Development Review (Minor) Staff Approval

97-SA-2016

Smokehaus

APPLICATION INFORMATION			
LOCATION:	3636 N Scottsdale Rd	APPLICANT:	Dave Andrea
PARCEL:	130-13-033	COMPANY:	Smokehaus
Q.S.:	16-44	ADDRESS:	3636 N Scottsdale Rd Scottsdale, AZ 85251
CODE VIOLATION #:		PHONE:	602-738-1274

Request: Construct a colored shade sail over patio at restaurant

STIPULATIONS

1. The shades shall comply with the plans dated 03/22/2016.
2. The shades shall match Windscreens4less, beige dated 03/22/2016.
3. The shades shall be fire retardant, and comply with all fire and building code requirements.
4. The shade support columns shall be dark brozen or dark brown.
5. No exterior lights are approved with this application.

CONSTRUCTION DOCUMENT PLAN REVIEW SUBMITTAL REQUIREMENTS

Submit one copy of this approval letter, and a completed Owner/Builder form if applicable, and a permit application along with the following plan set(s) to the One-Stop-Shop for review:

PERMIT APPLICATION: ☒ **Completed Permit Application.** The permit application may be obtained or completed online at the following weblink:

http://www.scottsdaleaz.gov/Assets/Public+Website/bldgresources/APP_Permit_Commercial.pdf

(Please complete the permit application online prior to arriving at the City to submit your construction documents)

ARCHITECTURAL: ☒ 4 sets of architectural plans, fabric fire retardant and spread specifications, and 1 additional, elevation.

Expiration of Development Review (Minor) Approval

This approval expires two (2) years from date of approval if a permit has not been issued, or if no permit is required, work for which approval has been granted has not been completed.

Staff Signature: _____ DATE: 3-22-2016

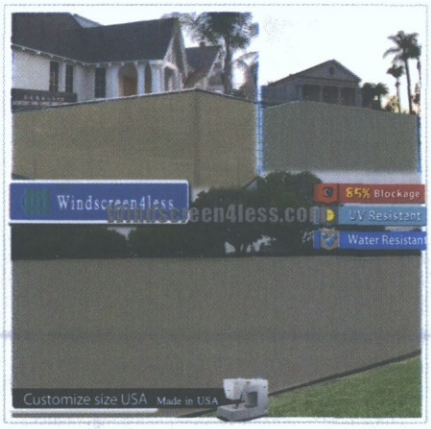
Dan Symer, AICP

COMPARE PRODUCTS

You have no items to compare.

MY CART

You have no items in your shopping cart.



Double click on above image to view full picture

MORE VIEWS

Beige Standard 6ft by 25ft Privacy 85% Fence Screen Panel

Email to a Friend

Be the first to review this product

Availability: In stock

$34.98

Quick Overview

- High quality polyethylene knitted design
- Visibility Blockage: 85%
- Fabricated with 1.5" double-side Beige binding
- Tape and brass grommets placed evenly 18" O.C. on all 4 sides
- Double grommets on every corner edge for extra strength

*Zip Ties Included * Required Fields

-- Please Select --

$34.98 Qty: 1 **ADD TO CART**

Add to Wishlist
Add to Compare

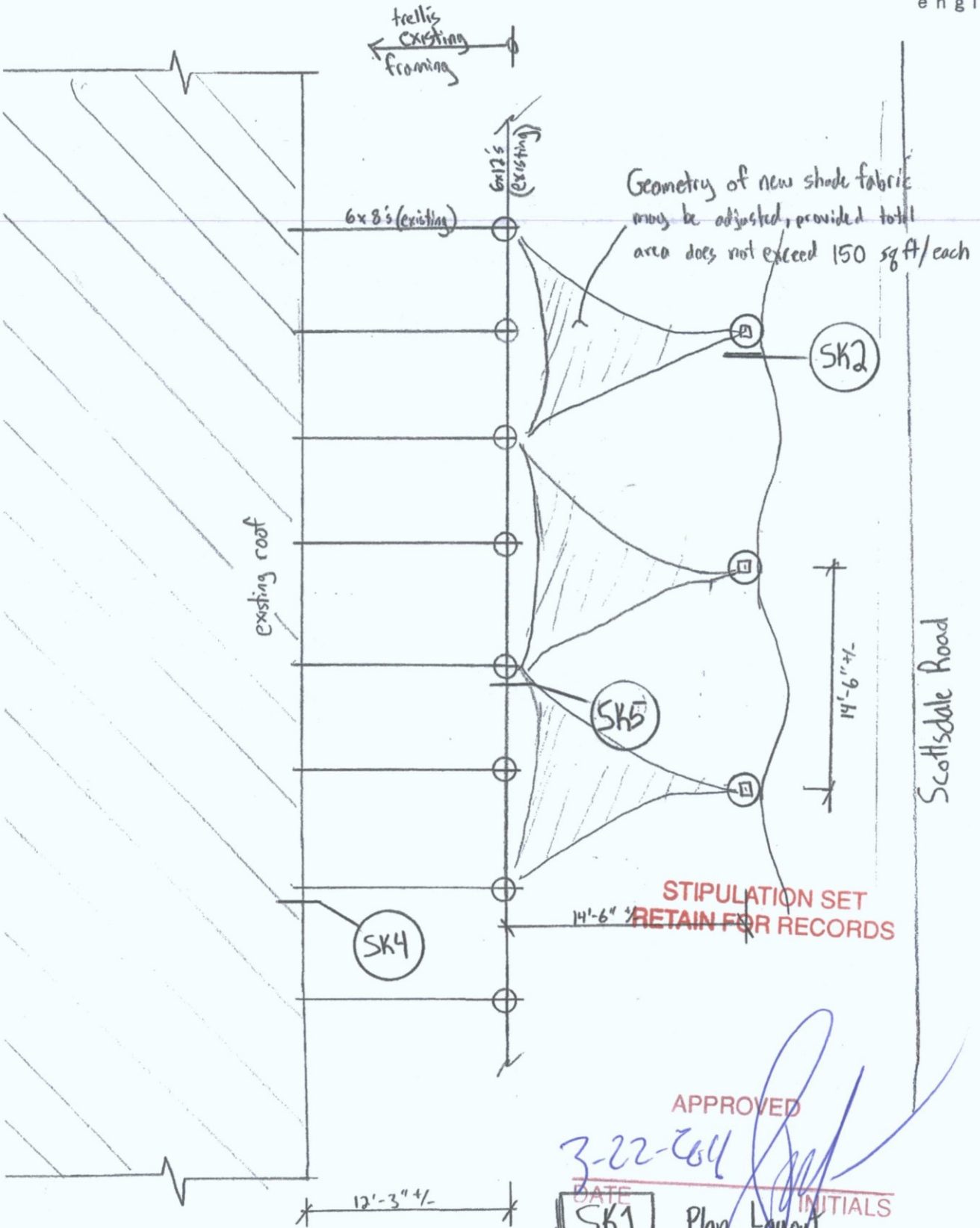
Product Description | Additional Information | Product Tags

Fence Screen has taken quality and performance to a higher level, creating a super high quality knitted fence screen specifically developed as a long term solution for fence privacy and shade protection. For years we have been working to develop the perfect fence privacy screen. Our goal was to create a product that would combine privacy, air-flow and longevity; a product that could truly hold up to any outdoor climate. Years of R&D have resulted in a truly revolutionary new product for the fencing industry. Our fence utilizes the latest advancements in manufacturing technologies, combining High Density Polyethylene and advanced Ultra Violet (UV) stabilizer and pigments.

STIPULATION SE
RETAIN FOR RECORDS

APPROVED
3-22-2016
DATE INITIALS

WRIGHT engineers



STIPULATION SET
RETAIN FOR RECORDS

APPROVED
3-22-04
DATE
INITIALS

SK1 Plan Layout

PROJECT: 3636 N. Scottsdale Road	No:	SHEET: 1

CITY OF SCOTTSDALE

DAN SYMER

Pre-Application Request

Purpose:

The purpose of the Pre-Application submittal, and meeting, is for the applicant and City Staff to discuss a proposed Development Application, and the information and process that is necessary for City Staff to process the proposal.

In accordance with the Zoning Ordinance, no development application shall be accepted before a Pre-Application has been submitted, and a Pre-Application meeting has been conducted with City Staff, unless the Pre-Application meeting has been waived by the Zoning Administrator.

Submittal:

The completed Pre-Application request form, all required materials and fees should be submitted in person to the One-Stop-Shop located at 7447 East Indian School Road; or, may they be submitted digitally at following website: https://eservices.scottsdaleaz.gov/eServices/PreApps/Default.aspx

All checks shall be payable to "City of Scottsdale."

Scheduling

After the Pre-Application packet has been accepted at the One-Stop-Shop, a staff member will contact the Applicant within five (5) Staff Working Days to schedule a Pre-Application meeting with the assigned staff member(s). Generally, a Pre-Application meeting is scheduled within five (5) to fifteen (15) Staff Working Days from the date of the submittal.

Project Name: SMOKEHAUS

Property's Address: 3636 N. SCOTTSDALE RD **APN:**

Property's Zoning District Designation:

Property Details:

☐ Single-Family Residential ☐ Multi-Family Residential ☒ Commercial ☐ Industrial ☐ Other

Has a 'Notice of Compliance' been issued? ☐ Yes ☒ No If yes, provide a copy with this submittal

Owner: DAVE ANDREW	**Applicant:**
Company: BRAT HAUS BRANDS, LLC	**Company:**
Address: 3636 N. SCOTTSDALE RD	**Address:**
Phone: 602 738 1274 **Fax:**	**Phone:** **Fax:**
E-mail: dave@brathausaz.com	**E-mail:**
Owner Signature	Applicant Signature

Official Use Only Submittal Date: _____ Application No.: 115 -PA- 2016

Project Coordinator: _____

Pre-Application Request

Development Application Type:
Please check the appropriate box of the Type(s) of Application(s) you are requesting

Zoning	Development Review	Signs
☐ Text Amendment (TA)	☐ Development Review (Major) (DR)	☐ Master Sign Program (MS)
☐ Rezoning (ZN)	☒ Development Review (Minor) (SA)	☐ Community Sign District (MS)
☐ In-fill Incentive (II)	☐ Wash Modification (WM)	Other
☐ Conditional Use Permit (UP)	☐ Historic Property (HP)	☐ Annexation/De-annexation (AN)
Exemptions to the Zoning Ordinance	Land Divisions	☐ General Plan Amendment (GP)
☐ Hardship Exemption (HE)	☐ Subdivisions (PP)	☐ In-Lieu Parking (IP)
☐ Special Exception (SX)	☐ Subdivision (Minor) (MD)	☐ Abandonment (AB)
☐ Variance (BA)	☐ Perimeter Exceptions (PE)	☐ Single-Family Residential
☐ Minor Amendment (MA)		☐ Other

Submittal Requirements: (fees subject to change every July)

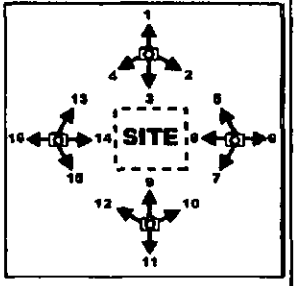
☒ Pre-Application Fee: $_____
(No fees are changed for Historic Preservation (HP) properties.)

☒ Records Packet Fee: $_____
Processed by staff. The applicant need not visit the Records desk to obtain the packet.
(Only required for ZN, II, UP, DR, PP, AB applications, or otherwise required by Staff)

☒ Application Narrative:
The narrative shall describe the purpose of the request, and all pertinent information related to the request, such as, but not limited to, site circulation, parking and design, drainage, architecture, proposed land use, and lot design.

☐ Property Owner Authorization Letter
(Required for the SA and MS Pre-Applications)

☐ Site / Context Photographs



- Provide color photographs showing the site and the surrounding properties. Use the guidelines below for photos.
- Photos shall be taken looking in towards the project site and adjacent to the site.
- Photos should show adjacent improvements and existing on-site conditions.
- Each photograph shall include a number and direction.
- Sites greater than 500 ft. in length, also take the photo locations shown in the dashed lines.
- Photos shall be provided 8 ½ x 11 paper, max. two per page.

☐ Other

_____

_____

- ***The following list of Additional Submittal Information is not required for a Pre-Application meeting, unless indicated below by staff prior to the submittal of this request.***
- ***Applicants are advised to provide any additional information listed below. This will assist staff to provide the applicant with direction regarding an application.***

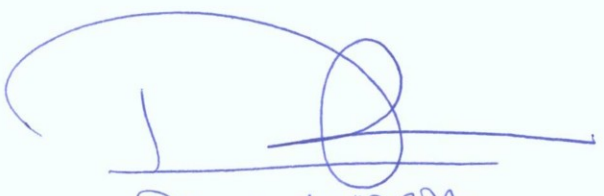
Additional Submittal Information

☐ Site Plan
☐ Subdivision plan
☐ Floor Plans
☐ Elevations
☐ Landscape plans
☐ H.O.A. Approval letter
☐ Sign Criteria Regulations & Language
☐ Material Samples – color chips, awning fabric, etc.
☐ Cross Sections – for all cuts and fills
☐ Conceptual Grading & Drainage Plan
☐ Exterior Lighting – provide cut sheets, details and photometrics for any proposed exterior lighting.
☐ Boundary Survey (required for minor land divisions)
☐ Areal of property that includes property lines and highlighted area abandonment request.
☐ One copy of the recorded document for the area that is requested to be abandoned. Such as: subdivision plat, map of dedication, GLO (General Land Office) federal patent roadway easement, or separate dedication document. A copy of most recorded documents to be abandoned may be purchased at the City of Scottsdale Records Dept. (480-312-2356), or the Maricopa County Recorder's Office (602-506-3535). A copy of the General Land Office (GLO) federal patent roadway easement may be purchased from the Bureau of Land Management (602-417-9200).

2/8/16

This preapplication request is to put a shade sail over my patio area @ 3636 N. Scottsdale Rd

Thx Smolahans.



DAVE ANDREA

WRIGHT engineers

Phoenix
7400 W. Detroit St
Suite 170
Chandler, AZ 85226
(p) 480.483.6111
(f) 480.483.6112

Las Vegas
1635 Village Center Cir
Suite 200
Las Vegas, NV 89134
(p) 702.933.7000
(f) 702.933.7001
800.933.7611
wrightengineers.com

Irvine
2 Venture, Suite 200
Irvine, CA 92618
(p) 949.477.4001
(f) 949.477.4009

Salt Lake
9160 South 300 West
Suite 2
Sandy, UT 84070
(p) 801.352.2001
(f) 801.352.2006

Tucson
2200 East River Road
Suite 104
Tucson, AZ 85718
(p) 520.468.7400

STRUCTURAL CALCULATIONS

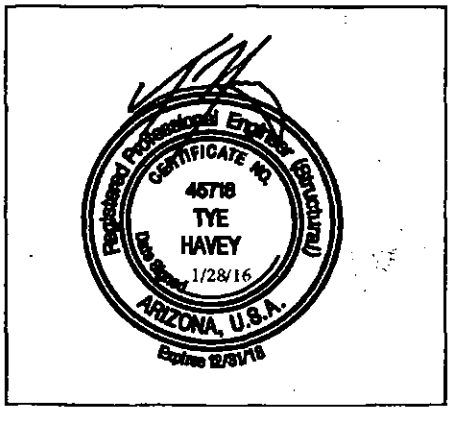
PROJECT: **Smokehaus - Fabric Shade Attachment**
3636 N Scottsdale Road
Scottsdale, AZ 85251

PROJECT No: 160262

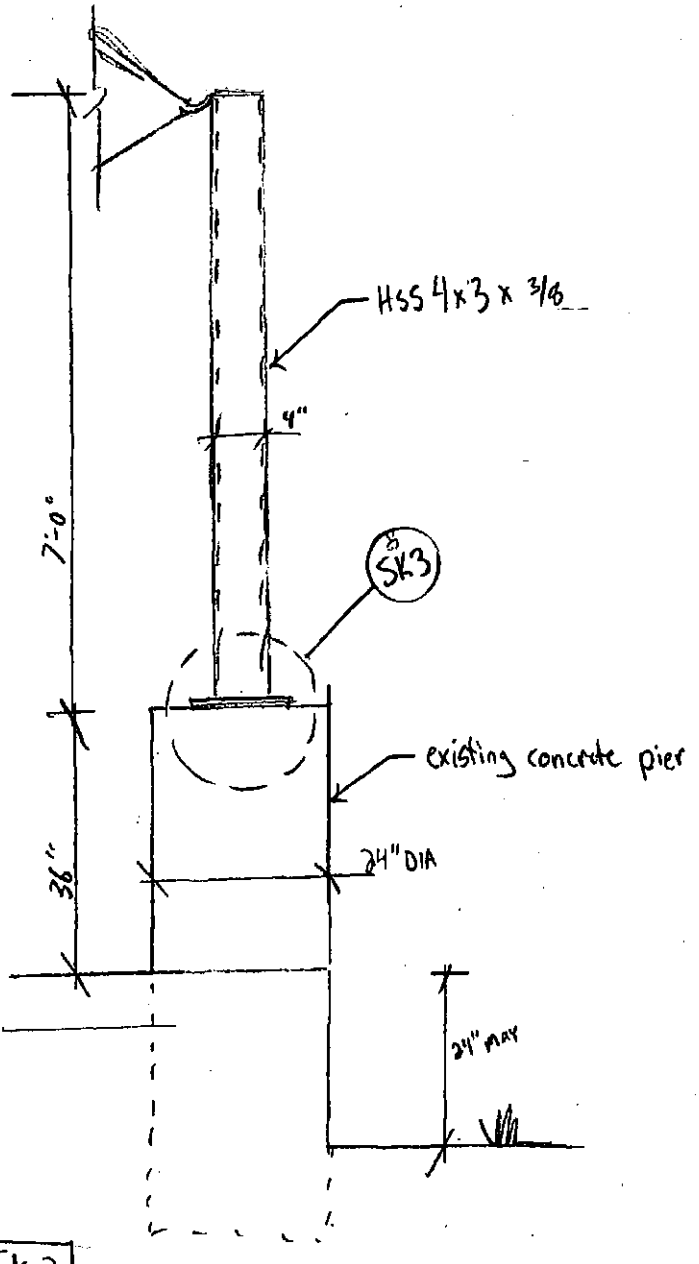
CLIENT: **Smokehaus**

DATE: **January 28, 2016**

SHEET INDEX



WRIGHT engineers



SK2

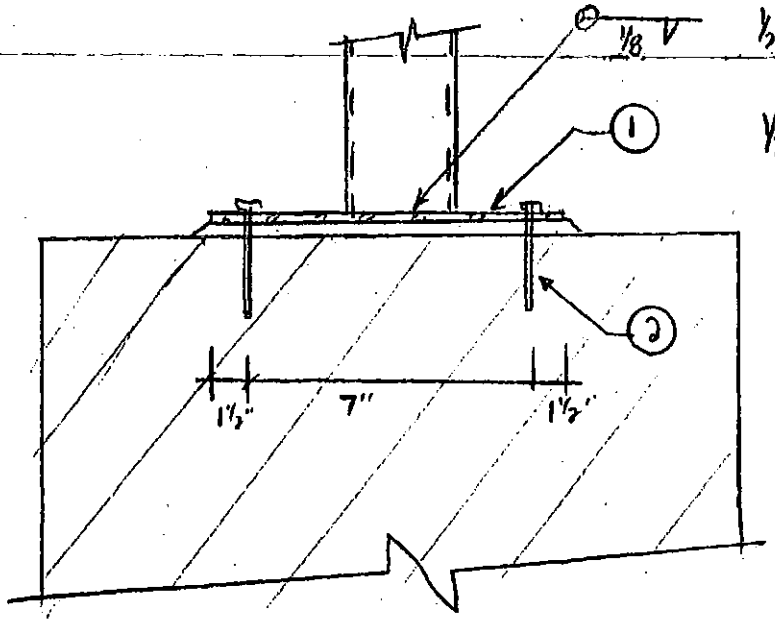
PROJECT:	No:	SHEET: 2

WRIGHT engineers

① 1/4" x 10" x 10" steel plate

② (4) anchor bolts, use:

1/2" DIA x 4" Tapcon+ by Redhead
or
1/2" DIA x 4" Titen Screw Anchor by Simpson Strong Tie



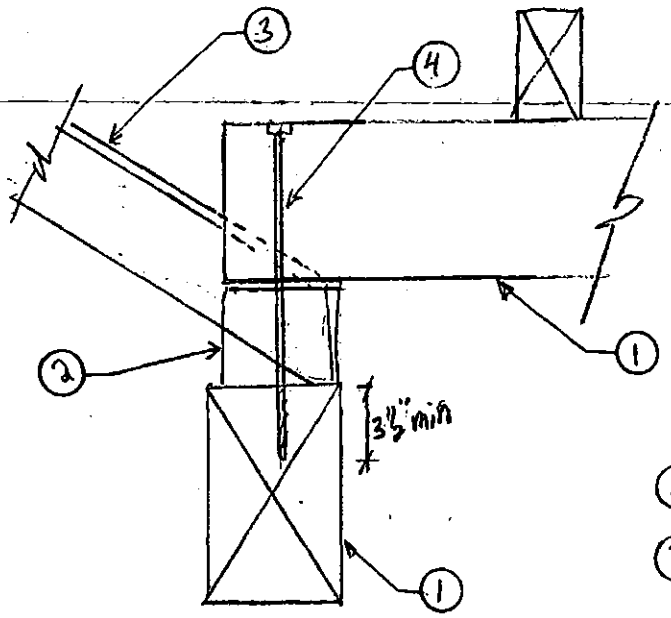
SK3

PROJECT:

No:

SHEET: 3

WRIGHT engineers



① Existing 6x beam

② Existing Shim Block

③ Existing roof sheathing and framing

④ ½"DIA lag screw with 3½" minimum embedment into main member

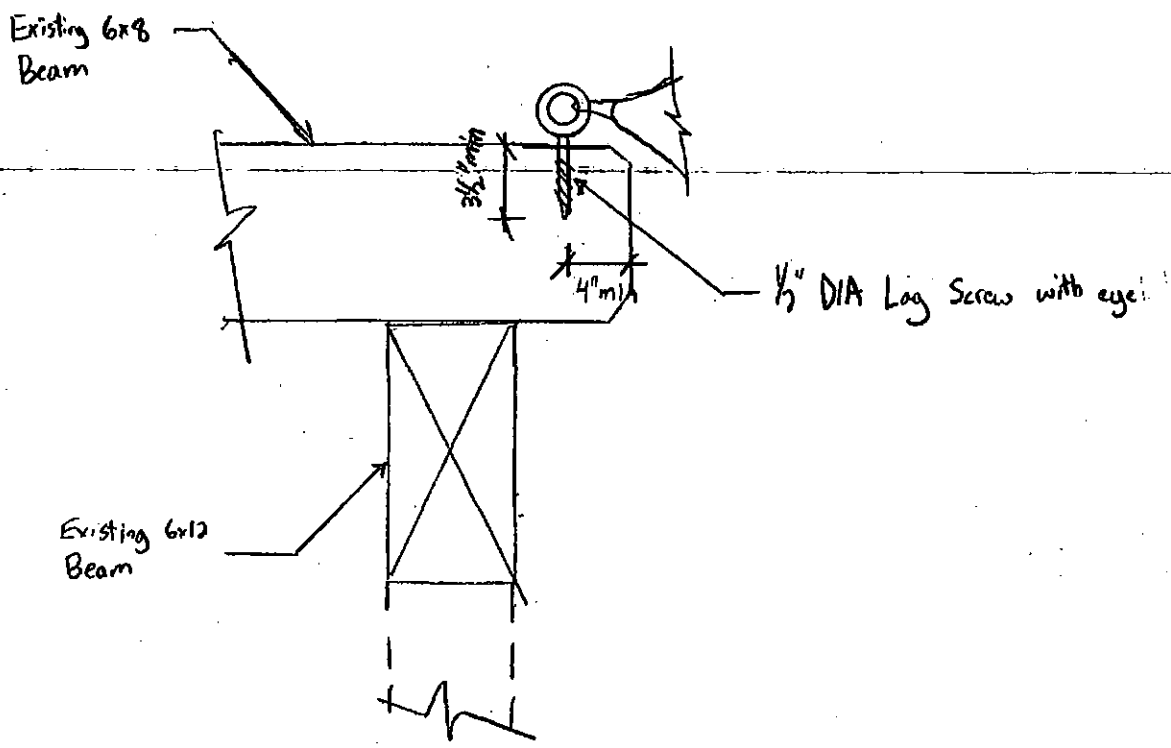
SK4

PROJECT:

No:

SHEET: 4

WRIGHT engineers



SK5

PROJECT:

No:

SHEET: 5

WRIGHT engineers

2012 IBC

Design Wind Loads

$P = q_h G C_N$ C27.4-3

V_{ult} = 105 mph → (based on category)

Exp = B

$q_h = 0.00256 K_z K_{zt} K_d V^2$ = 20.4 psf

K_z = 0.85 (Table 27.3-1)

K_{zt} = 1.0 (26.8.2)

K_d = 0.85 (26.6-1)

G = 0.85 (26.9)

C_N = 0.8 / -0.8 (Table 27.4)

$P = (20.4 psf)(0.85)(\pm 0.8)$ = 13.9 psf (ult)

= 0.6 (13.9 psf) = 8.3 psf (allowable)

use 10.0 psf

PROJECT: | No: | SHEET: 6

DESCRIPTION : **Smokehaus Fabric Shade Support**
3636 N Scottsdale Road
Scottsdale, AZ

WIND LOADS

P = 10.0 psf (from previous sheet)

LOADS TO COLUMN

LOC.	A (FT^2)	yBAR (FT)	P (PSF)	F (K)	M (K-FT)
Sails	150.0	7.0	10.0	0.50	3.5
Pole self	2.7	4.0	12.2	0.03	0.1
			TOTAL	**0.53**	**3.63**

yBAR (FT) : 6.82

STEEL COLUMN DESIGN:

Type	HSS4x3x3/8	← SK2	
S	3.97	in^3	
Z	5.12	in^3	
I	7.93	in^4	
Fy	46	ksi	
Mu	5.8	kft	
Phi Mn	19.6	kft	OK
deflection	0.42	in	
L/	199		OK

FOOTING DESIGN:

Pedestal	H	6	ft
	Dia	2	ft
	W	2826	lb
	Mr	4.0	kft
	uplift	500	lb
	SF uplift	5.7	OK

truspec ANCHOR DESIGN SOFTWARE

Project		1 / 7
Project number		Version 1.2.0.0
Contact	tye	1/28/2016

Anchor Calculation Tapcon+ - Carbon 1/2"

Product information

Tapcon+ - Carbon

Material	Carbon
Type	Mechanical anchor
Approval	RedHead - Tapcon+, Sammys
Drill hole depth	4 1/4"
Nominal drill bit diameter	1/2"
Nominal anchor depth	4"
Effective anchor depth	3.02"

Material

Concrete (Normal Weight)		
Concrete Compressive Strength		2500 psi
Zone		Uncracked Concrete
Concrete Reinforcement		
Reinforcement of tension forces		No
Reinforcement of shear forces		No
Reinforcement to control splitting		No
Do not evaluate concrete breakout in tension		No
Do not evaluate concrete breakout in shear		No

Geometry

Anchor		
Anchor arrangement		Group of four without slotted holes
Rotation		0 °
Eccentricity		
Displacements	y	0.000 in
Displacements	z	0.000 in
Anchor spacings		
Anchor spacing	y_1	7.000 in
Anchor spacing	z_1	7.000 in
Edge Distances / Concrete Thickness		
Edge distance left		8.000 in
Edge distance right		8.000 in
Edge distance top		8.000 in
Edge distance bottom		8.000 in
Concrete thickness	h	36.000 in
Anchor plate dimensions		
Anchor plate width	y	10.000 in

Anchor Calculation Tapcon+ - Carbon 1/2"

Anchor plate dimensions		
Anchor plate length	z	10.000 in
Anchor plate thickness		0.250 in
Connected profile - Eccentricity		
Displacements	y	0.000 in
Displacements	z	0.000 in

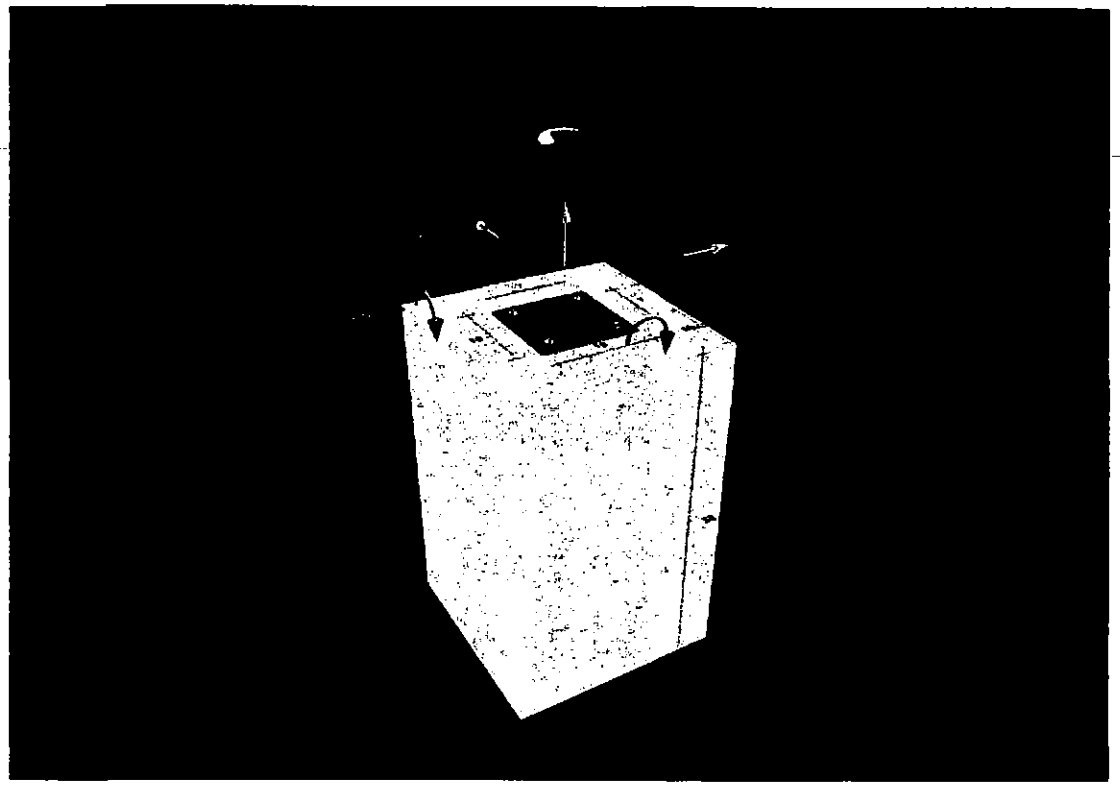
Load

Load		
Tension	N_u	0 lbf
Shear	V_{uy}	848 lbf
Shear	V_{uz}	0 lbf
Bending moment	M_{ux}	0.0 lbf·ft
Bending moment	M_{uy}	0.0 lbf·ft
Bending moment	M_{uz}	5808.0 lbf·ft
Tension load conditions		
Sustained Tension		No
Shear load conditions		
Use anchors with built-up grout pads		No
Load combination		
Load factor		ACI 318 Chapter 9.2
Seismic		
Seismic category C, D, E or F		No

Section forces

Anchor Nr.	Tension [lbf]	Shear [lbf]
1	4526 lbf	212 lbf
2	-491 lbf	212 lbf
3	4526 lbf	212 lbf
4	-491 lbf	212 lbf

Anchor Calculation Tapcon+ - Carbon 1/2"



Verifications ACI 318-11

Total capacity due to steel failure

$$\beta_N = \frac{N_{ua}}{\Phi N_{sa}} = \frac{4526\ \text{lbf}}{15031\ \text{lbf}}$$

	N_{ua} [lbf]	Φ	N_{sa} [lbf]	ΦN_{sa} [lbf]	β_N [%]
	4526	0.65	23125	15031	30.11

Anchor Calculation Tapcon+ - Carbon 1/2"

Total capacity due to concrete failure (Controlling anchors: 1, 3)

$$N_b = k_c \cdot \lambda_a \cdot \sqrt{f'_c} \cdot h_{ef}^{1.5}$$

k_c	λ_a	f'_c [psi]	h_{ef} [in]	N_b [lbf]
30	1.00	2500	3.020	7872

$$N_{cb} = \frac{A_{Nc}}{A_{Nc0}} \cdot \psi_{ec,N} \cdot \psi_{ed,N} \cdot \psi_{c,N} \cdot \psi_{cp,N} \cdot N_b$$

A_{Nc} [in]	A_{Nc0} [in]	$\psi_{ec,N}$	$\psi_{ed,N}$	$\psi_{c,N}$	$\psi_{cp,N}$
145.504	82.084	1.000	1.000	1.000	1.000

N_b [lbf]	N_{cb} [lbf]
7872	13955

$$\beta_N = \frac{N_{ua}}{\Phi N_{cb}} = \frac{9051 \text{ lbf}}{9071 \text{ lbf}}$$

N_{ua} [lbf]	Φ	N_{cb} [lbf]	ΦN_{cb} [lbf]	β_N [%]
9051	0.65	13955	9071	99.79

Total capacity due to steel failure at shear force

$$\beta_V = \frac{V_{ua}}{\Phi V_{sa}} = \frac{212 \text{ lbf}}{7566 \text{ lbf}}$$

V_{ua} [lbf]	Φ	V_{sa} [lbf]	ΦV_{sa} [lbf]	β_V [%]
212	0.60	12610	7566	2.80

Anchor Calculation Tapcon+ - Carbon 1/2"

Total capacity due to concrete edge failure - Edge right (Controlling anchors: 2, 4)

$$V_b = 7 \cdot \left(\frac{h_{ef}}{d}\right)^{0.2} \cdot \lambda_a \cdot \sqrt{d} \cdot \sqrt{f_c'} \cdot c_{a1}^{1.5}$$

h_{ef} [in]	d [in]	λ_a	f_c' [psi]	c_{a1} [in]	V_b [lbf]
3.020	0.500	1.00	2500.00	8.000	8024

$$V_{cb} = \frac{A_{Vc}}{A_{Vc0}} \cdot \psi_{ec,V} \cdot \psi_{ed,V} \cdot \psi_{c,V} \cdot \psi_{h,V} \cdot V_b$$

A_{Vc} [in]	A_{Vc0} [in]	$\psi_{ec,V}$	$\psi_{ed,V}$	$\psi_{c,V}$	$\psi_{h,V}$
276.000	288.000	1.000	0.900	1.400	1.000

V_b [lbf]	V_{cb} [lbf]
8024	9689

$$\beta_V = \sqrt{\left(\frac{V_{ua} \cdot \cos\alpha}{\Phi V_{cb}}\right)^2 + \left(\frac{V_{ua} \cdot \sin\alpha}{2\Phi V_{cb}}\right)^2}$$

V_{ua} [lbf]	α [°]	Φ	V_{cb} [lbf]	ΦV_{cb} [lbf]	β_V [%]
848	0.00	0.70	9689	6782	12.50

Anchor Calculation Tapcon+ - Carbon 1/2"

Concrete pryout failure - Shear - Anchor group (Controlling anchors: 1, 2, 4, 3)

$$N_b = k_c \cdot \lambda_a \cdot \sqrt{f'_c} \cdot h_{ef}^{1.5}$$

k_c	λ_a	f'_c [psi]	h_{ef} [in]	N_b [lbf]
30	1.00	2500	3.020	7872

$$N_{cbg} = \frac{A_{Nc}}{A_{Nc0}} \cdot \psi_{ec,N} \cdot \psi_{ed,N} \cdot \psi_{c,N} \cdot \psi_{cp,N} \cdot N_b$$

A_{Nc} [in]	A_{Nc0} [in]	$\psi_{ec,N}$	$\psi_{ed,N}$	$\psi_{c,N}$	$\psi_{cp,N}$
257.924	82.084	1.000	1.000	1.000	1.000

N_b [lbf]	N_{cbg} [lbf]
7872	24736

$$V_{cpg} = k_{cp} \cdot N_{cbg}$$

k_{cp}	N_{cbg} [lbf]	V_{cpg} [lbf]
2.00	24736	49473

$$\beta_N = \frac{V_{ua}}{\Phi V_{cpg}} = \frac{848 \text{ lbf}}{34631 \text{ lbf}}$$

V_{ua} [lbf]	Φ	V_{cpg} [lbf]	ΦV_{cpg} [lbf]	β_N [%]
848	0.70	49473	34631	2.45

The selected Anchor is applicable.

Anchor Calculation Tapcon+ - Carbon 1/2"

Hints

Notes about the calculations:
The following documents are referenced for the verification of the anchor load-bearing capacity:
- Anchor approval

The following assumptions are made for the calculations:
- The selected building material class has been verified
- all of the anchors in a group are of the same type and size
- The anchor plate remains plane during loading

The verification of the local transfer of loads into the anchorage material has been performed. The transfer of these loads to the rest of the structure must be shown.
The design is based on numerous anchor-specific values. If the selected anchor is substituted for another or if the input values are changed, the design must be repeated. Additional requirements of the anchor approvals have to be taken into account, especially if the anchors are loaded dynamically.

SIMPSON Strong-Tie® Anchor Designer™ Software
Version 2.4.5673.2

Company:		Date:	1/28/2016
Engineer:		Page:	1/4
Project:			
Address:			
Phone:			
E-mail:			

1.Project information

Customer company:
Customer contact name:
Customer e-mail:
Comment:

Project description:
Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-11
Units: Imperial units

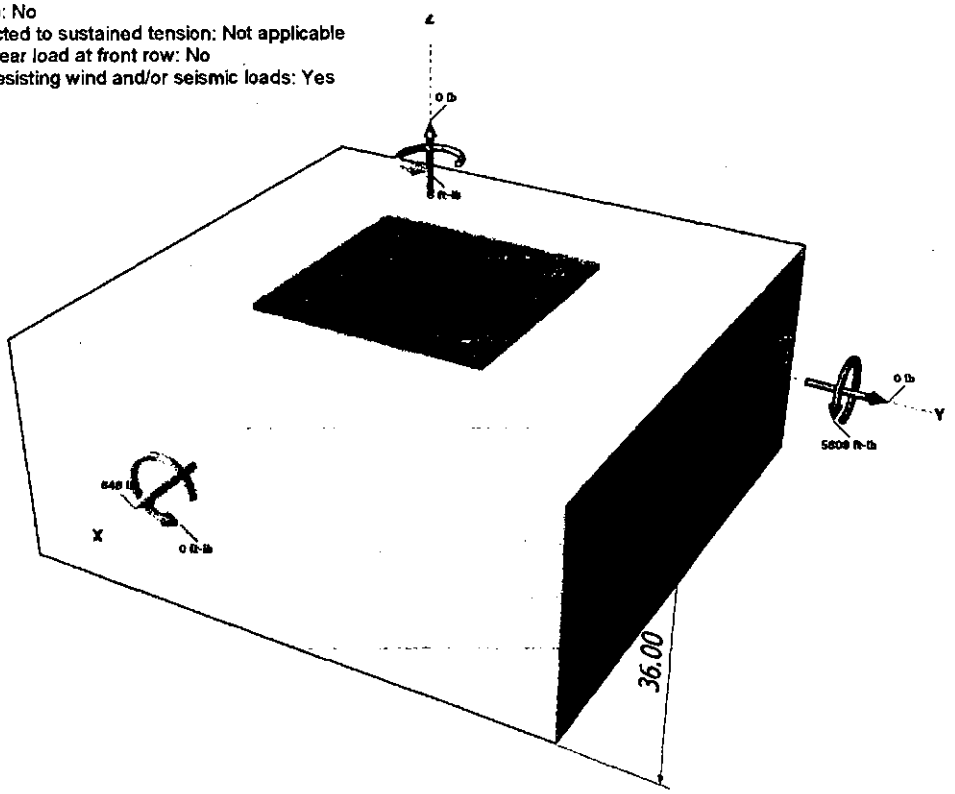
Anchor Information:
Anchor type: Concrete screw
Material: Carbon Steel
Diameter (inch): 0.500
Nominal Embedment depth (inch): 4.000
Effective Embedment depth, h_{ef} (inch): 2.990
Code report: ICC-ES ESR-2713
Anchor category: 1
Anchor ductility: No
h_{min} (inch): 6.25
c_{ac} (inch): 4.50
C_{min} (inch): 1.75
S_{min} (inch): 3.00

Load and Geometry
Load factor source: ACI 318 Appendix C
Load combination: not set
Seismic design: No
Anchors subjected to sustained tension: Not applicable
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: Yes

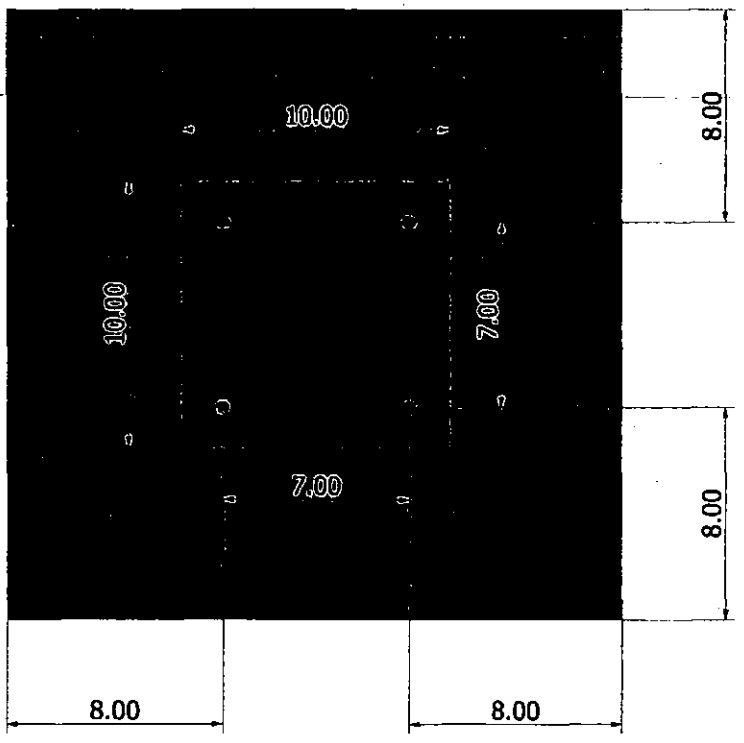
Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 36.00
State: Uncracked
Compressive strength, f'_c (psi): 2500
$\Psi_{c,V}$: 1.4
Reinforcement condition: A tension, A shear
Supplemental reinforcement: No
Reinforcement provided at corners: No
Do not evaluate concrete breakout in tension: No
Do not evaluate concrete breakout in shear: No
Ignore 6do requirement: Not applicable
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 10.00 x 10.00 x 0.25

<Figure 1>



<Figure 2>



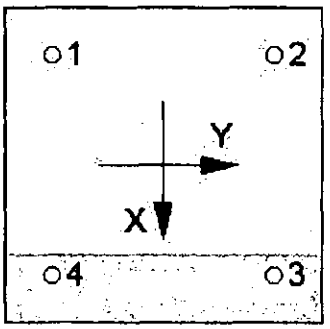
Recommended Anchor
Anchor Name: Titen HD® - 1/2"Ø Titen HD, hnom:4" (102mm)
Code Report: ICC-ES ESR-2713

3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	4481.0	212.0	0.0	212.0
2	4481.0	212.0	0.0	212.0
3	0.0	212.0	0.0	212.0
4	0.0	212.0	0.0	212.0
Sum	8962.0	848.0	0.0	848.0

Maximum concrete compression strain (‰): 0.19
Maximum concrete compression stress (psi): 826
Resultant tension force (lb): 8962
Resultant compression force (lb): 8962
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



4. Steel Strength of Anchor in Tension(Sec. D.5.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
20130	0.70	14091

5. Concrete Breakout Strength of Anchor in Tension (Sec. D.5.2)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ (Eq. D-6)

k_c	λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
24.0	1.00	2500	2.990	6204

$\phi N_{cbg} = \phi (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. D.4.1 & Eq. D-4)

A_{Nc} (in²)	A_{Nco} (in²)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕN_{cbg} (lb)
143.25	80.46	1.000	1.000	1.00	1.000	6204	0.85	9389

8. Steel Strength of Anchor in Shear (Sec. D.6.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
7455	1.0	0.65	4846

9. Concrete Breakout Strength of Anchor in Shear (Sec. D.6.2)

Shear perpendicular to edge in x-direction:

$V_{bx} = \min\left|7(l_e / d_a)^{0.2} \sqrt{d_a} \lambda_a \sqrt{f'_c} c_{a1}^{1.5};\ 9 \lambda_a \sqrt{f'_c} c_{a1}^{1.5}\right|$ (Eq. D-33 & Eq. D-34)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{bx} (lb)
2.99	0.50	1.00	2500	15.00	20560

$\phi V_{cbgx} = \phi (A_{Vc} / A_{Vco}) \Psi_{ec,V} \Psi_{ed,V} \Psi_{c,V} \Psi_{h,V} V_{bx}$ (Sec. D.4.1 & Eq. D-31)

A_{Vc} (in²)	A_{Vco} (in²)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{bx} (lb)	ϕ	ϕV_{cbgx} (lb)
517.50	1012.50	1.000	0.807	1.400	1.000	20560	0.85	10088

Shear parallel to edge in x-direction:

$V_{by} = \min\left|7(l_e / d_a)^{0.2} \sqrt{d_a} \lambda_a \sqrt{f'_c} c_{a1}^{1.5};\ 9 \lambda_a \sqrt{f'_c} c_{a1}^{1.5}\right|$ (Eq. D-33 & Eq. D-34)

l_e (in)	d_a (in)	λ_a	f'_c (psi)	c_{a1} (in)	V_{by} (lb)
2.99	0.50	1.00	2500	8.00	8008

$\phi V_{cbgx} = \phi\ (2)(A_{Vc} / A_{Vco})\ \Psi_{ec,V}\ \Psi_{ed,V}\ \Psi_{c,V}\ \Psi_{h,V} V_{by}$ (Sec. D.4.1 & Eq. D-31)

A_{Vc} (in²)	A_{Vco} (in²)	$\Psi_{ec,V}$	$\Psi_{ed,V}$	$\Psi_{c,V}$	$\Psi_{h,V}$	V_{by} (lb)	ϕ	ϕV_{cbgx} (lb)
276.00	288.00	1.000	1.000	1.400	1.000	8008	0.85	18265

10. Concrete Pryout Strength of Anchor in Shear (Sec. D.6.3)

$\phi V_{cpg} = \phi k_{cp} N_{cbg} = \phi k_{cp} (A_{Nc} / A_{Nco})\ \Psi_{ec,N}\ \Psi_{ed,N}\ \Psi_{c,N}\ \Psi_{cp,N} N_b$ (Eq. D-41)

k_{cp}	A_{Nc} (in²)	A_{Nco} (in²)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	255.04	80.46	1.000	1.000	1.000	1.000	6204	0.75	29499

11. Results

Interaction of Tensile and Shear Forces (Sec. D.7)

Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status
Steel	4481	14091	0.32	Pass
Concrete breakout	**8962**	**9389**	**0.95**	**Pass (Governs)**

Shear	Factored Load, V_{ua} (lb)	Design Strength, ϕV_n (lb)	Ratio	Status
Steel	212	4846	0.04	Pass
T Concrete breakout x+	**848**	**10088**	**0.08**	**Pass (Governs)**
|| Concrete breakout y-	**424**	**18265**	**0.02**	**Pass (Governs)**
Pryout	848	29499	0.03	Pass

Interaction check	$N_{ua}/\phi N_n$	$V_{ua}/\phi V_n$	Combined Ratio	Permissible	Status
Sec. D.7.1	0.95	0.00	95.5 %	1.0	Pass

1/2"Ø Titen HD, hnom:4" (102mm) meets the selected design criteria.

12. Warnings

- Minimum spacing and edge distance requirement of 6da per ACI 318 Sections D.8.1 and D.8.2 for torqued cast-in-place anchor is waived per designer option.

- Designer must exercise own judgement to determine if this design is suitable.

- Refer to manufacturer's product literature for hole cleaning and installation instructions.

WRIGHT engineers

SK4

Shear transfer of 500#

Use ½" DIA lag screw with 3" min embedment into main member
capacity = 631 # o/k (per attached NDS calculation)

SK5

Shear transfer of 500#

Use eye bolt with ½" dia threaded portion w/ 3½" min embedment
ok by comparison w/ SK4

WOOD FASTENERS

MEMBER	THICKNESS	MATERIAL	Fe (PSI)	θ	A (IN2)	E (PSI)
SIDE	6"	Douglas Fir-Larch	5,600	0		
MAIN	8.0"	Douglas Fir-Larch	5,600	0		

A & E FOR MULT. FASTENERS CALC. ONLY

TOE NAIL? :	N	FASTENER SELECTION :	1/2" x9.5" LAG SCREW
END GRAIN? :	N	F_{yb} (PSI) :	45,000
C_{di} :	1.00	LENGTH (IN) :	9.5
C_M :	1.00	DIAMETER (IN) :	0.500
C_t :	1.00	ROOT DIAMETER (IN) :	0.371
C_D :	1.60	MIN. PENETRATION (IN) :	2.00

INPUTS FOR MULT. FASTENERS CALC.
SPACING IN ROW (IN) :
No. OF FASTENERS IN ROW :

WITHDRAWAL (11.2)

p (IN) :	3.50
W (LB/IN) :	378
C' :	1.60
W' * p (LB) :	2119 ✓

COMBINED LOADING (11.4)

α :	0°
Zα' (LB) :	631

SHEAR (11.3)

l_s (IN) :	6.00
p (IN) :	3.50
l_m (IN) :	3.19
C' :	1.60

YIELD MODE: Z (LB)	SINGLE	DOUBLE
Im (NDS 11.3-1) :	1656	1656
Is (NDS 11.3-2) :	3116	6233
II (NDS 11.3-3) :	1185	-
IIIm (NDS 11.3-4) :	727	-
IIIs (NDS 11.3-5) :	1318	2637
IV (NDS 11.3-6) :	394	788
Z' (LB) :	631	✓ 1262

MULTIPLE FASTENERS (SINGLE SHEAR PLANE)

C_g (10.3.6) :	---
TOTAL No. OF FASTENERS :	4
GROUP CAPACITY (LBS) :	---

CONTINUOUS TRANSFER SHEAR CAPACITY

SPACING (IN)	VALLOW (PLF)
18	421
12	631
8	946
6	1262
4	1892
3	2523
2	3785