

737 SW SALMON STREET

REV-01 SGO7-170042

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STRUCTURAL CALCULATIONS

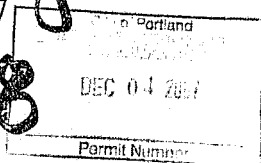
FOR

KATHLEEN'S OF DUBLIN

737 SW SALMON

PORTLAND, OREGON

-- FABRIC COVERED AWNINGS --



07.170042-REV. 01-96



29 November 2007

REVISED CONNECTIONS DUE TO AS-BUILT CONDITION.
REVISED DETAILS D, E, F, & G.
REVISED CALCULATIONS C2 & C3.
ADDED CALCULATION C4.

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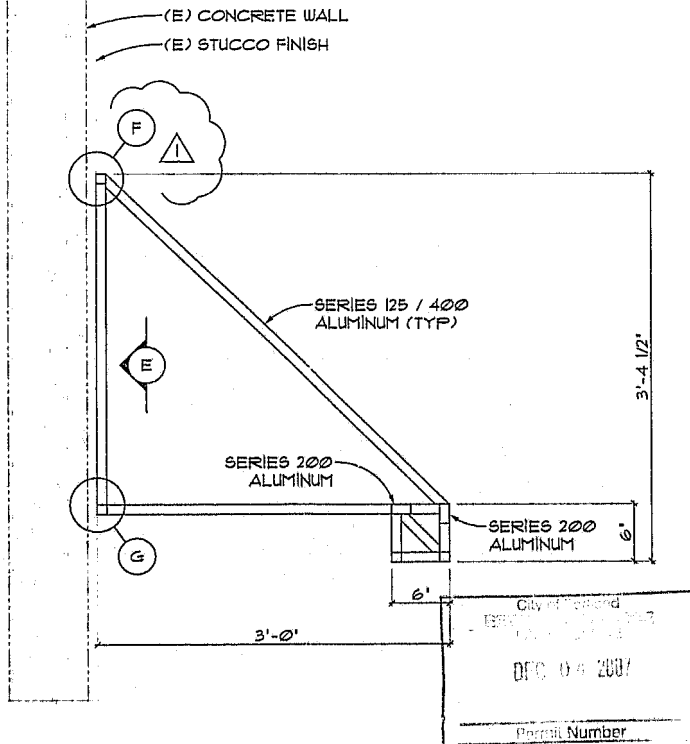
6775 SW 111th, Suite 200 - Beaverton, OR 97005

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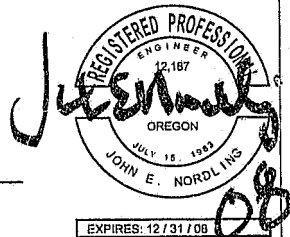
KATHLEEN'S OF DUBLIN
AWNINGS

WAAGMEESTER CANVAS PRODUCTS

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AWNING END FRAME



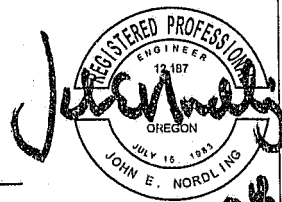
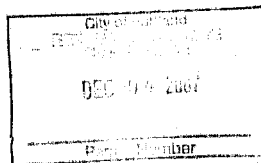
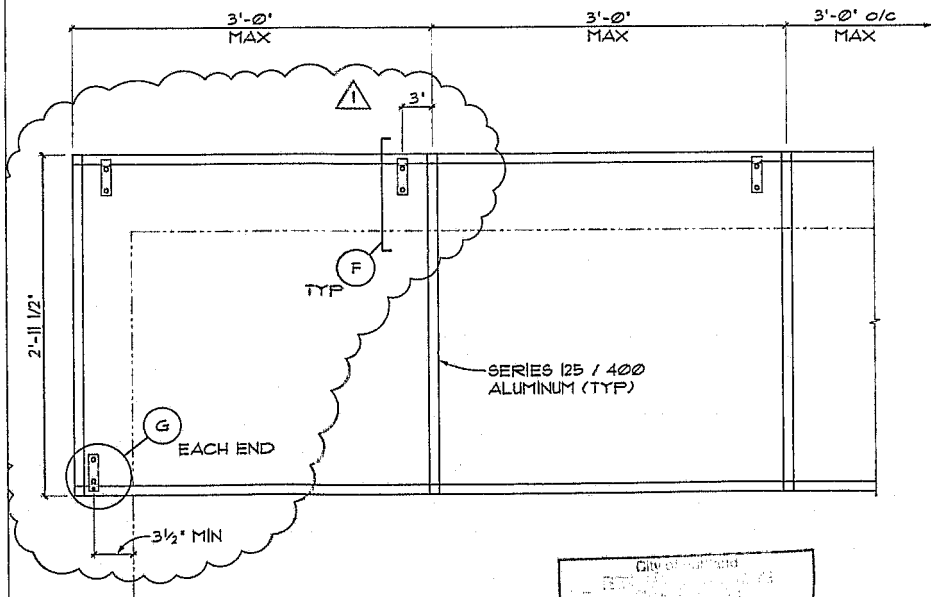
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AWNING ELEVATION

EXPIRES: 12/31/08



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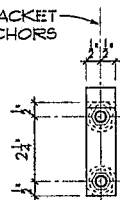
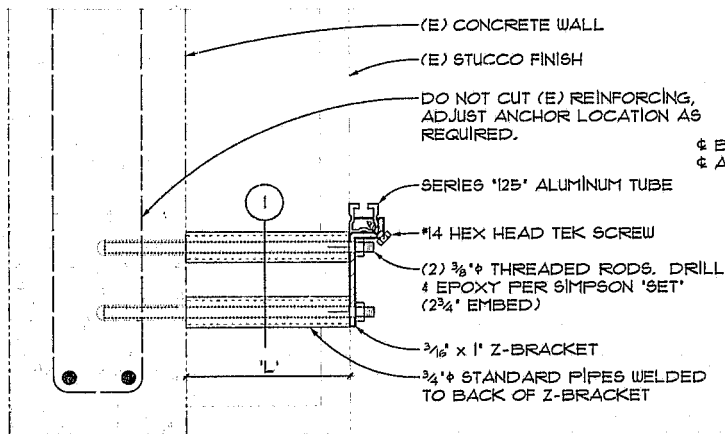
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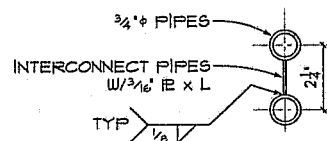
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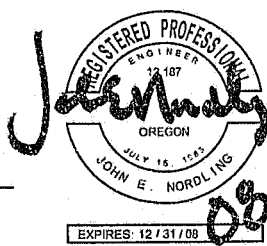


City of Portland

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DEC 11 2007

Permit Number



UPPER CONNECTIONS



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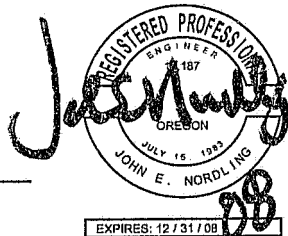
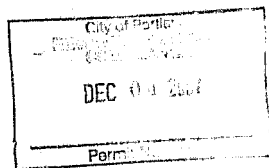
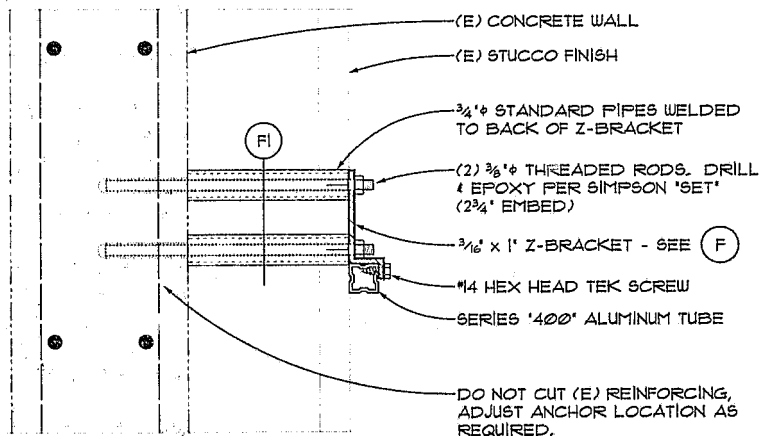
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BOTTOM END CONNECTION

EXPIRES: 12 / 31 / 08



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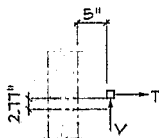
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AWNINGS
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CONNECTIONS

TYPICAL TOP

LC1 WIND T = 150 lbs
V = 60 lbs

LC4 SNOW T = 90 lbs
V = 275 lbs



$$\begin{aligned} \text{LC1 } T &= 150 \text{ lbs} \\ &+ 60 \text{ lbs} \cdot 5.5" / 2.77" \\ &= 269 \text{ lbs} \end{aligned}$$

$$\begin{aligned} \text{LC1 } T &= 90 \text{ lbs} \\ &+ 275 \text{ lbs} \cdot 5.5" / 2.77" \\ &= 636 \text{ lbs} \end{aligned}$$



3/8"Ø Threaded Rod (2 1/2" Embed, Per Simpson Set)

Number of Bolts	1
Stress Increase	1.00
Concrete Strength	3,000 psi
Spacing	99.00 in
Edge Distance	99.00 in

Basic Loads	concrete	bolt
Tension	1,369	2,105 lbs
Shear	1735	1,085 lbs

Allowable Loads		REDUCTIONS
Tension	1,369 lbs	100% 100%
Shear	1085 lbs	-- --

$$UNITY = \left[\frac{T}{n \cdot T_{ALL}} \right]^{\frac{1}{3}} + \left[\frac{V}{n \cdot V_{ALL}} \right]^{\frac{1}{3}}$$

LC1,2	Tension	269 lbs
	Shear	60 lbs / 2
Unity	0.25	< 1.00

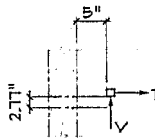
LC3	Tension	636 lbs
	Shear	275 lbs / 2
Unity	0.72	< 1.00

CONNECTIONS

TOP END FRAME

LC1 WIND T = 110 lbs
V = 130 lbs

LC4 SNOW T = 300 lbs
V = 330 lbs



$$\begin{aligned} \text{LC1 } T &= 110 \text{ lbs} \\ &+ 130 \text{ lbs} \cdot 5.5" / 2.77" \\ &= 368 \text{ lbs} \end{aligned}$$

$$\begin{aligned} \text{LC1 } T &= 300 \text{ lbs} \\ &+ 330 \text{ lbs} \cdot 5.5" / 2.77" \\ &= 955 \text{ lbs} \end{aligned}$$



3/8"Ø Threaded Rod (2 3/4" Embed, Per Simpson Set)

Number of Bolts	1
Stress Increase	1.00
Concrete Strength	3,000 psi
Spacing	99.00 in
Edge Distance	99.00 in

Basic Loads	concrete	bolt
Tension	1,666	2,105 lbs
Shear	1735	1,085 lbs

Allowable Loads		REDUCTIONS
Tension	1,666 lbs	100% 100%
Shear	1085 lbs	-- --

$$UNITY = \left[\frac{T}{n \cdot T_{ALL}} \right]^{\frac{1}{3}} + \left[\frac{V}{n \cdot V_{ALL}} \right]^{\frac{1}{3}}$$

LC1,2	Tension	368 lbs
	Shear	130 lbs / 2
Unity	0.34	< 1.00

LC3	Tension	955 lbs
	Shear	330 lbs / 2
Unity	0.88	< 1.00



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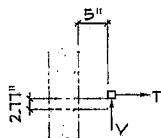
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CONNECTIONS

BOTTOM END FRAME

LC1 WIND T = 340 lbs
V = 25 lbs

LC4 SNOW T = 0 lbs
V = 16 lbs



$$\begin{aligned} \text{LC1 } T &= 340 \text{ lbs} \\ &+ 25 \text{ lbs} \times 5.5'' / 2.17'' \\ &= 368 \text{ lbs} \end{aligned}$$



3/8"Ø Threaded Rod (2 3/4" Embed, Per Simpson Set)

Number of Bolts	1
Stress Increase	1.00
Concrete Strength	3,000
Spacing	99.00 in
Edge Distance	99.00 in

Basic Loads	concrete	bolt
Tension	1,666	2,105 lbs
Shear	1735	1,085 lbs

Allowable Loads		REDUCTIONS
Tension	1,666 lbs	100% 100%
Shear	1085 lbs	-- --

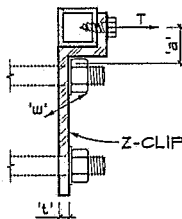
$$\text{UNITY} = \left[\frac{T}{n \cdot T_{ALL}} \right]^2 + \left[\frac{V}{n \cdot V_{ALL}} \right]^2$$

LC1,2	Tension	390 lbs
	Shear	25 lbs / 2
Unity	0.26	< 1.00

LC3	Tension	0 lbs
	Shear	0 lbs / 2
Unity	0.00	< 1.00

Z-CLIP

LC1 WIND T = 90 lbs TYP TOP
LC4 SNOW T = 150 lbs



Clip / Anchor Geometry

A36	#clips	
a	0.25	in
t'	3/16	in
w'	1.00	in

Section Property

$$\begin{aligned} S &= 1.0 \times 0.1875^2 / 6 \quad (w t^2 / 6 = b d^2 / 6) \\ &= 0.0059 \text{ in}^3 \end{aligned}$$

$$\begin{aligned} F_b &= 36,000 \text{ psi} \times 0.75 \\ &= 27,000 \text{ psi} \quad \text{SNOW} \\ \times 1.33 &= 35,910 \text{ psi} \quad \text{WIND} \end{aligned}$$

Tension SNOW

$$\begin{aligned} M &= 150 \text{ lbs} \times 0.250 \text{ in} / 1 \\ &= 38 \text{ in-lbs} \end{aligned}$$

$$\begin{aligned} f_b &= 38 \text{ in-lbs} / 0.0059 \text{ in}^3 \\ &= 6,400 \text{ psi} \quad \text{ok} \end{aligned}$$

Tension WIND

$$\begin{aligned} M &= 90 \text{ lbs} \times 0.250 \text{ in} / 1 \\ &= 23 \text{ in-lbs} \end{aligned}$$

$$\begin{aligned} f_b &= 23 \text{ in-lbs} / 0.0059 \text{ in}^3 \\ &= 3,840 \text{ psi} \quad \text{ok} \end{aligned}$$

Use (1) 3/16" x 1" Z-Clip



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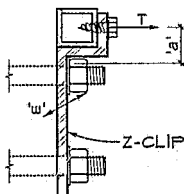
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Z-CLIP

LC1 WIND T = 340 lbs TYP TOP



LC4 SNOW T = 300 lbs



Clip / Anchor Geometry

A36 #clips l

n 0.25 in
 'l' 3/16 in
 'w' 1.00 in

Section Property

$$S = 1.0 * 0.1875^2 / 6 \quad (w l^2 / 6 = b d^3 / 6)$$

$$= 0.0059 \text{ in}^3$$

$$F_b = 36,000 \text{ psi} * 0.75$$

$$= 27,000 \text{ psi} \quad \text{SNOW}$$

$$x 1.33 = 35,910 \text{ psi} \quad \text{WIND}$$

Tension SNOW

$$M = 300 \text{ lbs} * 0.250 \text{ in} / 1$$

$$= 75 \text{ in-lbs}$$

$$f_b = 75 \text{ in-lbs} / 0.0059 \text{ in}^3$$

$$= 12,800 \text{ psi} \quad \text{ok}$$

Tension WIND

$$M = 340 \text{ lbs} * 0.250 \text{ in} / 1$$

$$= 85 \text{ in-lbs}$$

$$f_b = 85 \text{ in-lbs} / 0.0059 \text{ in}^3$$

$$= 14,507 \text{ psi} \quad \text{ok}$$

Use (1) 3/16" x 1" Z-Clip



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