

Proposal No. 2017M-046EN-001



INDUS-1

OP ID: KIDA

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
09/19/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Highsmith Insurance 3700 Glenwood Ave., Suite 430 Raleigh, NC 27612 Wallace Palmer	919-878-9412	CONTACT Highsmith Insurance NAME: PHONE (A/C, No, Ext): 919-878-9412 FAX (A/C, No): 919-256-1969 E-MAIL ADDRESS: wallace@highsmithinsurance.com
INSURED Industrial Strength Marketing 1401 5th Avenue North Nashville, TN 37208		INSURER(S) AFFORDING COVERAGE NAIC # INSURER A : Travelers Indemnity Co 25658 INSURER B : Travelers Casualty Insurance C 19046 INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDITIONAL SUBROGATION WAIVED	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER	X	6803G262650	09/25/2016	09/25/2017	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Per occurrence) \$ 300,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COM/PROP AGG \$ 4,000,000
B	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY		BA3G265387	09/25/2016	09/25/2017	COMBINED SINGLE LIMIT (Per accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 5000	X	CUP3G307881	09/25/2016	09/25/2017	EACH OCCURRENCE \$ 1,000,000 AGGREGATE \$ 1,000,000
A	<input checked="" type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A	UB3G265572	09/25/2016	09/25/2017	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER  METROPOLITAN GOVERNMENT OF NASHVILLE & DAVIDSON COUNTY METRO LEGAL & CLAIMS C/O INS.. 222 3RD AVENUE NORTH, STE #501 NASHVILLE, TN 37201	CANCELLATION  SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE 
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**NOTEPAD:**

HOLDER CODE **METROP1**  
INSURED'S NAME **Industrial Strength Marketing**

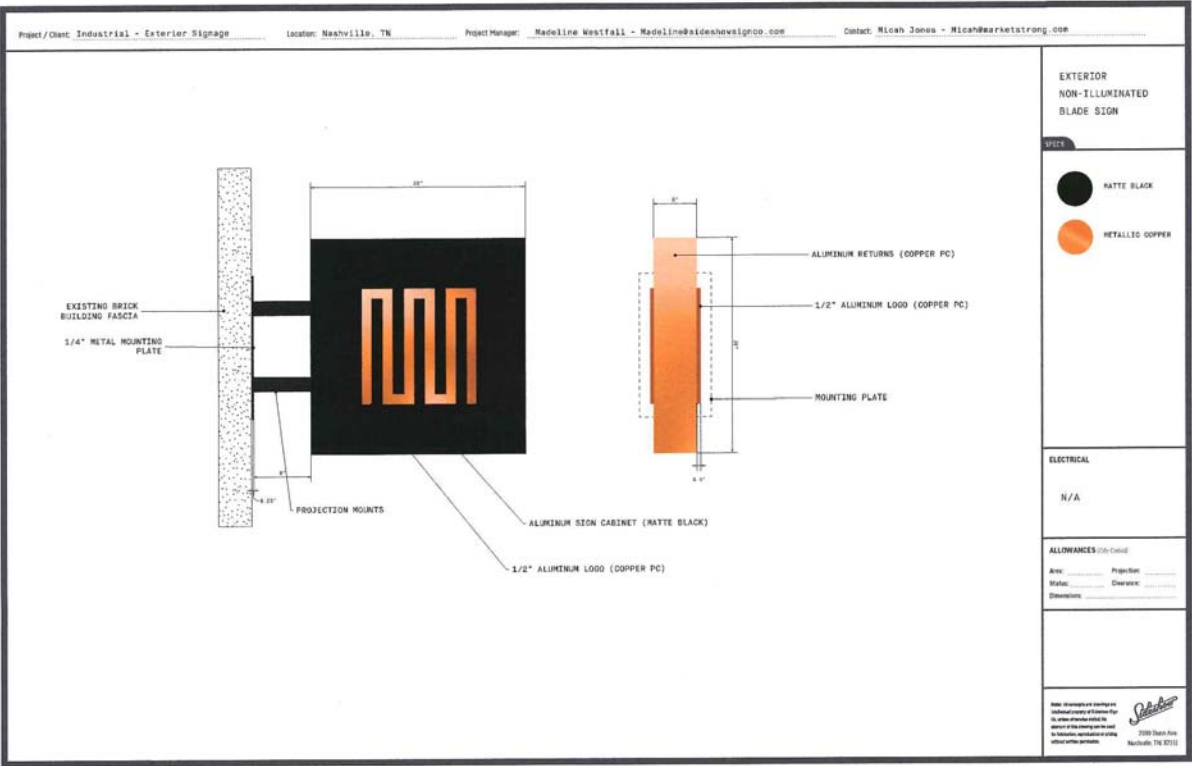
**INDUS-1**  
OP ID: KIDA

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Date **09/19/2017**

FULL CERTIFICATE HOLDER CLAUSE:

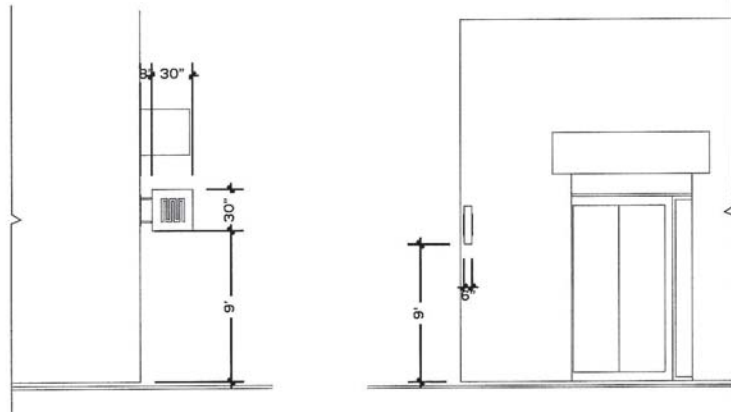
THE METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY  
METRO LEGAL & CLAIMS  
C/O INSURANCE AND SAFETY DIVISION  
222 3RD AVENUE NORTH, SUITE #501  
NASHVILLE, TN 37201

METROPOLITAN GOVERNMENT OF NASHVILLE & DAVIDSON COUNTY IS INCLUDED AS AN  
ADDITIONAL INSURED UNDER THE GENERAL LIABILITY



*Sideshow*

2200 Court Ave. Nashville, TN 37211  
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No.	Description	Date
1.	City Submission	02/14/17

INDUSTRIAL BLADE  
NON-ILLUMINATED

PAGE

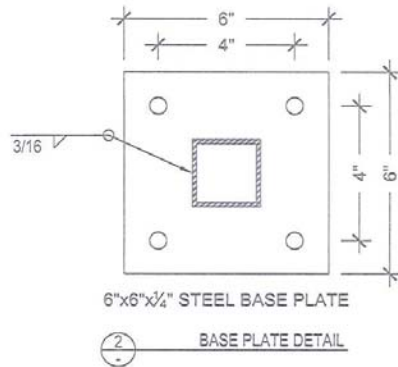
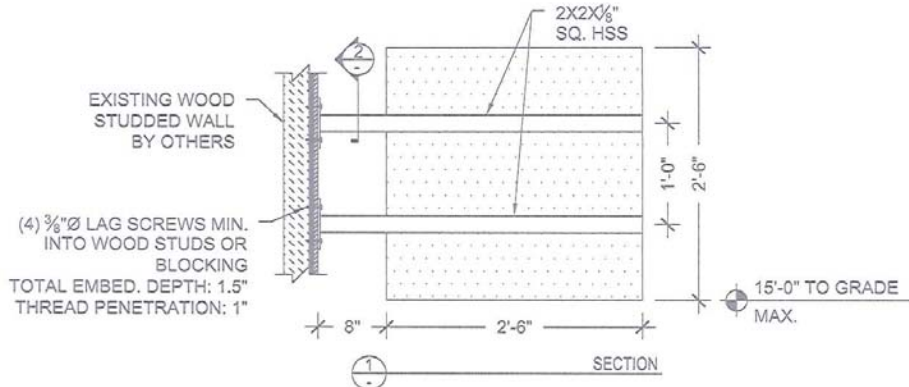
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10815 RANCHO BERNARDO RD., SUITE 260  
 SAN DIEGO, CA 92198  
 PROJECTMANAGER@SULLAWAYENG.COM  
 PHONE: 1-858-312-5150 FAX: 1-858-777-3534

PROJECT: SIDE SHOW, 1401 5TH AVENUE NORTH, NASHVILLE, TN  
 PROJECT #: 15582  
 CLIENT: DESIGN TEAM

DATE: 9/5/2017  
 ENGINEER: BW  
 LAST REVISED:



GENERAL NOTES

1. DESIGN CODE: IBC 2012
2. DESIGN LOADS: ASCE 7-10
3. WIND VELOCITY 115 MPH EXPOSURE C
4. SQ. HSS STEEL ASTM A500 GRADE B 46 KSI
5. PLATE STEEL ASTM A36 36 KSI
6. LAG SCREWS PER NDS SPECIFICATIONS
7. PROVIDE PROTECTION AGAINST DISSIMILAR METALS
8. EXISTING CONDITIONS MUST BE VERIFIED IN FIELD





10815 Rancho Bernardo RD., SD, CA 92127  
projectmanager@sullawayeng.com

PROJECT: SIDE SHOW  
PROJ. NO.: 15582  
CLIENT: DESIGN TEAM

DATE: 9/5/2017  
ENGINEER: BW

building code: IBC 2012

units: pounds, feet unless noted otherwise

### Applied Wind Loads; from ASCE 7-10

$$p_{net} = \lambda \cdot K_{zt} \cdot p_{net30} \quad (\text{ASCE 30.5-1})$$

$\lambda = 1.21$  (ASCE Fig. 28.6-1)  
 $K_{zt} = 1.0$  (unless unusual landscape)  
 $V = 115$  mph  
 $\text{Area} = 3.13 \text{ ft}^2$   
 $\text{max. height} = 16.25$   
 $\text{max } p_{net30} = 23.80 \text{ psf}$   
 $\text{min } p_{net30} = -31.90 \text{ psf}$

$\text{Exposure} = C$  for structural category II

$p_{net} = 28.80 \text{ psf}$   
 $p_{net} = -38.60 \text{ psf}$

### Find Forces in Bolts

$\text{trib. height} = 1.25 \text{ ft}$   
 $\text{trib. width} = 2.50 \text{ ft}$   
 $\text{trib. area} = (\text{trib. height}) \times (\text{trib. width}) = 3.13 \text{ ft}^2$   
 $\text{Wind Load} = (\text{area} \times p_{net}) / 1000 = 0.121 \text{ k}$   
 $\text{Assumed Dead Load} = [\text{area} \times (10 \text{ psf})] / 1000 = 0.031 \text{ k}$   
 $\text{Beam Dead Load} = [3.1667 \text{ ft} \times (3.05 \text{ lb/ft})] / 1000 = 0.010 \text{ k}$  (Assume SQ. HSS 2x2x1/8)  
 $\text{Total Dead Load} = 1.2 \times (\text{assumed} + \text{beam dead load}) = 0.049 \text{ k}$   
 $L = \text{distance from wall to sign c.g.} = 23.0 \text{ in}$

#### Forces Due to Wind Load :

$M_{WL} = L \times WL = 2.77 \text{ k-in}$   
 $s = \text{bolt spacing} = 4.00 \text{ in}$   
 $n = \# \text{ of bolts in tension} = 2$   
 $T_{WL} = M_{WL} / s / 2 \text{ bolts} = 0.347 \text{ kips per bolt}$   
 $V_{WL} = \text{Wind Load} / 4 \text{ bolts} = 0.030 \text{ kips per bolt}$

#### Forces Due to Dead Load :

$M_{DL} = L \times DL = 1.13 \text{ k-in}$   
 $s = \text{bolt spacing} = 4.00 \text{ in}$   
 $n = \# \text{ of bolts in tension} = 2$   
 $M_u = M_{WL} + M_{DL} = 3.90 \text{ k-in}$   
 $T_{DL} = M_{DL} / s / 2 \text{ bolts} = 0.141 \text{ kips per bolt}$   
 $V_{DL} = \text{Dead Load} / 4 \text{ bolts} = 0.012 \text{ kips per bolt}$   
 $T_u = T_{WL} + T_{DL} = 0.488 \text{ kips per bolt}$   
 $V_u = V_{WL} + V_{DL} = 0.042 \text{ kips per bolt}$

**Check w/ 3/8" Lag Screws w/ 1.5" Embed. Depth, 1.0" Thread Penetration, (4) Total Per Plate**

$$\begin{aligned} T \text{ per anchor} &= 488 \text{ lbs per bolt} \\ V \text{ per anchor} &= 42 \text{ lbs per bolt} \end{aligned}$$

See following page for lag screw report.


**Check 6"x6"x1/4" Steel Base Plate**

$$\begin{aligned} s &= \text{bolt spacing} = 4.00 \text{ in} \\ \text{Pipe OD} &= 2.00 \text{ in} \\ \text{arm} &= [s - (0.95 \times \text{Pipe OD})] / 2 = 1.05 \text{ in} \\ M &= T_u \times \text{arm} \times 2 \text{ bolts} = 1.0 \text{ k-in} \\ f_y &= 36 \text{ ksi} \\ \phi &= 0.9 \\ b &= \text{bolt width} = 4.00 \text{ in} \\ h &= \text{plate thickness} = 0.25 \text{ in} \\ Z &= (bh^2) / 4 = 0.06 \text{ in}^3 \\ \phi M_n &= \phi \times f_y \times Z = 2.0 \text{ k-in} \quad \text{OK} \end{aligned}$$

**Check Flexure in 2x2x1/8" SQ. HSS Beams :**

$$M_u = [(M_{WL} + M_{DL}) / 12] = 0.33 \text{ k-ft}$$

Use 2x2x1/8 SQ. HSS min.,  $\phi M_n = 2.02 \text{ k-ft}$ ; OK



**SULLAWAY**  
ENGINEERING

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PROJECT: SIDE SHOW  
 PROJ. NO.: 15582  
 CLIENT: DESIGN TEAM SIGN COMPANY

DATE: 9/5/2017  
 ENGINEER: BW

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**LAG SCREWS (LRFD) - SOLID WOOD TO SOLID STEEL - WITHDRAWAL AND SINGLE SHEAR LATERAL**

DESIGN INPUT	FACTORED FASTENER LOADING		MAIN MEMBER	SIDE MEMBER
	$W_u$	488 lb	Withdrawal Load	DOUGLAS FIR-LARCH
$Z_u$	42 lb	Lateral Load	$G$ 0.5	$F_u$ 42 ksi Ultimate Strength
FASTENER DIMENSIONS			$t_m$ 2 in	$t_s$ 0.25 in Thickness
$L_m$	1.5 in	Length into Main MBR	$\theta$ 90 deg	
$D$	0.375 in	Nominal Diameter		
$w$	0 in	Washer		
$B$	0 in	Gap		

Main Member End Grain (x)

$p_{min}$  1.5 in Minimum dowel penetration for lateral loading [NDS 11.1.3.7]  
 $p$  1.5 in Actual dowel penetration based on selected dowel length

STANDARD HEX LAG SCREWS [NDS Appendix Table L2]

$D_s$	$F_{yb}$	$D$	0.25	0.313	0.375	0.438	0.5	0.63	0.75	0.88	1	1.125	1.25
0.265 in	45000 psi	$D_s$	0.173	0.227	0.265	0.328	0.371	0.47	0.579	0.68	0.78	0.887	1.01

DOWEL BEARING CALCULATIONS

$F_{e,  }$ 5600 psi	Dowel bearing strength, perpendicular to grain [NDS Table 11.3.2 Footnote 2]
$F_{e,perp}$ 3646.03 psi	Dowel bearing strength, parallel to grain [NDS Table 11.3.2 Footnote 2]
$F_{om}$ 3646.03 psi	$F_o$ 63000 psi Dowel bearing strength - Hankinson formula [NDS 11.3.1-1] & Steel [NDS Comm. 12]
$L_m$ 1.5 in	$L_e$ 0.25 in Dowel bearing length
$q_m$ 966.199 lbs/in	$q_s$ 16695 lbs/in Dowel bearing resistance [AWC Technical Report 12] - D, Assumption
$M_m$ 139.572 in-lbs	$M_s$ 139.6 in-lbs Dowel moment resistance based [AWC Technical Report 12] - D, Assumption

YIELD MODE DOWEL EQUATIONS [AWC Technical Report 12 Table 1-1]

$I_m$	$I_s$	$II$	$III_m$	$III_s$	$IV$	$Z$	$Z'$	RATIO	Result
289.86 lb	834.75 lb	165.651 lb	178.583 lb	189.432 lb	178.52 lb	165.651 lb	357.806 lb	0.12	PASS
P 1449	P 4174	P 745.4	P 714.3	P 757.7	P 714.1	Ref Value	Adj Value		

$R_d$	5	$K_D$	3.15	$\theta$	90
$R_d$	5	$K_D$	3.15	$K_D$	1.25
$R_d$	4.5	$K_D$	3.15		
$R_d$	4	$K_D$	3.15		
$R_d$	4	$K_D$	3.15		
$R_d$	4	$K_D$	3.15		

Adjustment Factors [NDS Table 10.3.1]											
$C_M$	$C_t$	$C_e$	$C_b$	$C_d$	$C_{ref}$	$C_{st}$	$C_{ll}$	$C_{tr}$	$K_F$	$\phi$	$\lambda$
1	1	1	1	1	1	1	1	1	3.32	0.65	1

WITHDRAWAL LOADING [NDS 11.2.1]

$W$ 304.966 lb/in	Reference Value [NDS 11.2-1]
$W'$ 658.726 lb/in	Adj Value
$p_{t,req}$ 0.74082 in	Required thread penetration for withdrawal
$p_{t,req}$ 0.750 in	-->Rounded up to nearest 1/8"
$p_{t,ovr}$ 1 in	Override for additional thread penetration
$p_{t,set}$ 1.000 in	

Adjustment Factors [NDS Table 10.3.1]						
$C_M$	$C_t$	$C_{ref}$	$K_F$	$\phi$	$\lambda$	
1	1	1	3.32	0.65	1	

COMBINED LATERAL AND WITHDRAWAL LOADING [NDS 11.4.1]

$\alpha$  1.48494 rad = 85.08 deg  
 $Z_u'$  489.804 lb  
 $Z_u''$  654.677 lb Based on  $p_{t,set}$   
 RATIO 0.75 PASS