planks (plank & beam - floor & roof)	2-16d (3 <sup>1</sup> / <sub>2</sub> " = 0,136")	each bearing
28	Built-up girders and beams, 2-inch lumbur layers	10d (3" × 6 #28")	Nail each layer as follows: 32" o.c. at top and bottom ar staggered. Two nails at end and at each splice.
29	Ledger strip supporting joists or rafters	3-16d (3 <sup>1</sup> / <sub>2</sub> "× @ 135")	At each joist or rafter

DPLU #081 REV 02/17/201

Page 8 of 9

			PACING OF FASTENERS				
ITEM	DESCRIPTION OF BUILDING MATERIALS	DESCRIPTION OF FASTENER <sup>6, 6, 6</sup>	Edges (inches)	Intermediate supports <sup>c, c</sup> (inches)			
賽 · 黃素素素 보고 보고 보고 보고 보고 보고 보고 있는데 그는 그는 그를 보고 있다. 그는 그는 그를 보고 있는데 그를 보고 있는데 그를 보고 있는데 그를 보고 있다. 그는 그를 보고 있는데 그를 보고 있는데 그를 보고 있다.							
30	3/82.1/22		6	129			
31	5/16*-1/2*		6	12 <sup>8</sup>			
32	19/ <sub>32</sub> *- 1*	8d common nail (2 <sup>1</sup> / <sub>2</sub> " × 0.131")	6	12 <sup>9</sup>			
33	1/16=1/16	## 10 THE 10 THE AND THE THE THE THE TOTAL CONTROL OF THE	6	12			
		Other wall shouthing"					
34	cellulosic	1/2" galvanized roofing nail, <sup>7</sup> /16" one or 1" crown staple 16 ga., 1 1/4" long					
35	cellulosic	1 <sup>3</sup> /₄" galvanized roofing nall, <sup>*</sup> / <sub>16</sub> " wwwn or 1° crown staple 16 ga., 1 <sup>1</sup> /₂" long	3	8			
36	1/2" gypsum sheathing <sup>a</sup>	1 <sup>1</sup> / <sub>2</sub> " galvanized roofing nail; stars galvanized, 1 <sup>1</sup> / <sub>2</sub> " long; 1 <sup>1</sup> / <sub>2</sub> , screws, Type W or S	7	7			
37	<sup>5</sup> /é" gypaum sheathing <sup>4</sup>	<sup>13</sup> /₄" galvanized roofing nall; stass galvanized, 1 <sup>6</sup> /₅" long; 1 <sup>6</sup> /₅" screws, Type W or S		7			
		sod structural panels, combination subfloor underlayms	o framing				
38	3/4* and less	iiid deformed (2" × 0.120") neilt or iid common (2 <sup>1</sup> / <sub>2</sub> " × 0.131") neil	•	12			
39	<b>%: '</b> '	8d common (2 <sup>1</sup> / <sub>2</sub> " × 0.131") nail se 8d deformed (2 <sup>1</sup> / <sub>2</sub> " × 0.120") nail	6				
40	11/4"-11/4"	10d common (3" × 0.148") neil # 8d deformed (2"/2" × 0.120") neil	6	12			

For SI: 1 Inch = 25.4 mm, 1 foot = \$04.8 mm, 1 mile per hour = 0,447 m/s; 1ksi = 6.895 MPe.

- a. All nails are smooth-common box or deformed shanks except where etherwise stated swits used for framing and sheathing connections shall have minimum everage bending yield strengths as elsown: 80 ksi for shank describe of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 2.177 inch, and 100 ksi for each diameters of 0.142 inch or less:
- b. Staples are 16 gage wire and have a minimum 7/16-inch on diameter crown width.
- c. Nails shall be spaced at not sore than 6 inches on center at all supports where spans are 40 suches or greater.
- d. Four-foot-by-8-foot or 4-foot-by-9-foot panels shall be applied vertically.
- e. Spacing of fasteners not included in this table shall be based on Table R602.3(2).
- f. For regions having basic west speed of 110 mph or greater, 8d defermed (2172× 0 120) new shall be used for attaching p lywood and wood structural panel risof sheathing to framing within minimum 48-each distance from galles end walls, if mean roof height is more than 25 feet, up to 35 feet maximum.

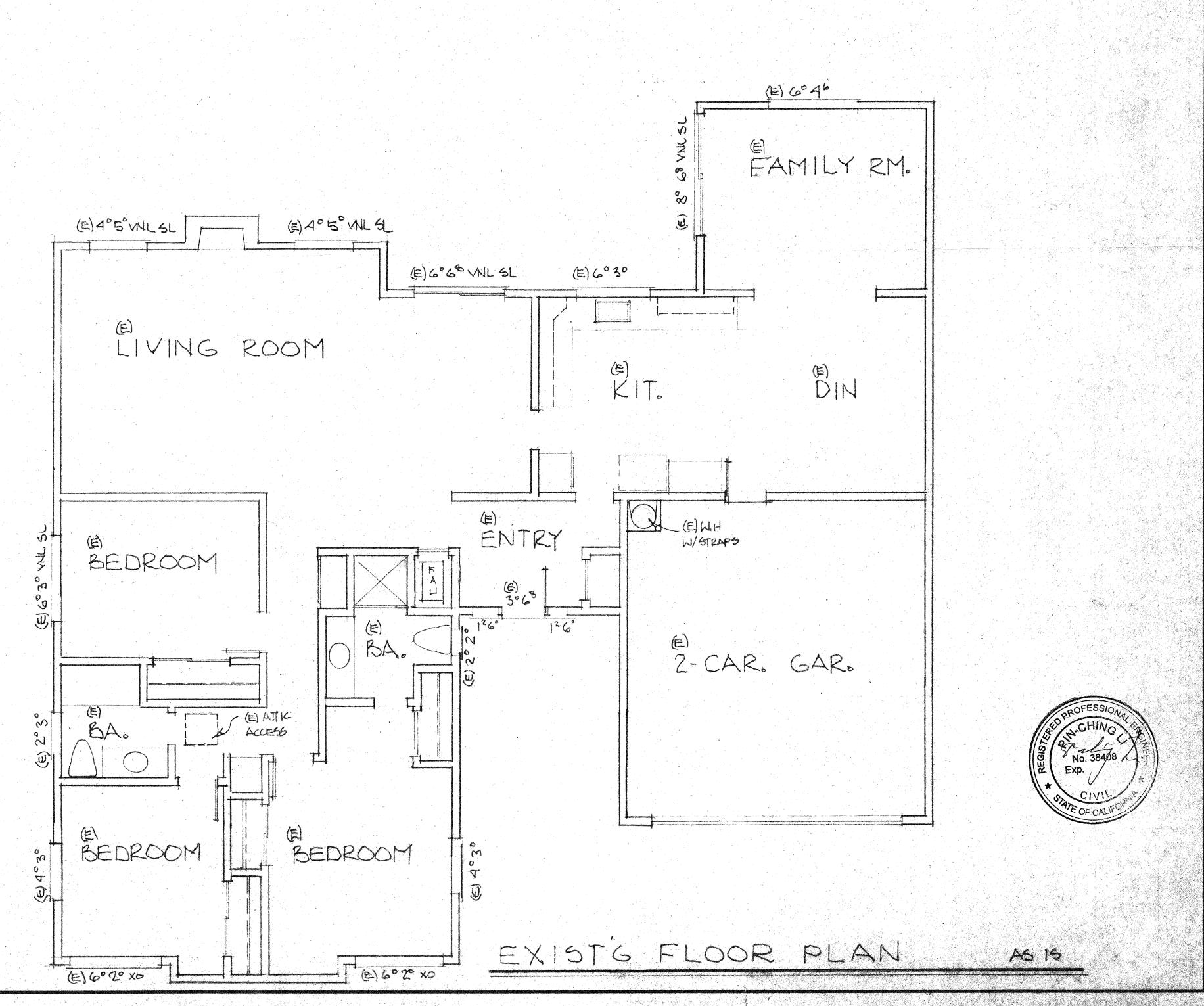
g. For regions having basic wind speed of 100 mph or less, neils for attaching wood structure panel roof sheething to gable end wall framing shall be spaced 6 inches on center. When basic wind speed is greater than 100 mph, sails for attaching panel roof sheathing to intermediate supports shall be spaced 6 inches on center for minimum 46-inch distance from saiges, caves and gable end walls; and 4 inches on center to gable end wall framing.

h. Gypsum sheathing shall conform to ASTM C 1398 and shall be installed in accordance with GA 263. Fiberboard sheathing shall conform to ASTM C 208.

i. Specing of fastewers on floor sheathing panel saiges applies to panel edges supported by framing members and required blocking and at all floor perimeters only. Specing of fasteriers on roal sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roal or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this sade. Plaor perimeter shall be supported by framing members or solid blocking.

OPLU #081 REV 03/17/2011

Page 9 of 9

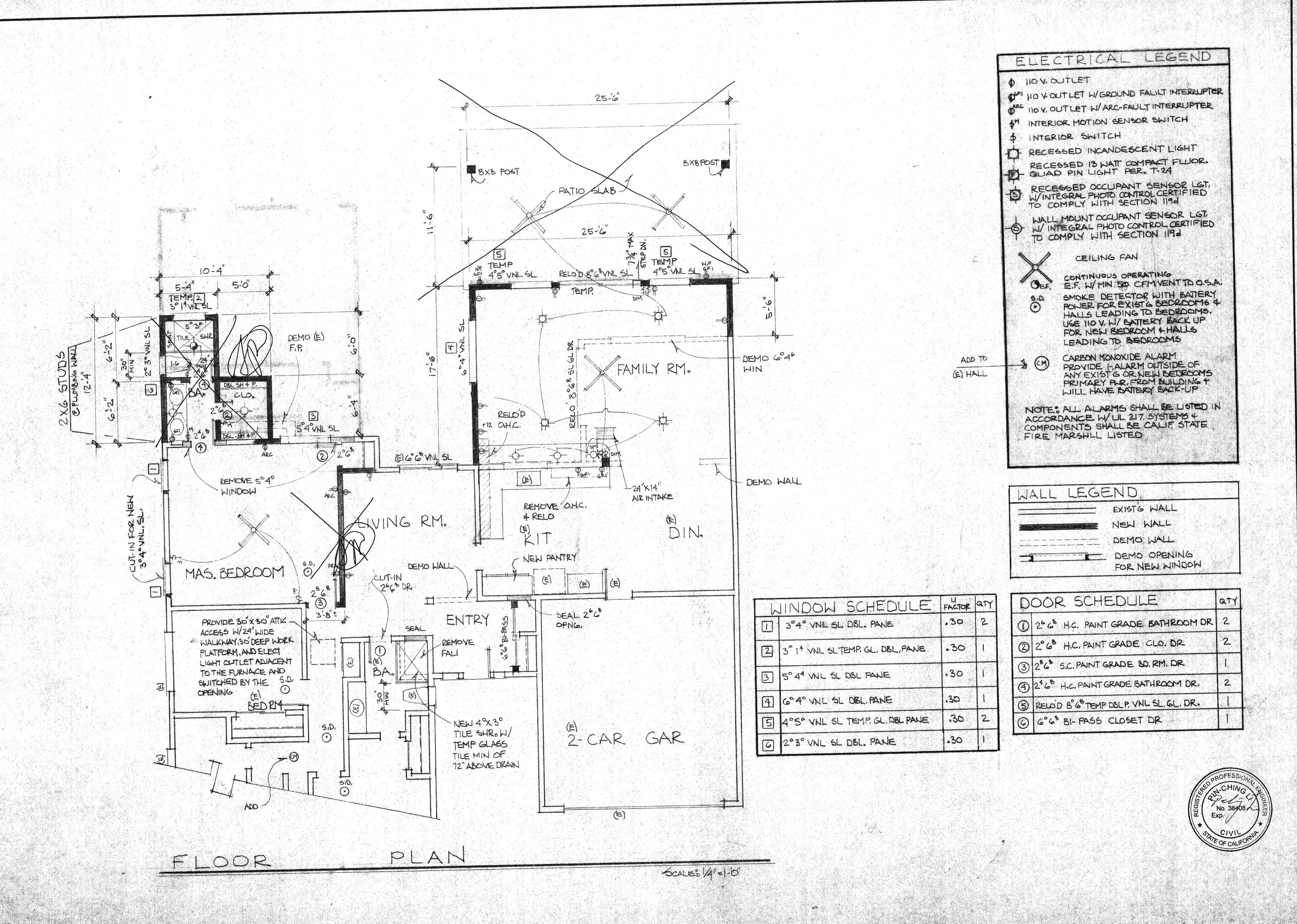


PREPARED FORS

INTATTED 4 JENNIFER FRANKLIN

TO STANDARY

SOUTH AND CAS 12005



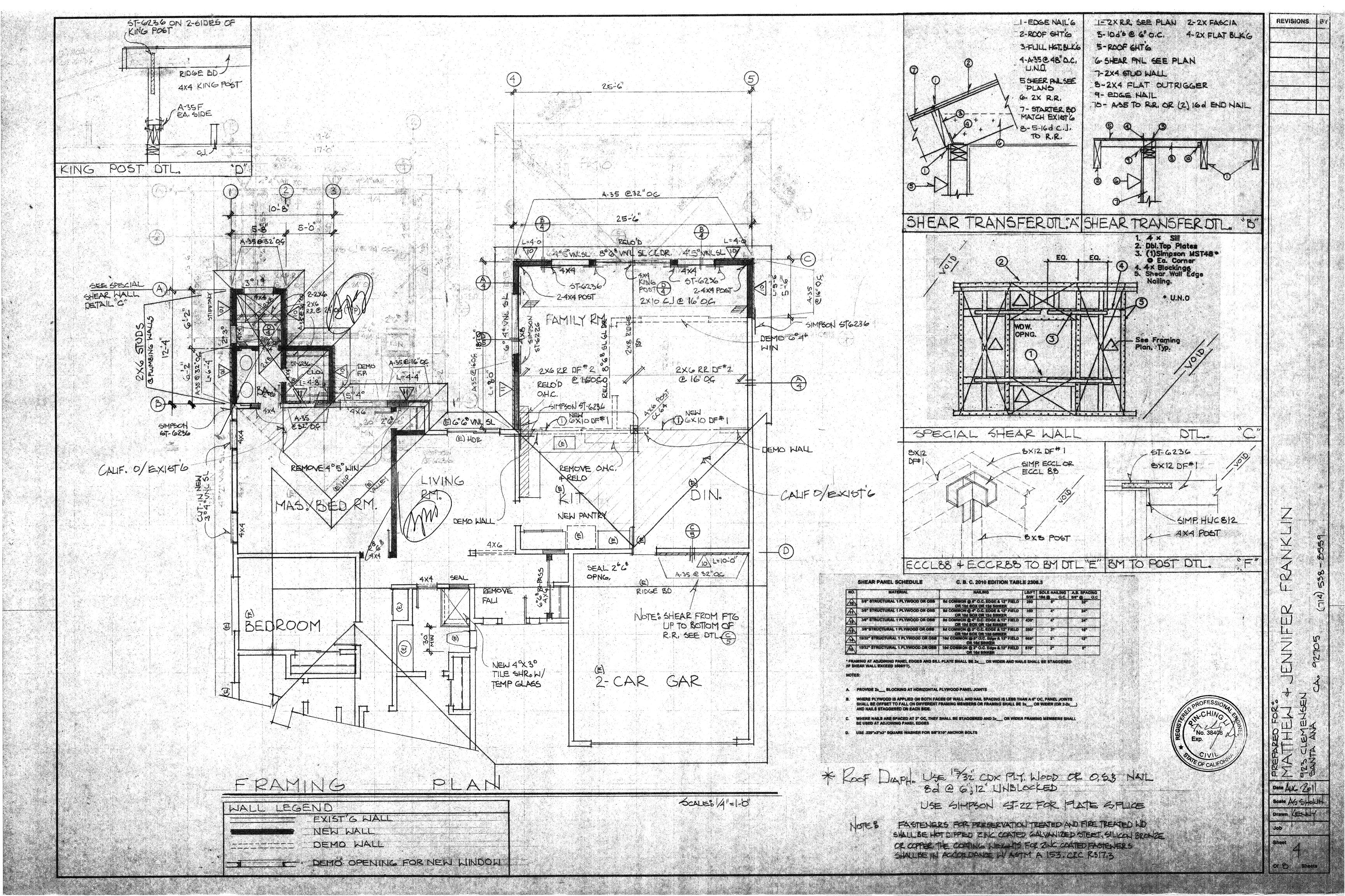
FRANKLIN

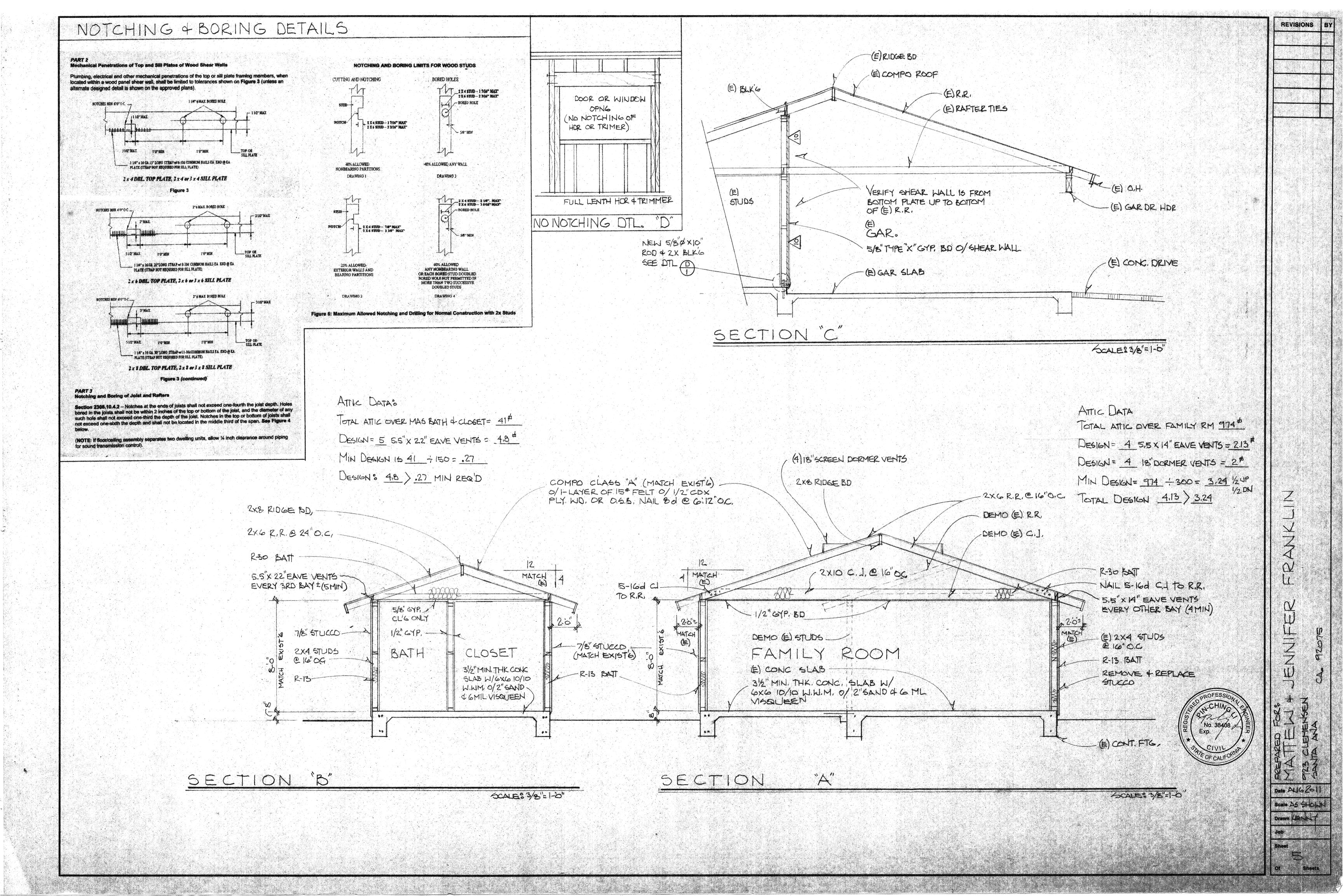
MAHITELY Programs Services and and a Services a Service

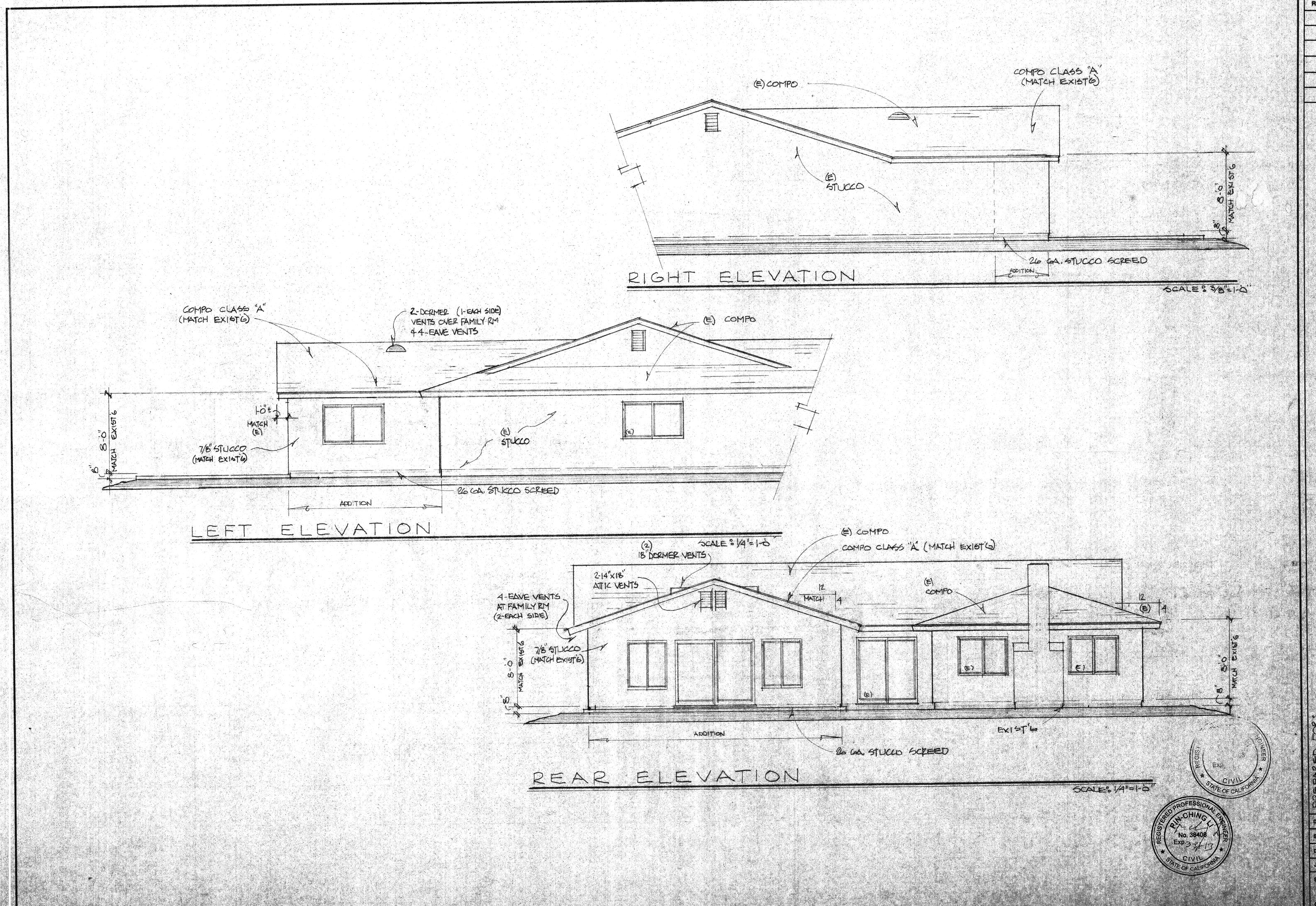
Scale AG SHOWN

Drawn FENNY

Orawn FENNY
Job
Sheet







ENNIFER FRANKLIN

DEEP REPORTED TO STATE OF THE NAME OF THE PARTY OF THE PA

Date ALIS ZOII
Scale AS SHOUN
Drawn SENITY

Sheets

roject Name INGLE HOUSE ADDITION oject Address	Building Type	17 At			CF-1R
		☑ Single Fam ☐ Multi Family	ily D Addition Alone	tion/Aller-4	Date
DO CLEMENICENI CANITALIA	California Energ	y Climate Zone	✓ ☑ Existing+ Addi Total Cond. Floor Are		101.2201
23 CLEMENSEN SANTA ANA	CA Climat	e Zone 08	2,194	381	# or Stories
IELD INSPECTION ENERG	Y CHECKLIS	T			
Yes No HERS Measures -	· If Yes, A CF-4	R must be p	rovided per Par	t 2 of 5 of	this form
Tes En No Special Features -	If Yes, see Par	t 2 of 5 of th	nis form for deta	ils	
ISULATION	and the second s	_	cial		
onstruction Type	Cavity (	- 1	tures (see Par	t 2 of 5)	Status
of Wood Framed Attic	R-30	1,813			Existing
II Wood Framed	R-11	1,229			Existing
b Unheated Slab-on-Grade  Wood Framed Reffer	None	1,813 Perim =	175'		Existing
of Wood Framed Rafter  Wood Framed	R-30	381			New
Unheated Slab-on-Grade	R-13	547			New
Oran Oran Oran	None	381 Perim =	84'		New
NESTRATION U-			Exterior		
ientation Area(ff) Factor	SHGC Overha	ng Sidefii			0.
nt (W) 16.0 1.190	0.83 none	попе	Bug Screen		Status
(E) 36.0 1.190	0.83 none	none	Bug Screen		Existing
(E) 54.0 0.300	0.21 none	none	Bug Screen		Existing
t (N) 37.2 1.190	0.83 none	none	Bug Screen		New
(S) 40.2 1.190	0.83 none	none	Bug Screen		Existing
(S) 117.5 0.300	0.21 none	попе	Bug Screen		Existing
t (W) 0.0 0.300	0.21 none	none	Bug Screen		New New
t (N) 0.0 0.300	0.21 none	none	Bug Screen		New
AC SYSTEMS					
y. Heating Min. Eff	0.511				
Central Furnace 94% AFUE	Cooling	Min. I		rmostat	Status
Central Furnace 96% AFUE	Split Air Condition				Altered
SO/A AT CE	Split Air Condition	er 15.0 SE	ER Setback		New
AC DISTRIBUTION				· · · · · · · · · · · · · · · · · · ·	
ation Heating	Cooling [	Noval I alas	the state of the s	uct	
TING AREA Ducted		Ouct Location		-Value	Status
TION AREA Ducted		tic, Ceiling Ins, ve		.0	New
	At At	tic, Ceiling Ins, ve	nted 6.	0	New
TER HEATING					
. Type Gallo	ons Min. Eff	Distribu	tion		Cial
					Status
yPro 5.1 by EnergySoft User Number: 1919					

C	RI	IFIC/	ATE (	OF (	COMI	PLIA	<b>ICE</b>	: R	lesid	denti	al				(Pai	rt 4	of 5)		C	F-1R	
	ect Nar IGLE		SE AD	אדום	)N/			Build	ding Ty		Single Multi F	Famil			dition Al				Dat	7	
			FACE							<u> </u>	viuiti r	arriny	b	4 EX	isting+ A	Additio	on/Aiter	ation	10/1	12/201	
	face		U-		11	Insula	ion		. 12 - 14	T		т		· ·							
T	/pe	Area	Factor	Cavi	y Exter	ior Fran	ne Int	erior	Frame	Azm	Tilt	Stat	lus	'	Joint App	oenai		ocatio	n/Cor	nmente	
oof		1,813	0.032	R-30						0	25			4.2.	1-A8			Location/Comments EXISTING FLOOR			
ali ali	-	436 292	0.110			_	╌ <del>┃</del>		-	270				4.3.1-A2				FLOOR			
all		407	0.110		1			-		90		Existi Existi		4.3.				STING	_		
all		94	0.110	R-11						180		Existi		4.3. 4.3.	1-A2 1-A2			STING STING			
ab oof		1,813		None	47 17 13					0	180	Existi	ing	4.4.	7-A1		~~~~~ <del>~~</del>	STING			
all		381 142	0.036 0.102		<del> </del>			-+		0		New	-		2-A16			W FLO			
all		212	0.102				+	-+	9.	270 90	_	New		4.3.				W FLO			
all		0	0.102	R-13						0		New		4.3.				N FLO N FLO			
all		192	0.102							180		New		4.3.				NFLO			
ab	-+	381	0.730	None	-	-				0	180	New		4.4.7	7-A1		NE	N FLO	OR		
							+			-							<del>-   -</del>				
												<del>                                     </del>					7				
		3 4 70 4	VI 61:-	-7														·			
_					DETA										a seguina di						
ID Ty  1 Winde  2 Winde  3 Winde  4 Winde  5 Winde  6 Winde  7 Winde			16.0				HGC <sup>2</sup> Defa		Azm	Statu								Location/Comments			
			36.0		Default		Defa		270 90	Existing Existing								STING FLOOR STING FLOOR STING FLOOR			
			24.0		NFRC	C 0.21	0.21 NFRC 0.83 Default 0.83 Default	c	90	90 New		Double Non I									
			37.2 40.2		Default Default				0 Existing		Sir	igle Me	etal (	Clear		EXISTING FL			OR		
			20.0		NFRC	0.83 L				180 Existing 180 New								STING FLOOR			
		ow 0.0		0.300 NFRC			NFR			New		Double Non Metal Clear (6)  Double Non Metal Clear (6)  Double Non Metal Clear (6)				EXISTING FLOOR NEW FLOOR					
9	Windo		30.0 0.300 NFRC 0.0 0.300 NFRC 97.5 0.300 NFRC		0.21 N				90 New		Metal Clear (6) NEW				FLOOR						
ō	Windo						NFR			0 New 180 New		Double Non Metal Clear (6 Double Non Metal Clear (6									
									700	71017	-   -	ubie ive	OH IV	retar	CIGAI (0)	-	VEVY FL	JUR			
	<del> </del>																				
	<del>                                     </del>					<del> </del>		-+			- -	<del></del>		<u> </u>		_					
											+					$\dashv$					
	] 1) U-l	 Factor T		110.4	D. C.	. =									<u> </u>						
	2) SH	IGC Typ	ype: e:	116-A	= Defaul	t Table fro t Table fro	om Sta om Sta	ndard: ndard:	s, NFR(	C = Labe	led Va	lue									
			DING I	DETA	ILS	ć .		i joidi di	<u> </u>	J - Labe	iou va	ina			<del></del>						
						Wind	ow		(	Overhai	10		T		Left Fin		1	Ric	ht Fin		
<u>)</u>			ade Typ	e S	SHGC	Hgt	Wd	Le				RExt	D	ist	Len	Hgt	Dist			Hgt	
	Bug So Bug So				0.76													L			
	Bug So			$\dashv$	0.76 0.76			-		-			<u> </u>						-		
	Bug Sc	reen		$\dashv$	0.76			<del>                                     </del>		_	-		-	$\dashv$				<del> </del>			
	Bug So	reen			0.76				1	+	-+	<del></del>	<del>                                     </del>	$\dashv$				+	-		
	Bug So Bug So	reen			0.76									士							
-	Bug So	reen			0.76 0.76			3.7	-			-									
	Bug Sc				0.76						$\perp$	•	<del> </del>	$\dashv$		<u> </u>	-	-			
	Bug Sc		-		0.76						$\exists \top$		<u> </u>	$\dashv$	$\overline{}$		-	+-	-+		
$\dashv$																					
				- 1					1		$-\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!$			-1				<b> </b>			
	:								+-				<del> </del>	+			-	-	$\dashv$		
													<u> </u>				1		$\dashv$		
				. 1		* I	T	-						$\neg$				1			

	CERTIFICATI	=: Keside	ntial	(Part 2 of 5)	CF-1R
Project Name SINGLE HOUSE ADD	ITION	Building Type	☑ Single Family ☐ Multi Family	☐ Addition Alone ☐ Existing+ Addition/Alteration	Date 10/12/201
SPECIAL FEATU	JRES INSPECT	ION CHE	CKLIST		
The enforcement agency s	hould hav special attent	ion to the items	manifical in this ab-	ecklist. These items require spec	ial written
i iusuncanon and document	alion, and special verific	ation to be used	with the nerformer	too approach. The information	
the special justification and	# UIC 10500Canon, AIRI II	iav reject a billio	ing or design that o	otherwise complies based on the	adequacy of
	The state of the s				
	and the second of the second of the second				
HERS REQUIRE	D VERIFICATION	NC			
HERS REQUIRE	ire field testing and/o	r verification by	a certified HERS	S Rater. The inspector must i	receive a
	ire field testing and/o	r verification by	a certified HERS for final to be giv	S Rater. The inspector must i	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be giv	S Rater. The inspector must i ven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be giv	S Rater. The inspector must i	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be giv	S Rater. The inspector must i	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be giv	S Rater. The inspector must i	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be give	S Rater. The inspector must i	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be giv	S Rater The inspector must iven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be give	S Rater. The inspector must i	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be giv	S Rater The inspector must iven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be give	S Rater. The inspector must i	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be giv	S Rater. The inspector must iven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be given	S Rater. The inspector must iven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be give	S Rater. The inspector must inven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be given	S Rater. The inspector must iven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be give	S Rater. The inspector must inven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be give	S Rater. The inspector must inven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be given	S Rater. The inspector must inven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be given	S Rater. The inspector must inven.	receive a
Items in this section requ	ire field testing and/o	r verification by	a certified HERS for final to be given	S Rater. The inspector must inven.	receive a

- 9. Administrative Requirements: The following notes (items) represent the administrative requirements for all buildings and shall appear as notes on the plans.
- A) The person with overall responsibility for construction or the person responsible for the installation of regulated manufactured devices shall post, or make available with the building permit(s) issued for the building, the Installation Certificate(s) for manufactured devices regulated by the Appliance Efficiency Regulations or Part 6. Such Installation Certificate(s) shall be made available to the enforcement agency for all appropriate inspections. These certificates shall:
- i) Identify features required to verify compliance with the Appliance Efficiency Regulations and Part 6.
- ii) State the number of the building permit under which the construction or installation was performed. Sections of the certificate(s), for which submittal to a HERS provider data registry is required, shall display the unique registration number assigned by the HERS data registry.
- iii) Include a statement indicating that the installed devices conform to the Appliance Efficiency Regulations and Part 6 and the requirements for such devices given in the plans and specifications approved by the local enforcement agency.
- iv) Be signed by the individual eligible under Division 3 of the Business and Professional Code to accept responsibility for the building construction.

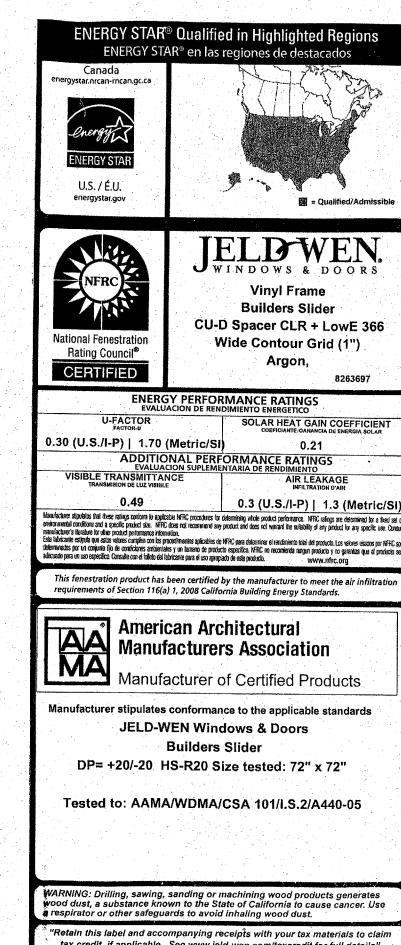
Sec. 10-103 (a) 3 A

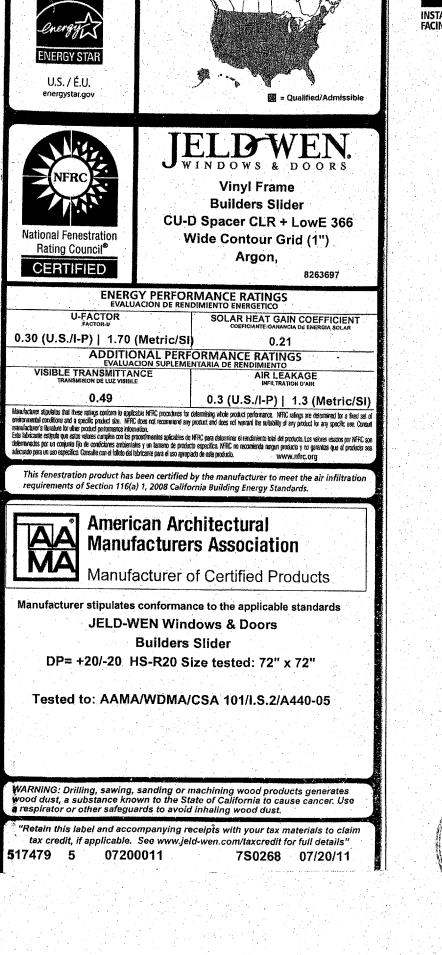
B) After installing wall, ceiling, or floor insulation, the installer shall make available to the enforcement agency or post in a conspicuous location in the building a certificate signed by the installer stating that the installation is consistent with the plans and specifications described in Sec.10-103 (a) 2 A. The certificate shall also state the manufacturer's name, material identification, and the installed R-value.

Sec. 10-103 (a) 4

- C) The builder shall provide the building owner or the person(s) responsible for building maintenance (in case of multi-tenant or centrally operated buildings) at occupancy the following:
- 1) Compliance information. The appropriate completed and signed Certificate(s) of Compliance (CF-1R), Installation Certificate(s) (CF-6R), and if applicable Certificate(s) of Field Verification and Diagnostic Testing (CF-4R).
- 2) Operating information. The appropriate Certificate (s) of Compliance and a list of the features, materials, components, and mechanical devices installed in the building and instructions on how to operate them efficiently.
- 3) Maintenance information. Required routine maintenance actions shall be clearly stated and incorporated on a readily accessible label. The label may be limited to identifying the operation and maintenance manual.
- 4) Ventilation Information. A description of the quantity of outdoor air that the ventilation system is designed to provide to the building conditioned space, and instructions for proper operation and Sec. 10-103 (b)
- D) The Enforcement agency shall not issue a Certificate of Compliance until all required Certificates of Field Verification and Diagnostic Testing are posted or made available to the building department, and that all Certificates of Field Verification and Diagnostic Testing conform to the specifications of Section 10-103(a)5. (12-20-2010) Sec. 10-103 (d) 2

Project Name	ICAIE.	Residen	itiai	(rai	t 3 of 5)	CF-1R
SINGLE HOUSE ADDITION		Building Type	☑ Single Family ☐ Multi Family	☐ Addition Al		Date 10/12/2011
ANNUAL ENERGY USE SUMMARY						
Standard Pi	oposed I	Margin				
TDV (kBtu/ft²-yr)						
Space Heating 9.35	8.62	0.73				
Space Cooling 16.80	16.20	0.60				
Fans 5.94	6.39	-0.45				
Domestic Hot Water 18.56	18.56	0.00				
Pumps 0.00 Totals 50.65	0.00	0.00				
Percent Better Than Standard:	49.77	0.88 1.7 %				
	LIEC		De VEDIE	CATION	DEOUID	En
BUILDING COMP	ries -	NU HE	RS VERIF	CATION		
Building Front Orientation:	(N)	0 deg	Ext. Walls/F	loof Wal	Fo I Area	enestration Area
Number of Dwelling Units:		.00	(N)	17al	444	37
Fuel Available at Site:	Natur	al Gas	(E)		594	90
Raised Floor Area:	2.00	<b>o</b>	(S)		444	158
Slab on Grade Area:		194	(W)		594	16
Average Ceiling Height:	et a company of	3.0	Roof	e igni suli optou. Notae, oe	2,194	0
Fenestration Average U-Factor:		.68			TOTAL:	301
Average SHGC: REMARKS	0.	.48	<u> </u>	enestration/C	-A Hallo:	13.7 %
					A	
STATEMENT OF COMPLIANC						
STATEMENT OF COMPLIANG This certificate of compliance lists the to comply with Title 24, Parts 1 the Ac	building fe Iministrativ	e Regulations	pecifications nees and Part 6 the	ded	All &	
STATEMENT OF COMPLIANO This certificate of compliance lists the to comply with Title 24, Parts 1 the Ad Efficiency Standards of the California	building fe dministrativ Code of Re	e Regulations egulations.	s and Part 6 the		A A Second	
STATEMENT OF COMPLIANCE This certificate of compliance lists the to comply with Title 24, Parts 1 the Act Efficiency Standards of the California The documentation author hereby ce	building fe dministrativ Code of Re	e Regulations egulations.	s and Part 6 the	and complete		
STATEMENT OF COMPLIANO This certificate of compliance lists the to comply with Title 24, Parts 1 the Ad Efficiency Standards of the California The documentation author hereby ce	building fe dministrativ Code of Re rtifies that th	e Regulations egulations.	s and Part 6 the	and complete	7-635 .06-30-13	
STATEMENT OF COMPLIANCE This certificate of compliance lists the to comply with Title 24, Parts 1 the Act Efficiency Standards of the California The documentation author hereby ce Documentation Author	building fedministrative Code of Rentifies that the PPMENT, INC.	e Regulations egulations. he document	s and Part 6 the	and complete	. 06-30-13	10/12/2011
STATEMENT OF COMPLIANO This certificate of compliance lists the to comply with Title 24, Parts 1 the Ac Efficiency Standards of the California The documentation author hereby ce Documentation Author Company  PERFECT DESIGN & DEVELOR  COMPANY  COM	building fedministrative Code of Rentifies that the PPMENT, INC.	e Regulations egulations.	s and Part 6 the	and complete	06-30-13	10/12/2011
STATEMENT OF COMPLIANO This certificate of compliance lists the to comply with Title 24, Parts 1 the Adelification Standards of the California The documentation author hereby ce Documentation Author Company PERFECT DESIGN & DEVELOR Address 2416 W Valley Blvd	building fedministrative Code of Redriffies that the PAMENT, INC.	e Regulations egulations. he document	s and Part 6 the ation is accurate	and complete	. 06-30-13	10/12/2011 Date
STATEMENT OF COMPLIANO This certificate of compliance lists the to comply with Title 24, Parts 1 the Ac Efficiency Standards of the California The documentation author hereby ce Documentation Author Company PERFECT DESIGN & DEVELO Address 2416 W Valley Blvd City/State/Zip Alhambra, Ca 91803 The individual with overall design res of construction documents is consisted with any other calculations submitted duct sealing, verification of refrigeran	building fedministrative Code of Recording that the PMENT, INCOMPONSIBILITY IN WITH THE WITH THE WITH THE WITH THE WITH THE CHARGE, IN	e Regulations egulations.  he documents  Name Perfect I Phone (626)288  nereby certifies other compliance of the complia	ation is accurate  Design 9-8808 es that the propo ance forms and vion, and recognication, and recognication, are quality, ar	Signed sed building dworksheets, we see that compand building en	CHANICAL OF CALIFORNIA esign represent ith the specifical liance using due	Date ed in this set tions, and et design,
STATEMENT OF COMPLIANO This certificate of compliance lists the to comply with Title 24, Parts 1 the Ac Efficiency Standards of the California The documentation author hereby ce Documentation Author Company PERFECT DESIGN & DEVELO Address 2416 W Valley Blvd City/State/Zip Alhambra, Ca 91803 The individual with overall design res of construction documents is consiste with any other calculations submitted duct sealing, verification of refrigeran installer testing and certification and to	building fedministrative Code of Recording that the period of the period	ne Regulations.  the documents  Name Perfect I  Phone (626)288  nereby certifie other complia ermit applicati sulation insta	Design 9-8808 es that the proposince forms and vicinity, and recognication, and recognication quality, are proved HERS responses	Signed sed building dworksheets, we see that compand building en	CHANICAL OF CALIFORNIA esign represent ith the specifical liance using due	Date ed in this set tions, and et design,
STATEMENT OF COMPLIANCE This certificate of compliance lists the to comply with Title 24, Parts 1 the Acceptation of the California The documentation author hereby ce Documentation Author Company PERFECT DESIGN & DEVELOR Address 2416 W Valley Blvd City/State/Zip Alhambra, Ca 91803 The individual with overall design rest of construction documents is consisted with any other calculations submitted duct sealing, verification of refrigerant installer testing and certification and for the company of the construction and for the company of the construction of the construction of the consistency of the construction documents is consistent and the construction of the construction and for the construction and for the construction and the construction are constructed as the construction are con	building fedministrative Code of Recording that the period of the period	ne Regulations.  the documents  Name Perfect I  Phone (626)288  nereby certifie other complia ermit applicati sulation insta	Design 9-8808 es that the proposince forms and vicinity, and recognication, and recognication quality, are proved HERS responses	Signed sed building dworksheets, we see that compand building en	CHANICAL OF CALIFORNIA esign represent ith the specifical liance using due	Date ed in this set tions, and et design,







Date 10/12/2011 Scale Drawn

<sub>Job</sub> F11-1001R Sheet 7 CF-1R,MF-1R & MANDATORY REQUIREMENTS
Of 2 Sheets

ERTIFICATE O ect Name IGLE HOUSE ADD				Building	Туре	<b>3</b>	ingle F Iulti Fa	amily mily	☐ Ac	dition / isting+	lone Additi	on/Altera		ate /12/	2011
IGLE HOUSE ADD	DREATE	ON													
ILDING ZONE INFO	LINW I.I	<u> </u>						r Area	a (ft²)	. TB-	move	d Vol	ume	Year	Built
System Name		Zone N	ame		New		Existing	2	Altered	) He	HOVE			50	
	FXIS7	ING FLOOP		4,3			1,8	313			<del></del>		3,048		
STINGAREA DITION AREA		FLOOR PLA				381						_		a ale	
JITION AND															
		All Colored												1	
								-+		-   -					
								$\dashv$		-					
						-+		$\dashv$							
			-			-		一十			1.00				
											<u> </u>				
												_			
								-+	<u> </u>						
								042		0		o	N. S. (1884)		
			T	otals		381		,813		<u> </u>		1			
IVAC SYSTEMS	Edition France			1 14-	-24	C	ooling	Type:	ΤN	in. Eff.	1	hermost	at Type		Status
System Name	Qty		ng Type	Min.		enlit Ai	r Condi	loner	15	0 SEEF	Setb	ick		AI	tered
XISTING AREA		Central F		9470 A	ELIE S	Solit Ai	r Condi	tioner		.0 SEEF					
re-altered for above		Central F		06% 4	FUE	Split Al	r Condi	tioner	15	.0 SEEF	Setb	ack		N	ew
DDITION AREA	_ 1	Central F	umace	90707	-	<u> </u>							<u> </u>	-	
				+											
	جمات														
HVAC DISTRIBUTIO	N									111111		uct	Ducts		
HVAC DISTRIBUTIO			1 1 1 1				Du	at Loc	ation			alue	Tested		Status
System Name		Heati	ng	Ducted	oling	Attic	, Ceiling	i Ins.	vented			6.0		^	lew
EXISTING AREA		cted		Ducter		Affic	, Ceiling	ins,	vented		1.544	4.2			
ore-altered for above		cted		Ducte		Attic	, Ceilin	g Ins,	vented			6.0	<u> </u>		Vew
ADDITION AREA	Du	cted		-   -		1								-+	<del></del>
	-+						1			لنيا				لنسن	
WATER HEATING	VSTE	vis											Ext	T	
WAIER REALING									Toni	Ene	rav	Standby			
					4.		Rat		Tanl Cap	· 1		Loss or			
				Dietri	bution		Inp (Bt)	uh)	(gal		RE	Pilot	Valu		Status
System Name	Qty.	Type Small Gas		Il Pipes li		-		37,00		0.	53	n/a	n/a		Existing
EXISTING WATER HEAT	4 1	Siliali Gas													<del></del>
										OUEA	TING	CVCTE	M PIPI	VG	
MULTI-FAMILY WA	TER H	EATING	DETAIL	S				HYD	HONI	G FIEA	THYC	7			T
WOLITANI			Hot Wa	TIGI LIDI	ng Ler	ngth	ے ا		V	No.					
		퇽	<u> </u>	(ft)	$\neg  au$		Add 1/2" Insulation				7			4.54	
		Ē					S G				1	Pipe		pe	Insu
	Qty.	근 Eff. Premium	Plenum	Outsi	de B	uried			Syste	n Nam	<del>)</del>	Lengt	n Diar	neter	11110
Control	Gr.y.					1.0						-			1
		一百				<u> </u>						+			1
							무					1			
												+			
					1 1 .	100	1 []	1.0	eren iten	11					
					سلنت					100					
EnergyPro 5.1 by Energy		User Numl				204	1-10-12	T15.2	1:54	ID: I	11-10	01R		F	age 7 o

MANDATORY MEASURES SUMMARY: Residential  Project Name SINGLE HOUSE ADDITION  §150(k)10: Permanently installed luminaires in bathrooms, attached and detached garages shall be high efficacy.  EXCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided the occupant sensor certified to comply with the applicable requirements of §119.  EXCEPTION 2: Permanently installed low efficacy luminaires in closets less than 70 square manual-on occupancy sensor.	at they are controlled by a ma	Date 10/12/2011 utility rooms
INGLE HOUSE ADDITION  150(k)10: Permanently installed luminaires in bathrooms, attached and detached garages hall be high efficacy.  EXCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided the accupant sensor certified to comply with the applicable requirements of §119.  EXCEPTION 2: Permanently installed low efficacy luminaires in closets less than 70 squal	at they are controlled by a ma	utility rooms
150(k)10: Permanently installed luminaires in bathrooms, attached and detached garages hall be high efficacy.  XCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided the ccupant sensor certified to comply with the applicable requirements of §119.  XCEPTION 2: Permanently installed low efficacy luminaires in closets less than 70 squal	at they are controlled by a ma	utility rooms
nall be high efficacy.  XCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided the coupant sensor certified to comply with the applicable requirements of §119.  XCEPTION 2: Permanently installed low efficacy luminaires in closets less than 70 squares.	at they are controlled by a ma	utility rooms
nall be high efficacy.  XCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided the coupant sensor certified to comply with the applicable requirements of §119.  XCEPTION 2: Permanently installed low efficacy luminaires in closets less than 70 squares.	at they are controlled by a ma	
nanual-on occupancy sensor.  150(k)11: Permanently installed luminaires located in rooms or areas other than in kitche losets, and utility rooms shall be high efficacy luimnaires. EXCEPTION 1: Permanently in llowed provided they are controlled by either a dimmer switch that complies with the applicable requirements of §119. EXCEPTION nan 1000 square feet located on a residential site is not required to comply with §150(k) nan 1000 square feet located on a residential site is not required to comply with §150(k) nan 1000 square feet located on a residential site is not required to comply with §150(k) nan 1000 square feet located on a residential site is not required to comply with §150(k) nan 1000 square feet located on a residential site is not required to comply with §150(k) nan 1000 square feet located on a residential site is not required to comply with §150(k) nan 1000 square feet located on a residential site is not required to comply with \$150(k) nan 1000 square feet located on a residential site is not required part of sale listed for zero clearance in located less then 2.0 CFM at 75 Pascals when tested in accordance with ASTM E283; are luminaire housing and celling.  [150(k) 13: Luminaires providing outdoor lighting, including lighting for private patios in low fivelling units, entrances, balconies, and porches, which are permanently mounted to a restance to shall be high efficacy. EXCEPTION 1: Permanently installed outdoor low efficacy hey are controlled by a manual on/off switch, a motion sensor not having an override or bypass switch that disables the astronomical time clock not having an override or bypass switch that disables the astronomical time clock not having an override or bypass switch that disables the astronomical time clock not having an override or bypass switch that allows the luminaire sensing function provided that the motion sensor is automatically reactivated within six he luminaires in or around swimming pool, water features, or other location subject to Article be high efficacy lum	ens, bathrooms, garages, launastalled low efficacy luminaires licable requirements of §119, 2: Lighting in detached storaged.  Insulation contact (IC) by Under the certifies the lumiunaire is airted be sealed with a gasket or werise residential buildings with esidential building or to other by luminaires shall be allowed bypass switch that disables the that disables the photocontropy override switch which bypasours. EXCEPTION 3: Permanas 680 of the California Electric contain a screw-base socket, are site shall comply with the approre vehicles shall comply with forms.	controlled by a dry rooms, s shall be or by a manualge building less erwriters tight with air caulk between the four or more buildings on the provided that the motion sensor, I; OR an gy management I 2: Outdoor sses the motion ently installed Code need not and consume no plicable or the applicable or more
requirements of Sections 130, 131, 134, and 146. §150(k)16: Permanently installed lighting in the enclosed, non-dwelling spaces of low-ris	e residential buildings with to efficacy luminaires shall be al	lowed provided
§150(k)16: Permanently installed lighting in the enclosed, non-dwelling spaces of low-ris dwelling units shall be high efficacy luminaires. EXCEPTION: Permanently installed low that they are controlled by an occupant sensor(s) certified to comply with the applicable	requirements of §119.	
that they are controlled by an occupant solles to		
하는 생생님은 사람들이 바로 보는 것이 되었다. 그런 그는 것이 되었다. 그 사람이 그 것을 하고 있다. 그는 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은		
그림, 경우 사람들은 이번 가게 되었습니다. 그는 그리고 그리는 점점 보다 되었습니?		
가루 선생들 경기들은 사람이 들어지지 않아 하다 하는 것이다.		
성도 맞는 물은 살아보는 하다면 하면 보고 있다는 사는 것이 없다는		
사람들은 사람들의 발생하다고 있는 사람들은 사람들이 가는 것이 되는 것이다. 1980년 - 1981년 1일		
- 발생 등 보통 경기를 가득하다. 이 경기를 가는 것이 되었다. 이 보다는 이 보다는 것 - 기업 등 기업		
고양 클릭하겠지? 하고 있는 경우의 그 그는 어린이 되는 아니는 이렇다		
가요. 그런 사람들 방문으로 하고 있다. 그리고 말하다 그 하고, 이 그		
경영 교육 등 경영 기업		

Decidential	(Page 1 of 3)	MF-1R
ANDATORY MEASURES SUMMARY: Residential		Date 10/12/2011
IGI F HOUSE ADDITION	-ble mondatory measures lis	ted, regardless of
IGLE HOUSE ADDITION  TE: Low-rise residential buildings subject to the Standards must comply with all applic compliance approach used. More stringent energy measures listed on the Certificate ALT Form) shall supersede the items marked with an asterisk (*) below. This Mandat the permit documents, and the applicable features shall be considered by all parties decifications whether they are shown elsewhere in the documents or in this summary. Some with plans.	ory Measures Summary Shan	rmance
	ii li di la la la la ga	
16(a)1: Doors and windows between conditioned and unconditioned spaces are manual formation and windows between conditioned and unconditioned spaces are manual formation and windows are manual formation and windows between the requirements of \$10-111(a).		Solar Heat Gain
pefficient (SHGC), and minimation that moote the state of penetrations are of	aulked and sealed.	
18(a): Insulation specified or installed meets Standards for insulating Material. Insulating Material and Solar reflectance values of the cool roofing material	te type and include on CF-6R meets the requirements of §1	Form. 18(i) when the
stallation of a Cool Roof is sposmes en 150(a): Minimum R-19 insulation in wood-frame celling or equivalent U-factor.	R-Value.	
150(a): Minimum H-19 insulation in wood mame coming to installed design labeled 150(b): Loose fill insulation shall conform with manufacturer's installed design labeled		
150(b): Loose fill insulation shall come wall or equivalent U-factor.		
150(c): Minimum R-13 insulation in raised wood-frame floor or equivalent U-factor. 150(d): Minimum R-13 insulation in raised wood-frame floor or equivalent U-factor. 150(f): Air retarding wrap is tested, labeled, and installed according to ASTM E1677-9	5(2000) when specified on th	e CF-1R Form.
150(f): Air retarding wrap is tested, labeled, and installed according to		
150(g): Mandatory Vapor barrier installed in Climate 2016s 12 of 150 (l): Water absorption rate for slab edge insulation material alone without facings is 150(l): Water absorption rate for slab edge insulation material alone without facings is 150(l): Water absorption rate for slab edge insulation material alone without facings is	no greater than 0.3%; water	vapor permeance
rate is no greater than 2.0 permittion and once of Gas Log Measures:		
Fireplaces, Decorative Gas Appliances and Gas Log metal or glass door covide 150(e) 1A: Masonry or factory-built fireplaces have a closable metal or glass door covide 150(e) 1B: Masonry or factory-built fireplaces have a combustion outside air intake, we equipped with a with a readily accessible, operable, and tight-fitting damper and or a computation of the control of the contr	ering the entire opening of the hich is at least six square inclombustion-air control device.  Jacket, when that indoor air is	nes in area and is
150(e)2: Continuous burning pilot lights and the		
Space Conditioning, Water Heating and Flumbing Systems and all other regu	lated appliances are certified	by the Energy
Commission.	lise residential occupancies in	1661 1110 411 1010110
valve, backflow prevention, purify isolation wave, backflow prevention, purify isolation with pilot lights are prohibited for natural gas: fan-type central §115: Continuously burning pilot lights are prohibited for natural gas: fan-type central (appliances with an electrical supply voltage connection with pilot lights that consume	furnaces, nousehold cooking less than 150 Btu/hr are exel	
spa heaters. §150(h): Heating and/or cooling loads are calculated in accordance with ASHRAE, SI	MACNA or ACCA.	
§150(h): Heating and/or cooling loads are calculated in accordance was \$150(i): Heating systems are equipped with thermostats that meet the setback require \$150(i): Heating systems are equipped with the Energy Factor no greater than the	ements of Section 112(c).	e externally wranne
		o Catoriday mapp
with insulation having an installed thermal resolution or backup tanks for solar wa \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar wa \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar was \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar was \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar was \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar was \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar was \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar was \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar was \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar was \$150(j) 1B: Unfired storage tanks, such as storage tanks or backup tanks for solar was \$150(j) 1B: Unfired storage tanks, such as \$150(j) 1B: Unfire	iter-heating system, or other in ulation R-value is indicated on	the exterior of the
tank.	circulating systems, and entire	a lengur or
recirculating sections of not water pipes are instance, or brine lines), and piping inst	ulated between neating source	e and man our
\$150(i)2: Pipe insulation for steam hydronic nearing of the	15 psi, meets the requirement	and wind
123-A. §150(j)3A: Insulation is protected from damage, including that due to sunlight, moist §150(j)3A: Insulation for chilled water piping and refrigerant suction lines includes a		<u> </u>
conditioned space. §150(j)4: Solar water-heating systems and/or collectors are certified by the Solar Ra	ating and Certification Corpora	ation.
§150()4: Soldi Water-neating officers		
1907 Number 1919 RunCode: 2011-10-12T15:31	:54 ID: F11-1001R	Page 8

VAC SYSTEM HEA	ATING A	AND COOLING LOADS	SOIMIN	MAIL		Date 10/1	2/2011
ject Name IGLE HOUSE ADDITIO	N					Floor A	rea
item Name ISTING AREA						1	,813
IGINEERING CHECKS		SYSTEM LOAD			AV	COIL HT	G. PEAK
mber of Systems	1			COOLING PE	Latent	CFM	Sensible
eating System			CFM	Sensible 14,590	1,022	531	20,789
Output per System	75,000	Total Room Loads	689	14,550	1,022		
Total Output (Btuh)	75,000	Return Vented Lighting		500	et e George		1,080
Output (Btuh/sqft)	41.4	Return Air Ducts		539			(
		Return Fan	<del></del>	0	0	0	
Output per System	46,000	Ventilation	0	0		- V	
Total Output (Btuh)	46,000	Supply Fan					1,08
Total Output (Bruin)  Total Output (Tons)	3.8	Supply Air Ducts		539			
Total Output (Btuh/sqft)	25.4			45.000	1,022		22,95
Total Output (sqft/Ton)	473.0	TOTAL SYSTEM LOAD		15,668	1,022	<del></del>	<u> </u>
ir System							
	1,600			T	0.004	T	75,00
CFM per System	1,600	CARRIER 38TDB-048/58MVP-080-20		33,622	9,334	-	- 10,00
Airflow (cfm)	0.88					-l	
Airflow (cfm/sqft) Airflow (cfm/Ton)	417.4				9,334	<del> </del>	75,00
Outside Air (%)	0.0 %	Total Adjusted System Output		33,622	9,55	י נ	
Outside Air (cfm/sqft)	0.00				Aug 3 PN		Jan 1 A
	l conditions	TIME OF SYSTEM PEAK  (Airstream Temperatures at Time		= Book)	Augorn		
Outside Air O cfm Supply Fa 1,600 cfi	4 4	g Coll				ROOM	104 °F
67 °F							
	ROMETICS	S (Airstream Temperatures at Time	of Coolin	g Peak)			
COOLING SYSTEM PSYCH	and the second s	G (Airstream Temperatures at Time	e of Coolin	g Peak)			
COOLING SYSTEM PSYCH	HROMETICS / 62 °F	75 / 61 °F 55 / 54 °F	of Coolin	g Peak)			1
COOLING SYSTEM PSYCH	/ 62 °F	75 / 61 °F 55 / 54 °F	e of Coolin	g Peak)			55 / 54 °F
COOLING SYSTEM PSYCH	and the second s	75 / 61 °F 55 / 54 °F	of Coolin	III	.2%	ROON	100000
COOLING SYSTEM PSYCH 91 / 70 °F 75 Outside Air	/ 62 °F	75 / 61 °F 55 / 54 °F	e of Coolin	III	2%	ROOM	100000
COOLING SYSTEM PSYCH 91 / 70 °F 75 Outside Air	/ 62 °F	75 / 61 °F 55 / 54 °F	of Coolin	III	2%	ROON	
COOLING SYSTEM PSYCH 91 / 70 °F 75  Outside Air 0 cfm	/ 62 °F	75 / 61 °F 55 / 54 °F	of Coolin	III	2%	ROOM	

IANDATORY MEASURES SUMMARY: Residential	(Page 2 of 3)	Date
oject Name		10/12/201
NGLE HOUSE ADDITION		
NOCETION	· · · · · · · · · · · · · · · · · · ·	CMC Sections
150(m)1: All air-distribution system ducts and plenums installed, are sealed and insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 602, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts are ducts are insulated to 100, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts are ducts are ducts are ducts are ducts are ducts are ducts and ducts are ducts are ducts are ducts.	meet the requirements of sulated to a minimum ins	alled level of R
01, 602, 603, 604, 603 and Otahous Space. Openings shall be sealed with mastic, tape of ot	quirements of UL 723. If	mastic or tape i
pplicable requirements of the property than 1/4 inch, the combination of mastic and either mesh or tap	e strail be used	r than sealed
150(m)1: Building cavities, support platerm theet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building theet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building	use reductions in the cro	
of the ducts.	cloth back rubber adhes	ive duct tapes
Inlanc clich table is listed til combination.		
§150(m)7: Exhaust fan systems have back draft or automatic dampers.	adily accessible, manuall	y operated
dampers. §150(m)9: Insulation shall be protected from damage, including that due to sunlight, moisture §150(m)9: Insulation shall be protected as above or painted with a coating that is water rel	, equipment maintenanc tardant and provides shie	e, and wind. elding from sola
§150(m)10: Flexible ducts cannot have porous inner cores. §150(o): All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2-200. §150(a): All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2-200.	7 Ventilation and Accepta providing the Whole Build	able Indoor Air ding Ventilation
required in Section 4 of that Standard.		The state of the s
	complies with the Appliar	nce Efficiency
§114(a): Any pool or spa heating system shall be continued a permanent weatherproof plat	e or card with operating	Instructions, an
shall not use electric resistance meaning of a photosystem and beginning and beginning shall be installed with at least 36" of pipe between	een filter and heater, or	dedicated such
§114(b)2: Outdoor pools or spas that have a heat pump or gas heater shall have a line stored in lets that adequately mix the pool water, and a time	switch that will allow all p	oumps to be set
§114(b)3: Pools shall have directional files that design and periods.  programmed to run only during off-peak electric demand periods.  §150(p): Residential pool systems or equipment meet the pump sizing, flow rate, piping, filter	ers, and valve requireme	nts of §150(p).
§150(p): Residential pool systems or equipment meet the pump stantage		
Residential Lighting Measures:  15.0(1) High efficacy luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Light Engine with Integral Heat Sink has an efficiency luminaires or LED Lig	acy that is no lower than	the efficacies
§150(k)1: High efficacy luminaires or LED Light Engine with Integral Theoretical State of the St	i by §130(d).	enovino loce th
§150(k)3: The wattage of permanently installed turning or greater shall be electronic and s	hall have an output frequ	ency no less in
§150(k)4: Ballasts for nuorescent lamps falso.  §150(k)5: Permanently installed night lights and night lights integral to a permanently installed only high efficacy lamps meeting the minimum efficacies contained in Table 150-C and she voltage lamp holder; OR shall be rated to consume no more than five watts of power as de	lied intilitially of Oxfident	ge socket or li
medium screw-base socket.	volicable requirements of	§150(k).
medium screw-base socket.  §150(k)6: Lighting integral to exhaust fans, in rooms other than kitchens, shall meet the ap	ponocio i oqui sina	
§150(k)7: All switching devices and controls shall meet the requirements of §150(k)7.  §150(k)8: A minimum of 50 percent of the total rated wattage of permanently installed light EXCEPTION: Up to 50 watts for dwelling units less than or equal to 2,500 ftz or 100 watts exempt from the 50% high efficacy requirement when: all low efficacy luminaires in the kitt sensor, dimmer, energy management system (EMCS), or a multi-scene programmable continuing in garages, laundry rooms, closets greater than 70 square feet, and utility rooms.	ting in kitchens shall be to for dwelling units larger to chen are controlled by a	nigh efficacy. han 2,500 ft² m manual on occ manently instal
luminaries in garages, laundry rooms, closets greater triair 70 square 100t, and manual-on occupant sensor.  §150(k)9: Permanently installed lighting that is internal to cabinets shall use no more than		
§150(k)9: Permanently installed lighting that is internal to cabine or order illuminated cabinet.		
RunCode: 2011-10-12T15:31:54	ID: F11-1001R	Page
EnergyPro 5.1 by EnergySoft User Number: 1919 RunCode: 2011-10-12113.31.34		

oject Name	I IIIG A	AND COOLING LOADS				Date 10/	12/2011
NGLE HOUSE ADDITION	1					Floor	Area
stem Name							381
DDITION AREA	T.	SYSTEM LOAD					
NGINEERING CHECKS	1		COIL	COOLING P	EAK	COIL H	TG. PEAK
umber of Systems			CFM	Sensible	Latent	CFM	Sensible
eating System	37,000	Total Room Loads	242	5,152	531	170	6,702
Output per System	37,000	Return Vented Lighting		0			
Total Output (Btuh)	97.1	Return Air Ducts		190			348
Output (Btuh/sqft)	97.1	Return Fan		0			0
Cooling System	22,400	Ventilation	0	0	0	0	
Output per System		Supply Fan		0			0
Total Output (Btuh)	22,400	Supply Air Ducts		190			348
Total Output (Tons)	1.9 58.8	Onbhil Lin angus				,	
Total Output (Btuh/sqft)	204.1	TOTAL SYSTEM LOAD		5,533	531		7,399
Total Output (sqft/Ton)	204.1	IAIVEALAIM					
Air System	000	HVAC EQUIPMENT SELECTION					
CFM per System	800	004/5040/0 040 14		16,219	4,693		37,000
Airflow (cfm)	800	CARRIER 301DB-02-1700NY1-0-17					
Airflow (cfm/sqft)	2.10						
	428.6				4 600		37,000
Airflow (cfm/Ton)				16,219	4,693	<u> </u>	L
Outside Air (%)	0.0 %	Total Adjusted System Output (Adjusted for Peak Design conditions)		16,219	4,093	<u>.</u>	
Outside Air (%) Outside Air (cim/sqft) Note: values above given at ARI HEATING SYSTEM PSYCHR	0.0 % 0.00 conditions OMETRICS	Total Adjusted System Output (Adjusted for Peak Design conditions)	of Heatin		Aug 3 PN	- -	Jan 1 Al
Outside Air (%) Outside Air (cim/sqft)	0.0 % 0.00 conditions OMETRICS	Total Adjusted System Output (Adjusted for Peak Design conditions)  TIME OF SYSTEM PEAK (Airstream Temperatures at Time	of Heatin		Aug 3 Ph	- -	Jan 1 Al
Outside Air (%) Outside Air (cfm/sqft)  Note: values above given at ARI HEATING SYSTEM PSYCHRO  33 °F 68 °F  Outside Air 0 cfm Supply Far 800 cfm	0.0 % 0.00 conditions OMETRICS 68 °F Heating	Total Adjusted System Output (Adjusted for Peak Design conditions)  TIME OF SYSTEM PEAK (Airstream Temperatures at Time  105 °F  Cooling Coll  Total Adjusted System Output (Adjusted for Peak Design conditions)  TIME OF SYSTEM PEAK (Airstream Temperatures at Time  75 / 61 °F  Total Adjusted System Output (Adjusted for Peak Design conditions)	<b>→</b> [	g Peak)	Aug 3 Ph	<u>a</u>	Jan 1 Al 105 °F 68 °F



tioning, Plumbing, Rire Sprinkler System,

Title 24 Energy Calculation.

19 Blvd.

191803

Tel: (626) 289-8808

CTAAA@aol.com Fax: (626) 289-4913

REVISIONS BY

Alfambra, CA 91803

GLE HOUSE ADDITION 923 CLEMENSEN ANTA ANA, CA 92705

Date 10/12/2011
Scale

Drawn F11-1001R

Sheet 2 CF-1R,MF-1R & MANDATORY REQUIREMENTS Of 2 Sheets