

TOFF, DE NEVERS & LEE

JOB NO. 5938
NO. 1
BY RA
DATE 6/23/07

STRUCTURAL CALCULATIONS

FOR CONNECTION OF FUEL ESPRESSO AND

DRIP BAR SIGN TO

ESQUIRE PLAZA CANOPY

SACRAMENTO, CA.



DESIGN SIGN CONNECTION- DESIGN LOADS

- SIGN WEIGHT = 40#

- DETERMINE WIND LOAD PER 1994 UBC

BASIC WIND SPEED = 80 MPH

IMPORTANCE

HT. < 15 FT. EXP. E

SIGN

$q = C_e C_q q_s I$

$q_s = 16.4 \text{ PSF}$

$I = 1.0$

$C_e = 0.62$

$C_q = 1.4$

$q = (0.62)(1.4)(16.4 \text{ PSF})(1.0) = 14.2 \text{ PSF}$

USE WIND LOAD = 20 PSF

- WIND GOVERNS OVER SEISMIC LOADING BY INSPECTION

- MATERIALS

USE 6063-T5 ALUMINUM

$E = 10,100 \text{ KSI}$ $F_y = 16 \text{ KSI}$

- CONNECTION DESIGN

SIGN IS 50.5' x 50.5' (17.7 FT²)

$P_{\text{WIND}} = (20 \text{ PSF})(17.7 \text{ FT}^2) = 354 \text{#}$

$F_v = 40 \text{#} / 2 = 20 \text{#}$

$F_h = 354 \text{#} / 4 = 88.5 \text{#}$

$M_z = 177 \text{K} \left(\frac{50.5}{4} + 12.25 \right) = 6.6 \text{ K-FT}$

USE 2" ϕ ALUM. PIPE (2.38" O.D.)

x SCH. 160

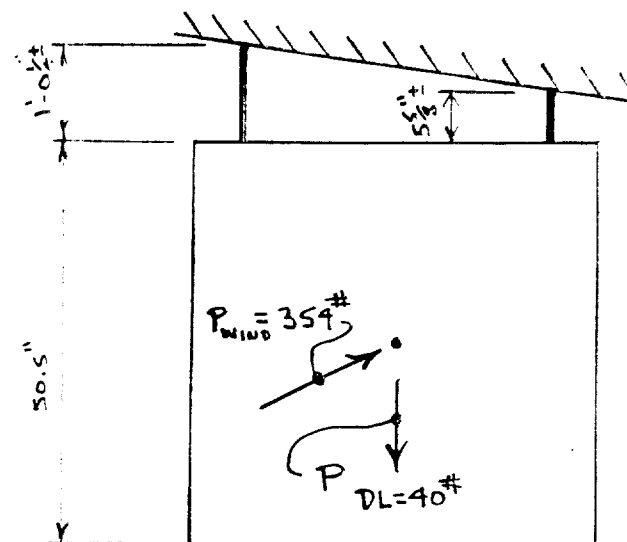
$A = 2.19 \text{ IN}^2$

$S = 0.95 \text{ IN}^3$

$F_c = M/S = 6.6 \text{ K-FT} / 0.95 \text{ IN}^3 = 6.7 \text{ KSI}$

$< F_y = 16 \text{ KSI} \quad (40 \text{#} = 10.7 \text{ KSI})$

O.K.



- FOR ALL-AROUND FULL PEN. WELD TO ALUM. # $\frac{7}{16} \times 2\frac{1}{2}$ "

$$A_w = 2.19 \text{ in}^2$$

$$S_w = 0.977 \text{ in}^3$$

$$f_w = \sqrt{(.090/2.19)^2 + (.177/2.19)^2 + (6.6/0.977)} = 6.7 \text{ Ksi}$$

$$F_w = (5K)(4/3) = 6.66 \text{ Ksi} \approx f_w = 6.7 \text{ Ksi } \underline{\text{o.k.}} *$$

- CHECK 4 - $\frac{1}{4}$ " ϕ S.S. NUTS.

$$f_T = \frac{.040}{4} + \frac{6.6}{4} = .010 + .825 = 0.835 \text{ K/screw}$$

$$f_V = .177/4 = 0.44 \text{ K/screw}$$

$$F_T = (1295/226)(1.272 \text{ in}^2)(4/3) = 1,009 \text{ #/screw} > f_T = 835 \text{ #/screw}$$

$$F_V = (64)(9) = 863 \text{ #/screw} >> f_V = 44 \text{ #/screw } \underline{\text{o.k.}}$$

- CHECK ALUM # $\frac{7}{16} \times 2\frac{1}{2}$ "

$$M = 2(.835 \text{ K})(2 - 1.19 \text{ in}) = 1.35 \text{ in-K}$$

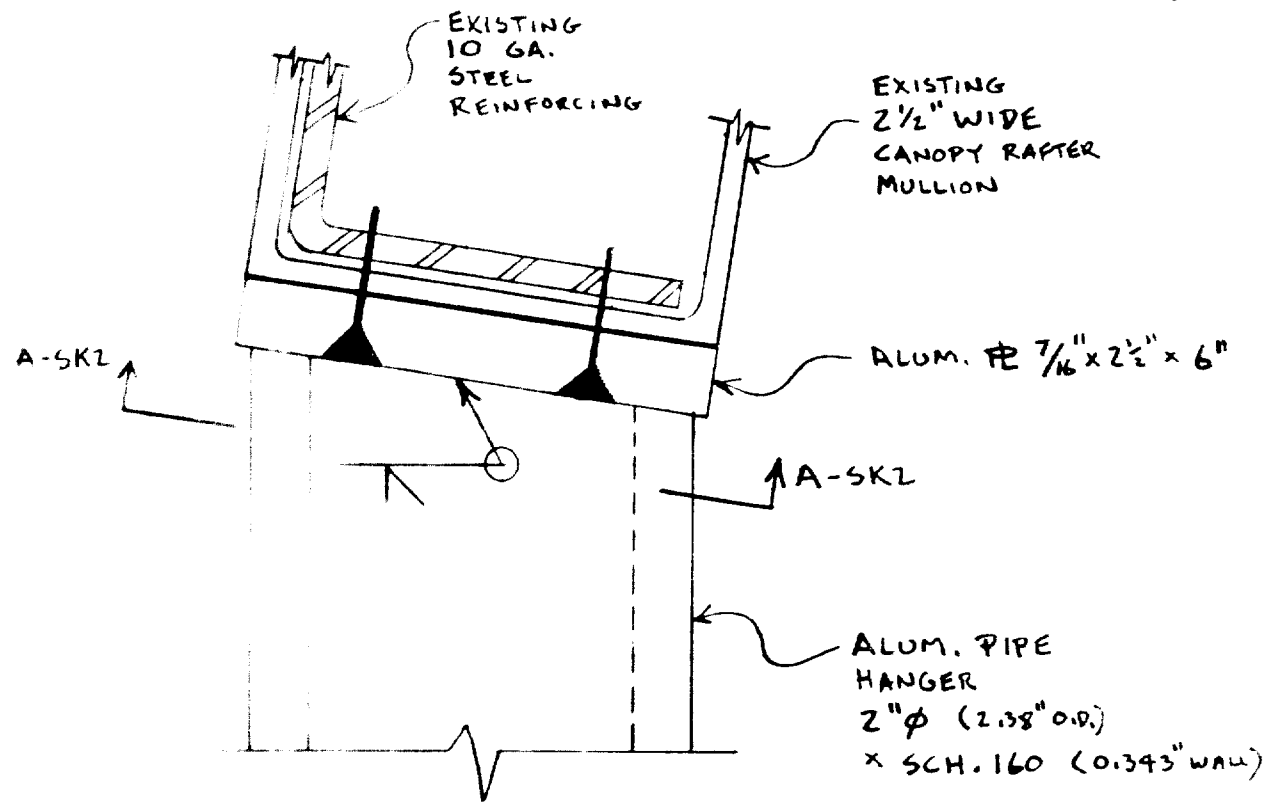
$$S = 2(.57435 \text{ in}^3)/2 = 0.080 \text{ in}^3$$

$$f_b = 1.35/0.080 = 16.9 \text{ Ksi} \approx F_b = 12.5(4/3) = 16.7 \text{ Ksi} *$$

* NOTE: SLIGHT OVERSTRESS O.K. DUE TO USE OF 20TSF WIND LOAD
INSTEAD OF 19.2 PSF COVE LOAD.

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CONSULTING STRUCTURAL ENGINEERS
111 MAIDEN LANE, SUITE 500
SAN FRANCISCO, CA 94108-5324

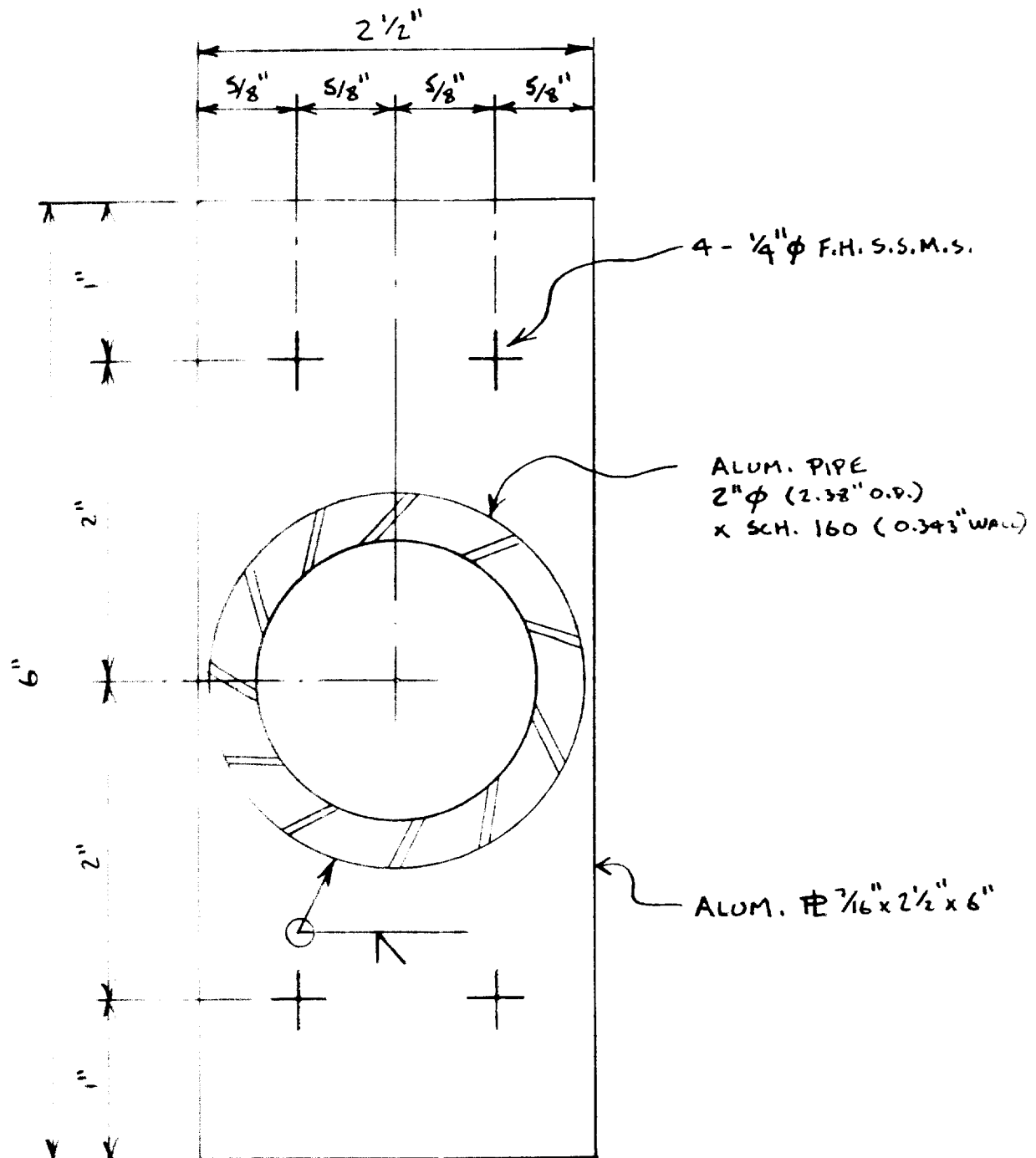
JOB NO. 5938 SH SK1
NO. 4 OF 5
BY: JIA DATE 6/23/00



A - SK1
1" = 1"

TOFT, DE NEVERS & LEE
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JOB NO. 5958 SH SK2
NO. 5 OF 5
BY SA DATE 6/23/00



A - SK2

1" = 1"

4517 Franklin Blvd.
Sacramento, CA 95820

916-452-8000
916-452-3331

This set of plans and specifications shall be the basis for the work of the contractor and it is understood that any changes or alterations to the drawings shall be made by the architect and approved by the City of Sacramento, California.

The contractor shall be responsible for obtaining all necessary permits and for compliance with all applicable laws and regulations.

Work shall be completed within the time frame specified in the contract documents.

DOUBLE SIDED NON ILLUMINATED HANGING SIGN

ALL DIMENSIONS ARE TO FIELD UNLESS OTHERWISE NOTED

EXISTING EXTERIOR ILLUMINATION LOCATED HERE

GLASS AND ALUMINUM AWNING

EXISTING EXTERIOR ILLUMINATION LOCATED HERE

GLASS AND ALUMINUM AWNING

SURFACE APPLIED STANDARD 3M VINYL COPY

COLOR: GLOSS WHITE

SURFACE APPLIED CUSTOM PAINTED 3M VINYL LOGO

SMOOTH PAINT WITH MATTHEWS ACRYLIC POLYURETHANE PAINT

COLOR: TO MATCH PMS 310

FINISH: SEMI GLOSS

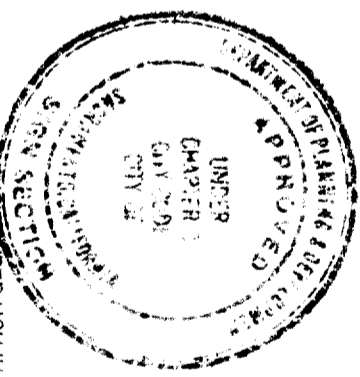
FIELD SURVEY EXISTING GLASS AND ALUMINUM AWNING ANGLES

FIELD SIGN FROM EXISTING AWNING AND ALUMINUM AWNING TO MATCH EXISTING DRAWINGS

MINIMUM CLEARANCE TO SIGN SHALL BE 10 FEET

FINISHED SIDEWAYS

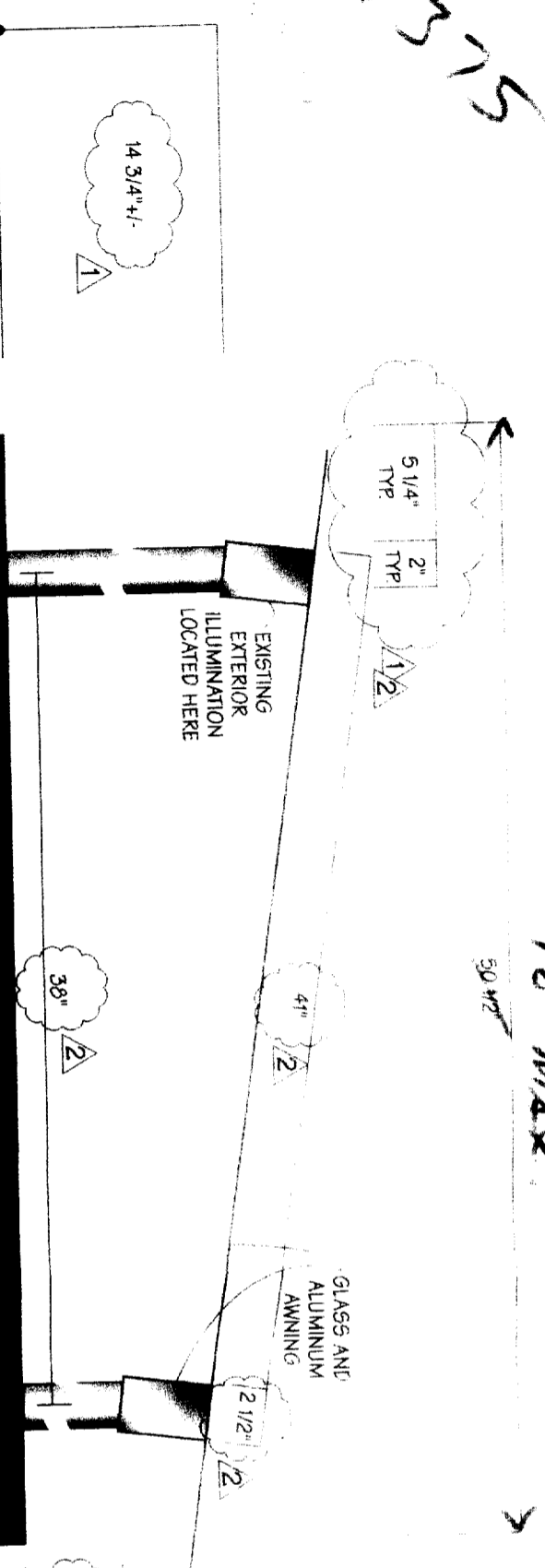
HARDWARE TO MATCH A BRIGHT ALUMINUM FINISH



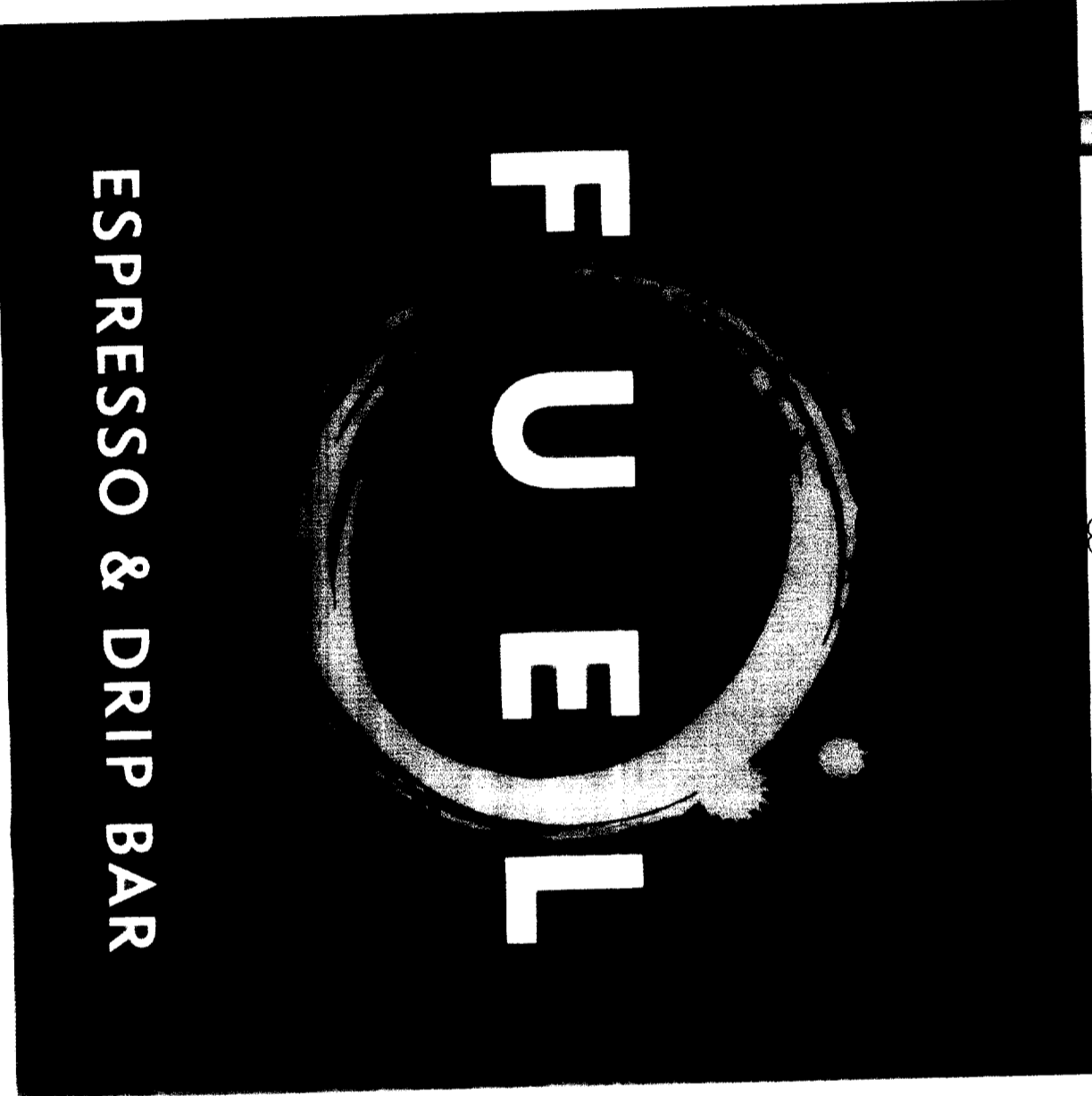
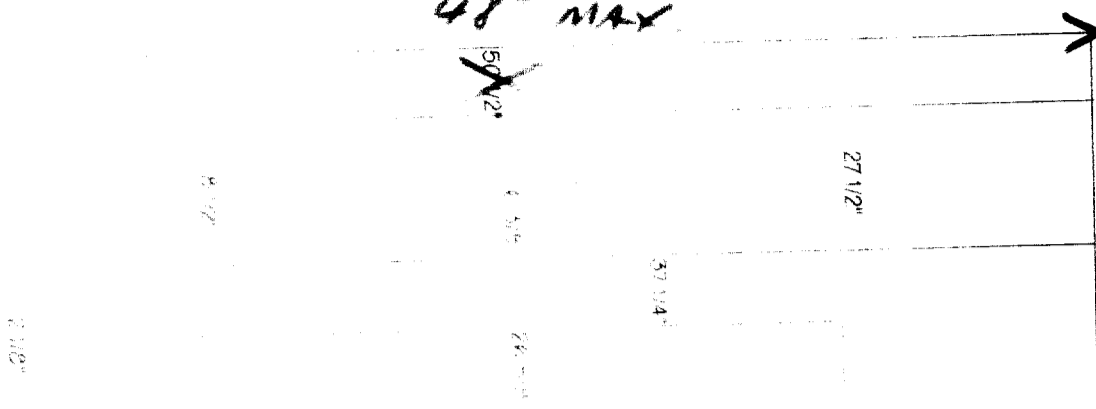
421315

48" MAX

50" MAX



48" MAX



ESPRESSO & DRIP BAR

FRONT ELEVATION

SCALE: 1/8" = 1"



PLAN VIEW

SCALE: 1/16" = 1"

MID-H

Working Title

John Long

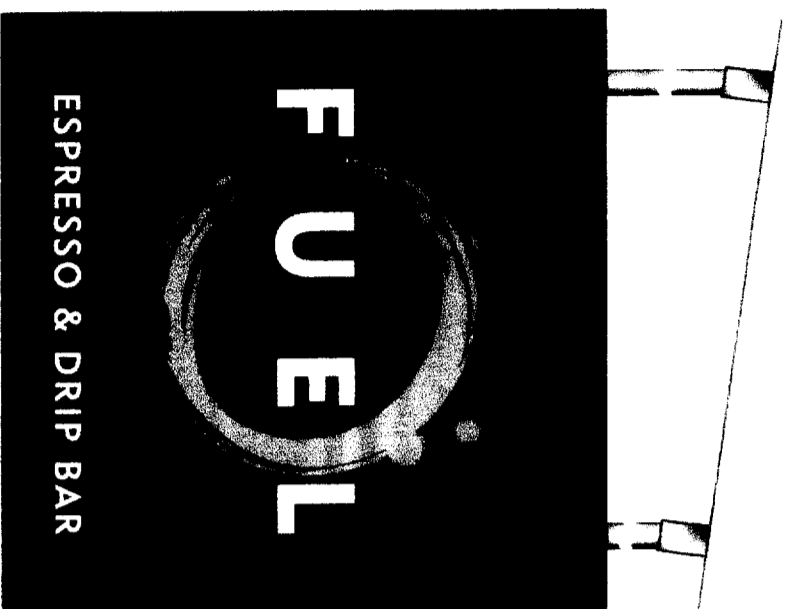
AS NOTED

DATE

1

8. Weidner Architectural/Signage, Inc. shall be responsible for obtaining all necessary permits and for compliance with all applicable laws and regulations. Weidner Architectural/Signage, Inc. shall be responsible for obtaining all necessary permits and for compliance with all applicable laws and regulations.

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916.452.8000
Fax 916.452.3331
License #559090



96" MIN

1000"



FRONT ELEVATION
SCALE: 1/16" = 1"

Drawing Title
MID-H

Scale

ADD NOTES
Date

2

8. Make architectural sign. (Start at the above drawing.) Sign, attach into a letter. (Signs shall be duplicated or used for any purpose whatsoever without the express written permission of the copyright holder.)

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Project

FUEL ESPRESSO
& DRIP BAR

Company

FUEL ESPRESSO
& DRIP BAR

Work Order

21124

Drawn By

HDM

Date

08-22-00

Revisions

Printing Title

MID-H

Scale

All Notes

1/1

3

4. All other architectural drawings, including all other drawings, shall be prepared in accordance with the standards and specifications of the International Building Code, 2003 Edition, unless otherwise specified.



VISUAL STUDY
SCALE: NTS