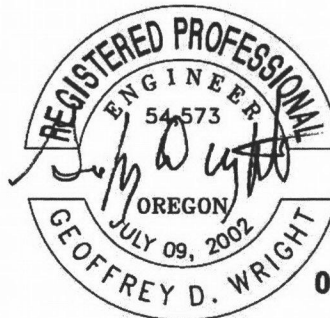


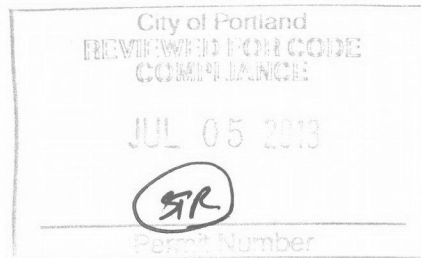
STRUCTURAL CALCULATIONS DORMER FRAMING CALCS

1925 SE REX ST
PORTLAND, OR



06-24-2013

EXPIRES: 06/30/2014



13-104235-REV-D.R.S

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PROJECT: 1925 SE REX ST

PROJECT #: 190-002

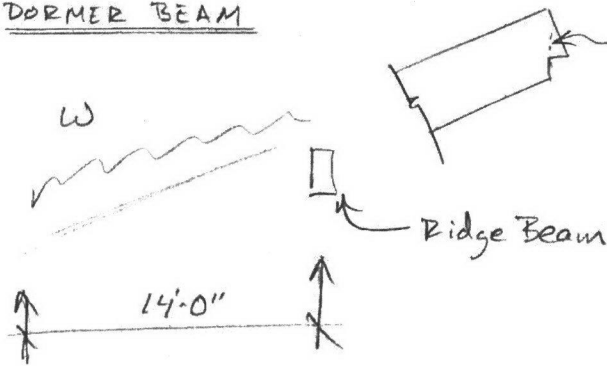
JOB ADDRESS: PORTLAND, OR

CLIENT: DILUSSO HOMES

DATE: 06/24/13

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DORMER BEAM



Reduced shear Area @ Ends

$$W = 40 \text{ psf} (12\frac{1}{2}) = 240 \text{ plf}$$

$$M = 5880 \text{ ft-lb}$$

$$V = 1680 \text{ lb}$$

Try $3\frac{1}{2} \times 9$ GLB

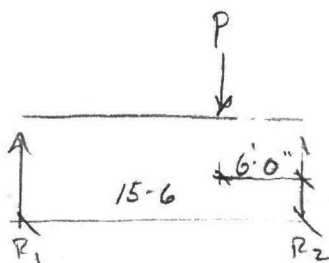
$$f_b = 1493 \text{ psi} \checkmark$$

$$f_v = 142 \text{ psi} \checkmark$$

$$\Delta = 0.610" = 1/276 \checkmark$$

* Reduced shear Area = $3\frac{3}{8} \times 3\frac{1}{2} = 11.81 \text{ in}^2$

L4 RIDGE BEAM



$$P = 1680 \text{ lb} \times 2 = 3360 \text{ lb}$$

$$M = 12,356 \text{ ft-lb}$$

$$V = 2059 \text{ lb}$$

$$R_1 = 1300 \text{ lb}$$

$$R_2 = 2059 \text{ lb}$$

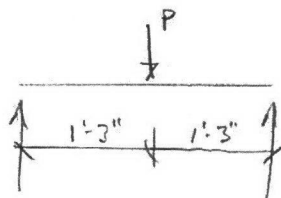
Try $5\frac{1}{8} \times 9$ GLB

$$f_b = 2143 \text{ psi} \checkmark$$

$$f_v = 95 \text{ psi} \checkmark$$

$$\Delta = 0.75" = 1/248 \checkmark$$

WINDOW BEAM



$$P = \text{Ridge Beam } R_1 = 1300 \text{ lb}$$

$$M = 813 \text{ ft-lb}$$

$$V = 650 \text{ lb}$$

Try 4x6 DF

$$f_b = 553 \text{ psi} \checkmark$$

$$f_v = 34 \text{ psi} \checkmark$$

$$\Delta = 0.007" = 1/4280 \checkmark$$

? 4x6 BEAM

$$L = 7'-0"$$

$$W = 40 \text{ psf} (2) = 80 \text{ plf}$$

$$M = 490 \text{ ft-lb} \quad f_b = 778 \text{ psi} \checkmark$$

$$V = 280 \text{ lb} \quad f_v = 34 \text{ psi} \checkmark$$

$$\Delta = 0.130" = 1/647 \checkmark$$

4x8 BEAM

$$L = 8'-0"$$

$$W = 40 (5-6) = 220$$

$$M = 1760 \text{ ft-lb} \quad f_b = 689 \text{ psi} \checkmark$$

$$V = 880 \text{ lb} \quad f_v = 35 \text{ psi} \checkmark$$

$$\Delta = 0.114" = 1/842 \checkmark$$

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PROJECT:

PROJECT #:

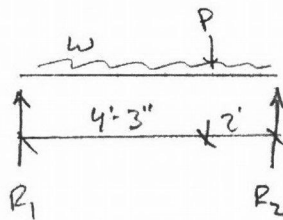
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BASEMENT BEAM



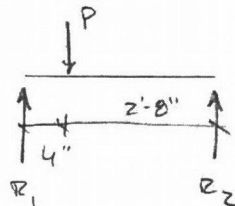
$$\begin{aligned}
 P &= \text{Ridge Beam } R_2 \times 2 \\
 &= 2059 \times 2 \\
 &= 4118 \# \\
 W &= 55(14/2) = 73 \text{ plf} \\
 M &= 5600 \# \cdot \text{ft} \\
 V &= 2800 \#
 \end{aligned}$$

$$\begin{aligned}
 &\text{Try } 3\frac{1}{2}'' \times 7\frac{1}{2}'' \text{ GLB} \\
 f_b &= 2048 \text{ psi} \checkmark \\
 f_v &= 107 \text{ psi} \checkmark \\
 \Delta &= 0.136'' = 1/551 \checkmark \\
 R_1 &= 1318 \# \quad R_2 = 2800 \#
 \end{aligned}$$

FTL @ R₂ Reg'd

$$\begin{aligned}
 \text{Bearing} &= 2800 / (1-6)^2 = 1244 \text{ psf} \\
 &\rightarrow \text{Use } 1'-6'' \text{ SQ FTL}
 \end{aligned}$$

DOOR HDR



$$\begin{aligned}
 P &= \text{Basement Beam } R_1 \\
 &= 1318 \# \\
 M &= 387 \# \cdot \text{ft} \\
 V &= 1173 \# \\
 R_1 &= 1173 \# \quad R_2 = 144 \#
 \end{aligned}$$

Try 4 x 6 DF

$$\begin{aligned}
 f_b &= 263 \text{ psi} \checkmark \\
 f_v &= 61 \text{ psi} \checkmark \\
 \Delta &= 0.002'' = 1/18000 \checkmark
 \end{aligned}$$

→ OVER 12" SQ SLAB AREA, SLAB IS SUFFICIENT FOR REACTIONS BY INSPECTION

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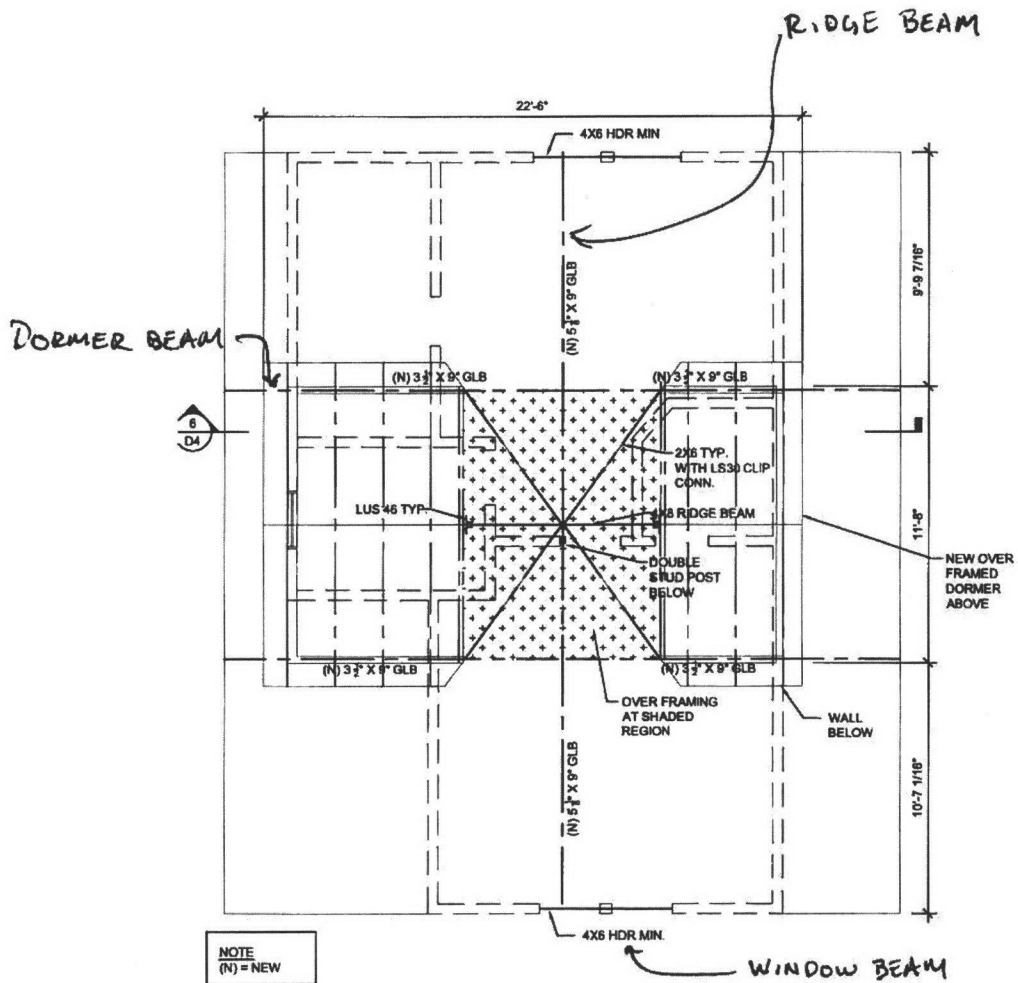
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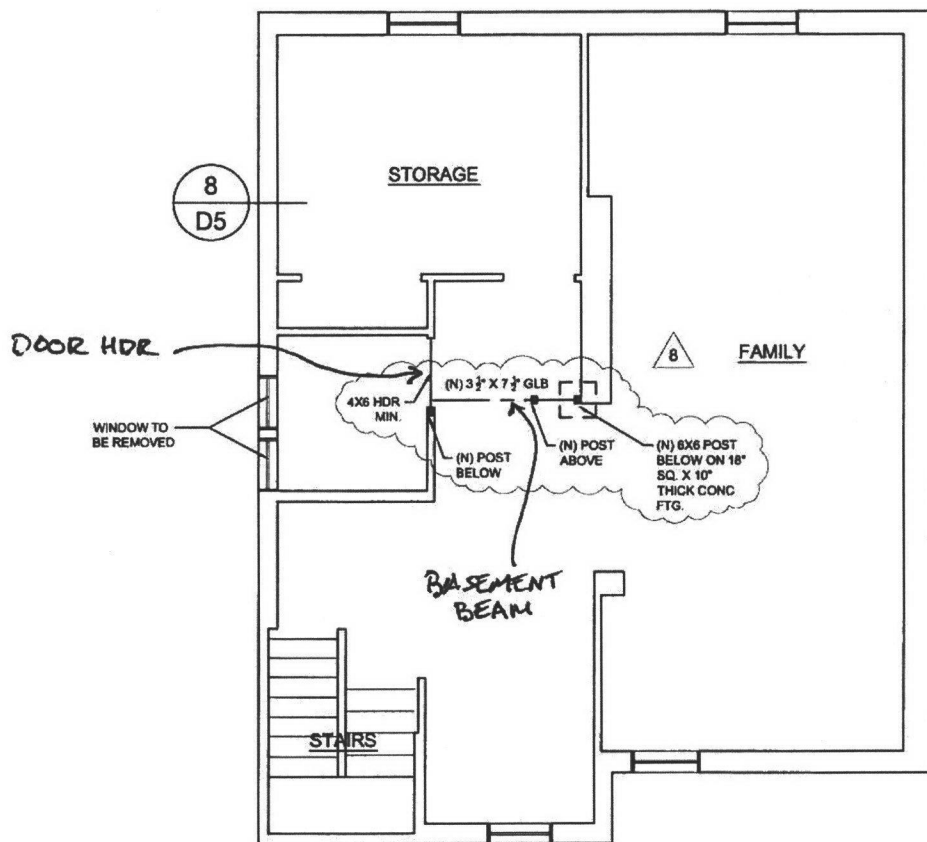
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9

4
D2.2
EXISTING HOUSE - ROOF PLAN
1/4" = 1'-0"



1
D2.2 EXISTING HOUSE - BASEMENT FLOOR PLAN
1/4" = 1'-0"