Development Review (Minor)
Staff Approval

226-SA-2017

SDA Academy Scoreboard

APPLICATION INFORMATION			
LOCATION:	7410 E Sutton Dr	APPLICANT:	Nathan Chipman-Bonden
PARCEL:	175-04-002A	COMPANY:	Thunderbird Adventist Academy
Q.S.:	32-45	ADDRESS:	7410 E Sutton Dr. Scottsdale, AZ 85260
ZONING:	I-1 & R1-35	PHONE:	(602) 509-0832

Request: To install a scoreboard at an existing softball and baseball field. The front side of the scoreboard will face into the development and face away from existing single family residences to the south and east of the site.

STIPULATIONS

1. The scoreboard architectural elements, dimensions, materials, form, color, and texture, shall be constructed to be consistent with the Scoreboard Elevation Plan, produced by Nelsen Partners, with a City Staff approval date of August 28, 2017.
2. The scoreboard placement, setbacks, and orientation shall adhere to the Scoreboard Site Location Plan, produced by Nelsen Partners, with a City Staff approval date of August 28, 2017.
3. The maximum height of the scoreboard shall not exceed twenty (20) feet from grade.
4. The scoreboard shall utilize non-reflective surfaces or a matte finish.
5. The front face of the scoreboard shall face northwest into the development.
6. Signs and graphics are prohibited on the back side of the scoreboard.
7. A building permit and electrical permit shall be required.

CONSTRUCTION DOCUMENT PLAN REVIEW SUBMITTAL REQUIREMENTS

Submit the following plans and documents to the One Stop Shop for plan review:		
PERMIT APPLICATION:	☒	**Completed Permit Application** The permit application may be obtained or completed online: http://www.scottsdaleaz.gov/assets/ScottsdaleAZ/Building/APP_Permit_Commercial.pdf *(Please complete the permit application prior to arriving at the One Stop Shop)*
ARCHITECTURAL PLANS:	☒	**4 sets of architectural plans, including structural plans and calculations**
STAFF APPROVAL LETTER:	☒	**4 copies of this Staff Approval Letter (Case# 226-SA-2017)**

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: Andrew Chi Date: August 28, 2017

Andrew Chi, Planner

August 28, 2017

Scope of work for Thunderbird Adventist Academy

It is the proposed plan for Thunderbird Adventist Academy, to erect a scoreboard for the athletic fields on Thunderbird Campus.

- This scoreboard will be a total height of 24'-0" a.g. and have a width of 14'-0".
- The direction the scoreboard shall be facing is North/West as to provide viewing to each of our three athletic fields.
- Power will be supplied to the location of the scoreboard through 1½" underground conduit carrying stranded 8AWG wire.
- There will be a service disconnect placed at the base of the scoreboard.
- Scoreboard will be installed per engineering that has been supplied with this submittal.
- Any contract work required will be done by licensed, bonded contractors.
- Arizona Blue Stake will be contacted prior to any excavating.
- Holes will be bored by third party.
- Rebar cages provided by third party.

Submitted this 28th of August,2017

Nathan Chipman-Bonden

Maintenance Director/Facility Manager

Thunderbird Adventist Academy

7410 E. Sutton Dr.

Scottsdale, AZ 85260

M: 602-509-0832

O: 480-948-3300

F: 480-443-4944

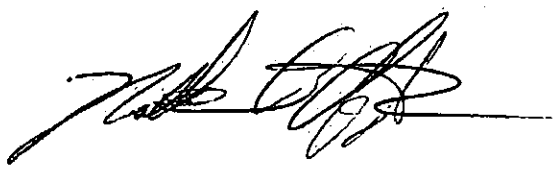
Email: nchipman-bonden@thunderbirdacademy.org

28th August, 2017

Authorized Agent Approval

I, Nathan Chipman-Bonden, an agent representing Thunderbird Adventist Academy, do authorize the installation of a scoreboard in proximity of our athletic fields. The installation is approved in relation to the plans and engineering which have been submitted with this letter.

Sincerely,



Nathan Chipman-Bonden

Maintenance Director/Facility Manager

Thunderbird Adventist Academy

7410 E. Sutton Dr.

Scottsdale Az, 85260

M: 602-509-0832

O: 480-948-3300

F: 480-443-4944

Nchipman-bonden@thunderbirdacademy.org

Acevedo, Alex

From: Projectinput
Sent: Thursday, April 06, 2017 3:16 PM
To: Projectinput
Subject: Online Pre-Application Submitted (249-PA-2017)

Pre-Application Number: **249-PA-2017**

Project Name: **Ballfield Score Board**
Location: **7410 E SUTTON DR**

Contact Name: **Nathan Chipman-Bonden**
Contact Phone: **(602) 509-0832**
Contact Email: **nchipman-bonden@thunderbirdacademy.org**

PK ASSOCIATES, LLC.
Consulting Structural Engineers
7434 E. McDonald Dr.
Scottsdale, AZ 85250

Job Name: Thunderbird Academy Score Board
Job No.: 17060 Sheet No.: cover
By: VD Date: 2/16/2017

CLIENT:

Nelsen Partners, Inc.
15210 N. Scottsdale Road, Suite #300
Scottsdale, AZ 85254

EXPIRES 6-30-2018

PROJECT DESCRIPTION:
THUNDERBIRD ACADEMY
SCORE BOARD
Scottsdale, AZ

BUILDING CODE: 2015 IBC

SOILS DATA: Per IBC 2015 – Sect. 1806

NOTES:

FK Associates
7434 E. McDonald Drive
Scottsdale, AZ
480-922-8854

JOB TITLE Thunderbird Academy Score Board
Scottsdale, AZ
JOB NO. SHEET NO. 1
CALCULATED BY DATE 2/16/17
CHECKED BY DATE

CS12 Ver 2012.01.24 www.struware.com

STRUCTURAL CALCULATIONS

FOR

Thunderbird Academy Score Board

Scottsdale, AZ

7434 E. McDonald Drive
Scottsdale, AZ
480-922-8854

JOB TITLE Thunderbird Academy Score Board
Scottsdale, AZ
JOB NO. SHEET NO. 2
CALCULATED BY DATE 2/16/17
CHECKED BY DATE

Code Search

Code: ASCE 7 - 10

Occupancy:

Occupancy Group = E Educational

Risk Category & Importance Factors:

Risk Category =	III
Wind factor =	1.00
Snow factor =	1.10
Seismic factor =	1.25

Type of Construction:

Fire Rating:

Roof =	0.0 hr
Floor =	0.0 hr

Building Geometry:

Roof angle (θ)	0.00 / 12	0.0 deg
Building length (L)	14.0 ft	
Least width (B)	1.0 ft	
Mean Roof Ht (h)	17.0 ft	
Parapet ht above grd	17.0 ft	
Minimum parapet ht	0.0 ft	

Live Loads:

Roof
0 to 200 sf: 20 psf
200 to 600 sf: 24 - 0.02Area, but not less than 12 psf
over 600 sf: 12 psf

Floor:

Typical Floor	40 psf
Partitions	N/A
Partitions	N/A
Partitions	N/A
Partitions	N/A

PK Associates
7434 E. McDonald Drive
Scottsdale, AZ
480-922-8854

JOB TITLE Thunderbird Academy Score Board
Scottsdale, AZ
JOB NO. _____ SHEET NO. 9
CALCULATED BY _____ DATE 2/16/17
CHECKED BY _____ DATE _____

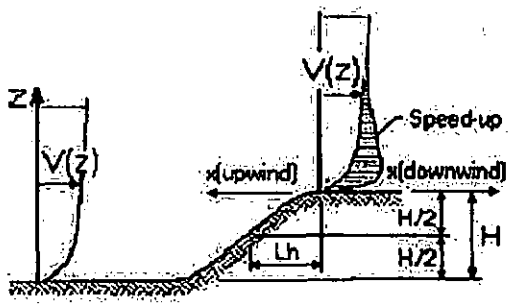
Wind Loads :

Ultimate Wind Speed	115 mph
Directionality (Kd)	0.85
Exposure Category	C
Enclosure Classif.	Open Building
Internal pressure	+/-0.00
Kh case 1	0.872
Kh case 2	0.872
Type of roof	Monoslope

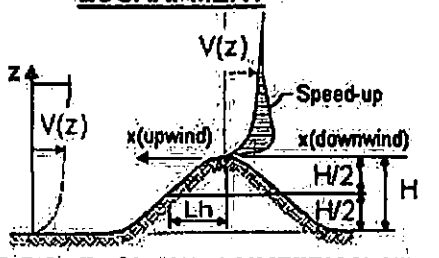
Topographic Factor (Kzt)

Topography		Flat
Hill Height	(H)	0.0 ft
Half Hill Length	(Lh)	0.0 ft
Actual H/Lh	=	0.00
Use H/Lh	=	0.00
Modified Lh	=	0.0 ft
From top of crest: x =		0.0 ft
Bldg up/down wind?		downwind

H< 15ft;exp C
\ Kzt=1.0



ESCARPMENT



2D RIDGE or 3D AXISYMMETRICAL HILL

H/Lh= 0.00	K_1 =	0.000
x/Lh = 0.00	K_2 =	0.000
z/Lh = 0.00	K_3 =	1.000
At Mean Roof Ht:		
Kzt = $(1+K_1K_2K_3)^2$ =		1.00

Gust Effect Factor

h =	17.0 ft
B =	1.0 ft
/z (0.6h) =	15.0 ft

Flexible structure if natural frequency < 1 Hz (T > 1 second).
However, if building h/B < 4 then probably rigid structure (rule of thumb).
h/B = 17.00 May be flexible structure

G = 0.85 Using rigid structure default

Rigid Structure

ē =	0.20
ℓ =	500 ft
z_{min} =	15 ft
c =	0.20
g_Q, g_v =	3.4
L_z =	427.1 ft
Q =	0.96
I_z =	0.23
G =	0.90 use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (η_1) =	0.0 Hz			
Damping ratio (β) =	0			
/b =	0.65			
/α =	0.15			
Vz =	97.1			
N_1 =	0.00			
R_n =	0.000			
R_h =	28.282	η =	0.000	h = 17.0 ft
R_B =	28.282	η =	0.000	
R_L =	28.282	η =	0.000	
g_R =	0.000			
R =	0.000			
G =				

FK Associates
7434 E. McDonald Drive
Scottsdale, AZ
480-922-8854

JOB TITLE Thunderbird Academy Score Board
Scottsdale, AZ
JOB NO. ____ SHEET NO. 4
CALCULATED BY ____ DATE 2/16/17
CHECKED BY ____ DATE ____

Enclosure Classification

Test for Enclosed Building: A building that does not qualify as open or partially enclosed.

Test for Open Building: All walls are at least 80% open.
Ao ≥ 0.8Ag

Test for Partially Enclosed Building:

	Input			Test	
Ao	0.0	sf	Ao ≥ 1.1Aoi	YES	
Ag	0.0	sf	Ao > 4' or 0.01Ag	NO	
Aoi	0.0	sf	Aoi / Agi ≤ 0.20	NO	Building is NOT Partially Enclosed
Agi	0.0	sf			

Conditions to qualify as Partially Enclosed Building. Must satisfy all of the following:
Ao ≥1.1Aoi
Ao > smaller of 4' or 0.01 Ag
Aoi / Agi ≤ 0.20
Where:
Ao = the total area of openings in a wall that receives positive external pressure.
Ag = the gross area of that wall in which Ao is identified.
Aoi = the sum of the areas of openings in the building envelope (walls and roof) not including Ao.
Agi = the sum of the gross surface areas of the building envelope (walls and roof) not including Ag.

Reduction Factor for large volume partially enclosed buildings (RI) :

If the partially enclosed building contains a single room that is unpartitioned , the internal pressure coefficient may be multiplied by the reduction factor Ri.

Total area of all wall & roof openings (Aog): 0 sf
Unpartitioned internal volume (VI) : 0 cf
Ri = 1.00

Altitude adjustment to constant 0.00256 (caution - see code) :

Altitude = 0 feet
Constant = 0.00256
Average Air Density = 0.0765 lbm/ft^3

7434 E. McDonald Drive
Scottsdale, AZ
480-922-8854

JOB TITLE Thunderbird Academy Score Board
Scottsdale, AZ
JOB NO. SHEET NO. 5
CALCULATED BY DATE 2/16/17
CHECKED BY DATE

Wind Loads - Other Structures:

WIND PRESSURE APPLIES TO SCORE BOARD

Importance Factor =	1.00		
Gust Effect Factor (G) =	0.85	Wind Speed =	115 mph
Kzt =	1.00	Exposure =	C

A. Solid Freestanding Walls & Solid Signs (& open signs with less than 30% open)

		s/h =	0.58	
Dist to sign top (h)	24.0 ft	B/s =	1.00	
Height (s)	14.0 ft	Lr/s =	0.00	
Width (B)	14.0 ft	Kz =	0.937	
Wall Return (Lr) =		qz =	27.0 psf	
Directionality (Kd)	0.85			
Percent of open area to gross area	0.0%	Open reduction factor =	1.00	
		Case C reduction factors		
		Factor if s/h>0.8 =	1.00	
		Wall return factor for Cf at 0 to s =	1.00	

Case A & B

C_f =	1.71
F = qz G Cf As =	**39.2 As**
As =	10.0 sf
F =	392 lbs

CaseC

Horiz dist from windward edge	Cf	F=qzGCfAs (psf)
0 to s	2.25	51.6 **As**
s to 2s	1.50	34.4 **As**

B. Open Signs & Lattice Frameworks (openings 30% or more of gross area)

Height to centroid of Af (z)	15.0 ft			Kz =	0.849
				Base pressure (qz) =	24.4 psf
Width (zero if round)	0.0 ft				
Diameter (zero if rect)	2.0 ft	D(qz)^.5 =	9.89	F = q_z G C_f A_f =	**22.8 Af**
Percent of open area		I =	0.65	Solid Area: A_f =	10.0 sf
to gross area	35.0%	C_f =	1.1	F =	228 lbs
Directionality (Kd)	0.85				

C. Chimneys, Tanks & Similar Structures

Height to centroid of Af (z)	15.0 ft			Kz =	0.849
Cross-Section	Square			Base pressure (qz) =	25.9 psf
Directionality (Kd)	0.90				h/D = 15.00
Height (h)	15.0 ft				
Width (D)	1.0 ft				
Type of Surface	N/A				

Square (wind along diagonal)

Cf =	1.28
F = qz G Cf Af =	**28.1 Af**
Af =	sf
F =	0 lbs

Square (wind normal to face)

C_f =	1.67
F = q_z G C_f A_f =	**36.6 Af**
A_f =	10.0 sf
F =	366 lbs

D. Trussed Towers

Height to centroid of Af (z)	15.0 ft			Kz =	0.849
ϵ =	0.27			Base pressure (qz) =	28.7 psf
Tower Cross Section	square				
Member Shape	flat			Diagonal wind factor =	1.2
Directionality (Kd)	1.00			Round member factor =	1.000

Square (wind along tower diagonal)

Cf =	3.24
F = qz G Cf Af =	**79.1 Af**
Solid Area: Af =	10.0 sf

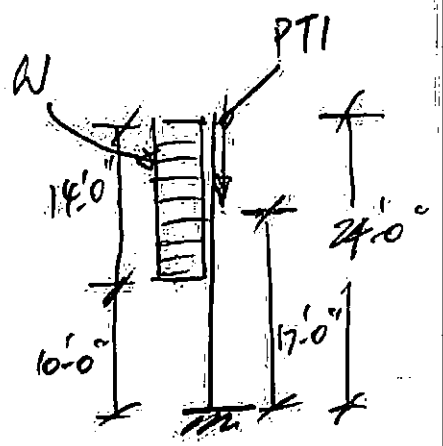
Square (wind normal to face)

C_f =	2.70
F = q_z G C_f A_f =	**65.9 Af**

PK Associates, LLC

Job Name THUNDERBIRD ACADEMY SCORE BOARD
Job No. 17060 Sheet No. 6
By KS Date 02/16/17

SCORE BOARD SUPPORT COLUMN.



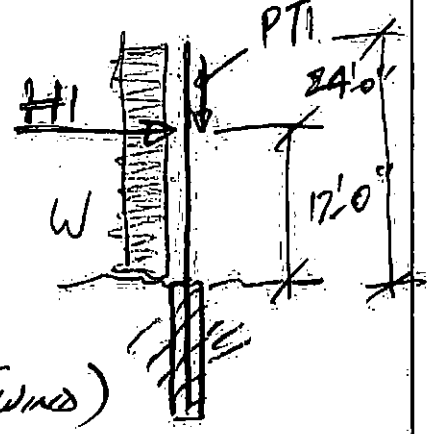
HEIGHT = 24'-0".

PT1 = (14'/2)(14')(25 PSF) ← SCORE BOARD WEIGHT.
= 2450# (DL)

W = (39.2 PSF)(14'/2)
= 275 PLF. (WIND)

- USE W12X26 (SEE ATTACHED COMP. OUTPUT).

SCORE BOARD COLUMN CONCRETE BASE.



PT1 = 2450# ← (SEE ABV.)

W = (6.5/12)(39.2 PSF) = 21.2 PLF (WIND)

H1 = (39.2 PSF)(14')(14'/2) = 3.84K (WIND)

- USE 36"Ø X 9'-6" DEEP CONC. BASE W/ 16 #6 VERT. & #4 TIE AT 8" O.C. (SEE ATTACHED COMP. OUTPUT)

Steel Column

File = c:\Users\Vid\Desktop\[0112-1.17]\2017DE-1\THUNDE-1\THUNDE-1.EC6
ENERCALC, INC. 1983-2017, Build:6.17.1.16, Ver:6.17.1.16

Lic. #: KW-06004221
Licensee: PAUL KOEHLER ENGINEERS

Description : Score Board Support Columns

Code References

Calculations per AISC 360-10, IBC 2012, CBC 2013, ASCE 7-10
Load Combinations Used : IBC 2015

General Information

Steel Section Name : **W12x26**
Analysis Method : Allowable Strength
Steel Stress Grade
Fy : Steel Yield 50.0 ksi
E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 24.0 ft
Top & Bottom Fixity Top Free, Bottom Fixed
Brace condition for deflection (buckling) along columns :
X-X (width) axis :
Unbraced Length for X-X Axis buckling = 10 ft, K = 2.10
Y-Y (depth) axis :
Unbraced Length for Y-Y Axis buckling = 24.0 ft, K = 2.10

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 624.0 lbs * Dead Load Factor
AXIAL LOADS . . .
Axial Load at 17.0 ft, Yecc = 7.50 in, D = 2.450 k
BENDING LOADS . . .
Lat. Uniform Load from 10.0-->24.0 ft creating Mx-x, W = 0.2750 k/ft

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.6068** : 1
Load Combination +D+0.60W+H
Location of max.above base 0.0 ft
At maximum location values are . . .
Pa : Axial 3.074 k
Pn / Omega : Allowable 41.285 k
Ma-x : Applied -40.801 k-ft
Mn-x / Omega : Allowable 71.639 k-ft
Ma-y : Applied 0.0 k-ft
Mn-y / Omega : Allowable 20.384 k-ft

PASS Maximum Shear Stress Ratio = **0.04116** : 1
Load Combination +0.60D-0.60W+0.60H
Location of max.above base 0.0 ft
At maximum location values are . . .
Va : Applied 2.310 k
Vn / Omega : Allowable 56.120 k

Maximum SERVICE Load Reactions . .
Top along X-X 0.0 k
Bottom along X-X 0.0 k
Top along Y-Y 0.0 k
Bottom along Y-Y 3.850 k

Maximum SERVICE Load Deflections . . .
Along Y-Y 3.030 in at 24.0 ft above base
for load combination : W Only
Along X-X 0.0 in at 0.0 ft above base
for load combination :

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
+D+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft
+D+L+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft
+D+Lr+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft
+D+S+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft
+D+0.60W+H	0.607	PASS	0.00 ft	0.041	PASS	0.00 ft
+D-0.60W+H	0.564	PASS	0.00 ft	0.041	PASS	0.00 ft
+D+0.70E+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft
+D-0.70E+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.450W+H	0.470	PASS	0.00 ft	0.031	PASS	0.00 ft
+D+0.750Lr+0.750L-0.450W+H	0.427	PASS	0.00 ft	0.031	PASS	0.00 ft
+D+0.750L+0.750S+0.450W+H	0.470	PASS	0.00 ft	0.031	PASS	0.00 ft
+D+0.750L+0.750S-0.450W+H	0.427	PASS	0.00 ft	0.031	PASS	0.00 ft
+D+0.750L+0.750S+0.5250E+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft

Steel Column

Description : Score Board Support Columns

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Maximum Shear Ratios: Stress Ratio	Status	Location
+D+0.750L+0.750S-0.5250E+H	0.059	PASS	24.00 ft	0.000	PASS	0.00 ft
+0.60D+0.60W+0.60H	0.583	PASS	0.00 ft	0.041	PASS	0.00 ft
+0.60D-0.60W+0.60H	0.558	PASS	0.00 ft	0.041	PASS	0.00 ft
+0.60D+0.70E+0.60H	0.036	PASS	24.00 ft	0.000	PASS	0.00 ft
+0.60D-0.70E+0.60H	0.036	PASS	24.00 ft	0.000	PASS	0.00 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction @ Base	@ Top	Y-Y Axis Reaction @ Base	@ Top	Axial Reaction @ Base
+D+H	k			k	3.074 k
+D+L+H	k			k	3.074 k
+D+Lr+H	k			k	3.074 k
+D+S+H	k			k	3.074 k
+D+0.750Lr+0.750L+H	k			k	3.074 k
+D+0.750L+0.750S+H	k			k	3.074 k
+D+0.60W+H	k		2.310	k	3.074 k
+D-0.60W+H	k		-2.310	k	3.074 k
+D+0.70E+H	k			k	3.074 k
+D-0.70E+H	k			k	3.074 k
+D+0.750Lr+0.750L+0.450W+H	k		1.733	k	3.074 k
+D+0.750Lr+0.750L-0.450W+H	k		-1.733	k	3.074 k
+D+0.750L+0.750S+0.450W+H	k		1.733	k	3.074 k
+D+0.750L+0.750S-0.450W+H	k		-1.733	k	3.074 k
+D+0.750L+0.750S+0.5250E+H	k			k	3.074 k
+D+0.750L+0.750S-0.5250E+H	k			k	3.074 k
+0.60D+0.60W+0.60H	k		2.310	k	1.844 k
+0.60D-0.60W+0.60H	k		-2.310	k	1.844 k
+0.60D+0.70E+0.60H	k			k	1.844 k
+0.60D-0.70E+0.60H	k			k	1.844 k
D Only	k			k	3.074 k
Lr Only	k			k	k
L Only	k			k	k
S Only	k			k	k
W Only	k		3.850	k	k
-W	k		-3.850	k	k
E Only	k			k	k
E Only * -1.0	k			k	k
H Only	k			k	k

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
+D+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+D+L+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+D+Lr+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+D+S+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+D+0.750Lr+0.750L+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+D+0.750L+0.750S+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+D+0.60W+H	0.0000	in	0.000	ft	1.935	in	24.000	ft
+D-0.60W+H	0.0000	in	0.000	ft	-1.701	in	24.000	ft
+D+0.70E+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+D-0.70E+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+D+0.750Lr+0.750L+0.450W+H	0.0000	in	0.000	ft	1.481	in	24.000	ft
+D+0.750Lr+0.750L-0.450W+H	0.0000	in	0.000	ft	-1.246	in	24.000	ft
+D+0.750L+0.750S+0.450W+H	0.0000	in	0.000	ft	1.481	in	24.000	ft
+D+0.750L+0.750S-0.450W+H	0.0000	in	0.000	ft	-1.246	in	24.000	ft
+D+0.750L+0.750S+0.5250E+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+D+0.750L+0.750S-0.5250E+H	0.0000	in	0.000	ft	0.117	in	24.000	ft
+0.60D+0.60W+0.60H	0.0000	in	0.000	ft	1.888	in	24.000	ft

Steel Column

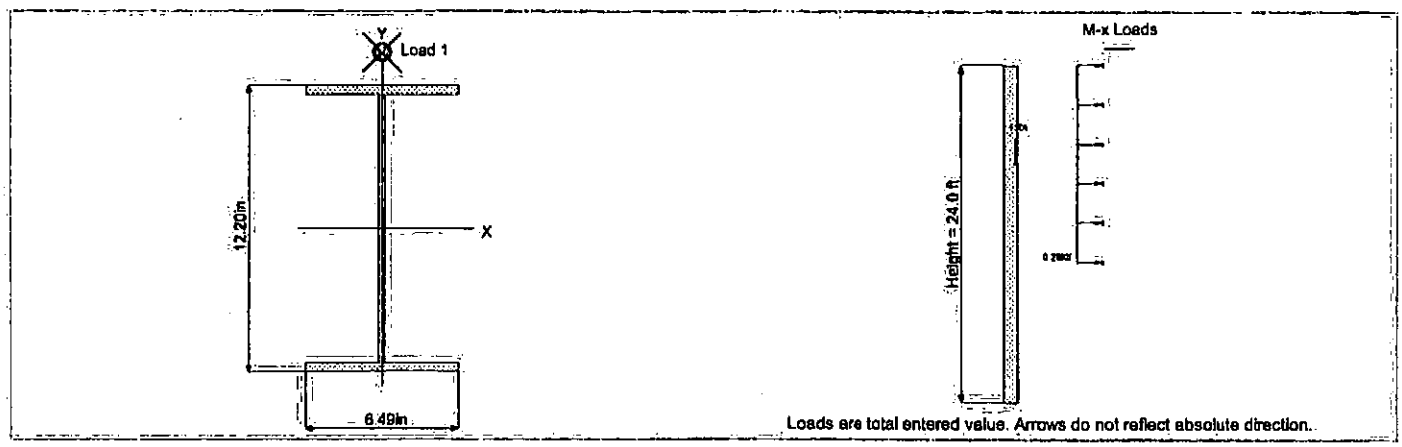
Description : Score Board Support Columns

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
+0.60D-0.60W+0.60H	0.0000	in	0.000	ft	-1.747	in	24.000	ft
+0.60D+0.70E+0.60H	0.0000	in	0.000	ft	0.070	in	24.000	ft
+0.60D-0.70E+0.60H	0.0000	in	0.000	ft	0.070	in	24.000	ft
D Only	0.0000	in	0.000	ft	0.117	in	24.000	ft
Lr Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
L Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
S Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
W Only	0.0000	in	0.000	ft	3.030	in	24.000	ft
-W	0.0000	in	0.000	ft	-3.030	in	24.000	ft
E Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
E Only * -1.0	0.0000	in	0.000	ft	0.000	in	0.000	ft
H Only	0.0000	in	0.000	ft	0.000	in	0.000	ft

Steel Section Properties : W12x26

Depth	=	12.200	in	I xx	=	204.00	in^4	J	= 0.300 in^4
Web Thick	=	0.230	in	S xx	=	33.40	in^3	Cw	= 607.00 in^6
Flange Width	=	6.490	in	R xx	=	5.170	in		
Flange Thick	=	0.380	in	Zx	=	37.200	in^3		
Area	=	7.650	in^2	I yy	=	17.300	in^4		
Weight	=	26.000	plf	S yy	=	5.340	in^3	Wno	= 19.200 in^2
Kdesign	=	0.680	in	R yy	=	1.510	in	Sw	= 11.800 in^4
K1	=	0.750	in	Zy	=	8.170	in^3	Qf	= 7.030 in^3
rts	=	1.750	in	rT	=	0.000	in	Qw	= 18.300 in^3
Ycg	=	0.000	in						



You can change this area using the "Settings" menu item and then using the "Printing & Title Block" selection.

Project Title:
Engineer:
Project Descr:

Project ID: 10

Title Block Line 6

Printed: 16 FEB 2017, 4:27PM

Pole Footing Embedded in Soil

File = c:\Users\DDesktop\01.12.1.17\2017DE - I\THUNDE~1\THUNDE~1.EC8
ENERCALC, INC. 1983-2017, Build:6.17.1.16, Ver:6.17.1.16

Lic. #: KW-06004221 Licensee: PAUL KOEHLER ENGINEERS

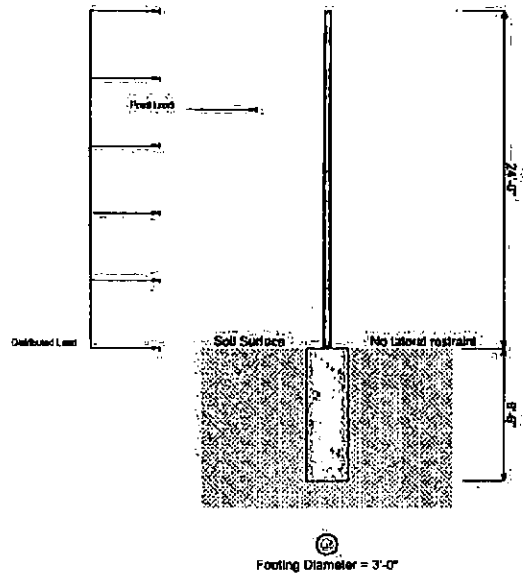
Description : Score Board Column Concrete Base.

Code References

Calculations per IBC 2012 1807.3, CBC 2013, ASCE 7-10
Load Combinations Used : IBC 2015

General Information

Pole Footing Shape	Circular
Pole Footing Diameter	36.0 in
Calculate Min. Depth for Allowable Pressures	
No Lateral Restraint at Ground Surface	
Allow Passive	200.0 pcf
Max Passive	1,500.0 psf



Controlling Values

Governing Load Combination : +D+0.60W+H

Lateral Load	2.606 k
Moment	42.797 k-ft
NO Ground Surface Restraint	
Pressures at 1/3 Depth	
Actual	626.66 psf
Allowable	627.52 psf
Minimum Required Depth	9.50 ft
Footing Base Area	7.069 ft^2
Maximum Soil Pressure	0.3466 ksf

Applied Loads

	Lateral Concentrated Load (k)		Lateral Distributed Loads (klf)		Vertical Load (k)	
D : Dead Load		k		k/ft	2.450	k
Lr : Roof Live		k		k/ft		k
L : Live		k		k/ft		k
S : Snow		k		k/ft		k
W : Wind	3.640	k	0.0210	k/ft		k
E : Earthquake		k		k/ft		k
H : Lateral Earth		k		k/ft		k
Load distance above ground surface	17.0	ft	TOP of Load above ground surface 24.0	ft		
			BOTTOM of Load above ground surface	ft		

Load Combination Results

Load Combination	Forces @ Ground Surface: Loads (k)	Moments (ft-k)	Required: Depth (ft)	Pressure at 1/3 Depth: Actual (psf)	Allow (psf)	Soil Increase Factor
+D+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+L+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+Lr+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+S+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750Lr+0.750L+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750L+0.750S+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.60W+H	2.606	42.797	9.50	626.7	627.5	1.000
+D-0.60W+H	2.606	42.797	9.50	626.7	627.5	1.000
+D+0.70E+H	0.000	0.000	0.13	0.0	0.0	1.000

+D-0.70E+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750Lr+0.750L+0.450W+H	1.955	32.098	8.50	562.2	563.6	1.000
+D+0.750Lr+0.750L-0.450W+H	1.955	32.098	8.50	562.2	563.6	1.000
+D+0.750L+0.750S+0.450W+H	1.955	32.098	8.50	562.2	563.6	1.000
+D+0.750L+0.750S-0.450W+H	1.955	32.098	8.50	562.2	563.6	1.000
+D+0.750L+0.750S+0.5250E+H	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.750L+0.750S-0.5250E+H	0.000	0.000	0.13	0.0	0.0	1.000
+0.60D+0.60W+0.60H	2.606	42.797	9.50	626.7	627.5	1.000
+0.60D-0.60W+0.60H	2.606	42.797	9.50	626.7	627.5	1.000
+0.60D+0.70E+0.60H	0.000	0.000	0.13	0.0	0.0	1.000
+0.60D-0.70E+0.60H	0.000	0.000	0.13	0.0	0.0	1.000

PK Associates, LLC

Job Name THUNDERBIRD ACADEMY SCOPE BOARD

Job No. 17060 Sheet No. 12

By VD Date 02/16/12

APPENDIX

FOR REVIEW ONLY

DAKTRONICS MS-918 PRODUCT SPECIFICATIONS

This outdoor LED multisport scoreboard displays period time to 99:59, HOME and GUEST scores to 99 and INNING or PERIOD to nine with included reversible caption panel. Indicators show BALL, STRIKE, OUT, H (hit) and E (error) in baseball mode. When period time is less than one minute, the scoreboard displays time to 1/10 of a second. Scoreboard shown with optional striping and amber PanaView® digits.

		VINYL CAPTIONS (STANDARD)	TNMCS & VINYL CAPTIONS
POWER (120 VAC)*	Red/Amber Digits	120 Watts, 1 Amp	390 Watts, 3.3 Amps
	White Digits	260 Watts, 2.2 Amps	530 Watts, 4.4 Amps
UNCRATED WEIGHT		265 lb (120 kg)	345 lb (156 kg)
DIMENSIONS		5'-0" H x 14'-0" W x 8" D (1.52 m, 4.27 m, 203 mm)	

**Scoreboard requires a dedicated circuit. Models with 240 VAC power at half the indicated amperage are also offered (International Use Only).*

DIGITS & INDICATORS

- INNING/PERIOD digit is 15" (381 mm) high. All other digits are 18" (457 mm) high. All indicators are 2" (51 mm) in diameter.
- Select red, amber, or white LED digits and indicators.
- Scoreboard features robust weather-sealed digits (see DD2495646).
- Digits may be dimmed for night viewing.

CAPTIONS

- HOME and GUEST captions are 10" (254 mm) high. All other captions are 8" (203 mm) high.
- Standard captions are vinyl, applied to the display face. INNING and PERIOD captions are on a reversible panel.
- Optional TNMCs are 10.6" (269 mm) high.

DISPLAY COLOR

Choose from 150+ colors (from Martin Senour® paint book) at no additional cost.

CONSTRUCTION

Alcoa aluminum alloy 5052 for excellent corrosion resistance

PRODUCT SAFETY APPROVAL

ETL listed to UL 48, tested to CSA standards, and CE labeled

OPERATING TEMPERATURES

- Display: -22° to 122° Fahrenheit (-30° to 50° Celsius)
- Console: 32° to 130° Fahrenheit (0° to 54° Celsius)

WWW.DAKTRONICS.COM E-MAIL: SALES@DAKTRONICS.COM

201 Daktronics Drive, PO Box 5128, Brookings, SD 57006
Phone: 1-800-325-8766 or 605-692-0200 Fax: 605-697-4746

DAKTRONICS MS-918 PRODUCT SPECIFICATIONS

CONTROL CONSOLES	CONTROL OPTIONS
All Sport® 1600* (see SI-04352) **May be upgraded to* ***All Sport 5000*** *(see SI-03991)*	***Wired (standard):*** One-pair shielded cable of 22 AWG minimum is required. A cover plate with mounted connector and standard 2" x 4" x 2" (51 mm x 102 mm x 51 mm) outlet box is provided. Connector mates with signal cable from control console. ***Wireless (optional):*** 2.4 GHz spread spectrum radio features 64 non-interfering channels and 8 broadcast groups (see SI-04370).
RC-100 (see SI-07397)	***Optional*** wireless handheld controller features 900 MHz spread spectrum radio with 15 non-interfering channels and up to 10 hours of operation via internal rechargeable battery.

Note: *All Sport 5000 required for Team Name Message Centers.*

SEGMENT TIMER MODE

The segment timer mode is ideal for keeping practices on schedule. The horn at the end of a segment allows coaches and athletes to focus on the practice and to listen for the horn when it is time to change drills (see SI-04004).

TIME OF DAY MODE

This scoreboard features a Time of Day (TOD) mode that allows it to act as a clock when the control console is unplugged or off. Refer to the scoreboard installation manual for instructions on how to enable the Time of Day mode.

MOUNTING

Scoreboard is typically mounted on two vertical beams or poles. Hardware to mount scoreboard on two beams is included; hardware for more beams is at additional cost. Standard mounting uses I-beam clamps. Optional mounting method using angle brackets is also offered; maximum beam width is 12" (305 mm) and maximum beam depth is 22" (559 mm). Refer to attached drawings for more information on mounting methods.

SERVICE ACCESS

Digit panels and electronics are serviced from the front of the scoreboard.

GENERAL INFORMATION

Scoreboard provides scoring capabilities for two teams. 100% solid state electronics are housed in an all aluminum cabinet. Scoreboard is shipped in one section. Scoreboard power is to be provided on a dedicated circuit to prevent loss of game information due to failure of another component on the circuit. Specifications and pricing are subject to change without notice.

ADVERTISING/IDENTIFICATION PANELS

Backlit & Non-Backlit:

1'-6" H x 14'-0" W (457 mm, 4.27 m)
2'-0" H x 14'-0" W (610 mm, 4.27 m)
2'-6" H x 14'-0" W (762 mm, 4.27 m)

For additional non-backlit panel sizes, see SI-03761.

OPTIONS & ACCESSORIES

- Scoreboard border striping
- Multiple caption and striping colors (see DD2101644)
- Team name caption in place of HOME *
- Team names on changeable panels *
- Programmable Team Name Message Centers (see DD1696958)
- Reversible HALF and QTR caption panel
- Horn
- Individual digit protective screens (see SI-04939)
- Protective netting (see DD2690927)
- Optional angle bracket mounting method
- Advertising/identification panels
- Decorative accents
- Electronic message centers and video displays in multiple sizes

** Not available with TNMCs*

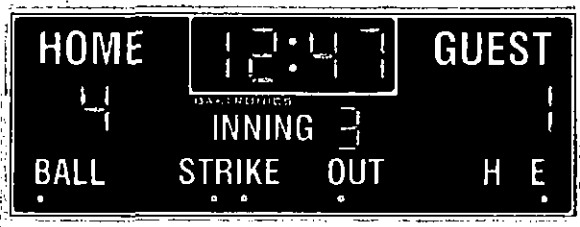
FOR ADDITIONAL INFORMATION

- Installation Specifications: DWG-1157187 (attached)
- Standard I-beam Mounting: DWG-1052565 (attached)
- Optional Pole Mounting: DWG-1048184 (attached)
- Component Locations: DWG-1074633 (attached)
- Architectural Specifications: See SI-05167

DAKTRONICS MS-918 PRODUCT SPECIFICATIONS

ALTERNATE CAPTIONS & SCORING MODES

Standard Vinyl Captions
(PERIOD & INNING on included caption panel)



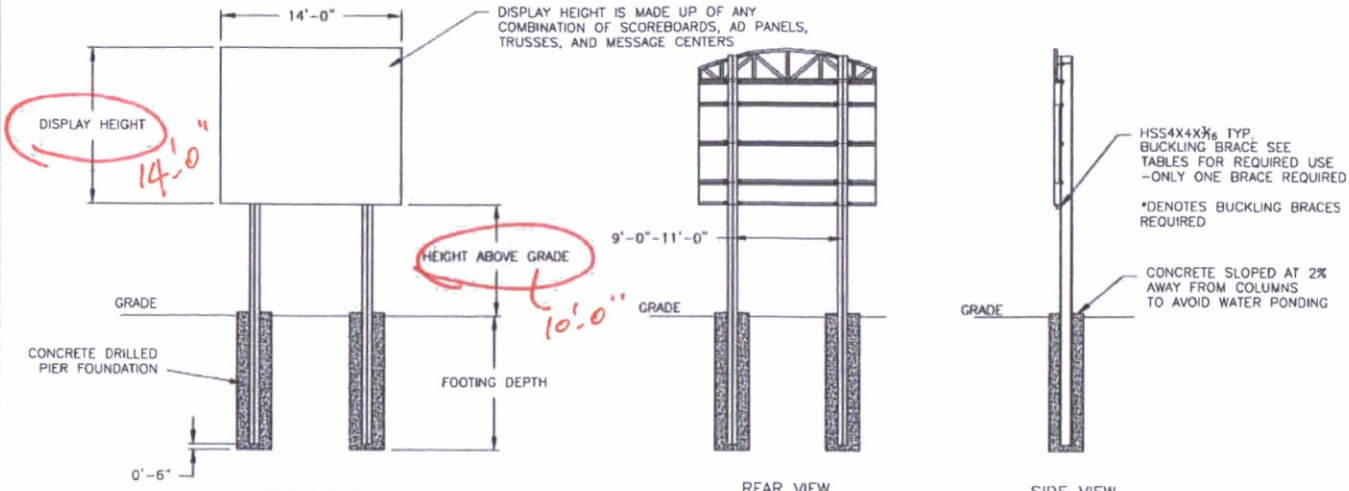
Baseball Mode

Lacrosse/Field Hockey Mode

Optional Vinyl Captions on Reversible Panel

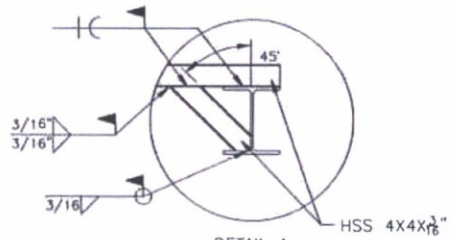
Football Mode

Soccer Mode



LAYOUT VIEW

COLUMNS & FOOTING ONLY



DETAIL A
SCALE 1:32

TABLE A – MOUNTING

EXPOSURE B

HEIGHT ABOVE GRADE = 10'					
DISPLAY HEIGHT (FT)		DESIGN WIND VELOCITY			
		115 MPH	130 MPH	150 MPH	170 MPH
6	COLUMN FOOTING	W6X15 2.0'X6.5'	W8X21 2.0'X7.0'	W8X21 2.0'X8.0'	W10X22 2.0'X8.5'
8	COLUMN FOOTING	W10X22 2.0'X7.5'	W8X24 2.0'X8.0'	W8X24 2.0'X9.0'	W8X28 2.0'X10.0'
10	COLUMN FOOTING	W8X24 2.0'X8.5'	W8X28 2.0'X9.0'	W8X31 2.0'X10.0'	W10X33 3.0'X9.5'
12	COLUMN FOOTING	W8X28 2.0'X9.0'	W8X31 2.0'X10.0'	W10X39 3.0'X9.5'	W12X40 3.0'X11.0'
14	COLUMN FOOTING	W10X26* 2.0'X10.0'	W10X26* 3.0'X9.0'	W12X30* 3.0'X10.0'	W14X34* 3.0'X11.0'

HEIGHT ABOVE GRADE = 15'					
DISPLAY HEIGHT (FT)		DESIGN WIND VELOCITY			
		115 MPH	130 MPH	150 MPH	170 MPH
6	COLUMN FOOTING	W8X24 2.0'X7.5'	W8X24 2.0'X8.0'	W8X28 2.0'X9.0'	W8X31 2.0'X9.5'
8	COLUMN FOOTING	W8X31 2.0'X8.5'	W8X31 2.0'X9.0'	W10X33 3.0'X8.5'	W10X39 3.0'X9.5'
10	COLUMN FOOTING	W8X24* 2.0'X9.0'	W12X26* 2.0'X10.0'	W10X33* 3.0'X9.5'	W16X36* 3.0'X11.0'
12	COLUMN FOOTING	W12X26* 2.0'X10.0'	W14X30* 3.0'X9.5'	W16X36* 3.0'X11.0'	W14X43* 3.0'X12.0'
14	COLUMN FOOTING	W10X30* 3.0'X9.5'	W10X49* 3.0'X10.0'	W16X40* 3.0'X11.0'	W14X48* 3.0'X13.0'

FOOTING DIMENSIONS = DIAMETER X DEPTH
* DENOTES BUCKLING BRACE REQUIRED

SEE PKA VERIFICATION CALCULATIONS.

EXPOSURE C

HEIGHT ABOVE GRADE = 10'			
DISPLAY HEIGHT (FT)		DESIGN WIND VELOCITY	
		115 MPH	140 MPH
6	COLUMN FOOTING	W8X21 2.0'X7.5'	W8X24 2.0'X8.5'
8	COLUMN FOOTING	W8X24 2.0'X8.5'	W8X28 2.0'X10.0'
10	COLUMN FOOTING	W8X31 2.0'X9.5'	W10X33 3.0'X9.5'
12	COLUMN FOOTING	W10X33 3.0'X9.0'	W12X40 3.0'X10.5'
14	COLUMN FOOTING	W12X26* 3.0'X9.5'	W14X34* 3.0'X11.0'

HEIGHT ABOVE GRADE = 15'			
DISPLAY HEIGHT (FT)		DESIGN WIND VELOCITY	
		115 MPH	140 MPH
6	COLUMN FOOTING	W12X26 2.0'X8.5'	W8X31 2.0'X9.5'
8	COLUMN FOOTING	W8X31 2.0'X9.5'	W10X39 3.0'X9.5'
10	COLUMN FOOTING	W12X30* 3.0'X9.0'	W16X36* 3.0'X11.0'
12	COLUMN FOOTING	W14X34* 3.0'X9.5'	W16X40* 3.0'X11.0'
14	COLUMN FOOTING	W14X38* 3.0'X11.0'	W14X48* 3.0'X13.0'

FOOTING DIMENSIONS = DIAMETER X DEPTH
* DENOTES BUCKLING BRACE REQUIRED

NOTE:
-REFER TO NOTE 7 FOR EXPOSURE CATEGORY DEFINITIONS.

NOTES:

1. FOOTING AND COLUMN SIZES ARE SUGGESTIONS ONLY, PROVIDED TO ASSIST WITH ESTIMATING INSTALLATION COSTS AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES. THE DESIGN MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF THE INSTALLATION BEFORE THEY CAN BE USED FOR FABRICATION Or ERECTION.

2. INTERNATIONAL BUILDING CODE 2012 USED IN DESIGN OF COLUMNS AND FOOTINGS WITH, IMPORTANCE FACTOR=1, Kzt=1.0, Kd=0.85, G=0.85. SEISMIC DESIGN WAS NOT CONSIDERED.

3. FOOTING DIMENSIONS ARE BASED ON ASSUMED SOIL CLASS 4 (ALLOWABLE LATERAL BEARING PRESSURE OF 150 psf).

4. STRUCTURAL STEEL IS GRADE A992 (50 ksi) STEEL. CONCRETE SHALL HAVE A MINNIMUM 28 DAY COMPRESSIVE STRENGTH OF 2500 psi.

5. THE AVERAGE DISPLAY WEIGHT FOR A LAYOUT CAN NOT EXCEED 8 PSF.

6. DAKTRONICS INC. IS NOT RESPONSIBLE FOR STRUCTURES DESIGNED AND INSTALLED BY OTHERS.

7. LOCAL BUILDING OFFICIALS SHOULD BE CONTACTED TO DETERMINE THE WIND SPEED AND EXPOSURE CATEGORY FOR THE PROPOSED SIGN LOCATION. THE EXPOSURE CATEGORY C IS DEFINED AS:

EXPOSURE B – URBAN AND SUBURBAN AREAS, OR OTHER TERRAIN WITH NUMEROUS SPACED OBSTRUCTIONS HAVING THE SIZE OF SINGLE-FAMILY DWELLINGS OR LARGER. THESE CONDITIONS MUST PREVAIL FOR A DISTANCE FROM THE SIGN OF AT LEAST 2,600 ft OR 20 TIMES THE SIGN HEIGHT, WHICHEVER IS GREATER

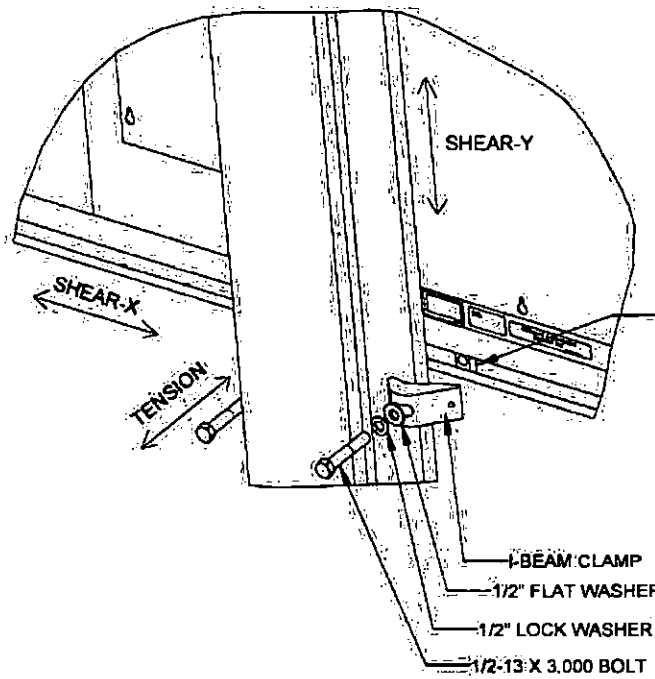
EXPOSURE C – OPEN TERRAIN WITH SCATTERED OBSTRUCTIONS HAVING HEIGHTS GENERALLY LESS THAN 30 FT. THIS CATEGORY INCLUDES FLAT OPEN COUNTRY, GRASSLANDS, AND ALL WATER SURFACES IN HURRICANE PRONE REGIONS.

8. FOR SPECIFIC PRODUCT DETAILS ON WEIGHT, MOUNTING, ETC., REFER TO THE INDIVIDUAL PRODUCT SPECIFICATION SHEETS.

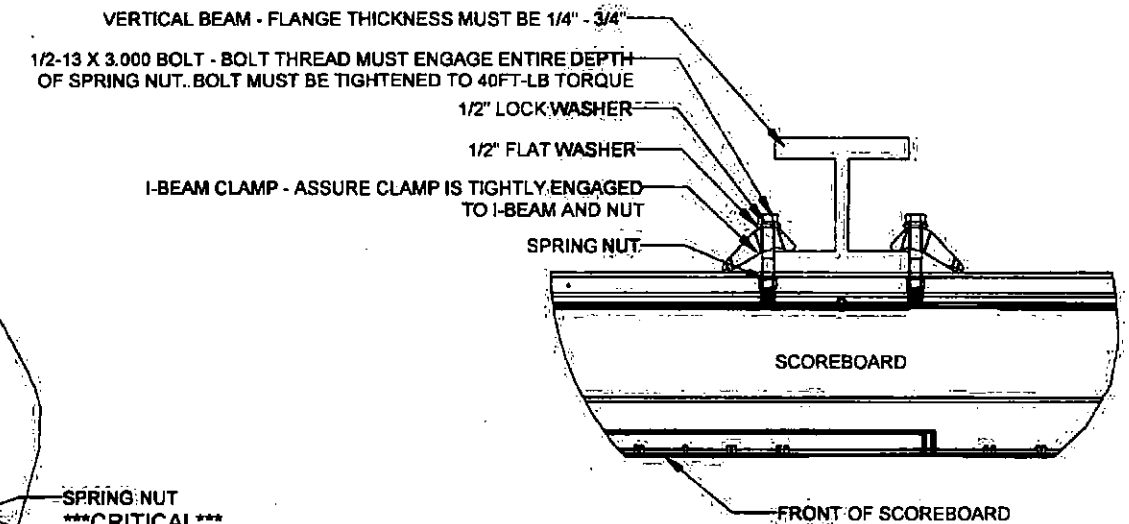
REV	DATE:		BY
02	27 OCT 15	UPDATED WIDE FLANGE AND FOUNDATION VALUES	AMP
01	23 JUL 14	UPDATED CLAMPS IN REAR AND SIDE VIEW AND ADDED 170 MPH WIND SPEC COLUMN	TJT

DAKTRONICS, INC.
BROOKINGS, SD 57006
DO NOT SCALE DRAWING

PROJ: OUTDOOR SCOREBOARD INSTALLATION
TITLE: 14' WIDTH SCOREBOARD INSTALLATION SPECS
DESIGN: RSCHWAR | DRAWN: RSCHWAR | DATE: 27 NOV 13
SCALE: 1/16"=1'
SHEET | REV | JOB NO: | ELTNG-TORE-SIZE



EXPLODED REAR ISOMETRIC VIEW



TOP VIEW

CRITICAL
DO NOT USE ANY LUBRICANT
ON ANY MOUNTING HARDWARE
OR WARRANTY WILL BE VOIDED

STANDARD MOUNTING METHOD

MOUNTING INSTRUCTIONS:
1. PLACE SPRING NUTS INTO SCOREBOARD CHANNEL IN APPROXIMATE LOCATION OF VERTICAL BEAMS
2. LIFT SCOREBOARD INTO POSITION
3. MAKE SURE THE 1/2-13 BOLTS ARE AS CLOSE TO THE I-BEAM FLANGES AS POSSIBLE WHEN SCOREBOARD IS ADJUSTED TO FINAL DESIRED POSITION, TIGHTEN BOLTS FIRMLY
4. IF FLANGE THICKNESS IS MORE THAN 3/4" THICK LONGER BOLTS WILL BE REQUIRED AT THE CUSTOMER'S EXPENSE.

STRUCTURAL NOTES

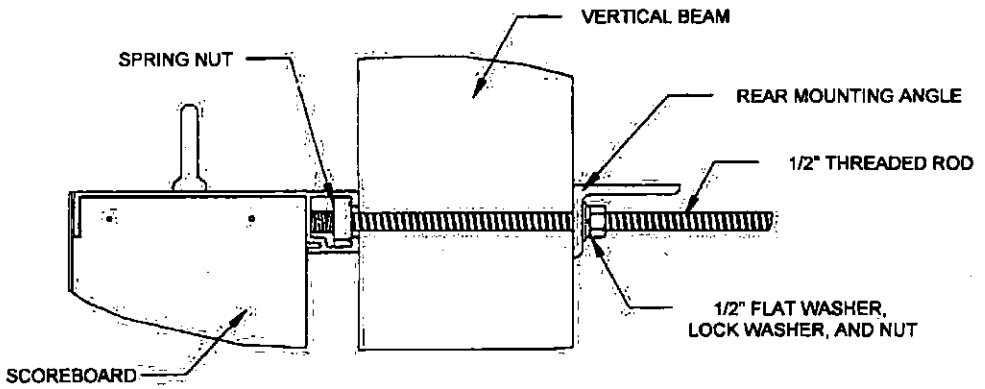
ALLOWABLE CAPACITY PER EACH CLAMP:
SHEAR = 160 LBS
TENSION = 2300 LBS

SHEAR AND TENSION LOAD DIRECTION ARE AS INDICATED ON REAR ISOMETRIC VIEW

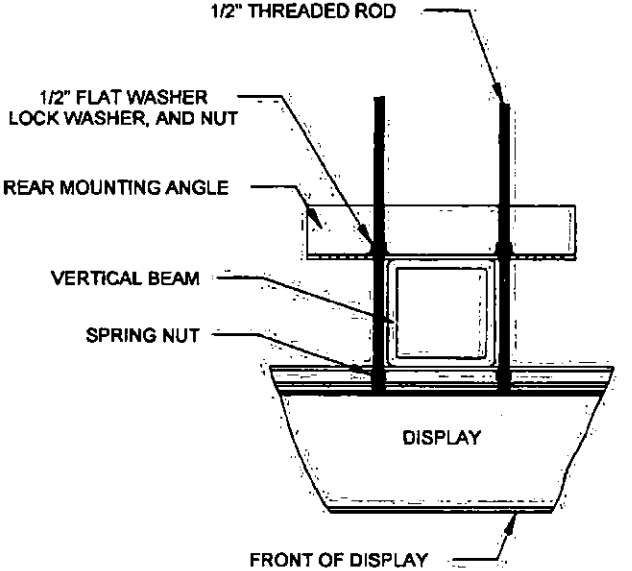
REV	DATE:		BY:
05	22 DEC 15	ADDED LUBRICANT WARNING	PJS
04	06 JAN 14	ADDED ALLOWABLE TENSION AND SHEAR CAPACITY DETAILS	JAVA
03	23 OCT 13	PER EC-12382: CHANGED BOLT TORQUE FROM 30 FT-LB TO 40 FT-LB	NJM
02	07 MAR 12	ADDED STADNARD MOUNTING METHOD NOTES	KDD
01	21 FEB 12	CHANGED ROCKER TO I-BEAM	KDD

THIRD ANGLE PROJECTION

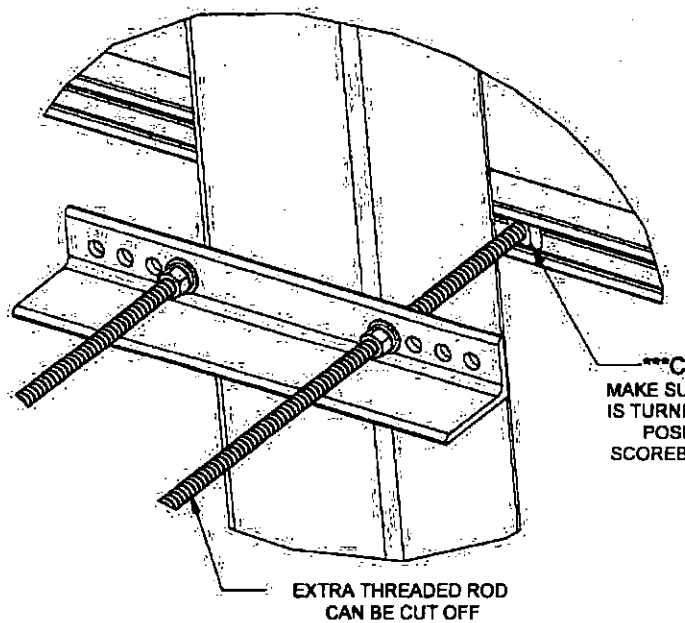
PROJECT:	OUTDOOR SCOREBOARD		
TITLE:	P1647, I-BEAM CLAMP MOUNTING		
DATE:	22-DEC-15	DIM UNITS: INCHES [MILLIMETERS]	SHEET: 1 OF 1 / REV: 05
SCALE:	1/8	DO NOT SCALE DRAWING	
DESIGN:	MCARSRU	JOB NO: P1647 / FUNC - TYPE - SIZE: E - 07 - A	1052565
DRAWN:	MCARSRU		



SIDE VIEW



TOP VIEW
SCALE 1/10



REAR ISOMETRIC VIEW

CRITICAL
DO NOT USE ANY LUBRICANT
ON ANY MOUNTING HARDWARE
OR WARRANTY WILL BE VOIDED

STRUCTURAL NOTES:
- BOLT TORQUE: 30 FT-LB

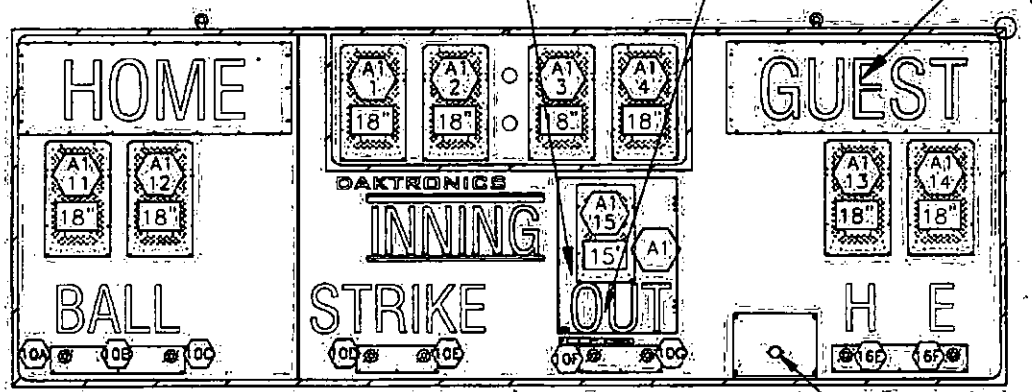
NOTES:
THREADED RODS RUN ALONG BOTH SIDES OF BEAM
RODS DO NOT PASS THROUGH THE FLANGES OF THE BEAM
NO DRILLING NECESSARY
MAKE SURE SPRING NUT IS PERPENDICULAR TO CHANNEL
OPENING ON SCOREBOARD

REV	DATE:		BY:
04	22 DEC 15	ADDED LUBRICANT WARNING	PJS
03	03 JULY 13	ADDED STRUCTURAL NOTE	TTF
02	20 SEP 12	PER EC-7114; REMOVED CHAMFER FROM 0M-133258	LMG
01	08 OCT 11	REPLACED VERTICAL I-BEAM WITH 6" X 6" SQUARE TUBE	JAVA

THIRD ANGLE PROJECTION

PROJECT:	OUTDOOR SCOREBOARDS				
TITLE:	P1647; POLE MOUNTING OPTIONS				
DATE:	22-DEC-15	DIM UNITS:	INCHES [MILLIMETERS]	SHEET	REV
SCALE:	1/5		DO NOT SCALE DRAWING	1 OF 1	04
DESIGN:	DOPPELT	JOB NO.	FUNC - TYPE - SIZE	1048184	
DRAWN:	DOPPELT	P1647	E - 10 - A		

MS-918-R/A/W



FRONT VIEW

NOTES:

- A1 / 1 = LED DRIVER NUMBER & LED DRIVER CONNECTOR WIRED TO THAT DIGIT.
- 18" = DIGIT SIZE
- 10B = SEGMENT DESIGNATION
- A1 = DRIVER NUMBER

REV	DATE	
01	27 FEB 15	PER EC-17119, REMOVED DETAIL A ADDED SIGNAL OPTION NOTE CHANGED SLAVE AND MASTER DRIVER NAMES

DAKTRONICS, INC.
BROOKINGS, SD 57006

DO NOT SCALE DRAWING

PROJ: OUTDOOR LED SCOREBOARDS
TITLE: COMPONENT LOCATION: MS-918-201X-R/A/W-PV-F
DESIGN: KDRAGT
DRAWN: ZRYKHUS
DATE: 7 NOV 11
SCALE: 1=30
SHEET
REV
JOB NO:

6

achi

APPROVED
CASE# 226-SA-2017
STIPULATION SET
RETAIN FOR RECORDS

08/28/17 Andrew Chi
DATE APPROVED BY

STREET CENTERLINE

EXISTING TREES AND TALL OLEANDER BUSHES

EXISTING BASEBALL FIELD

SCOREBOARD SIDE NOT VISIBLE FROM RESIDENTS

87'-Ø"

BACK OF SCOREBOARD COLOR: GRAY ALUMINUM

130'-Ø"

N. Miller Rd.

EXISTING SINGLE FAMILY RESIDENTIAL LOTS

EXISTING SINGLE FAMILY RESIDENTIAL LOTS
ZONING: R1-35

EXISTING 8' WALL

STREET CENTERLINE

GRASS FIELD

210'-Ø"

EXISTING TREES

Sutton Dr

EXISTING SINGLE FAMILY RESIDENTIAL LOTS
ZONING: R1-35

01 SCOREBOARD SITE LOCATION

ASK001

SCORE BOARD
DRAWING NO./SHEET NO.

Thunderbird Academy Scoreboard

7410 E. SUTTON DR.
Scottsdale, Arizona 85260

PROJECT NO.: 314035

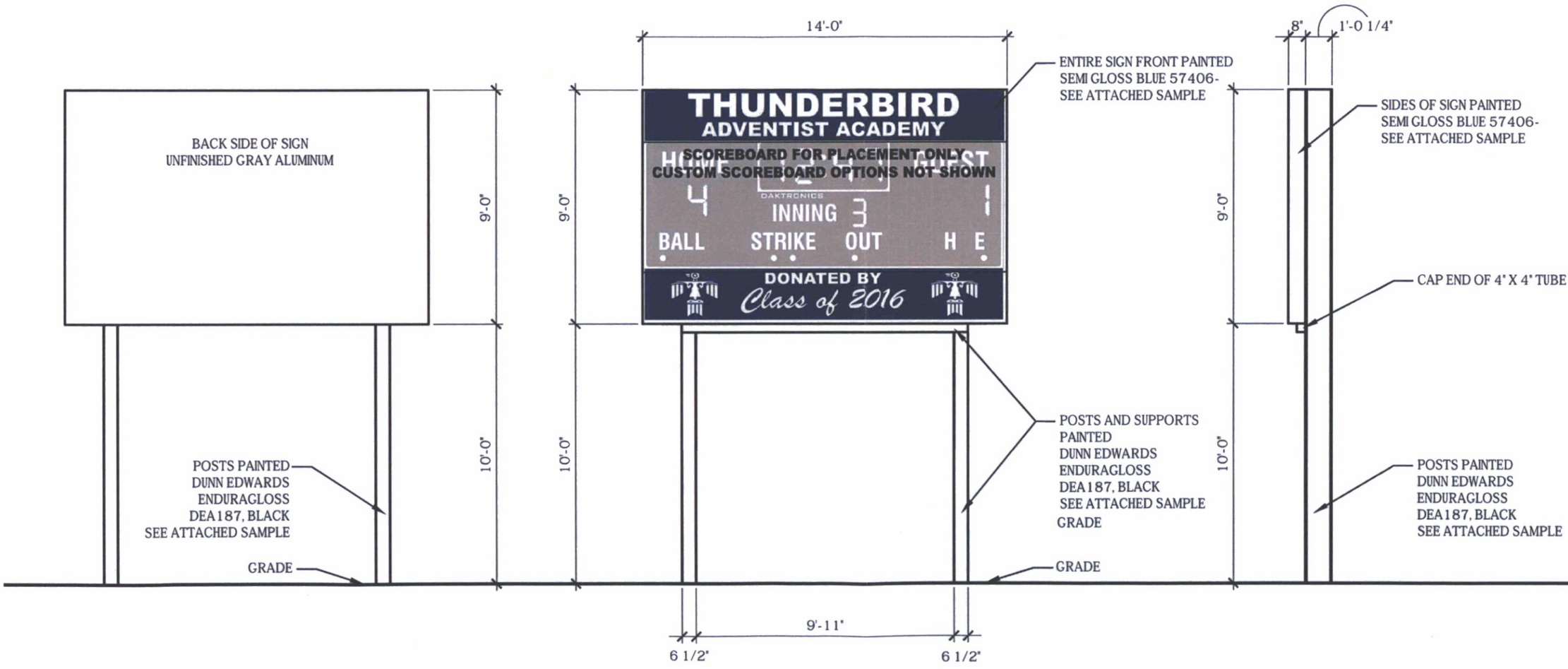
DATE: 07/20/2017

LSEN TNERS TS & PLANNERS

Nelsen Partners, Inc.
Austin | Scottsdale
15210 N. Scottsdale Rd. #300
Scottsdale, Arizona 85254
t 480.949.6800
nelsenpartners.com

APPROVED
CASE# 226-SA-2017
STIPULATION SET
RETAIN FOR RECORDS

08/28/17 Andrew Chi
DATE APPROVED BY



Elevations
DRAWING NO./SHEET NO.

Thunderbird Academy Scoreboard

Sutton Drive
Scottsdale, AZ 85260

PROJECT NO.: 314035

DATE: 8/4/2017

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GENERAL STRUCTURAL NOTES

APPLY UNLESS NOTED OTHERWISE

BUILDING CODE:

2015 EDITION OF THE INTERNATIONAL BUILDING CODE, WITH CITY OF SCOTTSDALE AMENDMENTS.

WIND:

BASIC WIND SPEED 115 MPH.
WIND IMPORTANCE FACTOR: I = 1.00.
BUILDING CATEGORY: II.
WIND EXPOSURE: C.

FOUNDATIONS:

FOOTINGS SHALL BEAR ON ASSUMED UNDISTURBED CLAY, SANDY CLAY, SILTY CLAY;CLAYEY SILT AND/OR SANDY SILT. DESIGN SOIL BEARING VALUE = 1,500 PSF.

CONCRETE:

MINIMUM 28 DAY STRENGTH 2,500 PSI EXCEPT AS FOLLOWS: (TYPE II, U.N.O.)

CONCRETE BASES——————————————————————————2,500 PSI

MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED. MAXIMUM SLUMP 4 1/2" FOR CONCRETE WITHOUT PLASTICIZER. IF PLASTICIZER IS USED, A HIGHER FINAL SLUMP MAY BE ALLOWED UPON STRUCTURAL ENGINEER'S APPROVAL.

REVIBRATE TOPS OF CONCRETE PIER 15 MINUTES AFTER PLACING CONCRETE.

REINFORCING:

ASTM A615 (Fy = 60 KSI) DEFORMED BARS FOR ALL BARS. ALL GRADE 60 REINFORCING TO BE WELDED SHALL BE ASTM A706. WELDED WIRE FABRIC PER ASTM A185, WIRE PER ASTM A82. NO TACK WELDING OF REINFORCING BARS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE WITH THE STRUCTURAL ENGINEER. LATEST ACI CODE AND DETAILING MANUAL APPLY. CLEAR CONCRETE COVERAGES AS FOLLOWS:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ———— 3"
EXPOSED TO EARTH OR WEATHER
#6 OR LARGER ——————————————————— 2"
#5 AND SMALLER ——————————————————— 1 1/2"
ALL OTHER PER LATEST EDITION OF ACI 318.

LAP SPLICES IN CONCRETE:

LAP SPLICES, UNLESS NOTED OTHERWISE, SHALL BE CLASS "B" TENSION LAP SPLICES PER LATEST EDITION OF ACI 318. STAGGER SPLICES A MINIMUM OF ONE LAP LENGTH. ALL SPLICE LOCATIONS SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER. REINFORCING BAR SPACING GIVEN ARE MAXIMUM ON CENTERS. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE.

STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL BE ASTM A992 (Fy = 50 KSI). ALL CHANNELS, ANGLES, AND PLATES SHALL BE ASTM A36 (Fy = 36 KSI). ALL TUBE STEEL SHALL BE ASTM A500 (Fy = 46 KSI). ALL BOLTS SHALL BE ASTM A307, UNLESS NOTED OTHERWISE. ALL CONSTRUCTION PER LATEST AISC HANDBOOK. ALL REFERENCE TO HEADED STUDS SHALL BE HIGH STRENGTH HEADED STUDS. ATTACHMENT OF HEADED STUDS SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST EDITION OF THE "RECOMMENDED PRACTICES FOR STUD WELDING" AND THE "STRUCTURAL WELDING CODE" PUBLISHED BY AWS. ALL BOLTS, ANCHOR BOLTS,ETC. SHALL BE INSTALLED WITH STEEL WASHERS AT SLOTTED HOLES IN STEEL SECTIONS . ALL WELDING SHALL BE PERFORMED BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY. ALL WELDING PER LATEST AMERICAN WELDING SOCIETY STANDARDS. ALL WELDING DONE BY E70 LOW HYDROGEN RODS UNLESS NOTED OTHERWISE. THESE DRAWINGS DO NOT DISTINGUISH BETWEEN SHOP AND FIELD WELDS; THE CONTRACTOR MAY SHOP WELD OR FIELD WELD AT HIS DISCRETION. SHOP WELDS AND FIELD WELDS SHALL BE SHOWN ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW. ALL FULL (COMPLETE) PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY. WHEN STRUCTURAL STEEL IS FURNISHED TO A SPECIFIED MINIMUM YIELD POINT GREATER THAN 36 KSI, THE ASTM OR OTHER SPECIFICATION DESIGNATION SHALL BE INCLUDED NEAR THE ERECTION MARK ON EACH SHIPPING ASSEMBLY OR IMPORTANT CONSTRUCTION COMPONENT, OVER ANY SHOP COAT OF PAINT, PRIOR TO SHIPMENT FROM THE FABRICATOR'S PLANT.

SHOP DRAWINGS:

SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS IN ADDITION TO ITEMS REQUIRED BY ARCHITECTURAL SPECIFICATIONS.

THE CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMITTAL. ITEMS NOT IN ACCORDANCE WITH CONTRACT DOCUMENTS SHALL BE FLAGGED UPON HIS REVIEW.

VERIFY ALL DIMENSIONS WITH ARCHITECT AND ALL FINISHED GRADE WITH CIVIL DRAWINGS.

ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE CLOUDED BY MANUFACTURER OR FABRICATOR. ANY OF THE AFOREMENTIONED WHICH ARE NOT CLOUDED OR FLAGGED BY SUBMITTING PARTIES, SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEER'S REVIEW, UNLESS NOTED ACCORDINGLY.

THE ENGINEER HAS THE RIGHT TO APPROVE OR DISAPPROVE ANY CHANGES TO .CONTRACT DOCUMENTS AT ANYTIME BEFORE OR AFTER SHOP DRAWING REVIEW.

THE SHOP DRAWINGS DO NOT REPLACE THE CONTRACT DOCUMENTS. ITEMS OMITTED OR SHOWN INCORRECTLY AND ARE NOT FLAGGED BY THE STRUCTURAL ENGINEER OR ARCHITECT ARE NOT TO BE CONSIDERED CHANGES TO CONTRACT DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE ITEMS ARE CONSTRUCTED TO CONTRACT DOCUMENTS.

THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING AUTHORITY.

REVIEWING IS INTENDED ONLY AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR.

DEFERRED SUBMITTALS: (PER 2015 IBC 107.3.4.1)

FOR THE PURPOSES OF THIS SECTION, DEFERRED SUBMITTALS ARE DEFINED AS THOSE PORTIONS OF THE DESIGN WHICH ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION AND THAT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITHIN A SPECIFIED PERIOD.

DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW. THE CONTRACTOR SHALL FORWARD THE REVIEWED DOCUMENTS TO BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND BEEN FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

DEFERRED SUBMITTAL ITEMS:

SCORE BOARD

GENERAL:

ENTIRE CONTRACT DOCUMENTS SHALL BE USED TO BUILD BUILDING. SOME CRITICAL ITEMS REQUIRED BY OTHER DISCIPLINES MAY NOT BE SHOWN ON STRUCTURAL DRAWING

ITEMS SHOWN BY OTHER DISCIPLINES WITH REFERENCE TO STRUCTURAL DRAWING BUT NOT SHOWN ON THESE STRUCTURAL DOCUMENT SHALL BE CONSIDERED DESIGN BUILD ITEMS. CONTRACTOR SHALL SUBMIT DESIGN BY OTHERS FOR REVIEW.

THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES FOR PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO (NOR SHALL OBSERVATION VISITS TO THE SITE INCLUDE INSPECTION OF THESE ITEMS).

WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDA.

NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT.

ALL DIMENSIONS SHOWN (INCLUDING ELEVATIONS) ON STRUCTURAL DRAWINGS ARE TO ASSIST CONTRACTOR IN VERIFICATION. SCALING DIMENSIONS FROM DRAWINGS IS NOT PERMITTED. LOCATION OF ALL ITEMS SHALL BE DETERMINED BY DIMENSIONS OR NOTES ONLY; DO NOT USE GRAPHIC APPEARANCE TO ASSUME SPECIFIC LOCATIONS.

CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH ARCHITECTURAL AND FINISHED GRADE WITH CIVIL DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH THE ARCHITECT.

TYPICAL DETAILS MAY NOT NECESSARILY BE CUT ON PLANS, BUT APPLY UNLESS NOTED OTHERWISE.

WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN.

ANY ENGINEERING DESIGN, PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF AN ENGINEER REGISTERED IN THE STATE OF JURISDICTION.

SUPPLIER OF ENGINEERED STRUCTURAL COMPONENTS (i.e.SCORE BOARD) SHALL BE RESPONSIBLE FOR COMPLETE DESIGN AND SHALL USE ENTIRE CONTRACT DOCUMENTS TO INCLUDE ALL LOADS AND DETAIL REQUIREMENTS FROM ALL DISCIPLINES. SUPPLIER SHALL PROVIDE ADDITIONAL MATERIAL REQUIRED TO MEET ALL THEIR REQUIREMENTS FOR INSTALLATION (i.e).

CONC. PSI	CLASS B TENSION SPLICE LENGTHS						COMP. BARS	
	f'c = 2,500 PSI/ f'c = 3,000 PSI		f'c = 4,000 PSI		f'c = 5,000 PSI AND HIGHER		f'c = ALL	
BAR LOCATION	REGULAR CLASS	TOP CLASS	REGULAR CLASS	TOP CLASS	REGULAR CLASS	TOP CLASS	STD LAP	ENCLOSED W/ SPIRAL TIES
SIZE								
#3	24"	31"	19"	24"	17"	22"	12"	12"
#4	32"	41"	25"	33"	23"	29"	15"	12"
#5	39"	51"	31"	41"	28"	38"	19"	14"
#6	47"	61"	37"	49"	34"	43"	23"	17"
#7	69"	89"	54"	71"	49"	63"	28"	20"
#8	78"	102"	62"	81"	56"	72"	30"	23"
#9	88"	115"	70"	91"	63"	81"	34"	25"
#10	100"	129"	79"	102"	70"	92"	36"	29"
#11	110"	143"	87"	113"	78"	102"	42"	32"

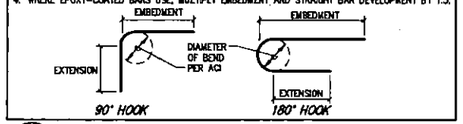
NOTES:
1. TOP BARS ARE ANY HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT.
2. UNLESS NOTED OTHERWISE, LAP SPLICES IN CONCRETE BEAMS, SLABS AND WALLS SHALL BE CLASS "B" TENSION SPLICES. CONCRETE COLUMNS SHALL USE COMPRESSION LAP SPLICES.
3. CONTACT STRUCTURAL ENGINEER IF CENTER TO CENTER SPACING OF REINFORCING IS LESS THAN OR EQUAL TO 3 BAR DIAMETERS <3db OR 2db CLEAR SPACING BETWEEN BARS.
4. WHERE CLEAR COVER <db, MULTIPLY TENSION LAP SPLICE BY 1.3.
5. ALL SPLICES MUST BE FULL CONTACT.
6. WHERE EPOXY COATED BARS USE, MULTIPLY LAP SPLICE BY 1.5.

01 *LAP SCHEDULE FOR REINFORCING STEEL*

NO SCALE

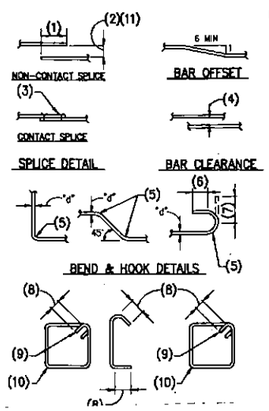
BAR SIZE	HOOKED EMBEDMENT			EXTENSION		STRAIGHT BAR EMBEDMENT		
	3000 PSI CONCRETE	4000 PSI CONCRETE	5000 PSI CONCRETE	90° HOOK	180° HOOK	5000 PSI	4000 PSI	3000 PSI
#3	6	6	6	4.5	2.5	13	14	16
#4	8	7	6	6.0	2.5	17	19	22
#5	10	8	7	7.5	2.5	21	24	27
#6	12	10	9	9.0	3.0	26	28	33
#7	13	12	10	10.5	3.5	37	42	48
#8	15	13	12	12.0	4.0	43	47	55
#9	17	15	13	13.5	4.5	48	54	62
#10	19	17	15	15.2	5.1	54	60	70
#11	22	19	17	16.9	5.6	60	67	77

NOTES:
1. EMBEDMENT LENGTH IS BASED ON 2 1/2" MINIMUM SIDE COVER AND 2" MINIMUM END COVER.
2. CONTACT STRUCTURAL ENGINEER IF CENTER TO CENTER SPACING OF REINFORCING IS LESS THAN OR EQUAL TO 3 BAR DIAMETERS <3db OR 2db CLEAR SPACING BETWEEN BARS.
3. WHERE CLEAR COVER <db, MULTIPLY EMBEDMENT AND STRAIGHT BAR DEVELOPMENT BY 1.5.
4. WHERE EPOXY-COATED BARS USE, MULTIPLY EMBEDMENT AND STRAIGHT BAR DEVELOPMENT BY 1.5.



02 *DOWEL DEVELOPMENT LENGTH IN TENSION (INCHES)*

NO SCALE



NOTES:
1. LAP – SEE G.S.N.
2. MAXIMUM 1/5 LAP LENGTH BUT NOT MORE THAN 6".
3. WIRE TIES.
4. 1d (1" MINIMUM).
5. RADIUS=3d FOR BARS NOT OVER #8, 4d FOR #9, #10 AND #11 BARS; 5d FOR #14 AND #18 BARS.
6. 4d ((2 1/2" MINIMUM).
7. 12d (90 DEGREE HOOK).
8. 6d (3" MINIMUM).
9. 135 DEGREE BEND.
10. BEND AROUND 1 1/2" ø PIN FOR #3 BARS. BEND AROUND 2"ø PIN FOR #4 BARS. BEND AROUND 2 1/2"ø PIN FOR #5 BARS.
11. – PRIOR APPROVAL MUST BE GIVEN BY OUR OFFICE TO ALLOW NON-CONTACT SPLICES.
12. LAP TIE MIN. 6" –
13. LONGITUDINAL REINFORCEMENT.
14. LONGITUDINAL BAR AS OCCURS.
15. PROVIDE 135° HOOK AT LONGITUDINAL REINFORCEMENT.
16. ROTATE AND ALTERNATE TIE LAP AT DIFFERENT VERTICAL REBAR LOCATION AT EACH TIE.

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Scottsdale, Arizona 85250
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EXPIRES 6-30-2018

SDA Academy Scoreboard
7410 E. Sutton Dr.
Scottsdale, Arizona 85260

Date
February 25, 2017

Project No.

PK ASSOCIATES, LLC
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Scottsdale, Arizona 85250
Phone: (480) 922-8854
Fax: (480) 922-3739
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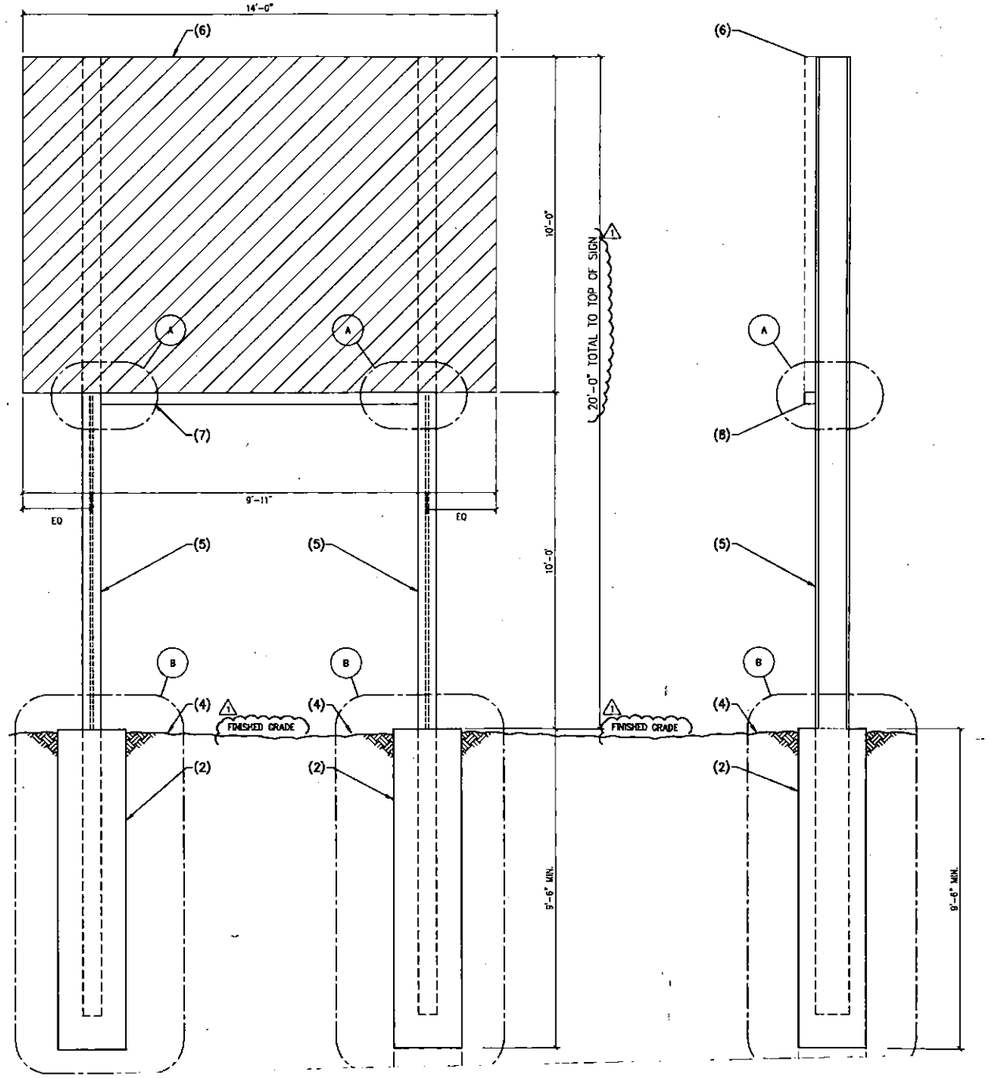
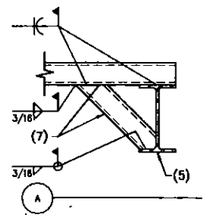
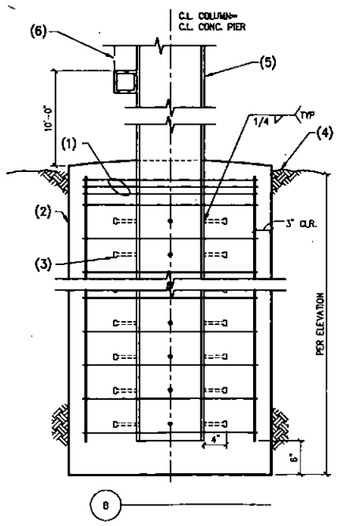
NOTES:
1. 3 TIES AT TOP 6".
2. CONCRETE DRILLED PIER FOUNDATION W/ 12- #5 VERT. AND #3 TIES AT 6" O.C.
3. 1/2"ø H.S. x3" LONG AT 18" O.C. ON ALL SIDES OF COLUMN - TYP.
4. FINISHED GRADE.
5. W12x26 STEEL COLUMN.
6. SCORE BOARD PANELS AND ATTACHMENT BY OTHERS.
7. HSS4"x4"x3/16" BELOW SCOREBOARD.
8. FINISHED GRADE







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JACK M. KOEHLER
18304
CERTIFICATE NO.
Arizona Registered Civil Engineer
New Mexico
ARIZONA, U.S.A.
8/29/17
EXPIRES 6-30-2018

SDA Academy Scoreboard

7410 E. Sutton Dr.
Scottsdale, Arizona 85260

Date
February 25, 2017

1 City Comments 08/23/17

Project No.