PCS Structural Solutions

Seattle 1011 Western Avenue, Suite 810 | Seattle, WA 98104 | 206.292.5076
Tacoma 1250 Pacific Avenue, Suite 701 | Tacoma, WA 98402 | 253.383.2797
Portland 101 SW Main Street, Suite 280 | Portland, OR 97204 | 503.232.3746
www.pcs-structural.com

STRUCTURAL CALCULATIONS

FOR

LORD MANSION
STRUCTURAL REPAIRS
211 21ST AVENUE SW
OLYMPIA, WASHINGTON

PREPARED BY
PCS STRUCTURAL *SOLUTIONS*

JULY 16, 2018
18-577

PCS Structural Solutions

Project: LORD MANSION - TESC Job No: 18-577
Subject: CALCS Sheet 1 of Name: (P)
Originating Office: [X] Seattle [ ] Tacoma Date: 7/11/18

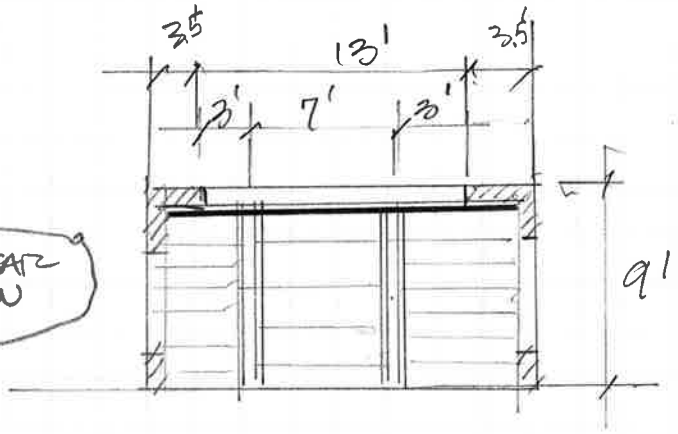
SIZE SUPPORT CHANNEL @ NORTH WALL

$P_1 = 45(4.5)(6.8') = 1377\#$

$W = 5\left(\frac{8}{12}\right)(135) = 450 + 50 = .5$ CLIPS

$V_{MAX} = 5.65$ (4.6K FOR 13' CLEAR SPAN)

$M = 22 + 3.1 = 25.1$ K-1

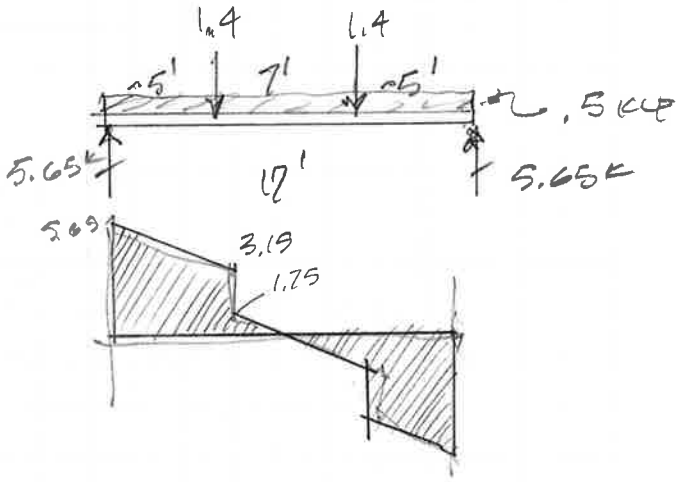


$w_{eq} = .57$ K/1 $\quad l/600 = .35"$

$I_{req} = \frac{5(.57)(204)^4}{12(38A)(29000)(.35")} = 105 in^4$

MC9x25.4

(assume partial fixity @ ENDS FOR Deflection)



$f_b = 15 ksi$ OK

ANCHORAGE

4.6K/(5) 3/4" Ø ANCHORS = 980#/ANCHOR OK

SUPPORT BEAM (6x10) REPLACEMENT

$t_{rib} = 45(6.8') = 300$ plf

Spm = 9'

V = 1350 #

M = 3038 #-1

13/4" x 12" $A_x = 21 in^2$ $S_x = 42 in^3$

x2

$f_v = 42 psi$

$f_b = 380 psi$ OK

PCS Structural Solutions

Project: LORD MANSION - TEEL Job No: 18-577

Subject: CALCS. Sheet 2 of ____ Name: (D)

Originating Office: [X] Seattle [ ] Tacoma Date: 7/11/18

TOP OF PARAPET SUPPORT

ASSUME $.5(135)\left(\frac{5'}{2}\right) = w = 170 plf$

$M = .17(20')^2/8 = 8.5^{k-1}(12)/7.52in^3 =$

$f_b = 13.6 ksi$ (OK)

$\Delta = \frac{.17(5')(240)^4}{12(384)(29000)(30.1)} = .7"$ $\ell/340$ close. (OK)