


1 Row Scoreboards (See 241-0413 for bracket dimensions)						
Model	Width	Height	Weight	Weight w/ETN	Dim "A"	Dim "B"
1650	8'	3' 3/32"	90	N/A	1'	6'
1610, 1620 3650	10'	4' 3/32"	130	N/A	1'	8'
1625	10'	5' 3/32"	160	N/A	1'	8'
1632, 3602	12'	5' 3/32"	180	235	2'	8'
9652	9'	4' 3/32"	110	N/A	6"	8'
1600	16'	5' 3/16"	260	315	4'	8'
5633	18'	2' 3/32"	150	N/A	4'	10'
PCD-08/PCD-08-1	8'	18 3/32"	50	N/A	1'	6'
PCD-10/PCD-10-1	10'	2' 3/32"	80	N/A	1'	8'
PCD-16/PCD-16-1	16'	2' 3/32"	130	N/A	4'	8'
PCD-18/PCD-18-1	18'	2' 3/32"	150	N/A	4'	10'
2 Row Scoreboards (See 241-0413 for bracket dimensions)						
Model	Width	Height	Weight	Weight w/ETN	Dim "A"	Dim "B"
9660	10'	6' 3/16"	200	N/A	1'	8'
5625	12'	8' 3/16"	290	N/A	2'	8'
3655, 3658	16'	5' 3/16"	260	315	4'	8'
1609, 1635	16'	6' 3/16"	290	345	4'	8'
1615	16'	7' 9/32"	350	405	4'	8'
1608, 5634	18'	6' 3/16"	320	375	4'	10'
1630, 1640, 3600 3614, 3634, 3656 5635	18'	8' 3/16"	420	482	4'	10'
3625	18'	9' 3/16"	460	522	4'	10'
3680	18'	8' 3/16"	N/A	590	4'	10'
3 Row Scoreboards (See 241-0413 for bracket dimensions)						
Model	Width	Height	Weight	Weight w/ETN	Dim "A"	Dim "B"
7680	18'	10' 6 5/8"	N/A	710	4'	10'
7604, 7614, 7624	18'	10' 6 9/32"	530	592	4'	10'
9650	16'	10' 3/16"	490	N/A	4'	8'

- General Notes:**
- Column steel to be grade A992 (50 ksi steel minimum).
 - Bracing steel to be ASTM A500 Grade B minimum (see note 2 on sheets 2-6).
 - Minimum bolt grade: A307
 - All welds to conform to AWS standards
 - The dimensions in the charts on sheets 2-6 are calculated using the requirements specified in IBC 2012, and the Manual of Steel Construction (13th Edition). Soil lateral bearing pressure is considered to be 150 psf/f.
 - Check with the local building authority to determine the installation sites wind zone and risk category as specified in IBC 2012 and ASCE 7-10. For the purposes of these installation prints, Risk Category I shall apply to an installation where the scoreboard is more than 1.5 x the overall height away from the nearest spectator section. Risk Category II shall apply to all other installations.
 - The weights of signs to be calculated using 4.3 lb/sq. ft of sign area.
 - The weights of Nevco message centers to be calculated using 8.5 lb/sq ft.
 - The weights of Nevco video displays to be calculated using 9.5 lbs/sq. ft.
 - The weights of Nevco arches to be calculated using 7.7 lbs/sq. ft.

Important. Read before installation.
 This is not an engineered drawing. It is intended for representational purposes only. The dimensions called out on this drawing are intended to be used as a guide only, and are not intended to be suitable for all conditions. Adding signs or other components around the scoreboard beyond the scope of this drawing or increasing the display height from the ground will affect the installation requirements. Nevco recommends that you consult a professional engineer or architect familiar with the area before attempting installation. They can verify that the selected mounting beams or posts along with the brackets, screws, and other hardware items provided by others or Nevco are adequate for your local soil conditions, wind loads and other local codes. If procedures are used that are not covered in this drawing, careful analysis of the installation is urged.

Outdoor Scoreboard Pier Installation 2 Column		 Nevco, Inc. Greenville, Illinois 62246	
Drawn KAB	Date 2/16/2017	Sheet 1 of 6	

105 MPH WIND ZONES

EXPOSURE C (See Note 3)

EXPOSURE B (See Note 4)

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W8x21	W10x17	2'	8'	23'
8'	W8x24	W8x21	2'	9'	26'
9'	W12x26	W8x21	2'	9'6"	27'6"
10'	W12x30	W10x22	2'	10'	29'
10'6"	W10x33	W10x22	2'	10'	29'6"
12'	W10x33	W10x26	2'	10'6"	31'6"
14'	W10x39	W12x26	2'	11'6"	34'6"
16'	W10x45	W12x30	2' (3')	12' (10'6")	37' (35'6")
18'	W10x49	W14x30	2' (3')	13' (11')	40' (38')
20'	W10x60	W18x35	2' (3')	14'6" (11'6")	43'6" (40'6")
22'	W12x65	W16x40	2' (3')	15'6" (12')	46'6" (43')
25'	W12x72	W21x44	2' (3')	17'6" (13'6")	51'6" (47'6")
30'	W12x96	W18x55	2' (3')	20' (15'6")	59' (54'6")
35'	W14x109	W21x62	2' (3')	23' (18')	67' (62')
40'	W14x132	W21x68	2' (3')	26' (20')	75' (69')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x18	W10x15	2'	7'	21'
6'	W8x21	W10x17	2'	7'6"	22'6"
7'	W8x21	W8x18	2'	8'	24'
8'	W8x24	W8x18	2'	8'6"	25'6"
10'	W8x28	W8x21	2'	9'6"	28'6"
12'	W10x33	W10x22	2'	10'	31'
14'	W10x39	W10x26	2'	11'	34'
16'	W14x43	W12x26	2' (3')	11'6" (10')	36'6" (35')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W10x17	W8x13	2'	6'6"	20'6"
8'	W8x21	W10x17	2'	8'	25'
10'	W8x24	W8x18	2'	8'6"	27'6"
12'	W8x28	W8x21	2' (3')	9' (8')	30' (29')
15'	W8x35	W14x22	2' (3')	10' (9')	34' (33')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W12x14	W8x13	2'	6'	19'
5'	W8x15	W8x13	2'	6'6"	20'6"
6'	W8x18	W8x13	2'	6'6"	21'6"
8'	W8x21	W8x15	2'	7'6"	24'6"
10'	W8x24	W8x18	2'	8'	27'
12'	W8x28	W8x18	2' (3')	8'6" (7'6")	29'6" (28'6")
15'	W10x33	W10x22	2' (3')	9'6" (8'6")	33'6" (32'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x13	W8x13	2'	5'6"	18'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x13	W8x13	2'	5'	17'
6'	W10x17	W8x13	2'	6'6"	21'6"
8'	W8x18	W12x14	2'	7'	24'
10'	W8x21	W10x17	2'	7'6"	26'6"
12'	W8x24	W8x18	2'	8'	29'
15'	W10x33	W8x21	2' (3')	9' (7'6")	33' (31'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W8x18	W12x14	2'	7'	22'
8'	W8x21	W10x17	2'	7'6"	24'6"
9'	W8x24	W8x18	2'	8'	26'
10'	W8x24	W8x18	2'	8'6"	27'6"
10'6"	W8x24	W8x18	2'	8'6"	28'
12'	W8x28	W8x21	2'	9'	30'
14'	W10x33	W10x22	2'	10'	33'
16'	W8x35	W10x26	2' (3')	10'6" (9')	35'6" (34')
18'	W14x43	W12x26	2' (3')	11' (9'6")	38' (36'6")
20'	W8x48	W12x30	2' (3')	12' (10')	41' (38')
22'	W12x53	W14x30	2' (3')	12'6" (10'6")	43' (41'6")
25'	W10x60	W18x35	2' (3')	14' (11'6")	48' (45'6")
30'	W10x77	W14x43	2' (3')	16'6" (13')	55'6" (52')
35'	W12x96	W18x50	2' (3')	18'6" (14'6")	62'6" (58'6")
40'	W14x109	W21x55	2' (3')	21' (16'6")	70' (65'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x15	W8x13	2'	6'	20'
6'	W8x18	W8x13	2'	6'6"	21'6"
7'	W8x18	W10x15	2'	7'	23'
8'	W8x21	W8x15	2'	7'6"	24'6"
10'	W8x24	W8x18	2'	8'	27'
12'	W8x28	W8x21	2'	9'	30'
14'	W10x33	W10x22	2'	9'6"	32'6"
16'	W8x35	W10x22	2' (3')	10' (8'6")	35' (33'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W10x15	W8x13	2'	5'6"	19'6"
8'	W8x18	W12x14	2'	7'	24'
10'	W8x21	W8x15	2'	7'6"	26'6"
12'	W8x24	W8x18	2' (3')	8' (7')	29' (28')
15'	W10x33	W8x21	2' (3')	9' (7'6")	33' (31'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x13	W8x13	2'	5'	18'
5'	W8x13	W8x13	2'	5'6"	19'6"
6'	W8x15	W8x13	2'	6'	21'
8'	W8x18	W8x13	2'	6'6"	23'6"
10'	W8x21	W10x15	2'	7'	26'
12'	W8x24	W10x17	2' (3')	7'6" (6'6")	28'6" (27'6")
15'	W8x28	W8x18	2' (3')	8'6" (7'6")	32'6" (31'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x13	W8x13	2'	5'6"	18'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x13	W8x13	2'	4'6"	16'6"
6'	W8x13	W8x13	2'	5'6"	20'6"
8'	W10x17	W8x13	2'	6'	23'
10'	W8x18	W8x13	2'	6'6"	25'6"
12'	W8x21	W10x15	2'	7'	28'
15'	W8x24	W10x17	2' (3')	8' (6'6")	32' (30'6")

18 FEET WIDE INSTALLATIONS

16 FEET WIDE INSTALLATIONS

12 FEET WIDE INSTALLATIONS

10 FEET WIDE INSTALLATIONS

9 FEET WIDE INSTALLATIONS

8 FEET WIDE INSTALLATIONS

Chart Notes:

1. If the display height is between chart values shown above, use the next highest value.
2. * Requires that braces be placed approximately 10' from ground level spanning both columns. If display is taller than 20' place braces on 10' spacing.
3. Wind loading figured at **Exposure "C" - Open terrain** with scattered obstructions having heights generally less than 30 feet. This category includes flat open country, grasslands, and all water surfaces in hurricane prone areas.
4. Wind loading figured at **Exposure "B" - Urban and suburban areas**, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. These areas prevail in the upwind direction for a distance of 2600 feet or 20 times the structure height, whichever is greater.

Outdoor Scoreboard
Pier Installation
2 Column



Nevco, Inc.
Greenville, Illinois 62246

Drawing No. 241-0405

Drawn **KAB** Date **2/16/2017**

Sheet **2** of **6**

120 MPH WIND ZONES

Rev C

EXPOSURE C (See Note 3)

EXPOSURE B (See Note 4)

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W10x22	W8x18	2'	9'	24'
8'	W8x28	W10x22	2' (3')	10' (8'6")	27' (25'6")
9'	W12x30	W10x22	2' (3')	10'6" (9')	28'6" (27')
10'	W10x33	W10x26	2' (3')	11' (9'6")	30' (28'6")
10'6"	W10x33	W10x26	2' (3')	11' (9'6")	30'6" (29')
12'	W10x39	W12x26	2' (3')	11'6" (10')	32'6" (31')
14'	W10x45	W12x30	2' (3')	12'6" (10'6")	35'6" (33'6")
16'	W10x49	W14x34	2' (3')	14' (11'6")	39' (36'6")
18'	W10x60	W16x36	2' (3')	15' (12')	42' (39')
20'	W12x65	W16x40	2' (3')	17' (13')	46' (42')
22'	W12x72	W21x44	2' (3')	18'6" (14'6")	49'6" (45'6")
25'	W18x86	W18x50	2' (3')	20'6" (16')	54'6" (50')
30'	W12x96	W21x62	3' (4')	18'6" (15'6")	57'6" (54'6")
35'	W14x132	W24x68	3' (4')	21' (18')	65' (62')
40'	W14x159	W24x84	3' (4')	24' (20')	73' (69')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W8x21	W10x17	2'	7'6"	22'6"
8'	W8x24	W8x18	2' (3')	8'6" (7'6")	25'6" (24'6")
9'	W8x24	W8x21	2' (3')	9' (7'6")	27' (25'6")
10'	W8x28	W8x21	2' (3')	9'6" (8')	28'6" (27')
10'6"	W8x28	W10x22	2' (3')	9'6" (8'6")	29' (28')
12'	W10x33	W10x22	2' (3')	10' (8'6")	31' (29'6")
14'	W10x39	W10x26	2' (3')	11' (9'6")	34' (32'6")
16'	W14x43	W12x26	2' (3')	11'6" (10')	36'6" (35')
18'	W8x48	W12x30	2' (3')	12' (10'6")	39' (37'6")
20'	W12x53	W14x34	2' (3')	13'6" (11')	42'6" (40')
22'	W10x60	W16x36	2' (3')	14'6" (12')	45'6" (43')
25'	W12x65	W16x40	2' (3')	16'6" (13')	50'6" (47')
30'	W12x87	W18x50	3' (4')	15' (12'6")	54' (51'6")
35'	W12x106	W21x55	3' (4')	17' (14'6")	61' (58'6")
40'	W14x120	W21x68	3' (4')	19'6" (16'6")	68'6" (65'6")

18 FEET WIDE INSTALLATIONS

16 FEET WIDE INSTALLATIONS

12 FEET WIDE INSTALLATIONS

10 FEET WIDE INSTALLATIONS

9 FEET WIDE INSTALLATIONS

8 FEET WIDE INSTALLATIONS

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x21	W10x17	2'	8'	22'
6'	W8x21	W8x18	2'	8'6"	23'6"
7'	W8x24	W8x21	2'	9'	25'
8'	W12x26	W8x21	2' (3')	9'6" (8')	26'6" (25')
10'	W10x33	W14x22	2' (3')	10'6" (9')	29'6" (28')
12'	W10x39	W12x26	2' (3')	11' (9'6")	32' (30'6")
14'	W14x43	W12x30	2' (3')	12' (10'6")	35' (33'6")
16'	W10x49	W14x30	2' (3')	13' (11')	38' (36')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x18	W8x13	2'	7'	21'
6'	W8x18	W10x15	2'	7'6"	22'6"
7'	W8x21	W10x17	2'	8'	24'
8'	W10x22	W8x18	2' (3')	8' (7')	25' (24')
10'	W12x26	W8x21	2' (3')	9' (8')	28' (27')
12'	W10x33	W10x22	2' (3')	9'6" (8'6")	30'6" (29'6")
14'	W10x33	W10x26	2' (3')	10'6" (9')	33'6" (32')
16'	W10x39	W12x26	2' (3')	11' (9'6")	36' (34'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x18	W10x15	2'	7'6"	21'6"
8'	W8x24	W8x18	2'	8'6"	25'6"
10'	W8x28	W8x21	2'	9'6"	28'6"
12'	W10x33	W10x22	2' (3')	10' (8'6")	31' (29'6")
15'	W10x39	W12x26	2' (3')	11'6" (9'6")	35'6" (33'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W10x17	W8x13	2'	6'6"	20'6"
8'	W8x21	W8x15	2'	7'6"	24'6"
10'	W8x24	W8x18	2'	8'	27'
12'	W8x28	W8x21	2' (3')	9' (7'6")	30' (28'6")
15'	W10x33	W10x22	2' (3')	10' (8'6")	34' (32'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x15	W8x13	2'	6'6"	19'6"
5'	W8x18	W12x14	2'	7'	21'
6'	W8x18	W8x15	2'	7'6"	22'6"
8'	W10x22	W8x18	2'	8'	25'
10'	W8x24	W8x18	2'	9'	28'
12'	W10x33	W10x22	2'	9'6"	30'6"
15'	W8x35	W10x26	2'	10'6"	34'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x13	W8x13	2'	5'6"	18'6"
5'	W10x15	W8x13	2'	6'	20'
6'	W8x18	W8x13	2'	6'6"	21'6"
8'	W8x18	W10x15	2'	7'	24'
10'	W10x22	W10x17	2'	7'6"	26'6"
12'	W8x24	W8x18	2'	8'6"	29'6"
15'	W10x33	W8x21	2'	9'	33'

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x15	W8x13	2'	6'6"	19'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x13	W8x13	2'	5'6"	18'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x13	W8x13	2'	5'6"	17'6"
6'	W8x18	W12x14	2'	7'	22'
8'	W8x21	W10x17	2'	7'6"	24'6"
10'	W8x24	W8x18	2'	8'6"	27'6"
12'	W8x28	W8x21	2'	9'	30'
15'	W10x33	W10x22	2'	10'	34'

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x13	W8x13	2'	5'	17'
6'	W8x15	W8x13	2'	6'	21'
8'	W8x18	W8x13	2'	6'6"	23'6"
10'	W8x21	W10x15	2'	7'	26'
12'	W8x24	W10x17	2'	8'	29'
15'	W8x28	W8x18	2'	8'6"	32'6"

Chart Notes:

1. If the display height is between chart values shown above, use the next highest value.
2. * Requires that braces be placed approximately 10' from ground level spanning both columns. If display is taller than 20' place braces on 10' spacing.
3. Wind loading figured at **Exposure "C" - Open terrain** with scattered obstructions having heights generally less than 30 feet. This category includes flat open country, grasslands, and all water surfaces in hurricane prone areas.
4. Wind loading figured at **Exposure "B" - Urban and suburban areas**, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. These areas prevail in the upwind direction for a distance of 2600 feet or 20 times the structure height, whichever is greater.

Outdoor Scoreboard
Pier Installation
2 Column



Nevco, Inc.
Greenville, Illinois 62246

Drawing No. 241-0405

Drawn KAB Date 2/16/2017

Sheet 3 of 6

EXPOSURE C (See Note 3)

EXPOSURE B (See Note 4)

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W8x24	W8x21	2'	9'6"	246"
8'	W12x30	W10x22	2' (3')	10'6" (9')	276" (26')
9'	W10x33	W10x26	2' (3')	11' (9'6")	29' (27'6")
10'	W14x38	W12x26	2' (3')	11'6" (10')	30'6" (29')
10'6"	W10x39	W12x26	2' (3')	11'6" (10')	31' (29'6")
12'	W12x40	W12x30	2' (3')	12'6" (10'6")	33'6" (31'6")
14'	W10x49	W14x34	2' (3')	14' (11'6")	37' (34'6")
16'	W12x53	W16x36	2' (3')	15'6" (12')	40'6" (37')
18'	W14x61	W16x40	2' (3')	17' (13')	44' (40')
20'	W12x72	W21x44	2' (3')	19' (14'6")	48' (43'6")
22'	W12x79	W18x50	2' (3')	20'6" (16')	51'6" (47')
25'	W12x96	W21x55	2' (3')	22'6" (17'6")	56'6" (51'6")
30'	W14x109	W21x68	3' (4')	20'6" (17')	59'6" (56')
35'	W14x145	W24x76	3' (4')	23'6" (19'6")	67'6" (63'6")
40'	W14x176	W24x94	3' (4')	26'6" (22')	75'6" (71')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W8x21	W8x18	2'	8'	23'
8'	W8x24	W8x21	2' (3')	9' (8')	26' (25')
9'	W12x26	W8x21	2' (3')	9'6" (8')	27'6" (26')
10'	W12x30	W10x22	2' (3')	10' (8'6")	29' (27'6")
10'6"	W10x33	W10x22	2' (3')	10' (9')	29'6" (28'6")
12'	W10x33	W10x26	2' (3')	11' (9'6")	32' (30'6")
14'	W10x39	W12x26	2' (3')	11'6" (10')	34'6" (33')
16'	W10x45	W12x30	2' (3')	12' (10'6")	37' (35'6")
18'	W10x49	W14x34	2' (3')	13'6" (11')	40'6" (38')
20'	W10x60	W16x36	2' (3')	15' (12')	44' (41')
22'	W12x65	W16x40	2' (3')	16' (12'6")	47' (43'6")
25'	W12x72	W21x44	2' (3')	18' (14')	52' (48')
30'	W12x96	W18x55	3' (4')	16'6" (14')	55'6" (53')
35'	W14x109	W21x62	3' (4')	19' (16')	63' (60')
40'	W14x132	W24x68	3' (4')	21'6" (18')	70'6" (67')

18 FEET WIDE INSTALLATIONS

16 FEET WIDE INSTALLATIONS

12 FEET WIDE INSTALLATIONS

10 FEET WIDE INSTALLATIONS

9 FEET WIDE INSTALLATIONS

8 FEET WIDE INSTALLATIONS

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x21	W8x18	2'	8'6"	226"
6'	W8x24	W8x21	2'	9'	24'
7'	W8x24	W8x21	2'	9'6"	25'6"
8'	W8x28	W10x22	2' (3')	10' (8'6")	27' (25'6")
10'	W10x33	W10x26	2' (3')	11' (9'6")	30' (28'6")
12'	W10x39	W12x26	2' (3')	12' (10')	33' (31')
14'	W10x45	W14x30	2' (3')	13' (11')	36' (34')
16'	W12x53	W14x34	2' (3')	14'6" (11'6")	39'6" (36'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x18	W10x17	2'	7'6"	21'6"
8'	W8x24	W8x21	2'	9'	26'
10'	W12x30	W10x22	2'	10'	29'
12'	W10x33	W10x26	2' (3')	10'6" (9')	31'6" (30')
15'	W14x43	W12x30	2' (3')	12' (10'6")	36' (34'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W10x17	W8x13	2'	7'	20'
5'	W8x18	W10x15	2'	7'6"	21'6"
6'	W8x21	W10x17	2'	8'	23'
8'	W8x24	W8x18	2'	8'6"	25'6"
10'	W8x28	W8x21	2'	9'6"	28'6"
12'	W10x33	W10x22	2'	10'	31'
15'	W10x39	W12x26	2'	11'	35'

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W10x17	W8x13	2'	6'6"	19'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x13	W8x13	2'	6'	18'
6'	W8x18	W10x15	2'	7'6"	22'6"
8'	W10x22	W8x18	2'	8'	25'
10'	W8x24	W8x18	2'	9'	28'
12'	W10x33	W10x22	2'	9'6"	30'6"
15'	W8x35	W10x26	2'	10'6"	34'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x18	W10x15	2'	7'6"	21'6"
6'	W8x21	W10x17	2'	8'	23'
7'	W10x22	W8x18	2'	8'	24'
8'	W8x24	W8x18	2' (3')	8'6" (7'6")	25'6" (24'6")
10'	W8x28	W8x21	2' (3')	9'6" (8')	28'6" (27')
12'	W10x33	W14x22	2' (3')	10'6" (9')	31'6" (30')
14'	W10x39	W10x26	2' (3')	11' (9'6")	34' (32'6")
16'	W14x43	W12x26	2' (3')	11'6" (10')	36'6" (35')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x18	W8x13	2'	6'6"	20'6"
8'	W8x21	W10x17	2'	8'	25'
10'	W8x24	W8x18	2'	8'6"	27'6"
12'	W8x28	W8x21	2' (3')	9'6" (8')	30'6" (29')
15'	W8x35	W10x26	2' (3')	10'6" (9')	34'6" (33')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W10x15	W8x13	2'	6'	19'
5'	W10x17	W8x13	2'	6'6"	20'6"
6'	W8x18	W8x13	2'	7'	22'
8'	W8x21	W8x15	2'	7'6"	24'6"
10'	W8x24	W8x18	2'	8'	27'
12'	W8x28	W8x21	2'	9'	30'
15'	W10x33	W10x22	2'	10'	34'

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x13	W8x13	2'	5'6"	18'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x13	W8x13	2'	5'	17'
6'	W10x17	W8x13	2'	6'6"	21'6"
8'	W8x18	W12x14	2'	7'	24'
10'	W10x22	W10x17	2'	7'6"	26'6"
12'	W8x24	W8x18	2'	8'	29'
15'	W10x33	W8x21	2'	9'	33'

Chart Notes:

1. If the display height is between chart values shown above, use the next highest value.
2. * Requires that braces be placed approximately 10' from ground level that spans both columns. If installation is taller than 20', place braces on 10' spacing.
3. Wind loading figured at **Exposure "C" - Open terrain** with scattered obstructions having heights generally less than 30 feet. This category includes flat open country, grasslands, and all water surfaces in hurricane prone areas.
4. Wind loading figured at **Exposure "B" - Urban and suburban areas**, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. These areas prevail in the upwind direction for a distance of 2600 feet or 20 times the structure height, whichever is greater.

Outdoor Scoreboard
Pier Installation
2 Column



Nevco, Inc.
Greenville, Illinois 62246

Drawing No. 241-0405

Drawn **KAB** Date **2/16/2017**

Sheet **4** of **6**

EXPOSURE C (See Note 3)

EXPOSURE B (See Note 4)

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W12x26	W10x22	2 (3')	10'6" (9')	25'6" (24')
8'	W10x33	W12x26	2 (3')	11'6" (10')	28'6" (27')
9'	W10x39	W12x30	2 (3')	12' (10'6")	30' (28'6")
10'	W12x40	W12x30	2 (3')	13' (11')	32' (30')
10'6"	W14x43	W14x30	2 (3')	13'6" (11')	33' (30'6")
12'	W14x48	W14x34	3 (4')	12' (10'6")	33' (31'6")
14'	W12x53	W16x40	3 (4')	13' (11'6")	36' (34'6")
16'	W14x61	W21x44	3 (4')	14' (12')	39' (37')
18'	W12x72	W16x50	3 (4')	15'6" (13')	42'6" (40')
20'	W18x86	W18x55	3 (4')	17'6" (14'6")	46'6" (43'6")
22'	W12x96	W21x55	3 (4')	19' (16')	50' (47')
25'	W24x104	W21x68	3 (4')	21' (17'6")	55' (51'6")
30'	W18x143	W24x76	3 (4')	24'6" (20'6")	63'6" (59'6")
35'	W18x175	W24x94	3 (4')	28' (23'6")	72' (67'6")
40'	W24x207	W24x104	3 (4')	31'6" (26'6")	80'6" (75'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W8x24	W8x18	2 (3')	9' (7'6")	24' (22'6")
8'	W8x28	W10x22	2 (3')	10' (8'6")	27' (25'6")
9'	W10x33	W14x22	2 (3')	10'6" (9')	28'6" (27')
10'	W10x33	W10x26	2 (3')	11' (9'6")	30' (28'6")
10'6"	W8x35	W12x26	2 (3')	11'6" (9'6")	31' (29')
12'	W10x39	W12x26	3 (4')	10'6" (9'6")	31'6" (30'6")
14'	W14x48	W14x30	3 (4')	11' (10')	34' (33')
16'	W12x53	W14x34	3 (4')	11'6" (10'6")	36'6" (35'6")
18'	W10x60	W16x40	3 (4')	12'6" (11')	39'6" (38')
20'	W12x65	W21x44	3 (4')	14' (12')	43' (41')
22'	W18x76	W16x50	3 (4')	15' (12'6")	46' (43'6")
25'	W12x87	W18x55	3 (4')	17' (14')	51' (48')
30'	W14x109	W21x62	3 (4')	19'6" (16'6")	58'6" (55'6")
35'	W14x132	W24x76	3 (4')	22'6" (19')	66'6" (63')
40'	W14x159	W24x94	3 (4')	25'6" (21'6")	74'6" (70'6")

18 FEET WIDE INSTALLATIONS

16 FEET WIDE INSTALLATIONS

12 FEET WIDE INSTALLATIONS

10 FEET WIDE INSTALLATIONS

9 FEET WIDE INSTALLATIONS

8 FEET WIDE INSTALLATIONS

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x24	W8x21	2'	9'6"	23'6"
6'	W12x26	W10x22	2'	10'	25'
7'	W12x30	W14x22	2 (3')	10'6" (9')	26'6" (25')
8'	W10x33	W10x26	2 (3')	11' (9'6")	28' (26'6")
10'	W10x39	W12x30	2 (3')	12'6" (10'6")	31'6" (29'6")
12'	W12x45	W14x34	2 (3')	14' (11'6")	35' (32'6")
14'	W12x53	W16x36	3 (4')	12' (11')	35' (34')
16'	W14x61	W16x40	3 (4')	13'6" (11'6")	38'6" (36'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x21	W8x18	2'	8'6"	22'6"
8'	W8x28	W10x22	2 (3')	10' (9')	27' (26')
10'	W10x33	W10x26	2 (3')	11' (9'6")	30' (28'6")
12'	W10x39	W12x26	2 (3')	12' (10')	33' (31')
15'	W10x49	W14x34	2 (3')	14' (11'6")	38' (35'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x18	W8x15	2'	7'6"	20'6"
5'	W8x21	W8x18	2'	8'	22'
6'	W10x22	W8x18	2'	8'6"	23'6"
8'	W12x26	W8x21	2'	9'6"	26'6"
10'	W10x33	W14x22	2 (3')	10'6" (9')	29'6" (28')
12'	W10x39	W12x26	2 (3')	11'6" (10')	32'6" (31')
15'	W10x45	W12x30	2 (3')	12'6" (10'6")	36'6" (34'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x18	W10x15	2'	7'6"	20'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x15	W8x13	2'	6'6"	18'6"
6'	W8x21	W8x18	2'	8'	23'
8'	W8x24	W8x21	2'	9'	26'
10'	W8x28	W10x22	2'	10'	29'
12'	W10x33	W10x26	2'	10'6"	31'6"
15'	W14x43	W12x26	2 (3')	11'6" (10')	35'6" (34')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x21	W10x17	2'	8'	22'
6'	W10x22	W8x18	2'	8'6"	23'6"
7'	W8x24	W8x21	2 (3')	9' (8')	25' (24')
8'	W12x26	W8x21	2 (3')	9'6" (8'6")	26'6" (25'6")
10'	W10x33	W10x26	2 (3')	10'6" (9')	29'6" (28')
12'	W10x39	W12x26	2 (3')	11'6" (10')	32'6" (31')
14'	W14x43	W12x30	3 (4')	10'6" (9'6")	33'6" (32'6")
16'	W10x49	W14x34	3 (4')	11' (10')	36' (35')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x18	W10x15	2'	7'6"	21'6"
8'	W8x24	W8x18	2 (3')	9' (7'6")	26' (24'6")
10'	W8x28	W10x22	2 (3')	9'6" (8'6")	28'6" (27'6")
12'	W10x33	W14x22	2 (3')	10'6" (9')	31'6" (30')
15'	W14x43	W12x26	2 (3')	11'6" (10')	35'6" (34')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W10x17	W8x13	2'	6'6"	19'6"
5'	W8x18	W12x14	2'	7'	21'
6'	W8x18	W8x15	2'	7'6"	22'6"
8'	W10x22	W8x18	2'	8'6"	25'6"
10'	W12x26	W8x21	2 (3')	9' (8')	28' (27')
12'	W10x33	W10x22	2 (3')	10' (8'6")	31' (29'6")
15'	W10x39	W10x26	2 (3')	11' (9'6")	35' (33'6")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x15	W8x13	2'	6'6"	19'6"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x13	W8x13	2'	5'6"	17'6"
6'	W8x18	W12x14	2'	7'	22'
8'	W8x21	W10x17	2'	7'6"	24'6"
10'	W8x24	W8x18	2'	8'6"	27'6"
12'	W8x28	W8x21	2'	9'	30'
15'	W10x33	W10x22	2 (3')	10' (8'6")	34' (32'6")

Chart Notes:

1. If the display height is between chart values shown above, use the next highest value.
2. * Requires that braces be placed approximately 10' from ground level that spans both columns. If total height of display is over 20', place another set of braces on 10' spacing.
3. Wind loading figured at **Exposure "C" - Open terrain** with scattered obstructions having heights generally less than 30 feet. This category includes flat open country, grasslands, and all water surfaces in hurricane prone areas.
4. Wind loading figured at **Exposure "B" - Urban and suburban areas**, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. These areas prevail in the upwind direction for a distance of 2600 feet or 20 times the structure height, whichever is greater.

Outdoor Scoreboard
Pier Installation
2 Column



Nevco, Inc.
Greenville, Illinois 62246

Drawing No. 241-0405

Drawn **KAB** Date **2/16/2017**

Sheet **5** of **6**

180 MPH WIND ZONES

Rev C

EXPOSURE C (See Note 3)

EXPOSURE B (See Note 4)

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W10x33	W12x26	2' (3')	12' (10')	27' (25')
8'	W12x40	W14x30	2' (3')	14' (116")	31' (286")
9'	W14x43	W14x34	2' (3')	156" (12')	336" (30')
10'	W12x53	W16x36	2' (3')	166" (13')	356" (32')
10'6"	W12x53	W16x40	2' (3')	176" (136")	37' (33')
12'	W14x61	W21x44	3' (4')	146" (12')	356" (33')
14'	W16x67	W16x50	3' (4')	166" (136")	396" (366")
16'	W18x76	W18x55	3' (4')	18' (15')	43' (40')
18'	W18x86	W21x62	3' (4')	196" (166")	466" (436")
20'	W21x101	W21x68	3' (4')	22' (186")	51' (476")
22'	W21x111	W24x68	3' (4')	24' (20')	55' (51')
25'	W24x131	W24x84	3' (4')	266" (22')	606" (56')
30'	W18x175	W24x103	3' (4')	31' (26')	70' (65')
35'	W14x233	W24x131	3' (4')	36' (296")	80' (736")
40'	W18x258	W24x146	3' (4')	406" (336")	896" (826")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W12x26	W14x22	2'	106"	246"
6'	W12x30	W10x26	2'	116"	266"
7'	W12x35	W12x26	2' (3')	12' (106")	28' (266")
8'	W10x39	W12x30	2' (3')	13' (11')	30' (28')
10'	W14x48	W18x35	2' (3')	156" (12')	346" (31')
12'	W12x53	W16x40	2' (3')	176" (136")	386" (346")
14'	W14x61	W21x44	3' (4')	15' (126")	38' (356")
16'	W12x72	W18x50	3' (4')	166" (14')	416" (39')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x24	W8x21	2'	10'	24'
8'	W10x33	W12x26	2' (3')	116" (10')	286" (27')
10'	W12x40	W12x30	2' (3')	13' (11')	32' (30')
12'	W14x48	W14x34	2' (3')	146" (116")	356" (326")
15'	W14x61	W16x40	2' (3')	176" (136")	416" (376")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x21	W8x18	2'	86"	216"
5'	W10x22	W8x21	2'	96"	236"
6'	W10x26	W10x22	2'	10'	25'
8'	W10x33	W10x26	2'	11'	28'
10'	W10x39	W12x26	2' (3')	12' (10')	31' (29')
12'	W10x45	W14x30	2' (3')	136" (11')	346" (32')
15'	W12x53	W16x36	2' (3')	16' (126")	40' (366")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x21	W8x18	2'	86"	216"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x18	W8x15	2'	76"	196"
6'	W8x24	W8x21	2'	96"	246"
8'	W10x30	W10x22	2'	10'	27'
10'	W10x33	W10x26	2'	11'	30'
12'	W10x39	W12x30	2'	12'	33'
15'	W10x49	W14x34	2' (3')	14' (116")	38' (356")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
6'	W12x26	W10x22	2' (3')	106" (9')	256" (24')
8'	W10x33	W12x26	2' (3')	116" (10')	286" (27')
9'	W10x39	W12x26	2' (3')	12' (106")	30' (286")
10'	W12x40	W12x30	2' (3')	13' (11')	32' (30')
10'6"	W14x43	W14x30	2' (3')	136" (11')	33' (306")
12'	W14x48	W14x34	3' (4')	12' (106")	33' (316")
14'	W12x53	W16x40	3' (4')	13' (116")	36' (346")
16'	W14x61	W21x44	3' (4')	14' (12')	39' (37')
18'	W12x72	W16x50	3' (4')	156" (13')	426" (40')
20'	W18x86	W18x55	3' (4')	176" (146")	466" (436")
22'	W12x96	W21x55	3' (4')	19' (16')	50' (47')
25'	W14x109	W21x68	3' (4')	21' (176")	55' (516")
30'	W18x148	W24x76	3' (4')	25' (206")	64' (596")
35'	W18x175	W21x101	3' (4')	286" (24')	726" (68')
40'	W14x211	W24x117	3' (4')	326" (27')	816" (76')

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W10x22	W8x21	2'	9'	23'
6'	W10x26	W10x22	2'	10'	25'
7'	W10x30	W10x22	2' (3')	106" (9')	266" (25')
8'	W10x33	W10x26	2' (3')	11' (96")	28' (266")
10'	W10x39	W12x30	2' (3')	12' (106")	31' (296")
12'	W12x45	W14x34	2' (3')	14' (116")	35' (326")
14'	W12x53	W18x35	3' (4')	12' (11')	35' (34')
16'	W14x61	W16x40	3' (4')	13' (116")	40' (376")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
5'	W8x21	W8x18	2'	86"	226"
8'	W8x28	W10x22	2' (3')	10' (86")	27' (256")
10'	W10x33	W10x26	2' (3')	11' (96")	30' (286")
12'	W10x39	W12x26	2' (3')	12' (10')	33' (31')
15'	W10x49	W14x34	2' (3')	14' (116")	38' (356")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x18	W8x15	2'	76"	206"
5'	W8x21	W10x17	2'	8'	22'
6'	W10x22	W8x18	2'	86"	236"
8'	W12x26	W8x21	2'	96"	266"
10'	W10x33	W10x22	2' (3')	106" (9')	296" (28')
12'	W10x39	W12x26	2' (3')	116" (96")	326" (306")
15'	W10x45	W12x30	2' (3')	126" (106")	366" (346")

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
4'	W8x18	W10x15	2'	76"	206"

Column and Foundation Requirements (Based on ASCE 7-10)					
Display Height	Unbraced Column	Braced Column*	Pier Dia.	Pier Depth	Column Length
3'	W8x15	W8x13	2'	66"	186"
6'	W8x21	W10x17	2'	8'	23'
8'	W8x24	W8x18	2'	9'	26'
10'	W8x28	W10x22	2'	96"	286"
12'	W10x33	W10x26	2'	106"	316"
15'	W14x43	W12x26	2' (3')	116" (10')	356" (34')

18 FEET WIDE INSTALLATIONS

16 FEET WIDE INSTALLATIONS

12 FEET WIDE INSTALLATIONS

10 FEET WIDE INSTALLATIONS

9 FEET WIDE INSTALLATIONS

8 FEET WIDE INSTALLATIONS

Chart Notes:

1. If the display height is between chart values shown above, use the next highest value.
2. * Requires that braces be placed approximately 10' from ground level spanning both columns. If display is taller than 20' place braces on 10' spacing.
3. Wind loading figured at **Exposure "C" - Open terrain** with scattered obstructions having heights generally less than 30 feet. This category includes flat open country, grasslands, and all water surfaces in hurricane prone areas.
4. Wind loading figured at **Exposure "B" - Urban and suburban areas**, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. These areas prevail in the upwind direction for a distance of 2600 feet or 20 times the structure height, whichever is greater.

Outdoor Scoreboard
Pier Installation
2 Column



Nevco, Inc.
Greenville, Illinois 62246

Drawing No. 241-0405

Drawn KAB Date 2/16/2017

Sheet 6 of 6