

PROJECT ADDRESS:

1523 W. 7th St.
Santa Ana, CA 92703

ADDITIONAL STRUCTURAL CALCULATIONS

PREPARED BY:

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MARCH 2012



Anchor Calculations

Anchor Selector (Version 4.7.0.0)

Job Name : corner HD Date/Time : 3/4/2012 11:14:37 PM

1) Input

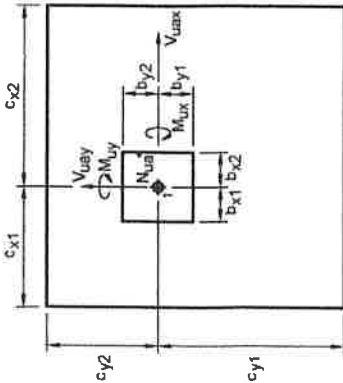
Calculation Method : ACI 318 Appendix D For Cracked Concrete

Code : ACI 318-08

Calculation Type : Analysis

a) Layout

Anchor : 5/8" SET-XP Number of Anchors : 1
 Steel Grade: F1554 GR. 36 Embedment Depth : 12 in
 Built-up Grout Pads : No



1 ANCHOR
 *N_{uax} IS POSITIVE FOR TENSION AND NEGATIVE FOR COMPRESSION.
 * I INDICATES CENTER OF THE ANCHOR

Anchor Layout Dimensions :

c_{x1} : 16 in
 c_{x2} : 16 in
 c_{y1} : 16 in
 c_{y2} : 8 in

b) Base Material

Concrete : Normal weight
 Cracked Concrete : Yes
 Condition : B tension and shear

f'_c : 2500.0 psi
 $\psi_{c,v}$: 1.00
 ϕ_F : 1381.3

psi

Thickness, h_a : 18 in

Supplementary edge reinforcement : No

Hole Condition : Dry Concrete

Inspection : Continuous

Temperature Range : 1 (Maximum 110 °F short term and 75 °F long term temp.)

c) Factored Loads

Load factor source : ACI 318 Section 9.2

N_{ua} : 4380 lb

V_{uay} : 0 lb

M_{uy} : 0 lb*ft

e_x : 0 in

e_y : 0 in

Moderate/high seismic risk or intermediate/high design category : Yes
 Anchor w/ sustained tension : No

Anchors only resist wind and/or seismic loads : Yes
 Apply entire shear load at front row for breakout : No

V_{uax} : 0 lb
 M_{ux} : 0 lb*ft

d) Anchor Parameters

From [ESR-2508] :

Anchor Model = SETXP d_a = 0.625 in

Category = 1 h_{ef} = 12 in

h_{min} = 15.125 in c_{ec} = 36 in

c_{min} = 1.75 in s_{min} = 3 in

Ductile = Yes

2) Tension Force on Each Individual Anchor

Anchor #1 N_{ua1} = 4380.00 lb

Sum of Anchor Tension ΣN_{ua} = 4380.00 lb

e'_{Nx} = 0.00 in

e'_{Ny} = 0.00 in

3) Shear Force on Each Individual Anchor

Resultant shear forces in each anchor:

Anchor #1 V_{ua1} = 0.00 lb (V_{uatx} = 0.00 lb, V_{uaty} = 0.00 lb)

Sum of Anchor Shear ΣV_{uax} = 0.00 lb, ΣV_{uay} = 0.00 lb

e'_{Vx} = 0.00 in

$$e'_{vy} = 0.00 \text{ in}$$

4) Steel Strength of Anchor in Tension [Sec. D.5.4]

$$N_{sa} = n A_{se} f_{ua} \text{ [Eq. D-3]}$$

Number of anchors acting in tension, $n = 1$

$$N_{sa} = 13110 \text{ lb (for a single anchor) [ESR-2508]}$$

$$\phi = 0.75 \text{ [D.4.4]}$$

$$\phi N_{sa} = 9832.50 \text{ lb (for a single anchor)}$$

5) Concrete Breakout Strength of Anchor in Tension [Sec. D.5.2]

$$N_{cb} = A_{Nc} / A_{Nco} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b \text{ [Eq. D-4]}$$

Number of influencing edges = 4

$$h_{ef} \text{ (adjusted for edges per D.5.2.3)} = 10.667 \text{ in}$$

$$A_{Nco} = 1024.00 \text{ in}^2 \text{ [Eq. D-6]}$$

$$A_{Nc} = 768.00 \text{ in}^2$$

Smallest edge distance, $c_{a,min} = 8.00 \text{ in}$

$$\Psi_{ed,N} = 0.8500 \text{ [Eq. D-10 or D-11]}$$

Note: Cracking shall be controlled per D.5.2.6

$$\Psi_{c,N} = 1.0000 \text{ [Sec. D.5.2.6]}$$

$$\Psi_{cp,N} = 1.0000 \text{ [Eq. D-12 or D-13]}$$

$$N_b = k_c \lambda \sqrt{f'_c} h_{ef}^{1.5} = 29611.61 \text{ lb [Eq. D-7]}$$

$$k_c = 17 \text{ [Sec. D.5.2.6]}$$

$$N_{cb} = 18877.40 \text{ lb [Eq. D-4]}$$

$$\phi = 0.65 \text{ [D.4.4]}$$

$$\phi_{seis} = 0.75$$

$$\phi N_{cb} = 9202.73 \text{ lb (for a single anchor)}$$

6) Adhesive Strength of Anchor in Tension [Sec. D.5.3 (AC308 Sec.3.3)]

$$\tau_{k,cr} = 855 \text{ psi [ESR-2508]}$$

$$k_{cr} = 17 \text{ [ESR-2508]}$$

h_{ef} (unadjusted) = 12 in

$$N_{ao} = \tau_{k,cr} \pi d_a h_{ef} = 20145.46 \text{ lb [Eq. D-16f]}$$

$$\tau_{k,unscr} = 2075.00 \text{ psi for use in [Eq. D-16d]}$$

$$s_{cr,Na} = \min[20 d_a \sqrt{\tau_{k,unscr}/1450}, 3h_{ef}] = 14.953 \text{ in [Eq. D-16d]}$$

$$c_{cr,Na} = s_{cr,Na}/2 = 7.477 \text{ in [Eq. D-16e]}$$

$$N_a = A_{Na} / A_{Nao} \Psi_{ed,Na} \Psi_{p,Na} N_{ao} \text{ [Eq. D-16a]}$$

$$A_{Nao} = 223.60 \text{ in}^2 \text{ [Eq. D-16c]}$$

$$A_{Na} = 223.60 \text{ in}^2$$

Smallest edge distance, $c_{a,min} = 8.00 \text{ in}$

$$\Psi_{ed,Na} = 1.0000 \text{ [Eq. D-16f]}$$

$$\Psi_{p,Na} = 1.0000 \text{ [Sec. D.5.3.14]}$$

$$N_a = 20145.46 \text{ lb [Eq. D-16a]}$$

$$\phi = 0.65 \text{ [ESR-2508]}$$

$$\phi_{seis} = 0.75$$

$$\phi N_a = 9820.91 \text{ lb (for a single anchor)}$$

7) Side Face Blowout of Anchor in Tension [Sec. D.5.4]

Concrete side face blowout strength is only calculated for headed anchors in tension close to an edge, $c_{a1} < 0.4h_{ef}$. Not applicable in this case.

8) Steel Strength of Anchor in Shear [Sec D.6.1]

$$V_{sa} = 7865.00 \text{ lb (for a single anchor)}$$

$$V_{eq} = V_{sa} \alpha_{v,seis} \text{ [AC308 Eq. 11-27]}$$

$$\alpha_{v,seis} = 0.68 \text{ [ESR-2508]}$$

$$V_{eq} = 5348.20 \text{ lb}$$

$$\phi = 0.65 \text{ [D.4.4]}$$

$$\phi V_{eq} = 3476.33 \text{ lb (for a single anchor)}$$

9) Concrete Breakout Strength of Anchor in Shear [Sec D.6.2]

Case 1: Anchor checked against total shear load

In x-direction...

$$V_{cbx} = A_{vcx} / A_{vco} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{bx} \text{ [Eq. D-21]}$$

$$c_{a1} = 12.00 \text{ in (adjusted for edges per D.6.2.4)}$$

$$A_{vcx} = 432.00 \text{ in}^2$$

$$A_{vco} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,V} = 0.8333 \text{ [Eq. D-27 or D-28]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{(1.5c_{a1} / h_d)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{bx} = 7(l_e/d_g)^{0.2} \sqrt{d_g \lambda} \sqrt{f_c(c_{a1})}^{1.5} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{bx} = 17434.04 \text{ lb}$$

$$V_{cbx} = 9685.58 \text{ lb [Eq. D-21]}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cbx} = 5084.93 \text{ lb (for a single anchor)}$$

In y-direction...

$$V_{cby} = A_{vcy}/A_{vcoy} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{by} \text{ [Eq. D-21]}$$

$$c_{a1} = 8.00 \text{ in}$$

$$A_{vcy} = 288.00 \text{ in}^2$$

$$A_{vcoy} = 288.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,V} = 1.0000 \text{ [Eq. D-27 or D-28]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{(1.5c_{a1}/h_g)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{by} = 7(l_e/d_g)^{0.2} \sqrt{d_g \lambda} \sqrt{f_c(c_{a1})}^{1.5} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{by} = 9489.89 \text{ lb}$$

$$V_{cby} = 9489.89 \text{ lb [Eq. D-21]}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cby} = 4982.19 \text{ lb (for a single anchor)}$$

Case 2: This case does not apply to single anchor layout

Case 3: Anchor checked for parallel to edge condition

Check anchors at c_{x1} edge

$$V_{cbx} = A_{vcx}/A_{vcx} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{bx} \text{ [Eq. D-21]}$$

$$c_{a1} = 12.00 \text{ in (adjusted for edges per D.6.2.4)}$$

$$A_{vcx} = 432.00 \text{ in}^2$$

$$A_{vcox} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,V} = 1.0000 \text{ [Sec. D.6.2.1(c)]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{(1.5c_{a1}/h_g)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{bx} = 7(l_e/d_g)^{0.2} \sqrt{d_g \lambda} \sqrt{f_c(c_{a1})}^{1.5} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{bx} = 17434.04 \text{ lb}$$

$$V_{cbx} = 11622.69 \text{ lb [Eq. D-21]}$$

$$V_{cby} = 2 * V_{cbx} \text{ [Sec. D.6.2.1(c)]}$$

$$V_{cby} = 23245.38 \text{ lb}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cby} = 12203.82 \text{ lb (for a single anchor)}$$

Check anchors at c_{y1} edge

$$V_{cby} = A_{vcy}/A_{vcoy} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{by} \text{ [Eq. D-21]}$$

$$c_{a1} = 12.00 \text{ in (adjusted for edges per D.6.2.4)}$$

$$A_{vcy} = 576.00 \text{ in}^2$$

$$A_{vcoy} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,V} = 1.0000 \text{ [Sec. D.6.2.1(c)]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{(1.5c_{a1}/h_g)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{by} = 7(l_e/d_g)^{0.2} \sqrt{d_g \lambda} \sqrt{f_c(c_{a1})}^{1.5} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{by} = 17434.04 \text{ lb}$$

$$V_{cby} = 15496.92 \text{ lb [Eq. D-21]}$$

$$V_{cbx} = 2 * V_{cby} \text{ [Sec. D.6.2.1(c)]}$$

$$V_{cbx} = 30993.84 \text{ lb}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cbx} = 16271.77 \text{ lb (for a single anchor)}$$

Check anchors at c_{x2} edge

$$V_{cbx} = A_{vcx}/A_{vcox} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{bx} \text{ [Eq. D-21]}$$

$$c_{a1} = 12.00 \text{ in (adjusted for edges per D.6.2.4)}$$

$$A_{vcx} = 432.00 \text{ in}^2$$

$$A_{\text{rocc}} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{\text{ed},V} = 1.0000 \text{ [Eq. D-27 or D-28] [Sec. D.6.2.1(c)]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{(1.5c_{a1} / h_g)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{\text{bx}} = 7(l_e / d_g)^{0.2} \sqrt{d_g \lambda \sqrt{f_c} (c_{a1})^{1.5}} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{\text{bx}} = 17434.04 \text{ lb}$$

$$V_{\text{cbx}} = 11622.69 \text{ lb [Eq. D-21]}$$

$$V_{\text{cby}} = 2 * V_{\text{cbx}} \text{ [Sec. D.6.2.1(c)]}$$

$$V_{\text{cby}} = 23245.38 \text{ lb}$$

$$\phi = 0.70$$

$$\phi_{\text{seis}} = 0.75$$

$$\phi V_{\text{cby}} = 12203.82 \text{ lb (for a single anchor)}$$

Check anchors at c_{y2} edge

$$V_{\text{cby}} = A_{\text{vcy}} / A_{\text{vcy}} \Psi_{\text{ed},V} \Psi_{c,V} \Psi_{h,V} V_{\text{by}} \text{ [Eq. D-21]}$$

$$c_{a1} = 8.00 \text{ in}$$

$$A_{\text{vcy}} = 288.00 \text{ in}^2$$

$$A_{\text{vcy}} = 288.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{\text{ed},V} = 1.0000 \text{ [Sec. D.6.2.1(c)]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{(1.5c_{a1} / h_g)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{\text{by}} = 7(l_e / d_g)^{0.2} \sqrt{d_g \lambda \sqrt{f_c} (c_{a1})^{1.5}} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{\text{by}} = 9489.89 \text{ lb}$$

$$V_{\text{cby}} = 9489.89 \text{ lb [Eq. D-21]}$$

$$V_{\text{cbx}} = 2 * V_{\text{cby}} \text{ [Sec. D.6.2.1(c)]}$$

$$V_{\text{cbx}} = 18979.77 \text{ lb}$$

$$\phi = 0.70$$

$$\phi_{\text{seis}} = 0.75$$

$$\phi V_{\text{cbx}} = 9964.38 \text{ lb (for a single anchor)}$$

10) Concrete Pryout Strength of Anchor in Shear [Sec. D.6.3]

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$$V_{\text{cp}} = \min[k_{\text{cp}} N_a, k_{\text{cp}} N_{\text{cb}}] \text{ [Eq. D-30a]}$$

$$k_{\text{cp}} = 2 \text{ [Sec. D.6.3.2]}$$

$$N_a = 20145.46 \text{ lb (from Section (6) of calculations)}$$

$$N_{\text{cb}} = 18877.40 \text{ lb (from Section (5) of calculations)}$$

$$V_{\text{cp}} = 37754.80 \text{ lb}$$

$$\phi = 0.70 \text{ [D.4.4]}$$

$$\phi_{\text{seis}} = 0.75$$

$$\phi V_{\text{cp}} = 19821.27 \text{ lb (for a single anchor)}$$

11) Check Demand/Capacity Ratios [Sec. D.7]

Note: Ratios have been divided by 0.5 factor for brittle failure.

Tension

- Steel : 0.4455
- Breakout : 0.9519
- Adhesive : 0.8920
- Sideface Blowout : N/A

Shear

- Steel : 0.0000
- Breakout (case 1) : 0.0000
- Breakout (case 2) : N/A
- Breakout (case 3) : 0.0000
- Pryout : 0.0000

$$V_{\text{Max}}(0) \leq 0.2 \text{ and } T_{\text{Max}}(0.95) \leq 1.0 \text{ [Sec D.7.1]}$$

Interaction check: PASS

Use 5/8" diameter F1554 GR. 36 SET-XP anchor(s) with 12 in. embedment

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Anchor Calculations

Anchor Selector (Version 4.7.0.0)

Job Name : mid-wall HD Date/Time : 3/4/2012 11:06:50 PM

1) Input

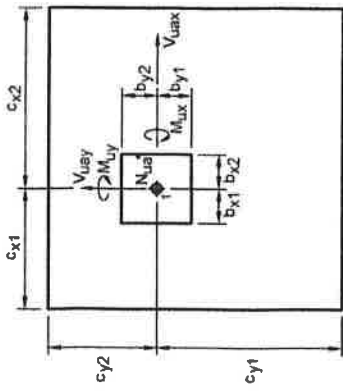
Calculation Method : ACI 318 Appendix D For Cracked Concrete

Code : ACI 318-08

Calculation Type : Analysis

a) Layout

Anchor : 5/8" SET-XP Number of Anchors : 1
 Steel Grade: F1554 GR. 36 Embedment Depth : 12 in
 Built-up Grout Pads : No



1 ANCHOR
 *N_uax IS POSITIVE FOR TENSION AND NEGATIVE FOR COMPRESSION.
 + INDICATES CENTER OF THE ANCHOR

Anchor Layout Dimensions :

c_x1 : 12 in
 c_x2 : 12 in
 c_y1 : 12 in
 c_y2 : 12 in

b) Base Material

Concrete : Normal weight
 Cracked Concrete : Yes
 Condition : B tension and shear

f_c : 2500.0 psi
 Ψ_c,v : 1.00
 φF_p : 1381.3

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3/4/2012

psi

Thickness, h_a : 18 in
 Supplementary edge reinforcement : No
 Hole Condition : Dry Concrete
 Inspection : Continuous
 Temperature Range : 1 (Maximum 110 °F short term and 75 °F long term temp.)

c) Factored Loads

Load factor source : ACI 318 Section 9.2

N_uax : 4380 lb V_uay : 0 lb
 M_uay : 0 lb*ft
 e_x : 0 in e_y : 0 in
 V_uax : 0 lb
 M_uax : 0 lb*ft

Moderate/high seismic risk or intermediate/high design category : Yes

Anchor w/ sustained tension : No

Anchors only resist wind and/or seismic loads : Yes

Apply entire shear load at front row for breakout : No

d) Anchor Parameters

From [ESR-2508] :

Anchor Model = SETXP d_a = 0.625 in
 Category = 1 h_ef = 12 in
 h_min = 15.125 in c_ec = 36 in
 c_min = 1.75 in s_min = 3 in
 Ductile = Yes

2) Tension Force on Each Individual Anchor

Anchor #1 N_uax1 = 4380.00 lb
 Sum of Anchor Tension ΣN_uax = 4380.00 lb
 e'_Nx = 0.00 in
 e'_Ny = 0.00 in

3) Shear Force on Each Individual Anchor

Resultant shear forces in each anchor:
 Anchor #1 V_uax1 = 0.00 lb (V_uax1x = 0.00 lb, V_uax1y = 0.00 lb)
 Sum of Anchor Shear ΣV_uax = 0.00 lb, ΣV_uay = 0.00 lb
 e'_Vx = 0.00 in

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$$e'_{vy} = 0.00 \text{ in}$$

4) Steel Strength of Anchor in Tension [Sec. D.5.1]

$$N_{sa} = n A_{se} f_{uta} \text{ [Eq. D-3]}$$

Number of anchors acting in tension, $n = 1$

$$N_{sa} = 13110 \text{ lb (for a single anchor) [ESR-2508]}$$

$$\phi = 0.75 \text{ [D.4.4]}$$

$$\phi N_{sa} = 9832.50 \text{ lb (for a single anchor)}$$

5) Concrete Breakout Strength of Anchor in Tension [Sec. D.5.2]

$$N_{cb} = A_{Nc} / A_{Nco} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b \text{ [Eq. D-4]}$$

Number of influencing edges = 4

$$h_{ef} \text{ (adjusted for edges per D.5.2.3)} = 8.000 \text{ in}$$

$$A_{Nco} = 576.00 \text{ in}^2 \text{ [Eq. D-6]}$$

$$A_{Nc} = 576.00 \text{ in}^2$$

Smallest edge distance, $c_{a,min} = 12.00 \text{ in}$

$$\Psi_{ed,N} = 1.0000 \text{ [Eq. D-10 or D-11]}$$

Note: Cracking shall be controlled per D.5.2.6

$$\Psi_{c,N} = 1.0000 \text{ [Sec. D.5.2.6]}$$

$$\Psi_{cp,N} = 1.0000 \text{ [Eq. D-12 or D-13]}$$

$$N_b = k_c \lambda \sqrt{f'_c} h_{ef}^{1.5} = 19233.30 \text{ lb [Eq. D-7]}$$

$$k_c = 17 \text{ [Sec. D.5.2.6]}$$

$$N_{cb} = 19233.30 \text{ lb [Eq. D-4]}$$

$$\phi = 0.65 \text{ [D.4.4]}$$

$$\phi_{seis} = 0.75$$

$$\phi N_{cb} = 9376.24 \text{ lb (for a single anchor)}$$

6) Adhesive Strength of Anchor in Tension [Sec. D.5.3 (AC308 Sec.3.3)]

$$\tau_{k,cr} = 855 \text{ psi [ESR-2508]}$$

$$k_{cr} = 17 \text{ [ESR-2508]}$$

h_{ef} (unadjusted) = 12 in

$$N_{ao} = \tau_{k,cr} \pi d_a h_{ef} = 20145.46 \text{ lb [Eq. D-16f]}$$

$$\tau_{k,uncr} = 2075.00 \text{ psi for use in [Eq. D-16d]}$$

$$S_{cr,Na} = \min[20 d_a \sqrt{\tau_{k,uncr}/1450} \cdot 3h_{ef}] = 14.953 \text{ in [Eq. D-16g]}$$

$$c_{cr,Na} = S_{cr,Na}/2 = 7.477 \text{ in [Eq. D-16e]}$$

$$N_b = A_{Nb} / A_{Nao} \Psi_{ed,Na} \Psi_{p,Na} N_{ao} \text{ [Eq. D-16a]}$$

$$A_{Nao} = 223.60 \text{ in}^2 \text{ [Eq. D-16c]}$$

$$A_{Na} = 223.60 \text{ in}^2$$

Smallest edge distance, $c_{a,min} = 12.00 \text{ in}$

$$\Psi_{ed,Na} = 1.0000 \text{ [Eq. D-16f]}$$

$$\Psi_{p,Na} = 1.0000 \text{ [Sec. D.5.3.14]}$$

$$N_a = 20145.46 \text{ lb [Eq. D-16a]}$$

$$\phi = 0.65 \text{ [ESR-2508]}$$

$$\phi_{seis} = 0.75$$

$$\phi N_a = 9820.91 \text{ lb (for a single anchor)}$$

7) Side Face Blowout of Anchor in Tension [Sec. D.5.4]

Concrete side face blowout strength is only calculated for headed anchors in tension close to an edge, $c_{a1} < 0.4h_{ef}$. Not applicable in this case.

8) Steel Strength of Anchor in Shear [Sec D.6.1]

$$V_{sa} = 7865.00 \text{ lb (for a single anchor)}$$

$$V_{eq} = V_{sa} \alpha_{v,seis} \text{ [AC308 Eq. 11-27]}$$

$$\alpha_{v,seis} = 0.68 \text{ [ESR-2508]}$$

$$V_{eq} = 5348.20 \text{ lb}$$

$$\phi = 0.65 \text{ [D.4.4]}$$

$$\phi V_{eq} = 3476.33 \text{ lb (for a single anchor)}$$

9) Concrete Breakout Strength of Anchor in Shear [Sec D.6.2]

Case 1: Anchor checked against total shear load

In x-direction...

$$V_{cbx} = A_{vcx} / A_{vcox} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{bx} \text{ [Eq. D-21]}$$

$$c_{a1} = 12.00 \text{ in}$$

$$A_{vcox} = 432.00 \text{ in}^2$$

$$A_{vcox} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,V} = 0.9000 \text{ [Eq. D-27 or D-28]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{1.5 c_{a1} / h_g} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{bx} = 7(l_e/d_a)^{0.2} \sqrt{d_g \lambda} \sqrt{f_c (c_{g1})^{1.5}} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{bx} = 17434.04 \text{ lb}$$

$$V_{cbx} = 10460.42 \text{ lb [Eq. D-21]}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cbx} = 5491.72 \text{ lb (for a single anchor)}$$

In y-direction...

$$V_{cby} = A_{vcy} / A_{vcoxy} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{by} \text{ [Eq. D-21]}$$

$$c_{g1} = 12.00 \text{ in}$$

$$A_{vcy} = 432.00 \text{ in}^2$$

$$A_{vcoxy} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,V} = 0.9000 \text{ [Eq. D-27 or D-28]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{(1.5c_{g1} / h_g)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{by} = 7(l_e/d_a)^{0.2} \sqrt{d_g \lambda} \sqrt{f_c (c_{g1})^{1.5}} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{by} = 17434.04 \text{ lb}$$

$$V_{cby} = 10460.42 \text{ lb [Eq. D-21]}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cby} = 5491.72 \text{ lb (for a single anchor)}$$

Case 2: This case does not apply to single anchor layout

Case 3: Anchor checked for parallel to edge condition

Check anchors at c_{x1} edge

$$V_{cbx} = A_{vcx} / A_{vcoox} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{bx} \text{ [Eq. D-21]}$$

$$c_{g1} = 12.00 \text{ in}$$

$$A_{vcx} = 432.00 \text{ in}^2$$

$$A_{vcoox} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,V} = 1.0000 \text{ [Sec. D.6.2.1(c)]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{(1.5c_{g1} / h_g)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{bx} = 7(l_e/d_a)^{0.2} \sqrt{d_g \lambda} \sqrt{f_c (c_{g1})^{1.5}} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{bx} = 17434.04 \text{ lb}$$

$$V_{cbx} = 11622.69 \text{ lb [Eq. D-21]}$$

$$V_{cby} = 2 * V_{cbx} \text{ [Sec. D.6.2.1(c)]}$$

$$V_{cby} = 23245.38 \text{ lb}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cby} = 12203.82 \text{ lb (for a single anchor)}$$

Check anchors at c_{y1} edge

$$V_{cby} = A_{vcy} / A_{vcoxy} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{by} \text{ [Eq. D-21]}$$

$$c_{g1} = 12.00 \text{ in}$$

$$A_{vcy} = 432.00 \text{ in}^2$$

$$A_{vcoxy} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,V} = 1.0000 \text{ [Sec. D.6.2.1(c)]}$$

$$\Psi_{c,V} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,V} = \sqrt{(1.5c_{g1} / h_g)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{by} = 7(l_e/d_a)^{0.2} \sqrt{d_g \lambda} \sqrt{f_c (c_{g1})^{1.5}} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{by} = 17434.04 \text{ lb}$$

$$V_{cby} = 11622.69 \text{ lb [Eq. D-21]}$$

$$V_{cbx} = 2 * V_{cby} \text{ [Sec. D.6.2.1(c)]}$$

$$V_{cbx} = 23245.38 \text{ lb}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cbx} = 12203.82 \text{ lb (for a single anchor)}$$

Check anchors at c_{x2} edge

$$V_{cbx} = A_{vcx} / A_{vcoox} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{bx} \text{ [Eq. D-21]}$$

$$c_{g1} = 12.00 \text{ in}$$

$$A_{vcx} = 432.00 \text{ in}^2$$

$$A_{voax} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,v} = 1.0000 \text{ [Eq. D-27 or D-28] [Sec. D.6.2.1(c)]}$$

$$\Psi_{c,v} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,v} = \sqrt{(1.5c_{a1} / h_a)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{bx} = 7(l_e / d_a)^{0.2} \sqrt{d_a \lambda} \sqrt{f_c (c_{a1})^{1.5}} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{bx} = 17434.04 \text{ lb}$$

$$V_{cbx} = 11622.69 \text{ lb [Eq. D-21]}$$

$$V_{cby} = 2 * V_{cbx} \text{ [Sec. D.6.2.1(c)]}$$

$$V_{cby} = 23245.38 \text{ lb}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cby} = 12203.82 \text{ lb (for a single anchor)}$$

Check anchors at c_{y2} edge

$$V_{cby} = A_{vcy} / A_{vcy} \Psi_{ed,v} \Psi_{c,v} \Psi_{h,v} V_{by} \text{ [Eq. D-21]}$$

$$c_{a1} = 12.00 \text{ in}$$

$$A_{vcy} = 432.00 \text{ in}^2$$

$$A_{vcy} = 648.00 \text{ in}^2 \text{ [Eq. D-23]}$$

$$\Psi_{ed,v} = 1.0000 \text{ [Sec. D.6.2.1(c)]}$$

$$\Psi_{c,v} = 1.0000 \text{ [Sec. D.6.2.7]}$$

$$\Psi_{h,v} = \sqrt{(1.5c_{a1} / h_a)} = 1.0000 \text{ [Sec. D.6.2.8]}$$

$$V_{by} = 7(l_e / d_a)^{0.2} \sqrt{d_a \lambda} \sqrt{f_c (c_{a1})^{1.5}} \text{ [Eq. D-24]}$$

$$l_e = 5.00 \text{ in}$$

$$V_{by} = 17434.04 \text{ lb}$$

$$V_{cby} = 11622.69 \text{ lb [Eq. D-21]}$$

$$V_{cbx} = 2 * V_{cby} \text{ [Sec. D.6.2.1(c)]}$$

$$V_{cbx} = 23245.38 \text{ lb}$$

$$\phi = 0.70$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cbx} = 12203.82 \text{ lb (for a single anchor)}$$

10) Concrete Pryout Strength of Anchor in Shear [Sec. D.6.3]

about:blank

3/4/2012

$$V_{cp} = \min[k_{cp} N_a, k_{cp} N_{cb}] \text{ [Eq. D-30a]}$$

$$k_{cp} = 2 \text{ [Sec. D.6.3.2]}$$

$$N_a = 20145.46 \text{ lb (from Section (6) of calculations)}$$

$$N_{cb} = 19233.30 \text{ lb (from Section (5) of calculations)}$$

$$V_{cp} = 38466.61 \text{ lb}$$

$$\phi = 0.70 \text{ [D.4.4]}$$

$$\phi_{seis} = 0.75$$

$$\phi V_{cp} = 20194.97 \text{ lb (for a single anchor)}$$

11) Check Demand/Capacity Ratios [Sec. D.7]

Note: Ratios have been divided by 0.5 factor for brittle failure.

Tension

- Steel : 0.4455
- Breakout : 0.9343
- Adhesive : 0.8920
- Sideface Blowout : N/A

Shear

- Steel : 0.0000
- Breakout (case 1) : 0.0000
- Breakout (case 2) : N/A
- Breakout (case 3) : 0.0000
- Pryout : 0.0000

$$V_{\text{Max}}(0) \leq 0.2 \text{ and } T_{\text{Max}}(0.93) \leq 1.0 \text{ [Sec D.7.1]}$$

Interaction check: PASS

Use 5/8" diameter F1554 GR. 36 SET-XP anchor(s) with 12 in. embedment

about:blank

3/4/2012

PROJECT ADDRESS:

1523 W 7th Street
Santa Ana, CA 92703

STRUCTURAL CALCULATIONS

JAN. 2012

PREPARED BY:

ANN TOWLE, PE



10174275

R E C E I V E D

JAN 30 2012

City of Santa Ana

1523 W. 7th ST., SANTA ANABUILDING WEIGHTSROOF (EXISTING)

2x RAFTERS @ 16" o/c	2.8 psf
2x JOISTS @ 16" o/c	1.7 psf
1/2" PLYWOOD	1.7 psf
5/8" GYP.	2.8 psf
INSUL.	0.8 psf
COMP. ROOFING	6.0 psf
MISC.	2.2 psf
	<u>18 psf</u>

ROOF LL	20 psf
ATTIC LL	20 psf
(UNINHABITABLE W/ LIMITED STORAGE)	

SUMMARY

ROOF DL = 18 psf

ROOF LL = 20 psf

ATTIC LL = 20 psf

UNIFORM LOADING

- FOR 8'-2" OPENING, TRIB. WIDTH = 7'-4"

$$\text{ROOF DL} = 18(17.33) = 132 \text{ plf}$$

$$\text{ROOF LL} = 20(17.33) = 147 \text{ plf}$$

$$\text{ATTIC LL} = 20(17.33) = 147 \text{ plf}$$

- FOR 9'-11" OPENING, TRIB WIDTH = 3'-7"

$$\text{ROOF DL} = 18(3'-7") = 65 \text{ plf}$$

$$\text{ROOF LL} = 20(3'-7") = 72 \text{ plf}$$

$$\text{ATTIC LL} = 20(3'-7") = 72 \text{ plf}$$

⇒ USE 4x12 BEAMS (DF LARCH No. 1)

SEE 'ENERCALC' COMPUTER PRINTOUT FOLLOWING

Title Block Line 1
 You can changes this area
 using the "Settings" menu item
 and then using the "Printing &
 Title Block" selection.

Title Block Line 6

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 Dsgnr:
 Project Desc.:
 Project Notes :

Job #

2

Printed: 25 JAN 2012, 9:14:AM

Wood Beam

ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.11.7.11

Lic. #: KW-06001912

Licensee :

Description : 8'-2" Opening

Material Properties

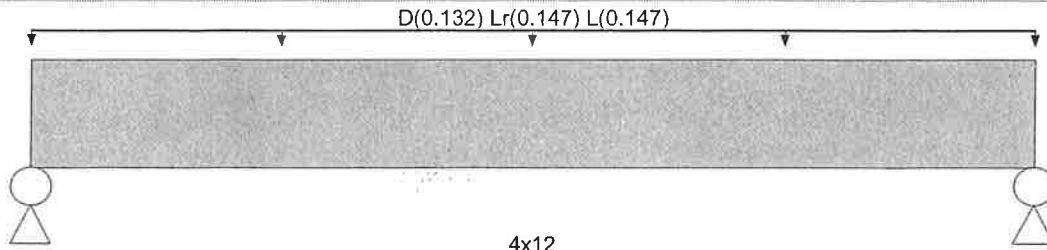
Calculations per NDS 2005, IBC 2009, CBC 2010, ASCE 7-05

Analysis Method : Allowable Stress Design
 Load Combination 2006 IBC & ASCE 7-05

Fb - Tension 1,000.0 psi E : Modulus of Elasticity
 Fb - Compr 1,000.0 psi Ebend-xx 1,700.0 ksi
 Fc - Prll 1,500.0 psi Eminbend-xx 620.0 ksi
 Fc - Perp 625.0 psi
 Fv 180.0 psi
 Ft 675.0 psi Density 32.210pcf

Wood Species : Douglas Fir - Larch
 Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsion buckling



Span = 8.167 ft

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.1320, Lr = 0.1470, L = 0.1470, Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.445 : 1	Maximum Shear Stress Ratio =	0.244 : 1
Section used for this span	4x12	Section used for this span	4x12
fb : Actual =	489.63 psi	fv : Actual =	43.84 psi
FB : Allowable =	1,100.00 psi	Fv : Allowable =	180.00 psi
Load Combination	+D+0.750Lr+0.750L+H	Load Combination	+D+0.750Lr+0.750L+H
Location of maximum on span =	4.084 ft	Location of maximum on span =	7.269 ft
Span # where maximum occurs =	Span # 1	Span # where maximum occurs =	Span # 1
Maximum Deflection			
Max Downward L+Lr+S Deflection	0.042 in	Ratio =	2332
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 < 360
Max Downward Total Deflection	0.062 in	Ratio =	1577
Max Upward Total Deflection	0.000 in	Ratio =	0 < 180

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios						Summary of Moment Values			Summary of Shear Values			
			M	V	C _d	C _{F/V}	C _r	C _m	C _t	M _{actual}	fb-design	Fb-allow	V _{actual}	fv-design	Fv-allow
+D	Length = 8.167 ft	1	0.173	0.095	1.000	1.100	1.000	1.000	1.000	1.17	190.82	1,100.00	0.45	17.09	180.00
+D+L+H	Length = 8.167 ft	1	0.355	0.194	1.000	1.100	1.000	1.000	1.000	2.40	390.03	1,100.00	0.92	34.92	180.00
+D+Lr+H	Length = 8.167 ft	1	0.355	0.194	1.000	1.100	1.000	1.000	1.000	2.40	390.03	1,100.00	0.92	34.92	180.00
+D+0.750Lr+0.750L+H	Length = 8.167 ft	1	0.445	0.244	1.000	1.100	1.000	1.000	1.000	3.01	489.63	1,100.00	1.15	43.84	180.00
+D+0.750L+0.750S+H	Length = 8.167 ft	1	0.309	0.169	1.000	1.100	1.000	1.000	1.000	2.09	340.23	1,100.00	0.80	30.46	180.00
+D+0.750Lr+0.750L+0.750W+H	Length = 8.167 ft	1	0.445	0.244	1.000	1.100	1.000	1.000	1.000	3.01	489.63	1,100.00	1.15	43.84	180.00
+D+0.750L+0.750S+0.750W+H	Length = 8.167 ft	1	0.309	0.169	1.000	1.100	1.000	1.000	1.000	2.09	340.23	1,100.00	0.80	30.46	180.00
+D+0.750Lr+0.750L+0.5250E+H						1.100	1.000	1.000	1.000						

Title Block Line 1
 You can changes this area
 using the "Settings" menu item
 and then using the "Printing &
 Title Block" selection.

Title :
 Dsgnr:
 Project Desc.:
 Project Notes :

Job #

Title Block Line 6

Printed: 25 JAN 2012. 9:14AM

Wood Beam

ENERCALC, INC. 1983-2011. Build:6.11.7.11. Ver:6.11.7.11

Lic. # : KW-06001912

Licensee :

Description : 8'-2" Opening

Load Combination	Segment Length	Span #	Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
			M	V	C _d	C _{F/V}	C _r	C _m	C _t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
Length = 8.167 ft	1		0.445	0.244	1.000	1.100	1.000	1.000	1.000	3.01	489.63	1,100.00	1.15	43.84	180.00
+D+0.750L+0.750S+0.5250E+H						1.100	1.000	1.000	1.000						
Length = 8.167 ft	1		0.309	0.169	1.000	1.100	1.000	1.000	1.000	2.09	340.23	1,100.00	0.80	30.46	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+Lr	1	0.0621	4.124		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.776	1.776
D Only	0.575	0.575
L Only	0.600	0.600
Lr Only	0.600	0.600
L+Lr	1.201	1.201
D+Lr	1.175	1.175
D+L	1.175	1.175
D+L+Lr	1.776	1.776

Title Block Line 1
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 Title Block Line 6

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 Project Notes :

Job #

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Wood Beam

ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.11.7.11

Lic. #: KW-06001912

Licensee

Description : 9'-11" Opening

Material Properties

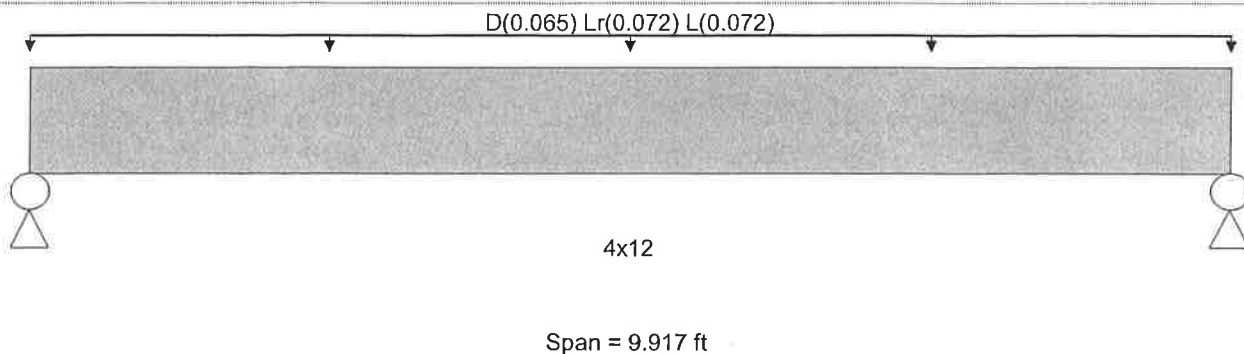
Calculations per NDS 2005, IBC 2009, CBC 2010, ASCE 7-05

Analysis Method : Allowable Stress Design
 Load Combination 2006 IBC & ASCE 7-05

Fb - Tension 1,000.0 psi E : Modulus of Elasticity
 Fb - Compr 1,000.0 psi Ebend- xx 1,700.0ksi
 Fc - Prll 1,500.0 psi Eminbend - xx 620.0ksi
 Fc - Perp 625.0 psi
 Fv 180.0 psi
 Ft 675.0 psi Density 32.210pcf

Wood Species : Douglas Fir - Larch
 Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsion buckling



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.0650, Lr = 0.0720, L = 0.0720, Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.330	1	Maximum Shear Stress Ratio =	0.156	: 1
Section used for this span	4x12		Section used for this span	4x12	
fb : Actual =	363.28	psi	fv : Actual =	28.16	psi
FB : Allowable =	1,100.00	psi	Fv : Allowable =	180.00	psi
Load Combination	+D+0.750Lr+0.750L+H		Load Combination	+D+0.750Lr+0.750L+H	
Location of maximum on span =	4.959	ft	Location of maximum on span =	9.024	ft
Span # where maximum occurs =	Span # 1		Span # where maximum occurs =	Span # 1	
Maximum Deflection					
Max Downward L+Lr+S Deflection	0.045	in	Ratio =	2659	
Max Upward L+Lr+S Deflection	0.000	in	Ratio =	0	<360
Max Downward Total Deflection	0.068	in	Ratio =	1758	
Max Upward Total Deflection	0.000	in	Ratio =	0	<180

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
			M	V	C _d	C _{F/V}	C _r	C _m	C _t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
+D	Length = 9.917 ft	1	0.134	0.064	1.000	1.100	1.000	1.000	1.000	0.91	147.48	1,100.00	0.30	11.43	180.00
+D+L+H	Length = 9.917 ft	1	0.265	0.125	1.000	1.100	1.000	1.000	1.000	1.79	291.35	1,100.00	0.59	22.58	180.00
+D+Lr+H	Length = 9.917 ft	1	0.265	0.125	1.000	1.100	1.000	1.000	1.000	1.79	291.35	1,100.00	0.59	22.58	180.00
+D+0.750Lr+0.750L+H	Length = 9.917 ft	1	0.330	0.156	1.000	1.100	1.000	1.000	1.000	2.24	363.28	1,100.00	0.74	28.16	180.00
+D+0.750L+0.750S+H	Length = 9.917 ft	1	0.232	0.110	1.000	1.100	1.000	1.000	1.000	1.57	255.38	1,100.00	0.52	19.80	180.00
+D+0.750Lr+0.750L+0.750W+H	Length = 9.917 ft	1	0.330	0.156	1.000	1.100	1.000	1.000	1.000	2.24	363.28	1,100.00	0.74	28.16	180.00
+D+0.750L+0.750S+0.750W+H	Length = 9.917 ft	1	0.232	0.110	1.000	1.100	1.000	1.000	1.000	1.57	255.38	1,100.00	0.52	19.80	180.00
+D+0.750Lr+0.750L+0.5250E+H						1.100	1.000	1.000	1.000						

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 Project Notes :

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5

Title Block Line 6

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Wood Beam

ENERCALC, INC. 1983-2011, Build:6.11.7.11, Ver:6.11.7.11

Lic. #: KW-06001912

Licensee :

Description : 9'-11" Opening

Load Combination	Segment Length	Span #	Max Stress Ratios							Summary of Moment Values			Summary of Shear Values		
			M	V	C _d	C _{FV}	C _r	C _m	C _t	Mactual	fb-design	Fb-allow	Vactual	fv-design	Fv-allow
Length = 9.917 ft	1		0.330	0.156	1.000	1.100	1.000	1.000	1.000	2.24	363.28	1,100.00	0.74	28.16	180.00
+D+0.750L+0.750S+0.5250E+H						1.100	1.000	1.000	1.000						
Length = 9.917 ft	1		0.232	0.110	1.000	1.100	1.000	1.000	1.000	1.57	255.38	1,100.00	0.52	19.80	180.00

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "+" Defl	Location in Span	Load Combination	Max. "-" Defl	Location in Span
D+L+Lr	1	0.0677	5.008		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.080	1.080
D Only	0.366	0.366
L Only	0.357	0.357
Lr Only	0.357	0.357
L+Lr	0.714	0.714
D+Lr	0.723	0.723
D+L	0.723	0.723
D+L+Lr	1.080	1.080

CITY OF SANTA ANA

BUILDING PERMIT WORKSHEET

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

PLEASE PRINT

PROJECT ADDRESS: 1523 W. 7TH ST.		SUITE:	SAPIN # 10174275	
USE OF BUILDING: RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	2012-101327
NATURE OF WORK: NEW ADD ALTER/T.I. DEMO REROOF REPAIR SIGN MISC				MASTER ID#
NEW/ADDITION/ALTERATION:				
1ST FL.. 300 SF	BASEMENT: YES/NO _____ SF	NO. OF STORIES: 1		
2ND FL.. _____ SF	PATIO/ENCL. PATIO: _____ SF	BLDG. HEIGHT: 13'-10"		
TOTAL OF OTHER FLS: _____ SF	RES. REMODEL: _____ SF	PROPOSED USE: _____		
GARAGE/CARPORT: _____ SF	ALTER/T.I.: _____ SF			
JOB DESCRIPTION (non-residential projects see reverse side of this application): ENLARGE 2 EXISTING BED ROOMS, ADD BATH				
BUILDING OWNER'S NAME: DORIS FRAUSTO			PHONE NO: 714-514-5650	
ADDRESS: 1523 W. 7TH ST.	CITY: SANTA ANA	STATE: CA	ZIP: 92703	
TENANT'S NAME (Comm/Ind):			PHONE NO:	
CONTRACTOR'S NAME:		STATE CONTR. #:	LICENSE CLASS:	PHONE NO:
ADDRESS:		CITY:	STATE:	ZIP:
WORKERS COMP. POLICY#:	EXP. DATE:	INSURANCE COMPANY:	SANTA ANA BUS. LIC. #:	
ARCHITECT/ENGINEER: ANN TOWLE		STATE LICENSE #: C66431	PHONE NO: 714-458-6253	
ADDRESS: 147 N. CORNELL	CITY: FULLERTON	STATE: CA	ZIP: 92831	
CONTACT NAME: DAN SNYDER		PHONE NO: 714-757-8570		
E-MAIL ADDRESS: PLAUST14@GMAIL.COM		FAX NO:		

OFFICE USE ONLY: **ACC OR SPC (CIRCLE ONE)** 3 HRS PER JK BLDG. FEE \$ _____

OCC. GROUP: _____ RECEIPT #: 58711 P/C FEE PD \$ 378.00

TYPE OF CONSTR: _____ VALUATION: \$ 32700 SUBMITTAL DATE: 1-30-12

FIRE SPKR: YES / NO A/C: YES / NO FLOOD ZONE: X PROCESSED JULIE

ES. DEV. FEE: YES / NO PRIOR DWELLING UNIT: YES / NO COMMENTS: _____

_____ NNING OK TO CHECK & DATE _____ BLDG. DEPT. APPROVAL & DATE _____

CONDITIONS: _____

FEE CHECKLIST WORKSHEET

Received by: [Signature]

SAPIN #: 10174275

FEE TYPE

REQUIRED

Yes No

Plan Check Fee

Disability Fee

SMIP Fee

Res. Dev. Fee

Fire Facility Fee

School Distr. Fee

Microfilm

FCWP Surcharge

CALCULATION AREA

COST/SQ FT

X

TOTAL SQ FT

=

VALUATION

300 X 109

Counter computations/valuation \$ 32,700

Plan checker computation/final valuation \$ _____

CITY OF SANTA ANA PLAN CHECK - CHECKLIST

JOB ADDRESS: 1523 W 7th St
 TRACKING #: 10174275 DATE: 1-30-12

FOR PLANCHECK STATUS CALL (714) 647-5800

PLEASE INITIAL EACH ITEM BELOW

- 1. I agree to pay a plancheck fee established for this project with the understanding that this payment is not a guarantee that a permit will be issued and that this fee is not refundable once a plancheck has commenced.
- 2. I understand that I may request an "Accelerated Plancheck" at an additional cost to me. This plancheck will be performed by an in-house plan checker with the intention of reducing plancheck time for the Building & Safety Division.
- 3. I understand that the project valuation (from which plancheck and permit fees are calculated) will be reviewed during the plancheck process and that said valuation shall be adjusted up or down in accordance with established fee computation regulations.
- 4. I understand that I shall submit separate plans, applications and plancheck fees for the following when plan check is required:
 - a. Electrical Plans - 2 complete sets
 - b. Plumbing Plans - 3 complete sets
 - c. Mechanical Plans - 2 complete sets
 - d. Grading Plans - 3 complete sets
- 5. I understand that I shall visit the Public Works Department to verify whether a field inspection of the property is required. I understand that prior to the issuance of the Building permit I am required to obtain Public Works Agency approval if my project valuation exceeds \$30,000 or has added plumbing fixtures, or added bedrooms, or exceeds 500 sq.ft.

AGREED TO BY APPLICANT OR AGENT

Applicant's Signature: [Signature]
 Print Name: DIAN SNYDER Address: 1240 S. NUTWOOD, ANAHEIM 92804
 Telephone Number: 714-757-8570 Fax: _____

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

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

PERMIT TECHNICIAN: [Signature]
 Form 58: 3-26-04



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

ACCELERATED PLAN CHECK REQUEST

HO18: 07-01-11

Project Address: 1523 W 7th St

Misc. Receipt: 58711 Processed By: [Signature] Plan Checked By: _____

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

Type of Plan Check: Building 10174275 Electrical _____
 Est. Hrs. 3 Actual _____ Est. Hrs. _____ Actual _____
 Plumbing _____ Mechanical _____
 Est. Hrs. _____ Actual _____ Est. Hrs. _____ Actual _____

Owner/Representative Signature: [Signature]

Print Name: DAU SNYDER Date: 1-30-12

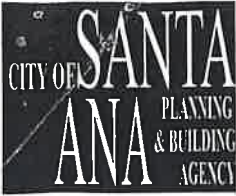
Telephone Number: (714) 757-8570 Fax Number: ()

An accelerated plan check review will not include the following:
Fire, Police, Public Works, Planning or Landscaping Plan Check

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

INTERNAL USE ONLY

Name (Last, First, Initial)		Employee #	Division
From (Date & Time)	To (Date & Time)	Total Hours Worked	_____ Comp Time Requested _____ Overtime Requested
Employee Signature: _____ Date: _____			
AUTHORIZED _____ Immediate Supervisor _____ Date		APPROVALS _____ Division Manager _____ Date _____ Executive Director _____ Date	



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**

PLAN CHECK NO: 10174275

PROJECT ADDRESS: 1523 W Seventh St

PLAN CHECK ENGINEER: Ahangian, Kathy **TEL: 714** 647-5812
FAX: 714 647-5897

TYPE OF CONSTRUCTION: V B

OCCUPANCY CLASSIFICATION(S): R-3, U

PLAN CHECK DATES:

APPLICATION	1/30/2012	REMARKS/RECHECK ITEMS: <i>R-R = 2x8 Ridge Beam 2x10 Provide 4x8 hip beam Change A-5 to A-4</i>
INITIAL REVIEW	2/10/2012	
EXPIRATION	7/28/2012	
RECHECKS:	1. 2-28-2012 2. 3.	

PROJECT APPLICANT CONTACT PERSON:
 Dan Snyder
TEL: (714)757-8570
FAX:
EMAIL: Plans714@gmail.com

VALUATION: \$32,700.00

FLOOD ZONE: X-0602320144J

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.
2. Please indicate the sheet number and detail to the right of each correction, or note the number on the plans where the correction is made. Resubmit marked original, calculations and this correction sheet. A separate sheet for response may be used.
- ✓ 3. Resubmit 3 corrected sets of plans.
4. Meetings between the project applicant/designer and the plan reviewer shall be by appointment only. Please call (714) 647-5812 for an appointment.

2-28-12
Pending OK PER KATHY

- 5. 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).
- 6. 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.
- 7. The applicant shall obtain clearances/approvals for the following, prior to building permit issuance:
 - Planning Division approval on the corrected/final set of drawings (647-5804). Previously approved plans should be submitted to expedite the process.
 - Public Works Agency approval (647-5039).
 - Proof of Worker's Compensation Insurance shall be required at the time of permit issuance.

SHEET ATTACHED

2-28-12
2-28-12
2-28-12

8. Provide a fully dimensioned Site Plan on the drawings and on a separate 8-1/2" x 11" sheet of paper.

9. Basements, habitable attics, and every sleeping room in dwelling units must have a window or exterior door for an emergency exit, **sill height not more than 44 inches above the floor**, 5.7 square feet of openable area, 24 inches clear opening height, 20 inches clear opening width and shall open directly into a public street, alley, yard, or exit court. Windows _____ do not comply. (CRC R310.1-R310.1.3) **NOTED ON ELEVATIONS A-3**

CAUTION: Using minimum clear openable height with the clear openable width will yield only 3.3 square feet and not the minimum 5.7 square feet required. Be especially careful with double-hung windows. Also, when the emergency escape window is below ground level refer to CRC Section R310.2 for additional requirements.

10. Show 30-inch clear width for water closet compartments and 24-inch clearance in front of a water closet. **SHOWN ON FLOOR PLAN A-2**

11. 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) **NOTE AND CALCS ON A-2**

12. Bathrooms, laundry rooms, water closet compartments and similar rooms shall be mechanically ventilated in accordance with the CMC. **SHOWN ON FLOOR PLAN A-2**

13. Show a 7' minimum ceiling height for habitable rooms, hallways, bathrooms, toilet & laundry rooms, and basements containing these spaces. (CRC R305.1) **on the elevation. ADDED TO ELEV. A-3**

14. Show exterior wall construction assembly. A minimum of one layer of No. 15 asphalt felt, free from holes and breaks, complying with ASTM D 226 for Type 1 felt shall be applied over studs of all exterior walls. Specify that two layers of Grade D or 60 minute Grade D paper shall be applied over all wood base sheathing. (CRC R703.2) **DETAIL 2/A-6**

15. Roofing material shall have minimum class "C". **ADDED TO ELEV. AND ROOF PLAN (A-5)**

16. Submit engineering calculations for vertical and lateral loads prepared by a registered Civil, Structural Engineer or Architect. Additional Structural Corrections may apply.

OKAY PER KATHY

2-28-12
ROOF

17. Show complete existing framing plan, to include all framing members. — SHEET A-5

18. Show complete new roof framing. SHEET A-5

19. 2x 8 ridge board shall not be used since the ridge is not on the center. (Provide ridge beam.)

RIDGE BOARD OK PER KATHY

20. Show all the headers and beams on the framing plan. SHEET A4

21. On the drawings, provide Nailing Schedule in conformance with CRC Table R602.3(1). A-4

22. Provide shear wall at all sides of the addition. SHEET A4

23. Specify on the framing plans the shear wall material. Thickness, size and spacing of fasteners and sole plate nailing. Call out anchor bolt spacing and hold down hardware on foundation plan. SHEET 4 / A-6

DETAIL 4/A-6

24. Add note on foundation plan: All hold downs must be tied in place prior to foundation inspection. A-3

25. For plywood floor diaphragm specify thickness, grade, T&G edges, panel span rating, nailing schedule and panel layout pattern. (CBC 2305, T2305.2.3, 2306.3, T2306.3.1, and T2306.3.2) A-4

26. Provide a minimum of two No. 4 bars at top and at bottom of continuous footing. 1/A-6

27. Revise footing detail 1/A-6 to show bottom rebar at least 3" CLEAR from ground below. (1907.5)

28. Show location of under floor access crawl hole (18 x 24 inches). (CRC R408.4) FLOOR PLAN A-2
FOUND. " A-3

29. Walls braced to resist wind and seismic forces shall not exceed the following height to width ratios: 2 for 1 for plywood. Framing members or blocking shall be provided at the edges of all sheets in shear walls; 2 to 1 for gypsum wallboard and Portland cement plaster (stucco). Wall sections having height-to-length ratios in excess of 1 1/2 to 1 shall be blocked. (2305, T2306.3, AF&PA SDPWS T4.3.4) 4/A-6

30. Detail the shear transfer connections which transfer lateral forces from horizontal diaphragms through intermediate elements and shear walls to the foundation. (1603) 5/A-6

31. Note on plans that "Field-cutting ends, notches and drilled holes of preservative-treated wood shall be treated in the field in accordance with AWPA M4". (CRC R317-1.1) NOTE ON FOUND. PLAN A-3

32. Specify grade and species of framing lumber, treated mudsills, type and grade of plywood, design strength of concrete and glued-laminated timber, ASTM designation of structural steel shapes and masonry units, mix of mortar and grout. SHEET A-2

33. Openings greater than 4 feet in dimension must be detailed with doublers, blocking and straps or provide engineering. SHEET A-4

34. For plywood roof and floor diaphragm specify thickness, grade, T&G edges, panel span rating, nailing schedule and required blocking and panel layout pattern. ROOF PLAN A-5

35. Provide a weep screed for stucco at the foundation plate line a minimum of 4 inches above grade and 2 inches above paved areas. CRC R703.6.2.1.

CALLOUT ON ELEV. A-3, DETAIL 7/A-6

36) Specify on the framing plans the shear wall material, thickness, size and spacing of fasteners and sole plate nailing. Call out anchor bolt spacing and hold down hardware on foundation plan.

DUPLICATE OF ITEM 23

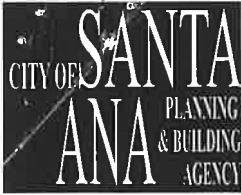
2-28-12 ✓ 37. Indicate water heater insulation requirements on the CF-1R form. Minimum external insulation is R-12 or internal insulation of R-16. (2008 CESC 150(j)) **CALLED OUT ON FP - ALSO T-24**

2-28-12 ✓ 38. Show size of existing wall heater. Verify if any new furnace being added. — **NO / SIZE NOTE ON A-2**

39) Provide water heater anchor straps within the upper and lower 1/3. (CPC 508.2)

CALL OUT ON FP

Pending 2-28-12



Planning & Building Agency
 Building Safety Division
 20 Civic Center Plaza
 P.O. Box 1988 (M-19)
 Santa Ana, CA 92702
 (714) 647-5800
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**RESIDENTIAL PLAN CHECK
 COMMENTS**

PLAN CHECK NO: 10174275

PROJECT ADDRESS: 1523 W Seventh St

PLAN CHECK ENGINEER: Ahangian, Kathy **TEL: 714** 647-5812
FAX: 714 647-5897

TYPE OF CONSTRUCTION: VB

OCCUPANCY CLASSIFICATION(S): R-3, U

PLAN CHECK DATES:

APPLICATION	<u>1/30/2012</u>	REMARKS/RECHECK ITEMS: <i>R-R = 2x8 Ridge Board 2x10 Provide 4x8 Hip Beam Change 4-5 to 4-7</i>
INITIAL REVIEW	<u>2/10/2012</u>	
EXPIRATION	<u>7/28/2012</u>	

RECHECKS:

1.	<u>2-28-2012</u>	PROJECT APPLICANT CONTACT PERSON: Dan Snyder TEL: <u>(714)757-8570</u> FAX: _____ EMAIL: <u>Plans714@gmail.com</u>
2.	<u>3-6-2012</u>	
3.	_____	

VALUATION: \$32,700.00

FLOOD ZONE: X-0602320144J

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.

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Revised 2-28-12
OK PER KATHY

- 5. 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).
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SHEET ATTACHED

2-28-12
2-28-12

- 8. Provide a fully dimensioned Site Plan on the drawings and on a separate 8-1/2" x 11" sheet of paper.
- 9. Basements, habitable attics, and every sleeping room in dwelling units must have a window or exterior door for an emergency exit, **sill height not more than 44 inches above the floor**, 5.7 square feet of openable area, 24 inches clear opening height, 20 inches clear opening width and shall open directly into a public street, alley, yard, or exit court. Windows _____ do not comply. (CRC R310.1-R310.1.3) **NOTED ON ELEVATIONS A-3**

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2-28-12
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- 10. Show 30-inch clear width for water closet compartments and 24-inch clearance in front of a water closet. **SHOWN ON FLOOR PLAN A-2**
- 11. 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) **NOTE AND CALCS ON A-2**
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- 14. Show exterior wall construction assembly. A minimum of one layer of No. 15 asphalt felt, free from holes and breaks, complying with ASTM D 226 for Type 1 felt shall be applied over studs of all exterior walls. Specify that two layers of Grade D or 60 minute Grade D paper shall be applied over all wood base sheathing. (CRC R703.2) **DETAIL 2/A-6**
- 15. Roofing material shall have minimum class "C". **ADDED TO ELEV. AND ROOF PLAN (A-5)**

3-6-12 OKAY PER KATHY

- 16. Submit engineering calculations for vertical and lateral loads prepared by a registered Civil, Structural Engineer or Architect. Additional Structural Corrections may apply.

3-6-12

36) Specify on the framing plans the shear wall material, thickness, size and spacing of fasteners and sole plate nailing. Call out anchor bolt spacing and hold down hardware on foundation plan.

Duplicate of Item 23

→ ?

2-28-12

37. Indicate water heater insulation requirements on the CF-1R form. Minimum external insulation is R-12 or internal insulation of R-16. (2008 CESC 150(j))

CALL OUT ON FP - ALSO T-24

38. Show size of existing wall heater. Verify if any new furnace being added. — NO / SIZE NOTE ON A-2

39. Provide water heater anchor straps within the upper and lower 1/3. (CPC 508.2)

CALL OUT ON FP

Pending 2-28-12

8/A-6

3-6-12



SEWER CONNECTION FEE CALCULATION

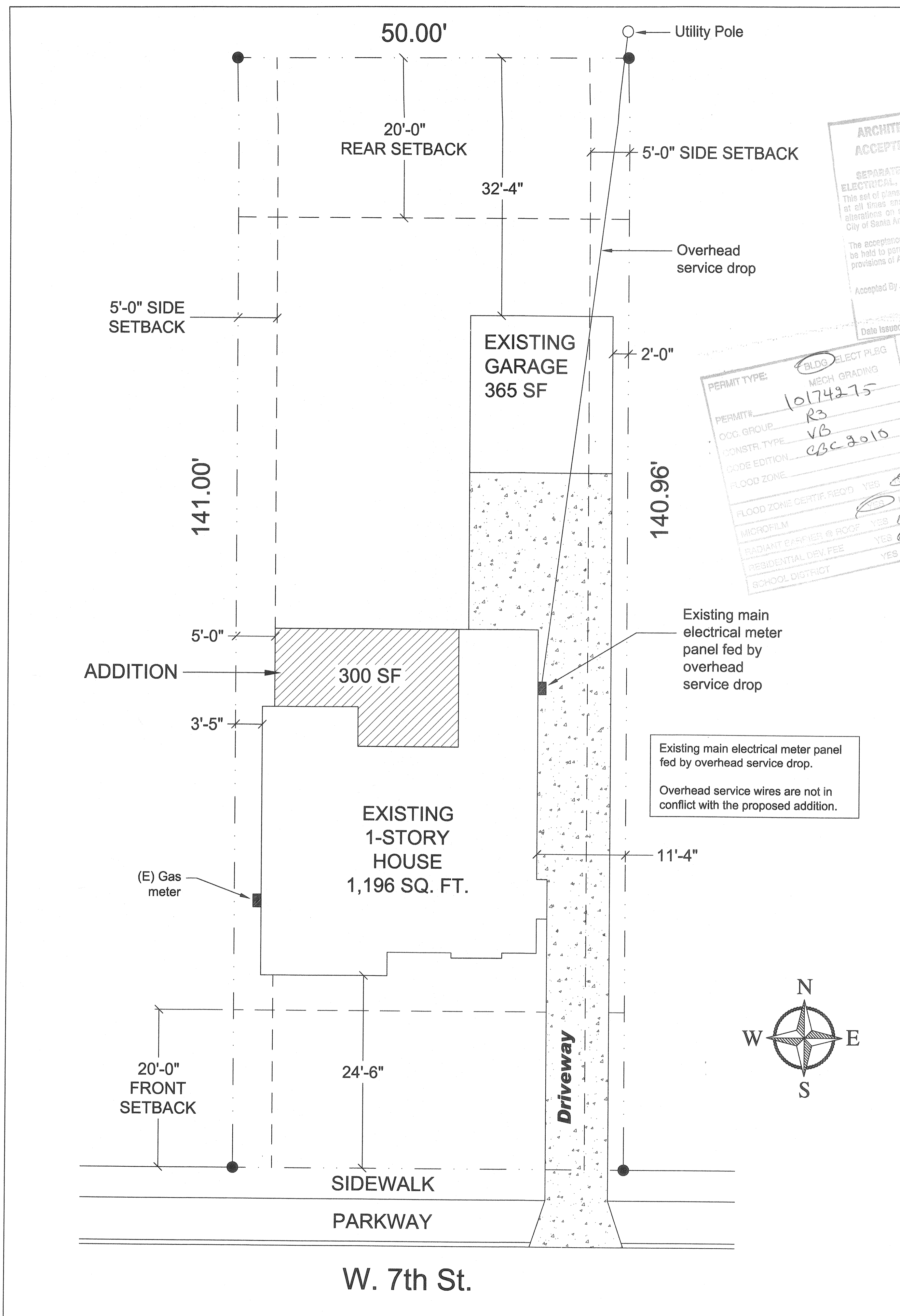
July 1, 2011 - June 30, 2012

CITY OF SANTA ANA
PUBLIC WORKS AGENCY
 20 Civic Center Plaza, M-93
 Santa Ana, California 92701

PROJECT ADDRESS:

PROJECT NAME:

Estimator:	Checked by:			Date:	
Type of Fixture	New Fixture	Credit	Net increase	F.U.V.	Total fixture values
COMMERCIAL					
2-Compartment Sink				2	
3-Compartment Sink				3	
Bathtub				3	
Car wash (auto dealer)				40	
Car wash (commercial)				80	
Commercial Sink and hand sink				2	
Dental Unit or Cuspidors				1	
Dish Washer (Coffee serving facility)				6	
Dish washer (Commercial,restaurant)				30	
Dish Washer (office use)				3	
Drinking Fountain				0.5	
Floor Drain & floor sinks				2	
Floor Sink (coffee,refrig.)				1	
Foot spa				1	
Ice maker				1	
Interceptor (Grease, oil for restaurant)				3	
Interceptor (Sand)				6	
Jacuzzi				6	
Lavatory				1	
Remediation Soil Treatment (2 units/gal)	5 gal/min for gas stations			2	
Revese Osmosis Discharge (2 units/gal)	Varies 6-10 gal/min for water stores			2	
Service (mop) Sink				3	
Shower				2	
Shower (group) per head				5	
Steam Clean				10	
Swimming Pool				6	
Trench drain				2	
Urinal				4	
Wash fountains				3	
Washing Machine (Comm.None coin per.)				6	
Washing Machine (Laundromat)				30	
Washing up sinks (commercial, school)				3	
Water Closet (commercial)				4	
Residence					
Bar Sink, B.B.Q. sink				1	
Bathtub				(3)	
Dish washer				2	
Kitchen Sink				2	
Lavatory			1	1	1
Shower				(2)	
Swimming Pool				4	
Washing Machine				3	
Water Closet (Toilet)			(1)	3	3
Memory lane interseptor \$98.00/unit					
			Grand total		
			Unit cost	\$	88.68
			Total amount		



PLOT PLAN
Scale: 1/8" = 1'-0"

ARCHITECTURAL STRUCTURAL
ACCEPTED FOR CONSTRUCTION

SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, MECHANICAL & PLUMBING WORK. This set of plans is intended to meet any change or alterations on site without extension from the City of Santa Ana.

The acceptance of this plan and specifications SHALL NOT be held to permit any alteration or modification of any City Ordinance or State Law.

Accepted By: *K. R. L.* Date: *3-6-2012*
CITY OF SANTA ANA
Date Issued: *2/7/12*

PERMIT TYPE: BLDG SELECT PLUG
PERMIT NO.: 10174275
MECH. GRADING
PERMITS: R3
CONSTR. TYPE: VB
CODE EDITION: CBC 2010
FLOOD ZONE:
FLOOD ZONE CERTIF. REC'D: YES
MICROFILM: YES
RADIANT EXHAUST & ROOF: YES
RESIDENTIAL DEV. FEE: YES
SCHOOL DISTRICT: YES

OWNER:
Doris Frausto
1523 W. 7th Street
Santa Ana, CA 92703

CONTACT TEL.:
(714) 514-5650

- WORK TO BE DONE:**
- Enlarge 2 existing bedrooms.
 - Add bath and closet.
 - Add roof to cover.
 - Match exterior finish & trim.
 - Scope of work: 300 SF
 - Convert existing bedroom to family room.

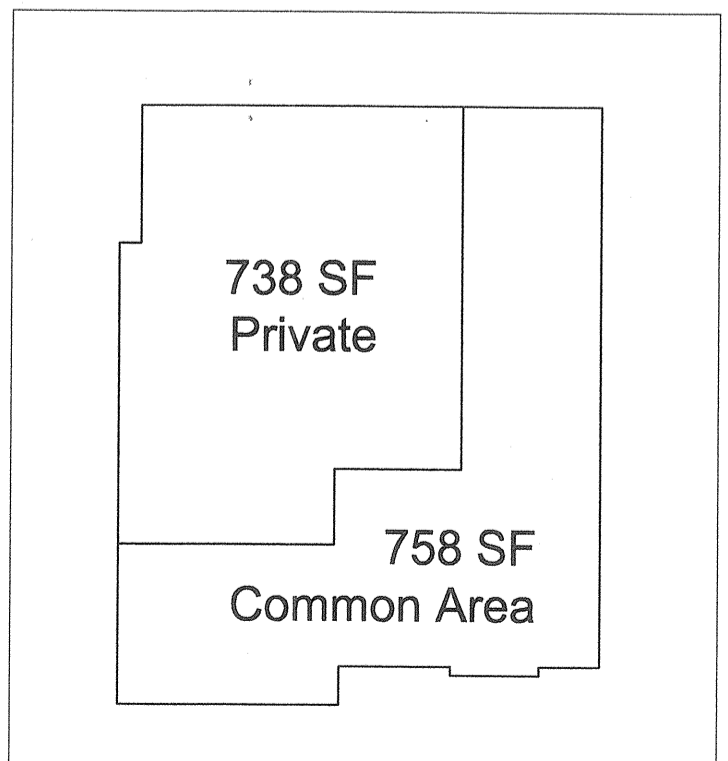
TOTAL LOT COVERAGE CALCULATIONS

7,050 SF LOT

EXISTING HOUSE: 1,196 SF
EXISTING GARAGE: 365 SF

PROPOSED ADDITION: 300 SF

PROPOSED LOT COVERAGE: 26.4 %



PRIVATE AREA TO COMMON AREA RATIO
(WITH ADDITION)

APPROVED PLANNING DIVISION

MASTER I.D. *2012-101327*

G.P. *LR* Zone *R1*

PLANNER *Andi* DATE *1/30/12*

TRANSFERRED BY *RP* DATE *3/6/12*

PLANNING INSPECTION REQUIRED:
ROUGH _____ FINAL _____ NONE

NAME _____ (14)

RETAIN PLANS FOR FUTURE REVISIONS. SUBJECT TO ITEMS CHECKED AND CONDITIONS BELOW:

INTERIORS ONLY
 NO EXTERIOR ALTERATIONS/MODIFICATIONS
 ALL WORKING TO MATCH EXISTING
 SCREENING REQUIRED
 SUSPECT LANDSCAPE PLANS

CONDITIONS: *Add 300 sq ft*
- Add bathroom
- Extend existing bedroom
- Convert (E) bedroom to family room w/ 7' wide framed opening into entry hall & framed door opening into bedroom hall

GENERAL NOTES

WORK PERFORMED SHALL COMPLY WITH THESE GENERAL NOTES UNLESS OTHERWISE NOTED ON THE PLAN.

ALL WORK SHALL BE DONE IN ACCORDANCE WITH CALIFORNIA STATE BUILDING CODES AS ADOPTED BY THE CITY OF SANTA ANA, CA: 2010 CALIFORNIA RESIDENTIAL CODE (CRC), 2010 CALIFORNIA MECHANICAL CODE (CMC), 2010 CALIFORNIA PLUMBING CODE (CPC), 2010 CALIFORNIA ELECTRICAL CODE (CEC), 2008 BUILDING ENERGY EFFICIENCY STANDARDS (BEES), AND SANTA ANA CITY ORDINANCES.

ALL WORK TO COMPLY WITH ALL APPLICABLE LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS.

ON SITE VERIFICATION OF ALL DIMENSIONS AND CONDITIONS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. NOTED DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT IN CONJUNCTION WITH THE EXECUTION OF THIS WORK.

THE PROPERTY OWNER SHALL BE NOTIFIED IMMEDIATELY BY THE CONTRACTOR, SHOULD ANY DISCREPANCIES OR OTHER QUESTIONS ARISE PERTAINING TO THE WORKING DRAWINGS DURING CONSTRUCTION OR BIDDING.

PERMIT APPLICATION FOR WHICH NO PERMIT IS ISSUED WITHIN 180 DAYS FOLLOWING THE DATE OF APPLICATION SHALL EXPIRE BY LIMITATION. (SECTION 105.5 OF APPENDIX CHAPTER 1, CBC).

VICINITY MAP

SHEET INDEX

A-1	COVER SHEET & PLOT PLAN
A-2	FLOOR PLANS & SCHEDULES
A-3	ELEVATIONS, SECTION & FOUNDATION PLAN
A-4	FRAMING PLANS
A-5	ROOF PLANS
A-6	STRUCTURAL & FRAMING DETAILS
MEP-1	MECHANICAL, ELECTRICAL & PLUMBING PLANS
T-24	TITLE 24 FORMS

PROJECT DESCRIPTION:

ADDITION TO SINGLE FAMILY HOUSE

1523 W. 7th Street
Santa Ana, CA 92703

ZONING: R1 (SINGLE FAMILY RESIDENTIAL)
OCCUPANCY: R3
CONSTRUCTION TYPE: V-B NON-SPRINKLERED

EXISTING NO. OF BEDROOMS: 3
PROPOSED NO. OF BEDROOMS: 2

LEGAL DESCRIPTION: N TR 1110 BLK LOT 6
APN: 405-044-14

REVISIONS	BY
1	
2	
3	
4	

Drawn by: **PLANS**
Dan Snyder
Anaheim, CA 92804
714-757-8570
City & County Permits & Planning Division
Plans 714@gmail.com

ADDITION:
Owner: Doris Frausto
1523 W. 7th Street
Santa Ana, CA 92703
(714) 514-5650

COVER SHEET PLOT PLAN

DRAWN	D.S.
CHECKED	D.E.
DATE	FEBRUARY 28, 2012
SCALE	AS NOTED

SHEET 1 OF 8

A-1

DOORS

NO.	TYPE	STYLE	QTY.	HT.	WIDTH	HARDWARE SET
1	BATHROOM	INT - FLUSH	1	6'-8"	30"	PRIVACY SET
2	PATIO	EXT - SLIDER	1	6'-8"	5'-0"	ENTRY SET

WINDOWS

NO.	CALLOUT SIZE	STYLE	QTY.	NOTES
1	5040	SLIDER	1	VINYL

FINISH

LOCATION	WALLS/CLG	FLOOR	BASE BOARD
BEDROOM 1	DRYWALL/PAINT	CARPET	WOOD
BEDROOM 2 & WIC	DRYWALL/PAINT	CARPET	WOOD
BATH	DRYWALL/PAINT	TILE	WOOD

MATERIALS

Lumber Grades:

Mud Sill: 2x4 PT DF
 Rafters, Ridge Beam & Ceiling Joists: 2x #2 DF
 Wall Sheathing: 1/2" C-D exterior Plywood or CDX
 Roof Sheathing: 1/2" C-D exterior Plywood or CDX

Roofing:

Composite shingles to match EXG.

Rebar:

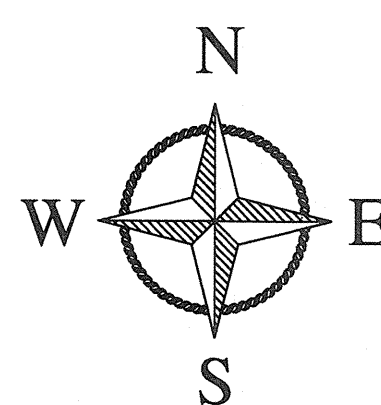
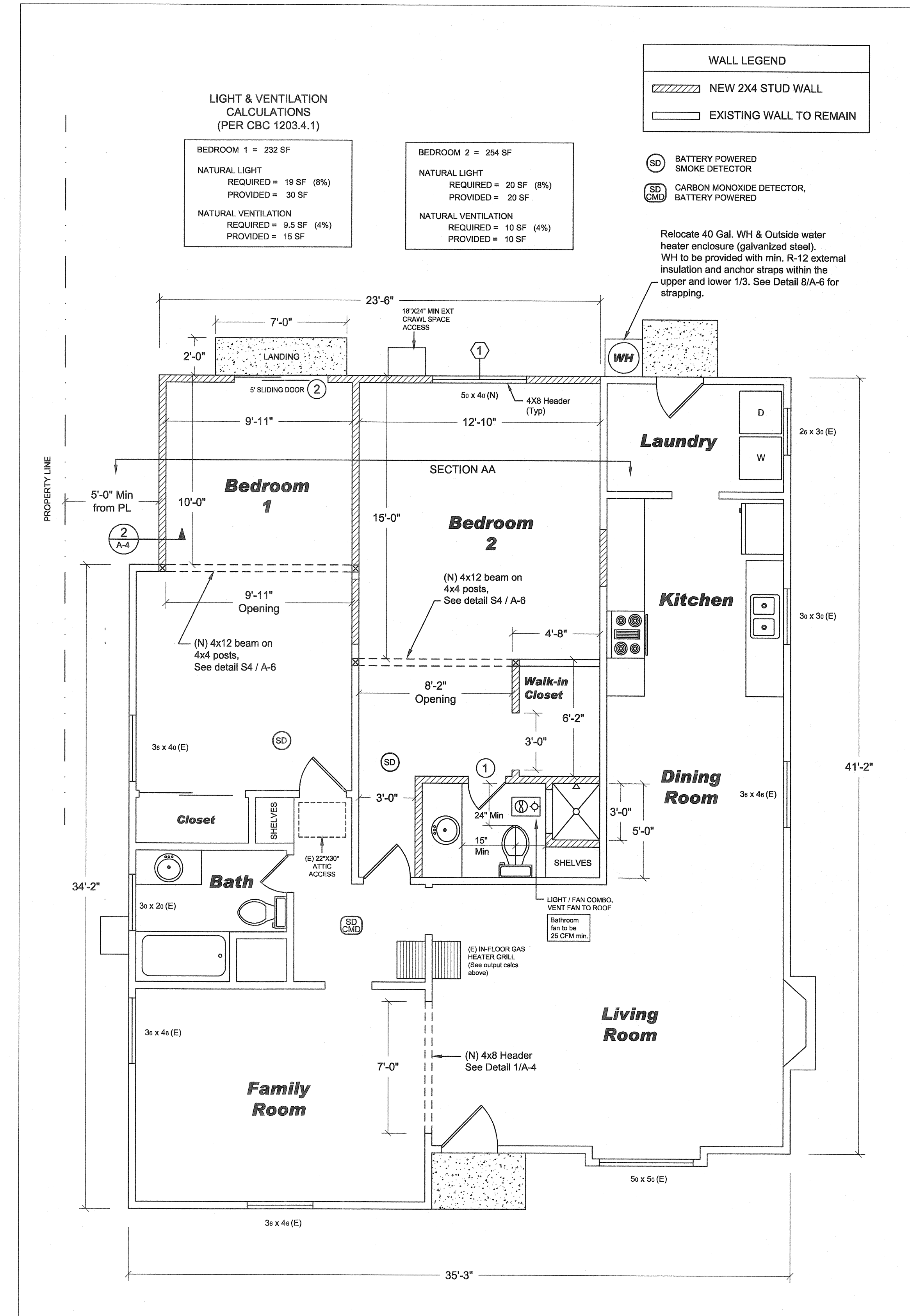
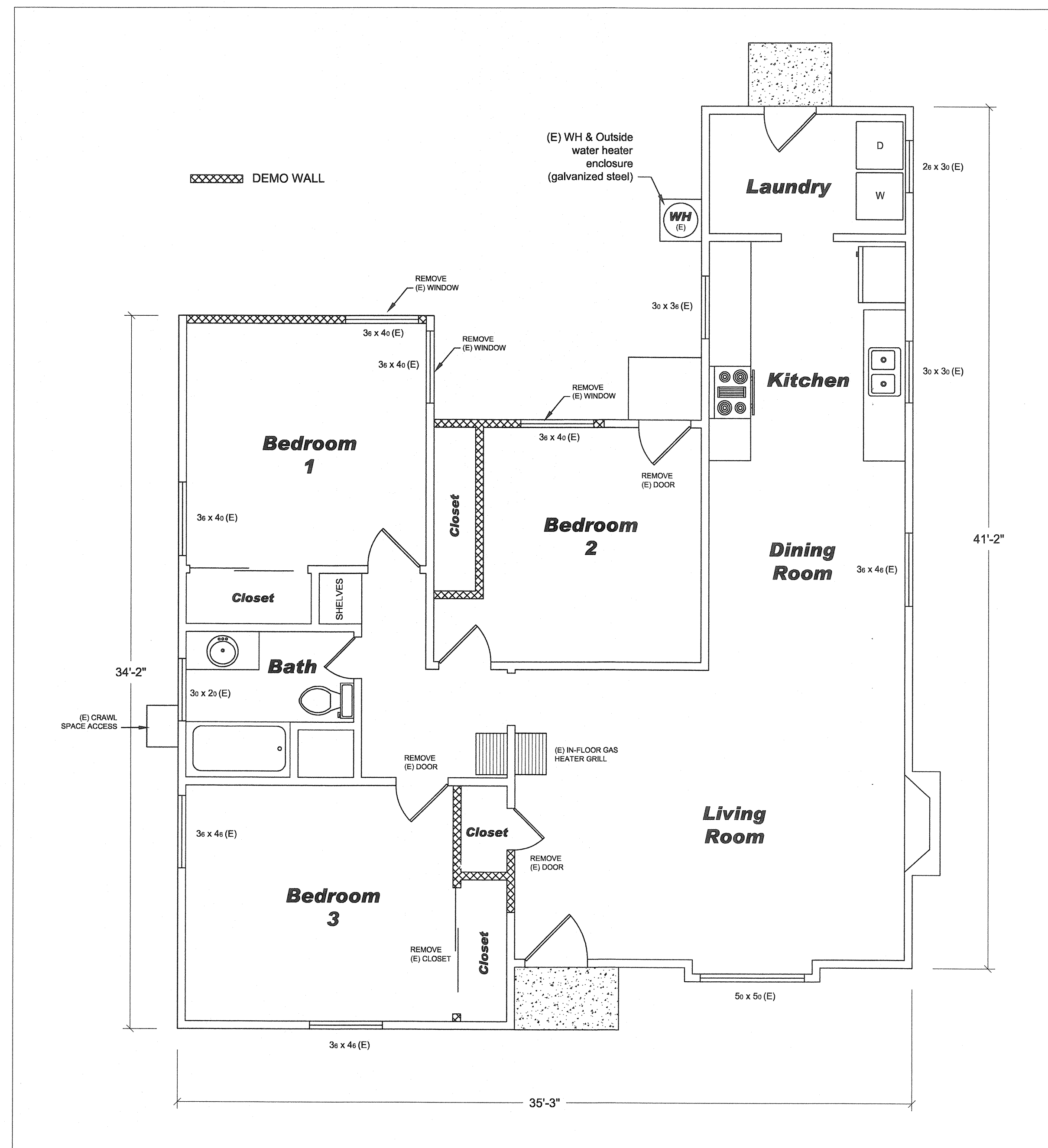
#4 Grade 40 Steel Rebar to be used throughout UNO.

Concrete:

2,500 PSI

Existing Gas Floor Furnace

Double grill, 75,000 BTU capacity w/ 80% AFUE
 Effective output: 60,000 BTU
 House with addition: 1,496 sq. ft.
 Required (Climate Zone 1) output: 35 BTU per sq. ft. = 52,360 BTU



REVISIONS	BY
1	
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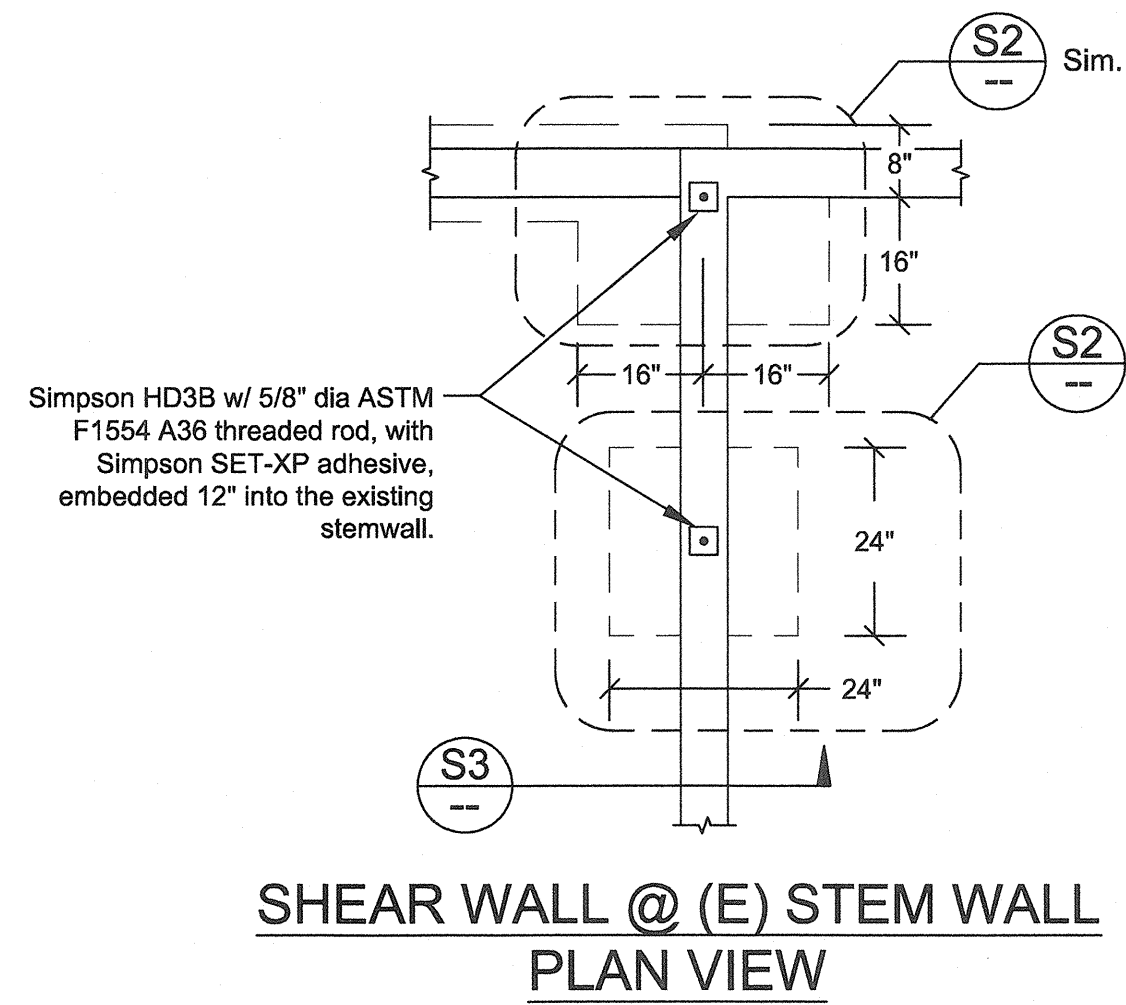
Drawn by: **PLANS**
 Dan Snyder
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ADDITION:
 Owner: Doris Frausto
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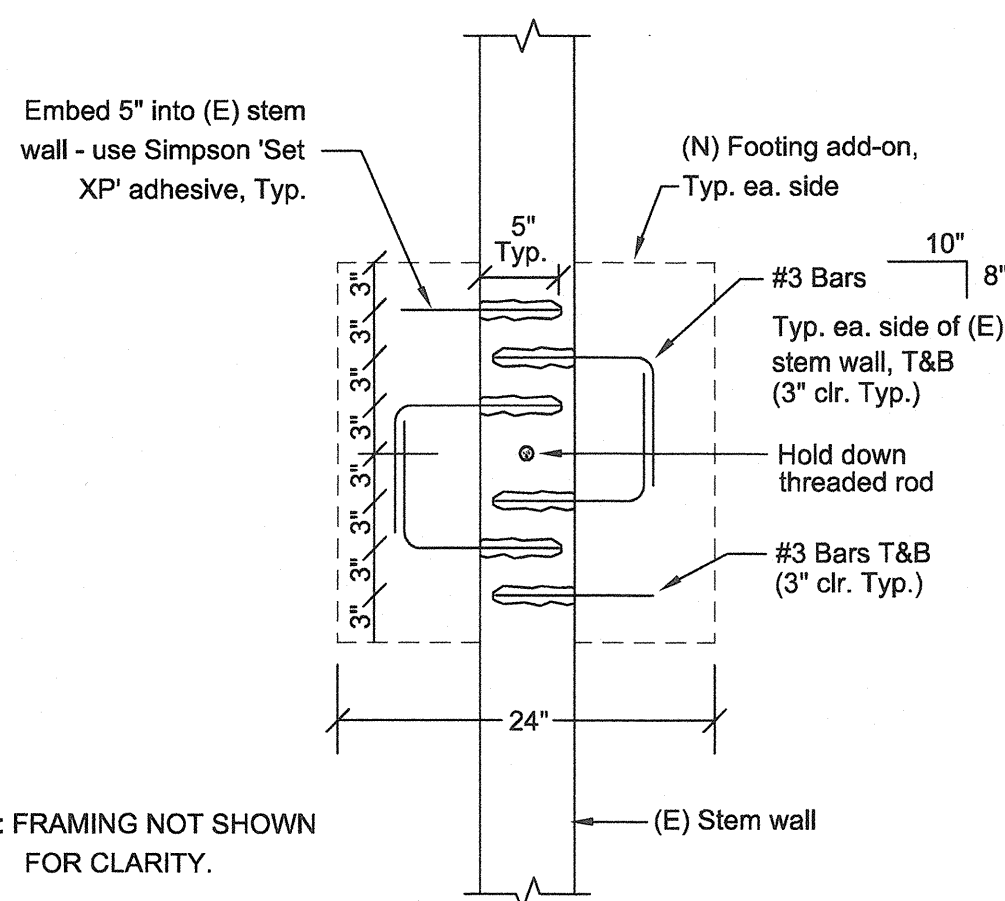
**FLOOR PLANS,
 & SCHEDULES**

DRAWN	D.S.
CHECKED	D.F.
DATE	FEBRUARY 28, 2012
SCALE	AS NOTED
SHEET 2 OF 8	

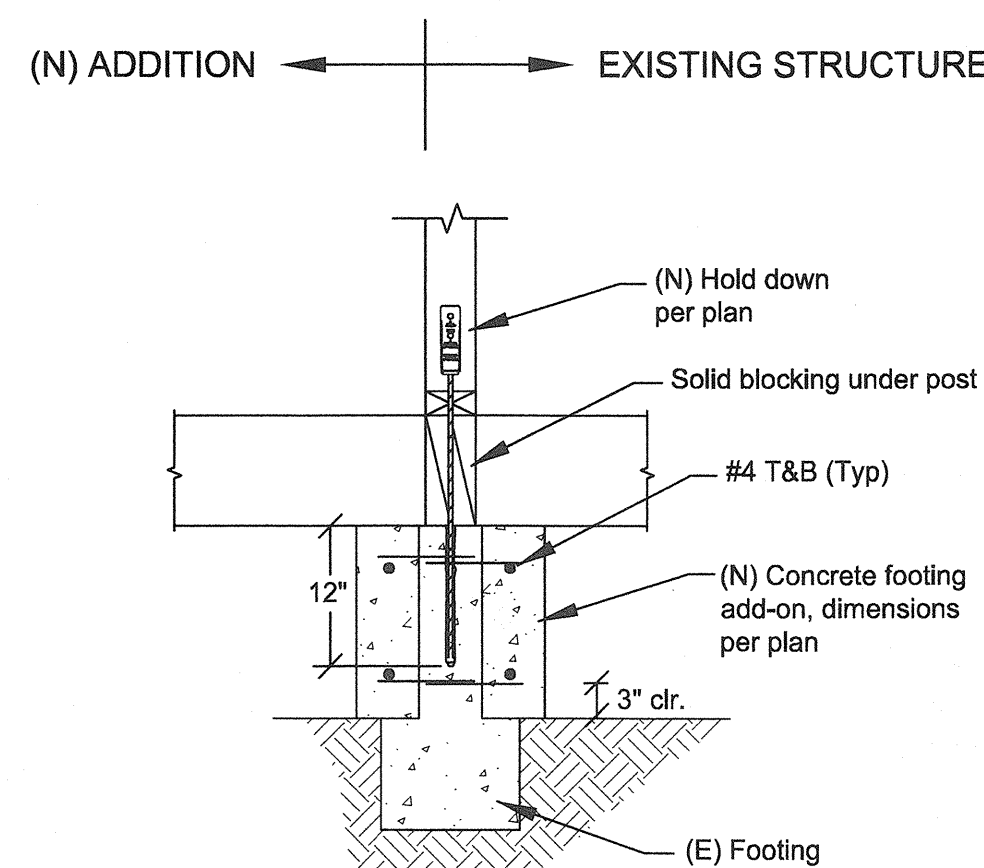
A-2



DETAIL S1



DETAIL S2



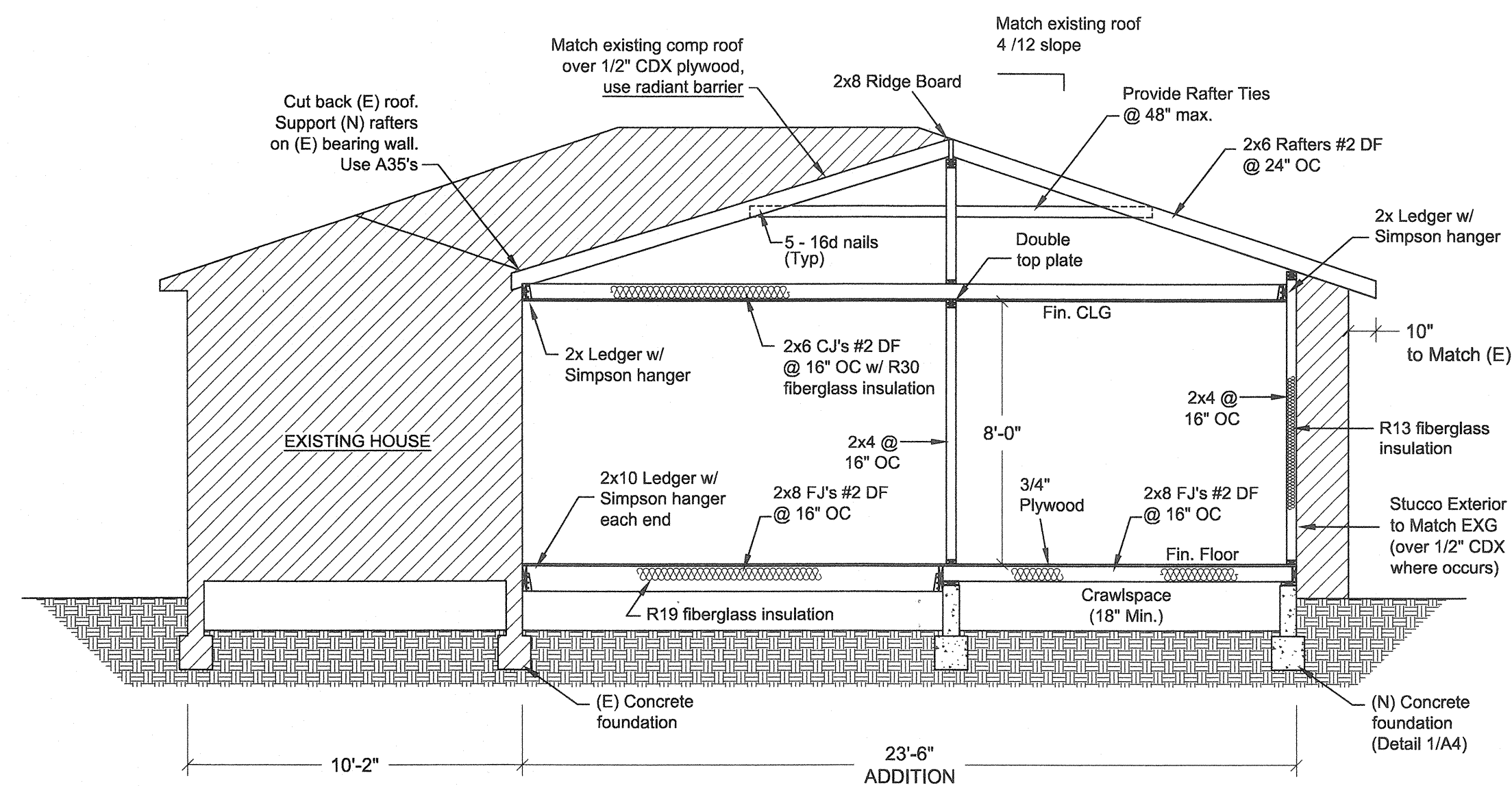
DETAIL S3

SHEAR WALL @ (E) FOOTING - DETAILS

Scale: N.T.S.



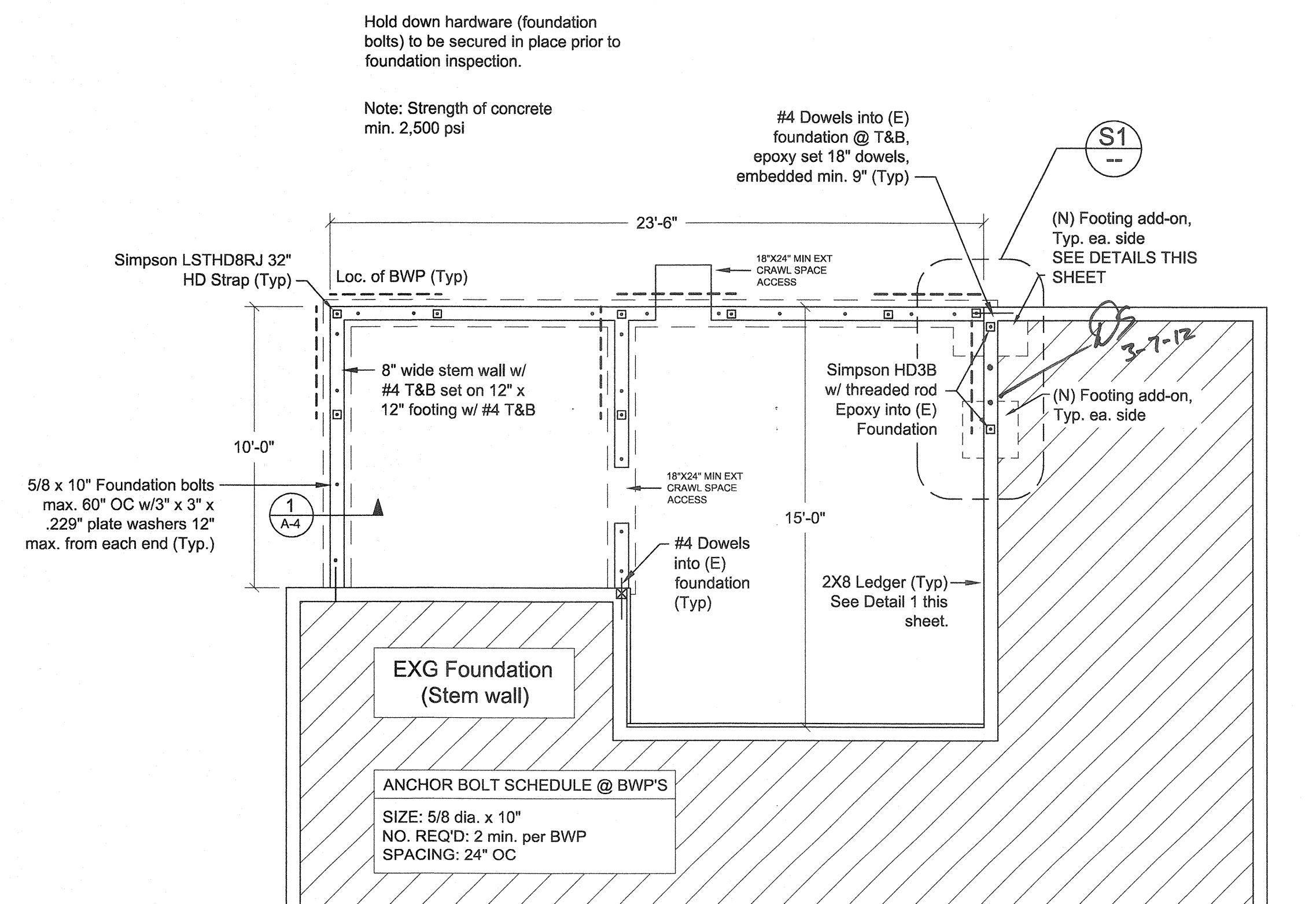
ENGINEER'S STAMP FOR STRUCTURAL DETAILS
S1, S2 & S3 THIS SHEET



SECTION A A

Scale: 1/4" = 1'-0"

NOTE:
Field-cutting ends, notches and drilled holes of preservative-treated wood shall be treated in the field in accordance with AWPA M4. (CRC R317-1.1)



FOUNDATION PLAN

Scale: 1/4" = 1'-0"

Foundation Crawl Space Ventilation

2 SF required for 300 SF area (1/150).

(8) Exterior foundation vents, @ .5 SF net free area ea. = 4 SF

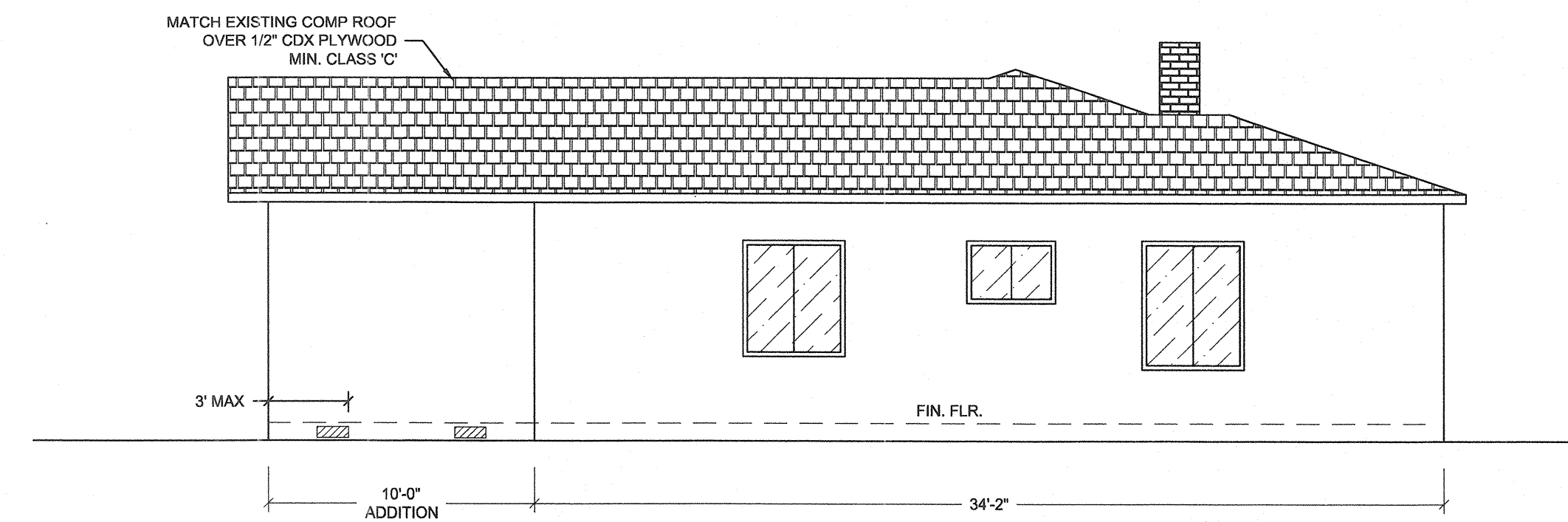
(See elevations this page for locations)

Attic Ventilation

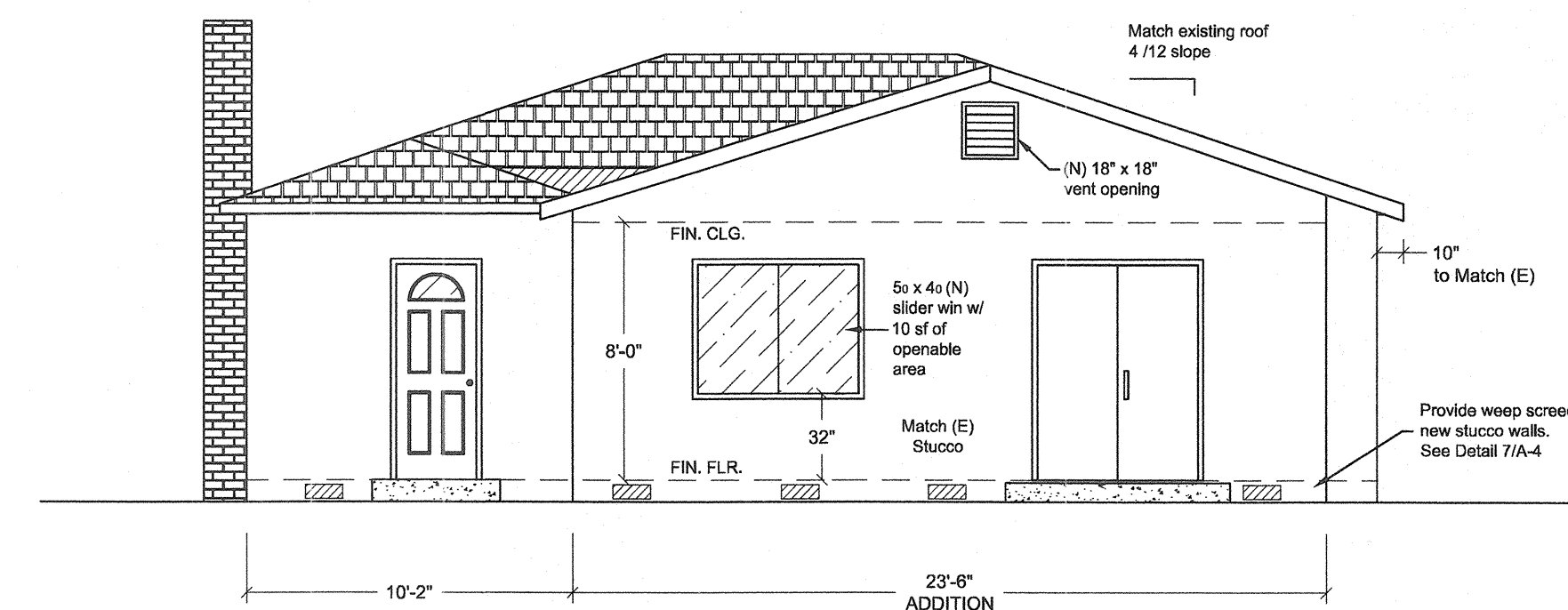
2 SF required for 300 SF total attic area (1/150).

(1) 18" x 18" (2.25 SF) louvered vent provided as shown on rear elevation.

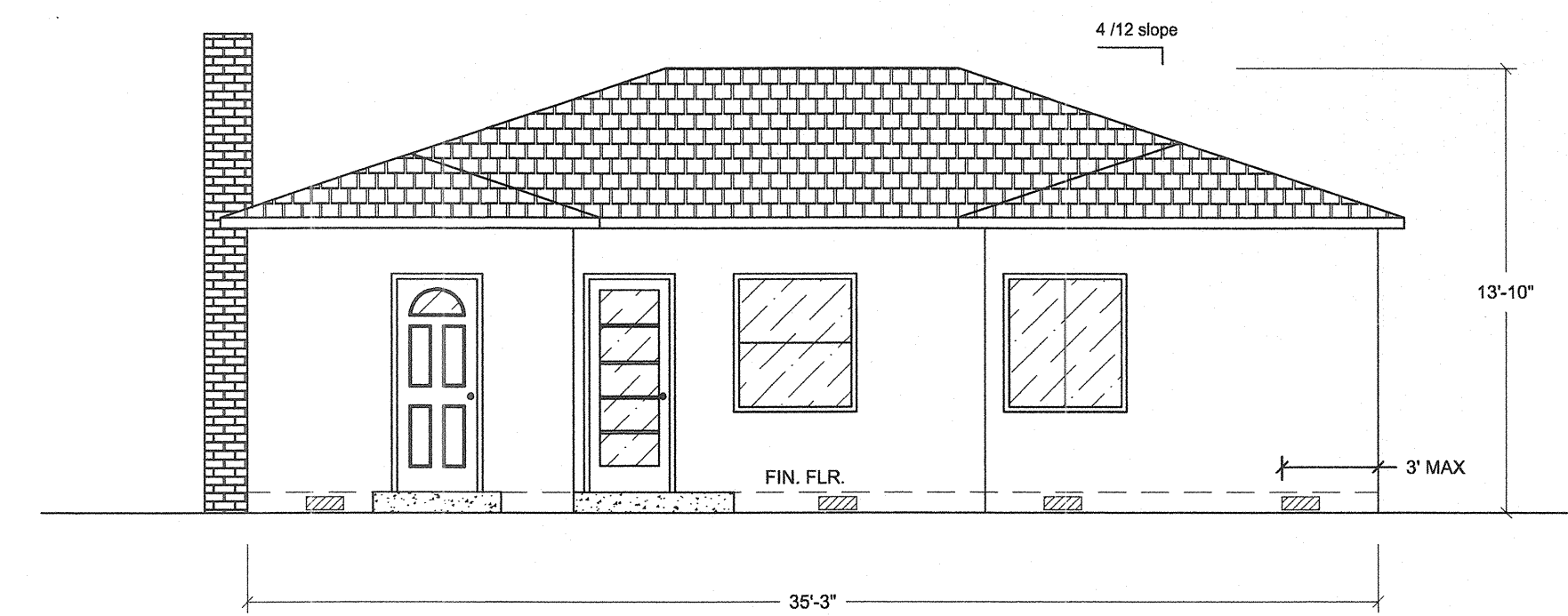
Openings to have 1/4" corrosion resistant metal mesh covering.



LEFT PROPOSED - WEST



REAR PROPOSED - NORTH



REAR EXISTING - NORTH

ELEVATIONS

Scale: 3/16" = 1'-0"

REVISIONS	BY
1	
2	
3	
4	

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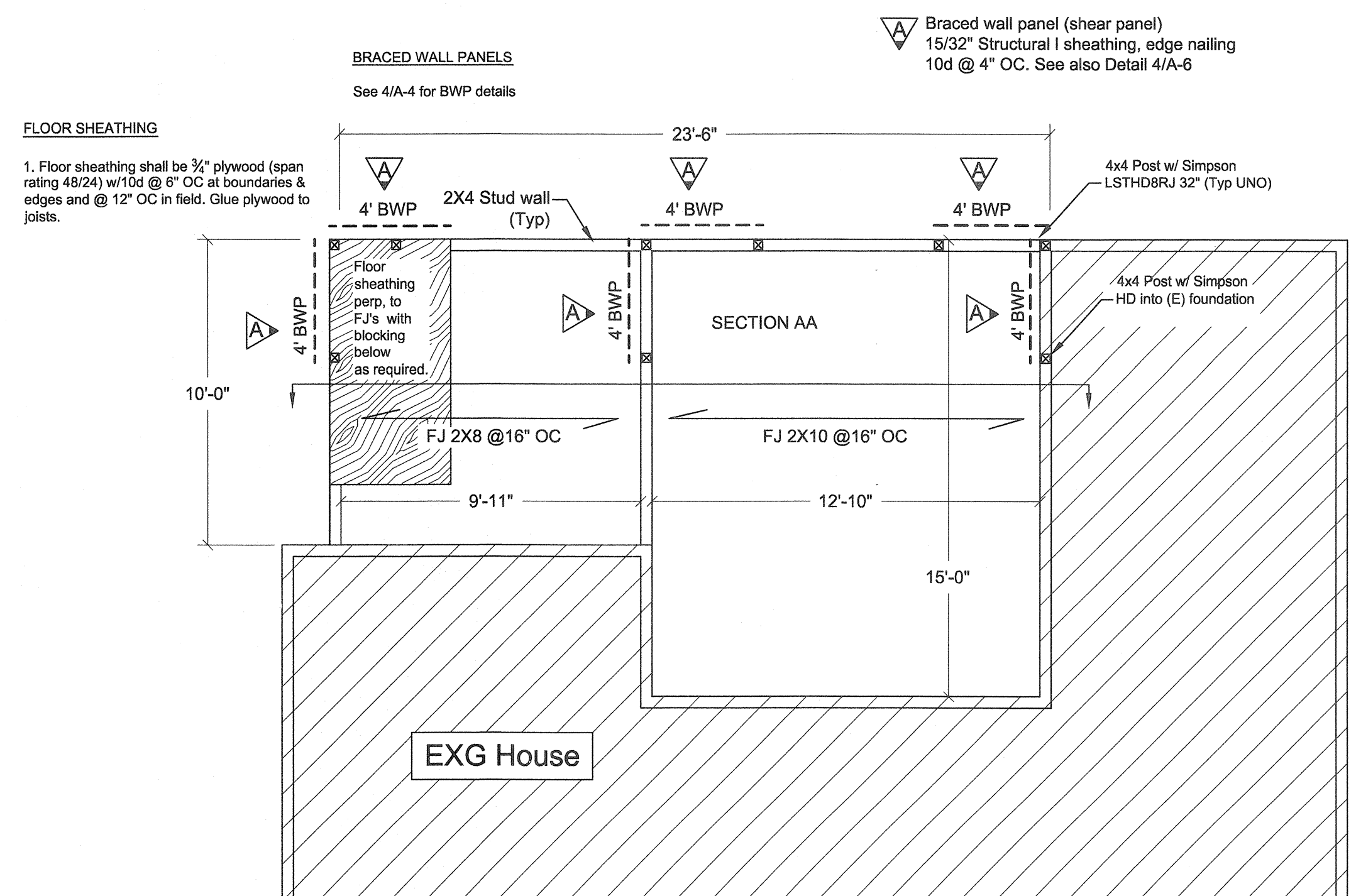
ADDITION:
Owner: Doris Frausto
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Santa Ana, CA 92703
(714) 514-5650

**ELEVATIONS,
SECTION
& FOUNDATION PLAN**

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DATE	FEBRUARY 28, 2012
SCALE	AS NOTED

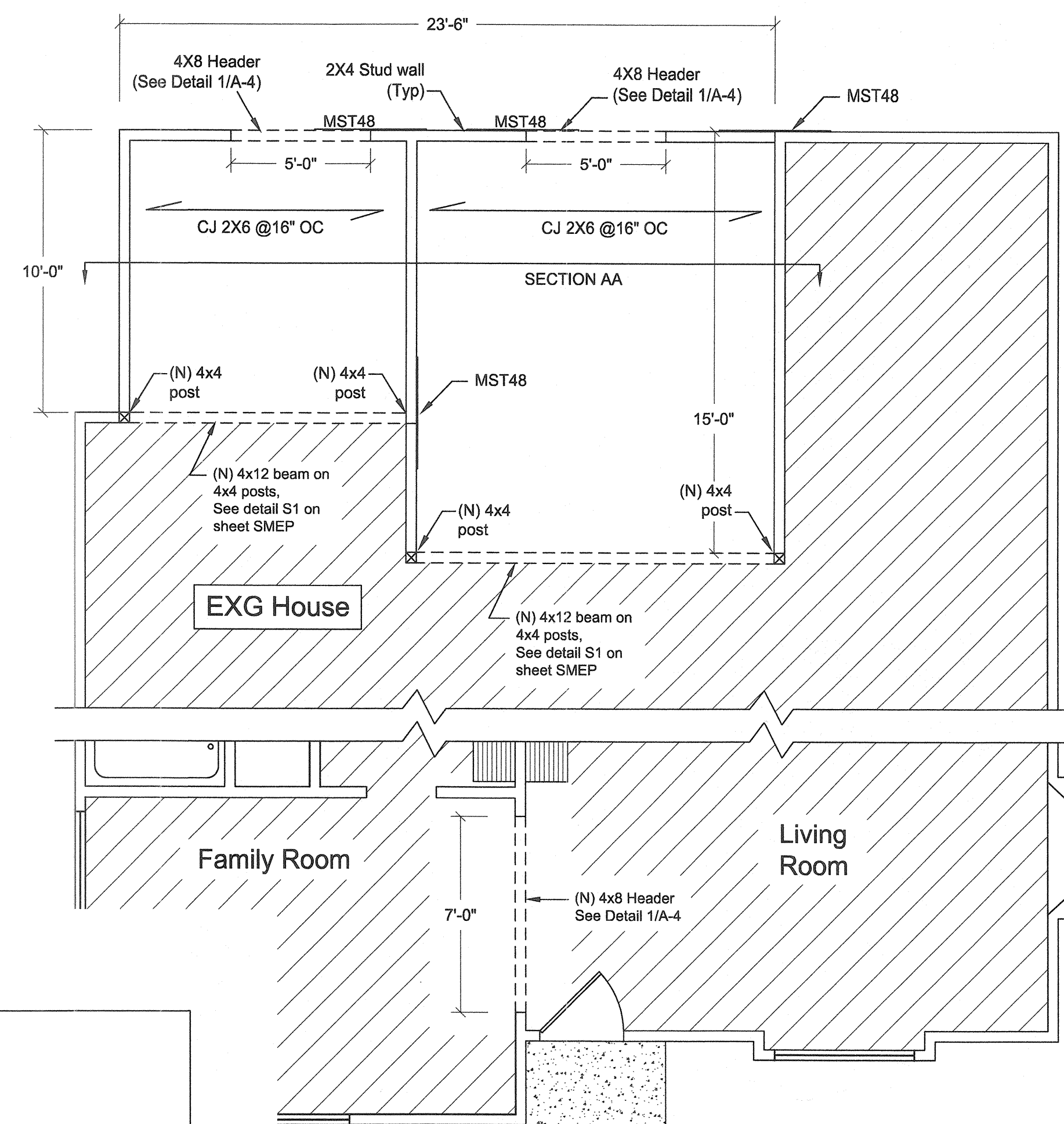
SHEET 3 OF 8

A-3



FLOOR FRAMING PLAN

Scale: 1/4" = 1'-0"



FRAMING PLAN

Scale: 1/4" = 1'-0"

NAILING SCHEDULE

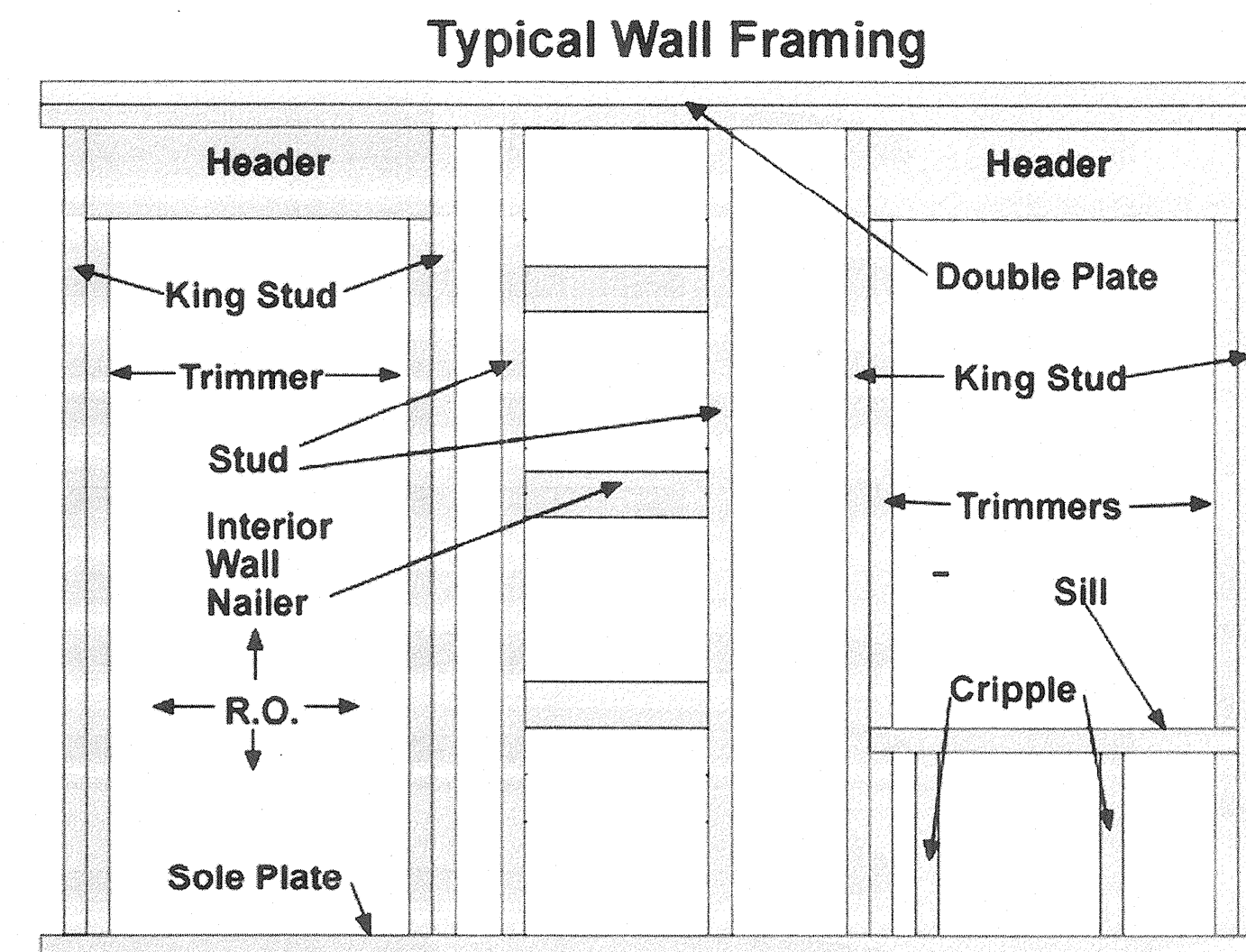
TABLE R602.3(1)
FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENERS ^{a,b,c}	SPACING OF FASTENERS
Roof			
1	Blocking between joists or rafters to top plate, toe nail	3-8d (2 1/2" x 0.113")	—
2	Ceiling joists to plate, toe nail	3-8d (2 1/2" x 0.113")	—
3	Ceiling joists not attached to parallel rafter, laps over partitions, face nail	3-10d	—
4	Collar tie rafter, face nail or 1/4" x 20 gage ridge strap	3-10d (3" x 0.128")	—
5	Rafter to plate, toe nail	2-16d (3 1/2" x 0.135")	—
6	Roof rafters to ridge, valley or hip rafters: toe nail	4-16d (3 1/2" x 0.135")	—
	face nail	3-16d (3 1/2" x 0.135")	—
Wall			
7	Built-up corner studs	10d (3" x 0.128")	24" o.c.
8	Built-up header, two pieces with 1/2" spacer	16d (3 1/2" x 0.135")	16" o.c. along each edge
9	Continued header, two pieces	16d (3 1/2" x 0.135")	16" o.c. along each edge
10	Continuous header to stud, toe nail	4-8d (2 1/2" x 0.113")	—
11	Double studs, face nail	10d (3" x 0.128")	24" o.c.
12	Double top plates, face nail	10d (3" x 0.128")	24" o.c.
13	Double top plates, minimum 48-inch offset of end joints, face nail in lapped area	8-16d (3 1/2" x 0.135")	—
14	Sole plate to joist or blocking, face nail	16d (3 1/2" x 0.135")	16" o.c.
15	Sole plate to joist or blocking at braced wall panels	3-16d (3 1/2" x 0.135")	16" o.c.
		3-8d (2 1/2" x 0.113")	—
16	Stud to sole plate, toe nail	2-16d (3 1/2" x 0.135")	—
17	Top or sole plate to stud, end nail	2-16d (3 1/2" x 0.135")	—
18	Top plates, laps at corners and intersections, face nail	2-10d (3" x 0.128")	—
19	1" brace to each stud and plate, face nail	2-8d (2 1/2" x 0.113") 2 staples 1 1/2"	—
20	1" x 6" sheathing to each bearing, face nail	2-8d (2 1/2" x 0.113") 2 staples 1 1/2"	—
21	1" x 8" sheathing to each bearing, face nail	2-8d (2 1/2" x 0.113") 3 staples 1 1/2"	—
22	Wider than 1" x 8" sheathing to each bearing, face nail	3-8d (2 1/2" x 0.113") 4 staples 1 1/2"	—
Floor			
23	Joist to sill or girder, toe nail	3-8d (2 1/2" x 0.113")	—
24	1" x 6" subfloor or less to each joist, face nail	2-8d (2 1/2" x 0.113") 2 staples 1 1/2"	—
25	2" subfloor to joist or girder, blind and face nail	2-16d (3 1/2" x 0.135")	—
26	Rim joist to top plate, toe nail (roof applications also)	8d (2 1/2" x 0.113")	6" o.c.
27	2" planks (plank & beam - floor & roof)	2-16d (3 1/2" x 0.135")	at each bearing
28	Built-up girders and beams, 2-inch lumber layers	10d (3" x 0.128")	Nail each layer as follows: 32" o.c. at top and bottom and staggered. Two nails at ends and at each splice.
29	Ledger strip supporting joists or rafters	3-16d (3 1/2" x 0.135")	At each joist or rafter

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

ITEM	DESCRIPTION OF BUILDING MATERIALS	DESCRIPTION OF FASTENER ^{a,b,c}	SPACING OF FASTENERS	
			Edges (inches)	Intermediate supports ^{d,e} (inches)
Wood structural panels, subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing				
30	3/4" - 1/2"	6d common (2" x 0.113") nail (subfloor wall) 8d common (2 1/2" x 0.131") nail (roof)	6	12"
31	3/4" - 1/2"	6d common (2" x 0.113") nail (subfloor, wall) 8d common (2 1/2" x 0.131") nail (roof)	6	12"
32	1/2" - 1"	8d common nail (2 1/2" x 0.131")	6	12"
33	1 1/2" - 1 1/4"	10d common (3" x 0.148") nail or 8d (2 1/2" x 0.131") deformed nail	6	12"
Other wall sheathing^f				
34	1/2" structural cellulose fiberboard sheathing	1 1/2" galvanized roofing nail, 7/16" crown or 1" crown staple 16 ga., 1 1/2" long	3	6
35	5/8" structural cellulose fiberboard sheathing	1 1/2" galvanized roofing nail, 7/16" crown or 1" crown staple 16 ga., 1 1/2" long	3	6
36	1/2" gypsum sheathing	1 1/2" galvanized roofing nail; staple galvanized, 1 1/2" long; 1 1/2" screws, Type W or S	7	7
37	5/8" gypsum sheathing	1 1/2" galvanized roofing nail; staple galvanized, 1 1/2" long; 1 1/2" screws, Type W or S	7	7
Wood structural panels, combination subfloor underlayment to framing				
38	3/4" and less	6d deformed (2" x 0.120") nail or 8d common (2 1/2" x 0.131") nail	6	12"
39	7/8" - 1"	8d common (2 1/2" x 0.131") nail or 8d deformed (2 1/2" x 0.120") nail	6	12"
40	1 1/4" - 1 1/2"	10d common (3" x 0.148") nail or 8d deformed (2 1/2" x 0.120") nail	6	12"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s, 1 ksi = 6.895 MPa.
a. All nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections shall have minimum average bending yield strengths as shown: 80 ksi for shank diameter of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank 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 more than 6 inches on center at all supports where spans are 48 inches 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 wind speed of 110 mph or greater, 8d deformed (2 1/2" x 0.120) nails shall be used for attaching plywood and wood structural panel roof sheathing to framing within minimum 48-inch distance from gable 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, nails for attaching wood structural panel roof sheathing to gable end wall framing shall be spaced 6 inches on center. When basic wind speed is greater than 100 mph, nails for attaching panel roof sheathing to intermediate supports shall be spaced 6 inches on center for minimum 48-inch distance from ridges, eaves and gable end walls; and 4 inches on center to gable end wall framing.
h. Gypsum sheathing shall conform to ASTM C 396 and shall be installed in accordance with GA 753. Fiberboard sheathing shall conform to ASTM C 208.
i. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at all floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing members or solid blocking.



DETAIL 1

N.T.S.

REVISIONS	BY
1	
2	
3	
4	

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FRAMING PLANS

DRAWN
D.S.
CHECKED
D.F.
DATE
FEBRUARY 28, 2012

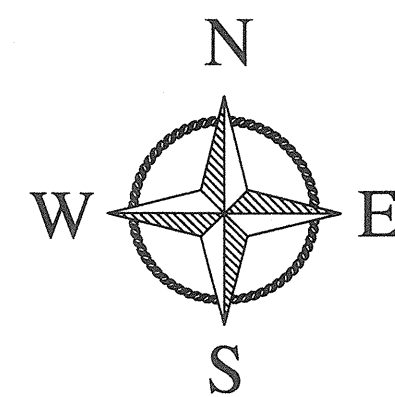
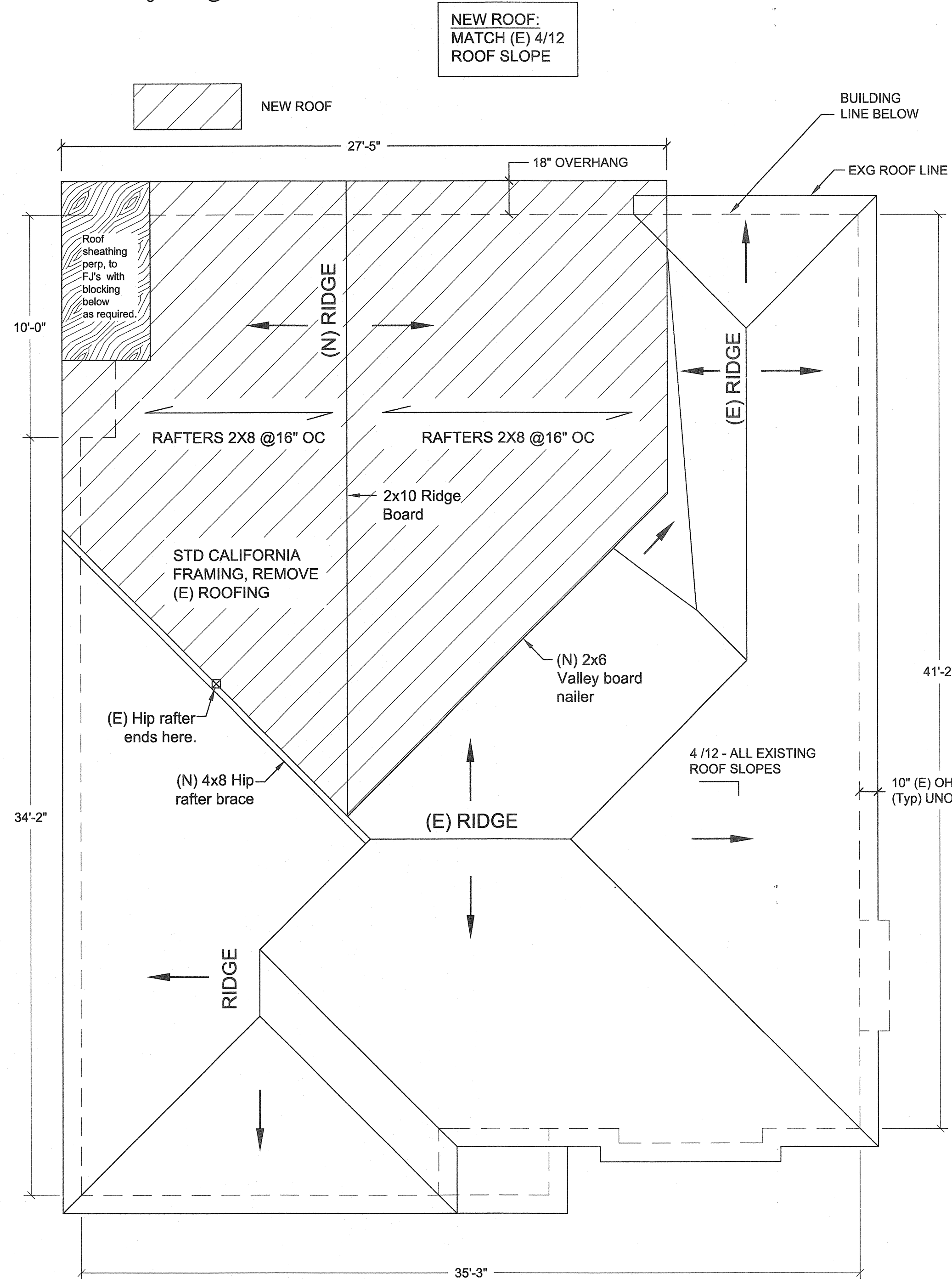
SCALE
AS NOTED

SHEET 4 OF 8

A-4

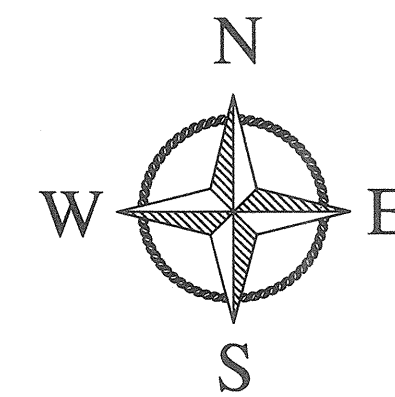
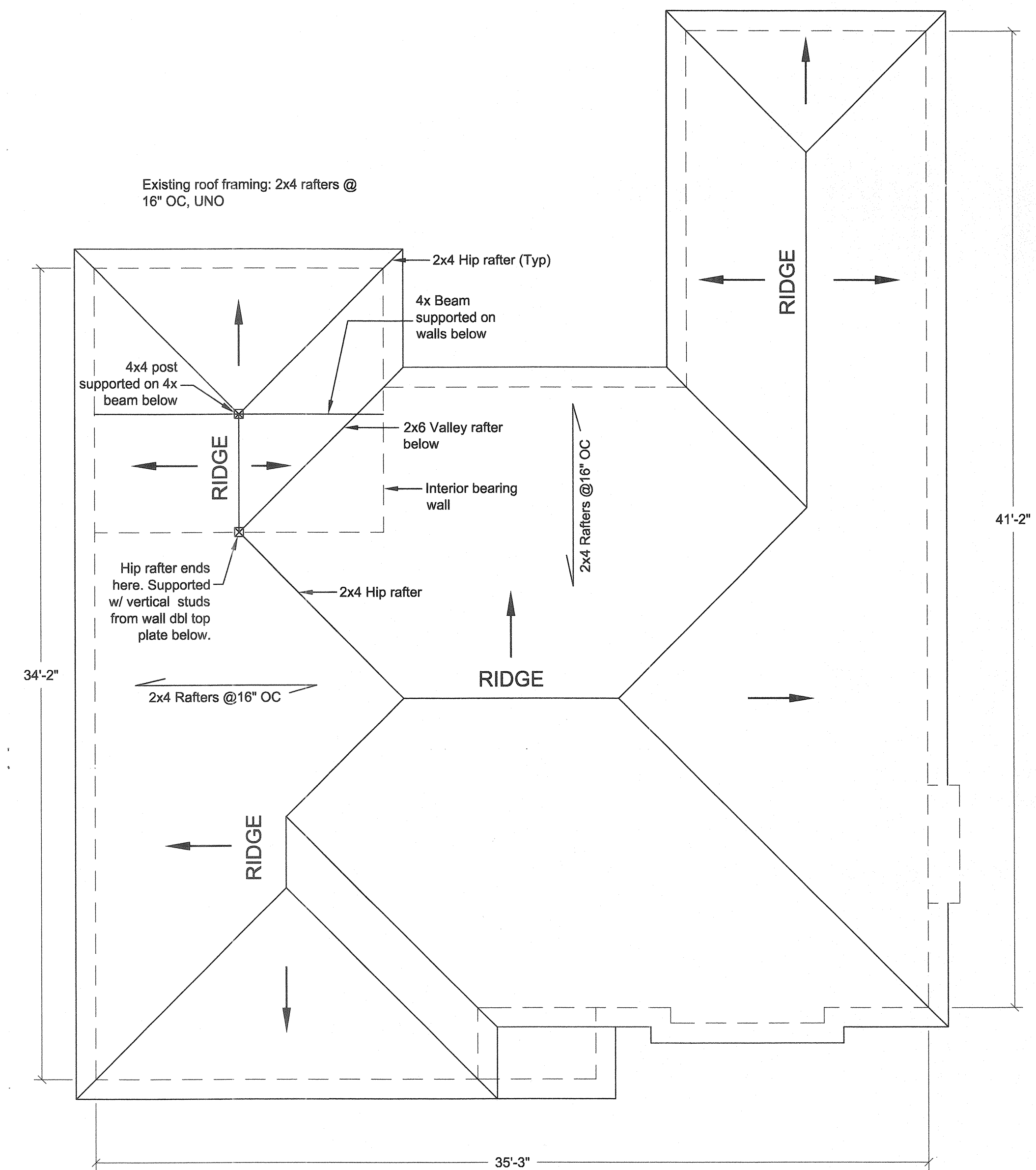
Match existing comp roof
over 1/2" CDX plywood (span rating 32/16)
Min. Class 'C'
Use radiant barrier.

Roof Diaphragm Nailing:
10d @ 6" OC at boundaries &
edges and @ 12" OC in field.



PROPOSED ROOF PLAN

Scale: 1/4" = 1'-0"



EXISTING ROOF PLAN

Scale: 1/4" = 1'-0"

REVISIONS	BY
1	
2	
3	
4	

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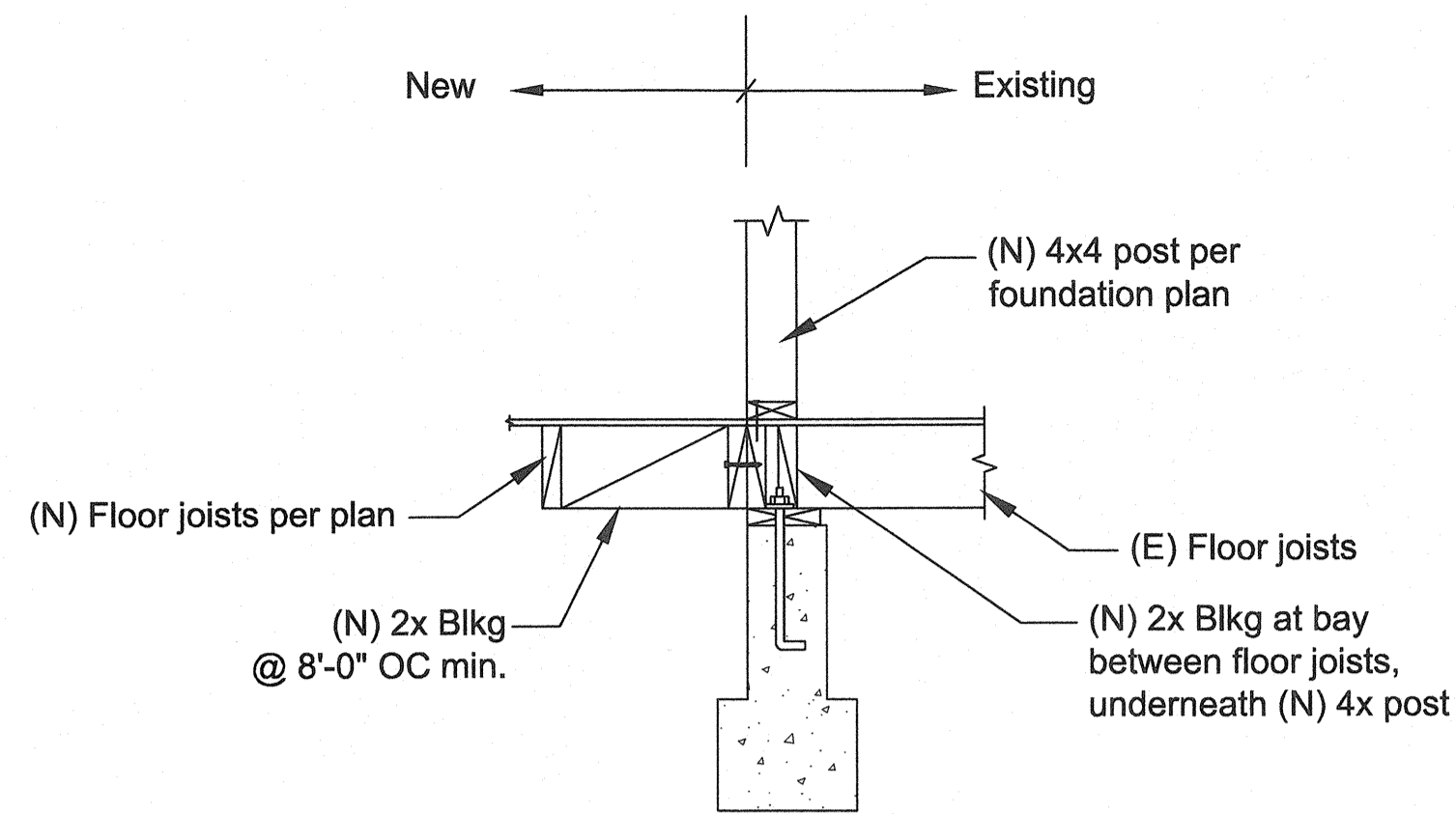
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Santa Ana, CA 92703
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ROOF PLAN
WITH FRAMING

DRAWN D.S.
CHECKED D.F.
DATE FEBRUARY 28, 2012
SCALE AS NOTED

SHEET 5 OF 8

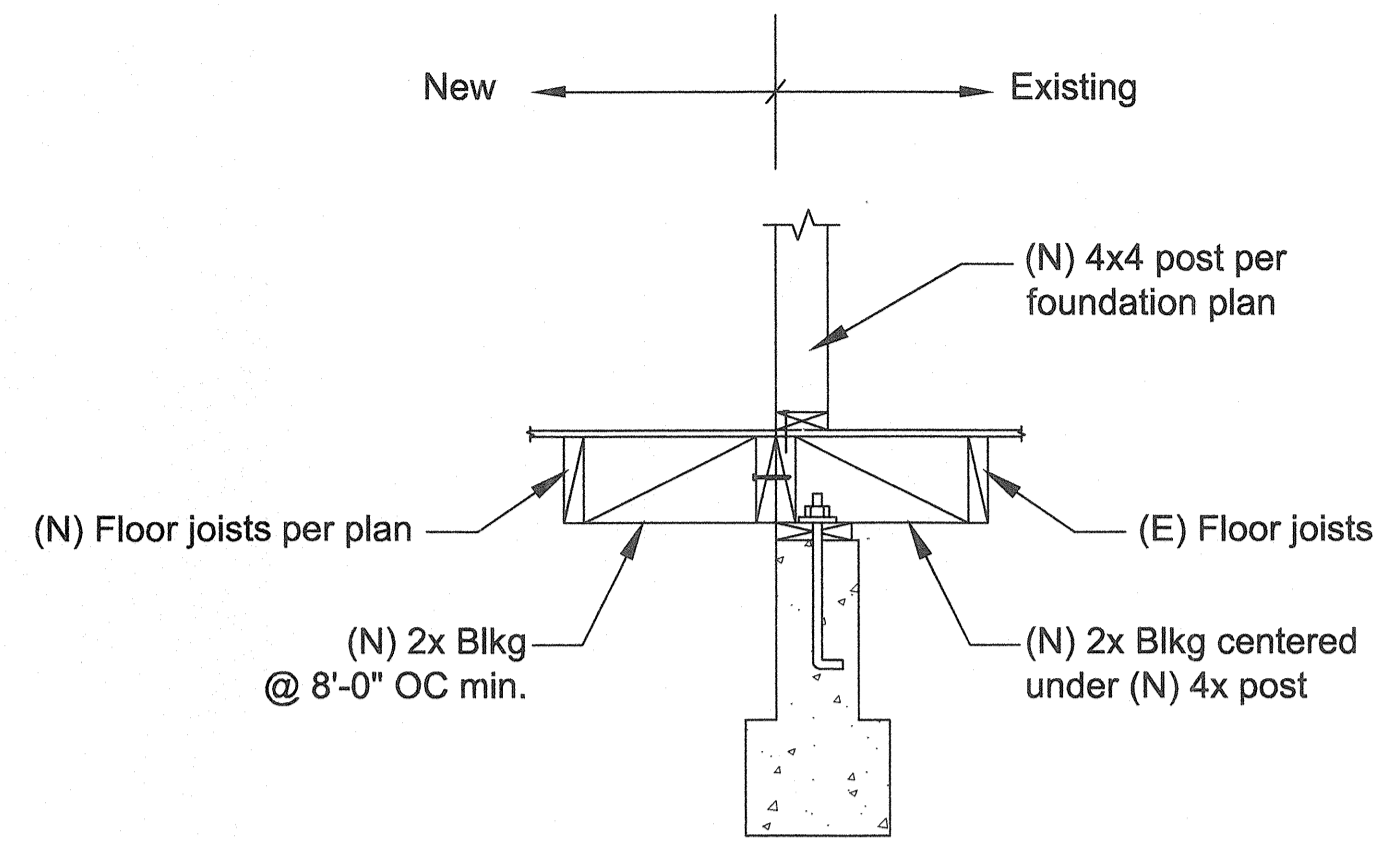
A-5



PERPENDICULAR CONDITION

STRUCTURAL DETAIL S6

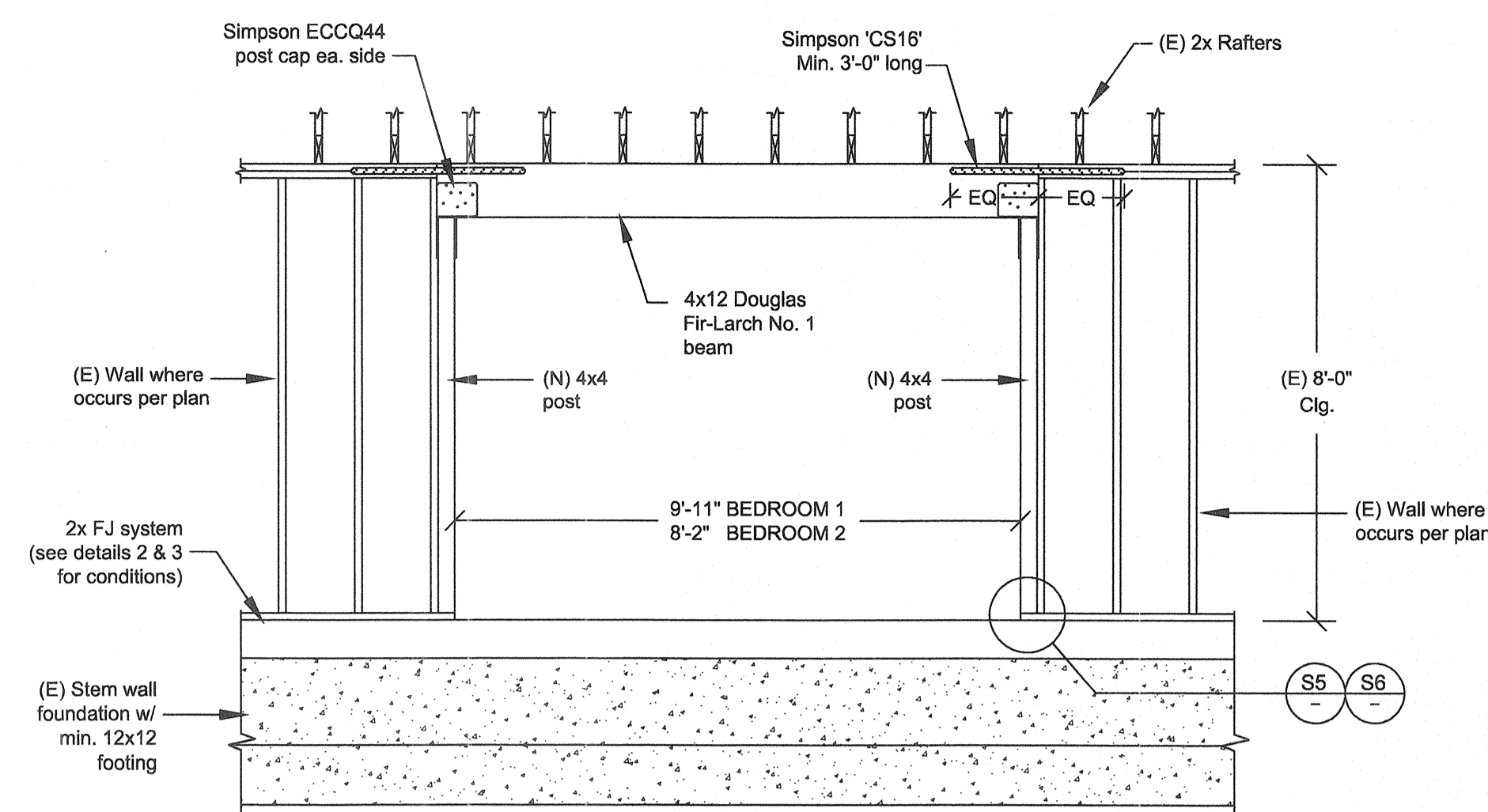
Scale: 3/4" = 1'-0"



PARALLEL CONDITION

STRUCTURAL DETAIL S5

Scale: 3/4" = 1'-0"



STRUCTURAL DETAIL S4

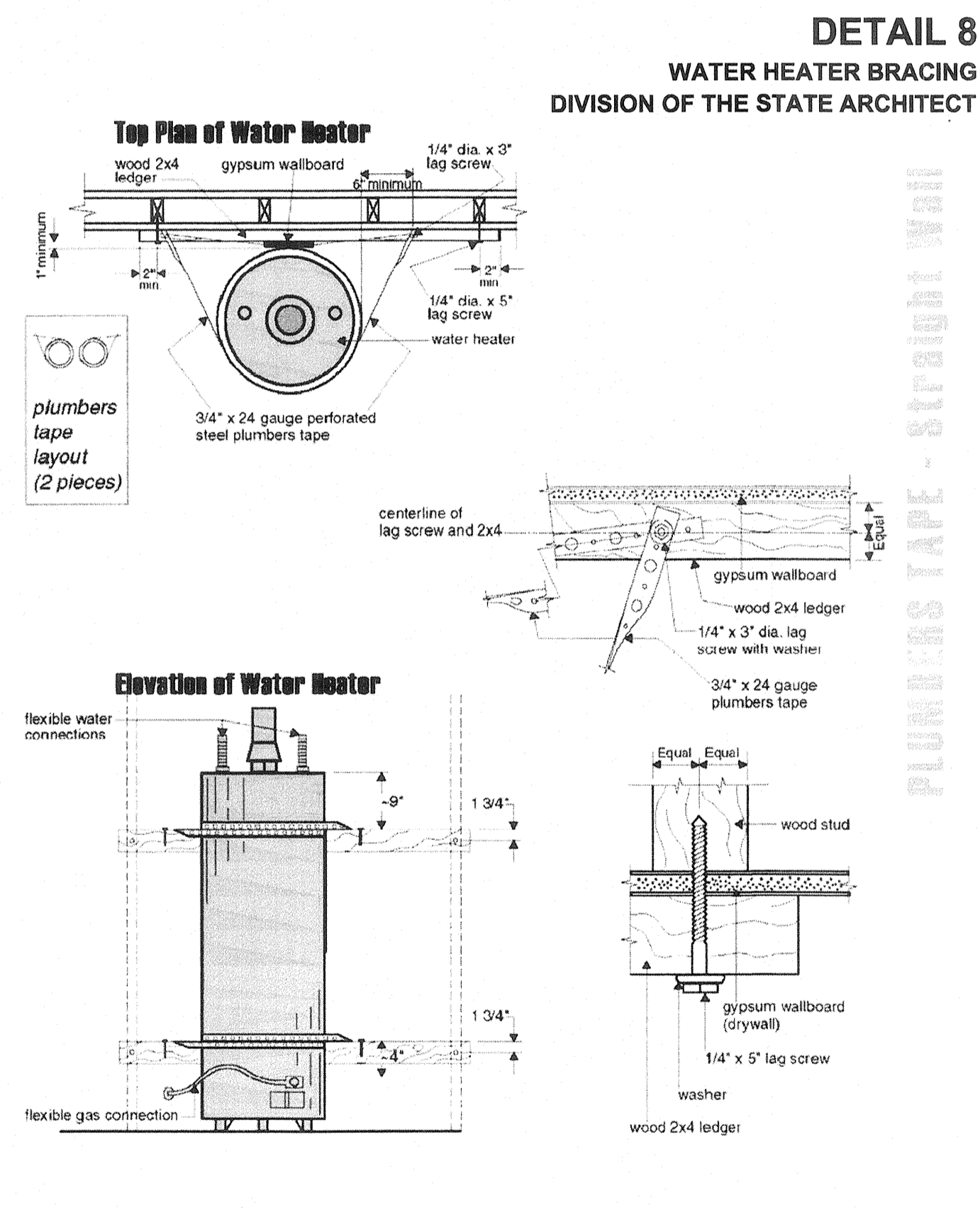
Scale: 3/8" = 1'-0"



ENGINEER'S STAMP FOR STRUCTURAL DETAILS S4, S5 & S6 THIS SHEET

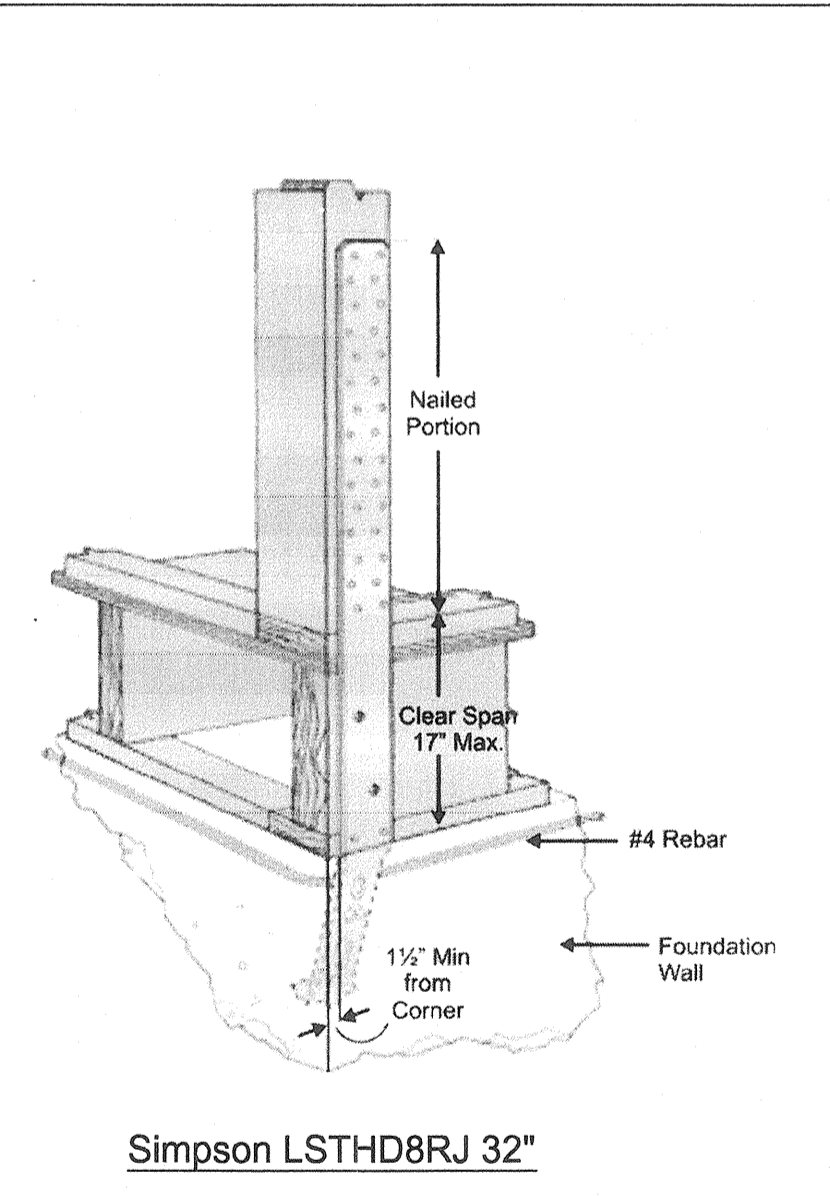
REVISIONS	BY
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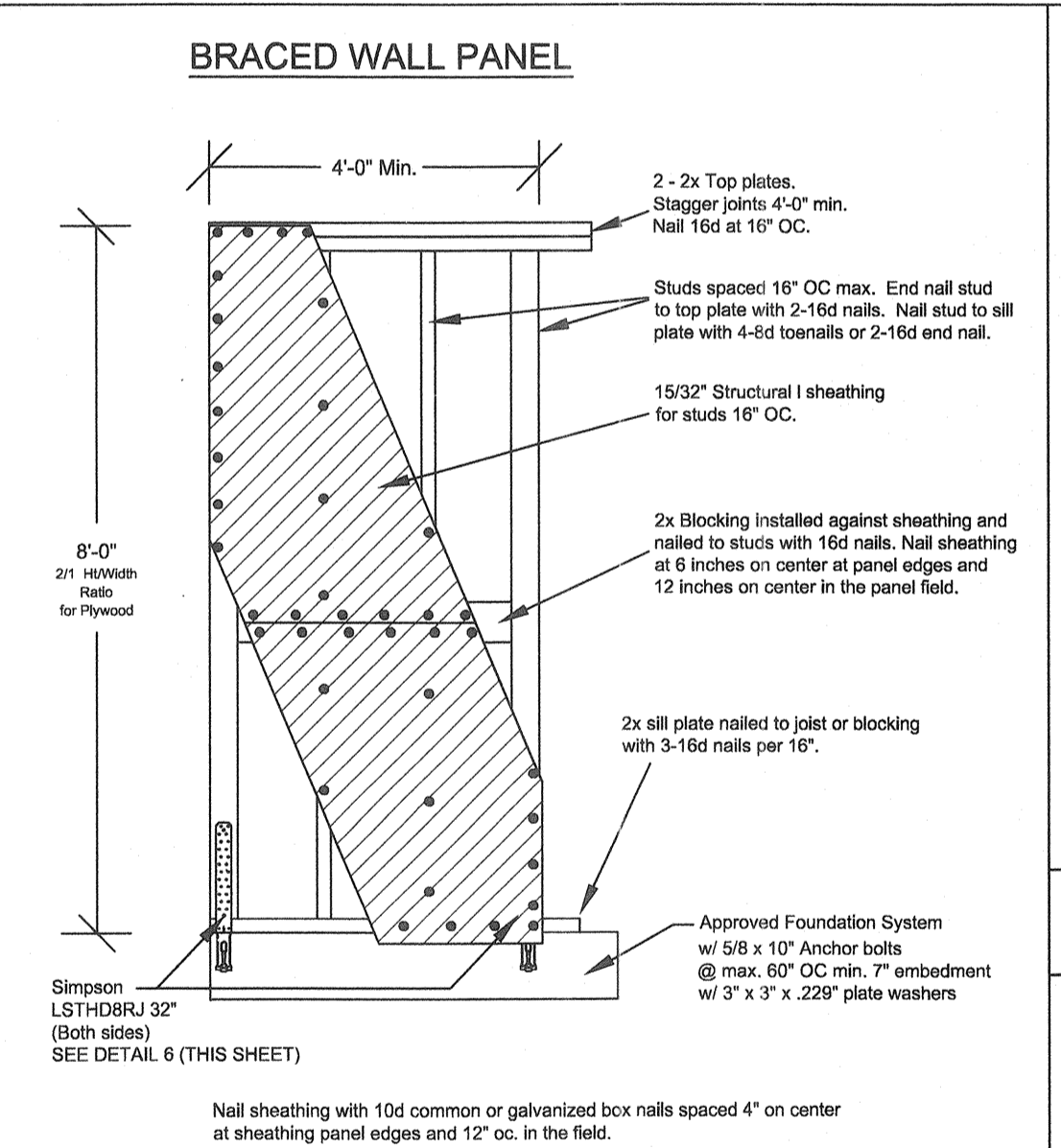


DETAIL 8
 WATER HEATER BRACING
 DIVISION OF THE STATE ARCHITECT

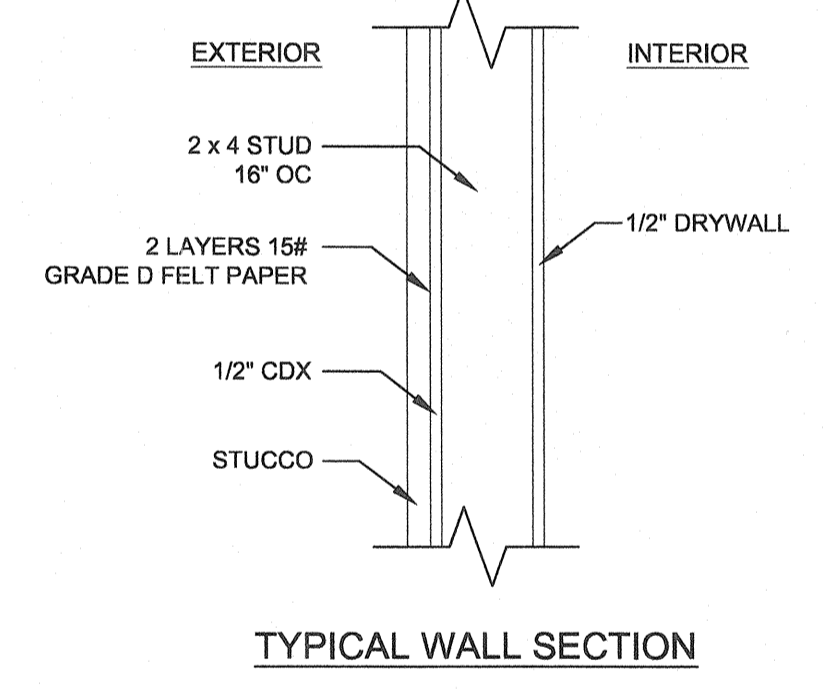
PLUMBERS TAPE - STRAIGHT WALL



Simpson LSTHD8RJ 32"



BRACED WALL PANEL

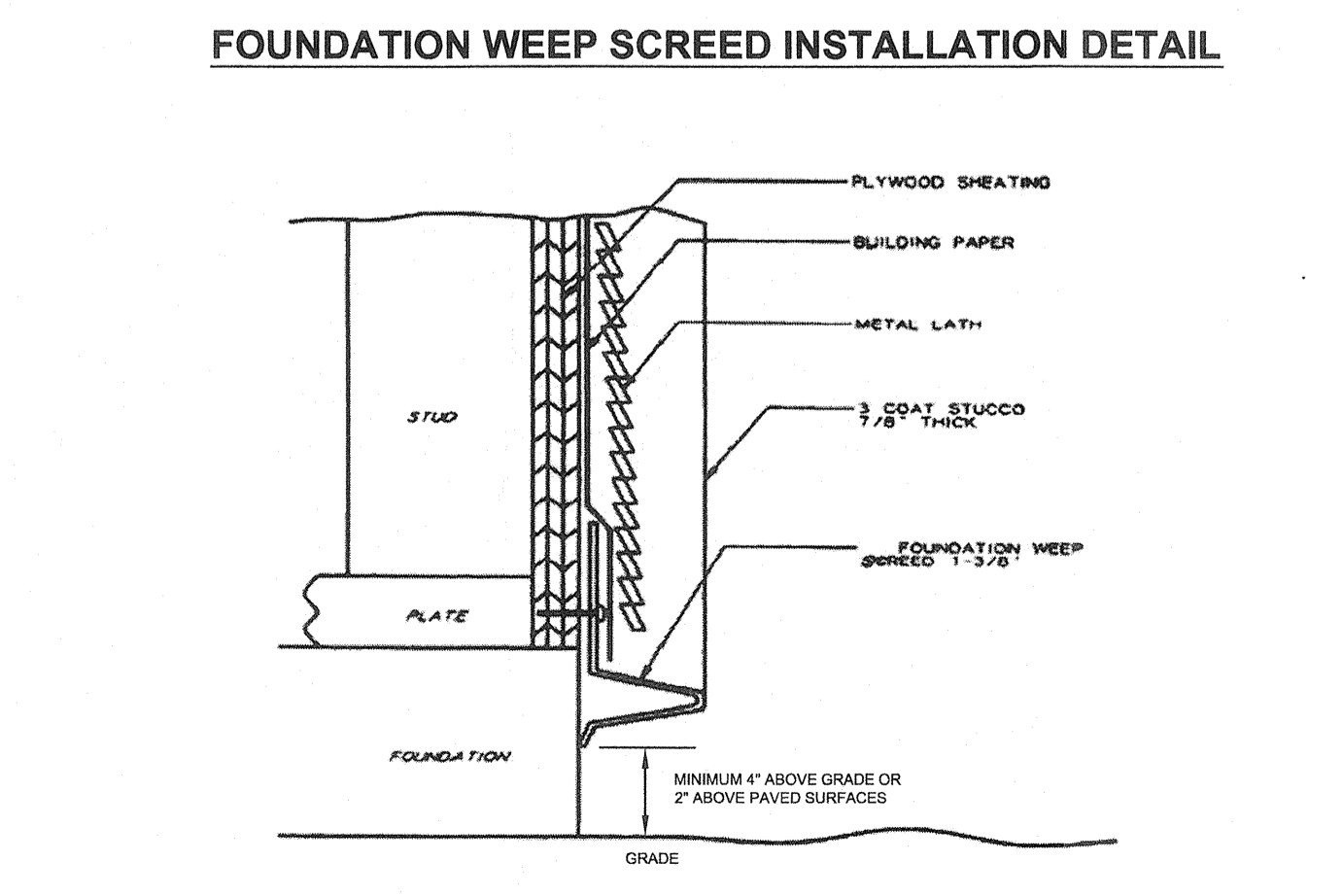


TYPICAL WALL SECTION

DETAIL 2

N.T.S.

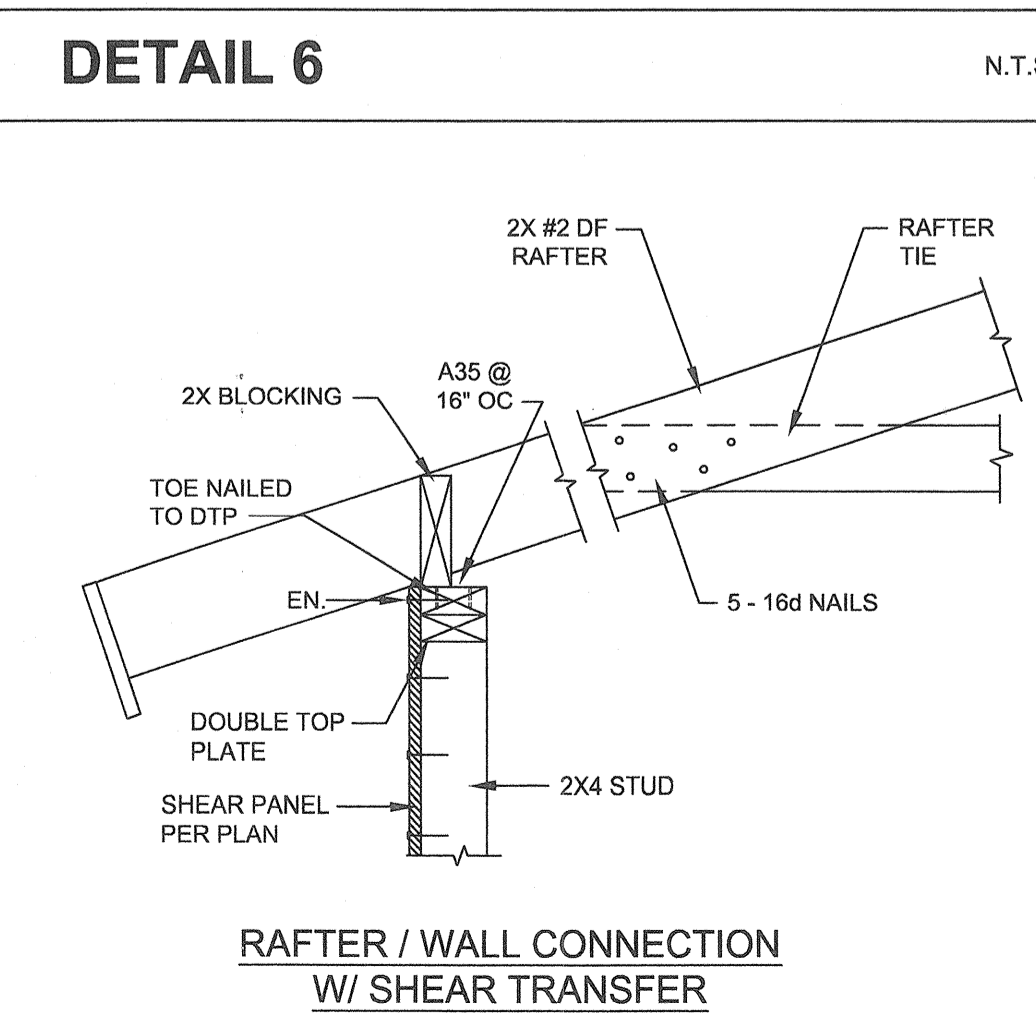
DETAIL 8



FOUNDATION WEEP SCREED INSTALLATION DETAIL

DETAIL 7

N.T.S.



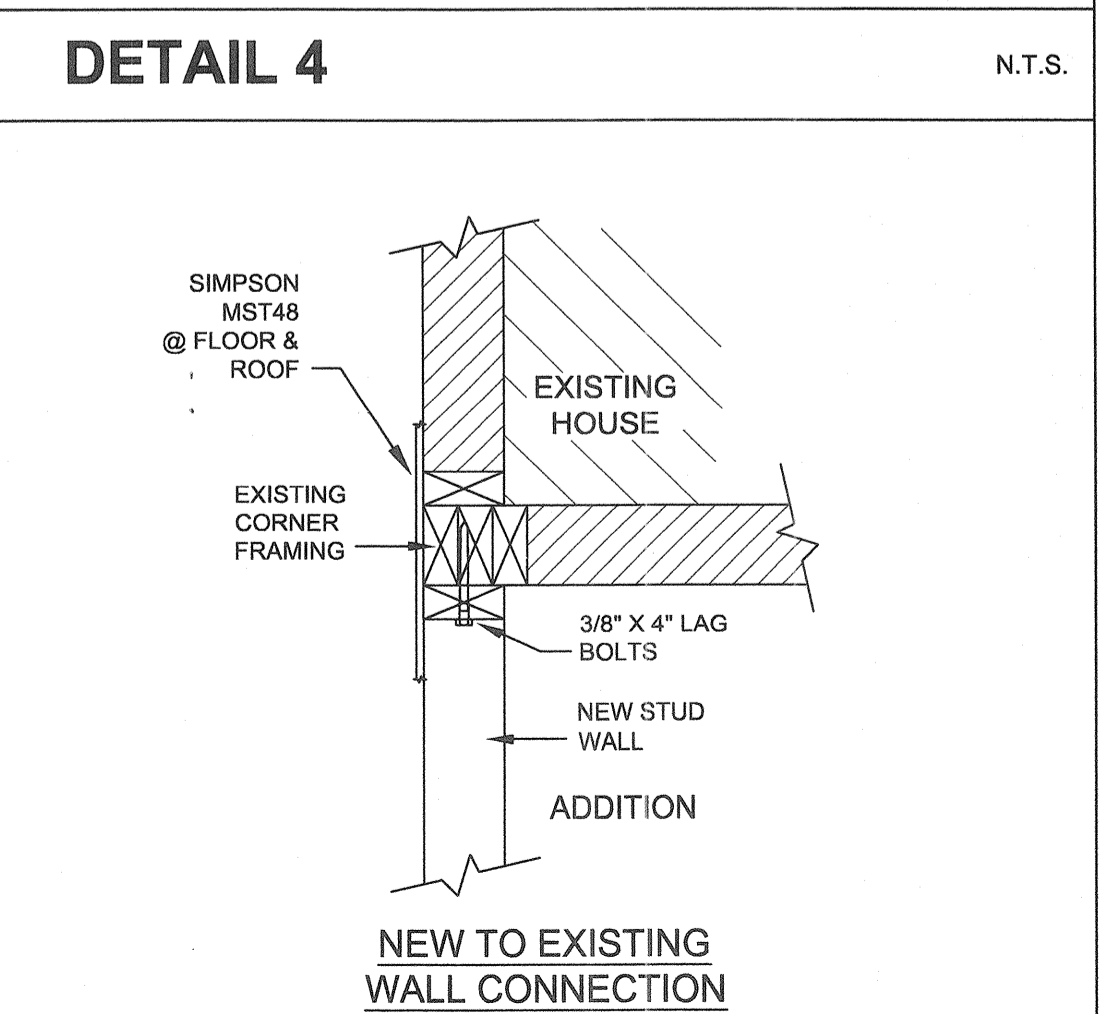
DETAIL 6

N.T.S.

RAFTER / WALL CONNECTION W/ SHEAR TRANSFER

DETAIL 5

N.T.S.



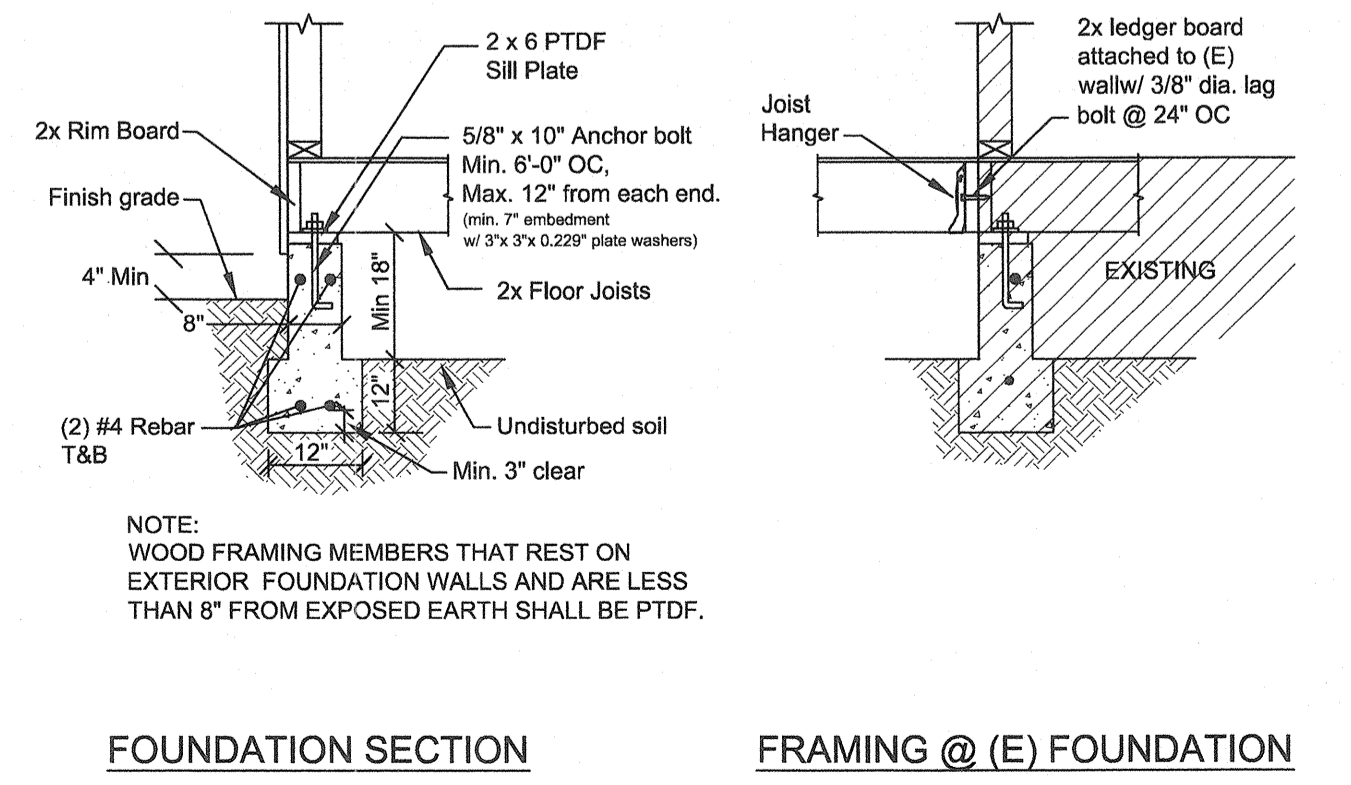
DETAIL 4

N.T.S.

NEW TO EXISTING WALL CONNECTION

DETAIL 3

N.T.S.



FOUNDATION SECTION

FRAMING @ (E) FOUNDATION

DETAIL 1

N.T.S.

ADDITION:
 Owner: Doris Frausto
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 Santa Ana, CA 92703
 (714) 514-5650

STRUCTURAL & FRAMING DETAILS

DRAWN: D.S.
 CHECKED: D.F.
 DATE: FEBRUARY 28, 2012
 SCALE: AS NOTED

SHEET 6 OF 8

A-6

