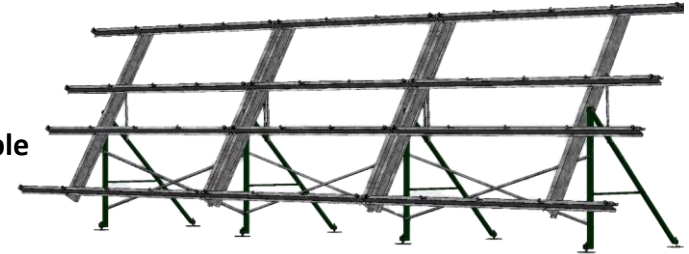


### Adjustable Ground Mount Ballast Table

Required Ballast Weight Per Block (kg)  
One Block Per A-Frame



		Base Wind Pressure (q50)								
		0.2 kPa	0.3 kPa	0.4 kPa	0.5 kPa	0.6 kPa	0.7 kPa	0.8 kPa	0.9 kPa	1.0 kPa
KAGM		549	817	1085	1365	1633	1935	2204	2471	2751

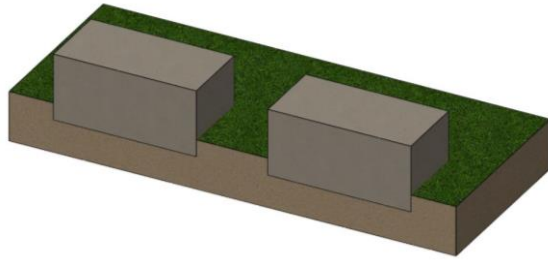
The ballast up to 500x500 to have (4) longitudinal 15M and 10M stirrups at 400 o.c  
 The ballast from 600x600 and up to have (6) longitudinal 15M and 10M stirrups at 400 o.c  
 Concrete Compressive Strength = 20 Mpa  
 Allowable Soil Bearing Capacity=100 kPa  
 Ground Preparation = 4" of Compacted Gravel

General Notes:

1. DESIGN AS PER CAN/CSA A23 DESIGN OF CONCRETE STRUCTURES STANDARD
2. CONTRACTOR IS RESPONSIBLE FOR PROPER CONSTRUCTION OF CONCRETE BALLAST AND IT'S GRAVEL BASE
3. ALL REINFORCEMENT TO BE GRADE 400 BILLET-STEEL BARS CONFORMING TO CSA G30.18
4. BALLAST DESIGN BASED ON q50 HOURLY WIND PRESSURE UP TO 20.88PSF (1.0 kPa). IN ACCORDANCE WITH STRUCTURAL COMMENTARIES FOR NBCC 2010 FIGURE I-7, Cpi = 0. lw = 0.8. Open Terrain Factor.
5. **ALL SPECIFICATIONS ARE TO BE USED AS A GUIDE ONLY. IT IS RECOMMENDED TO CONSULT A PROFESSIONAL ENGINEER BEFORE CONSTRUCTION**

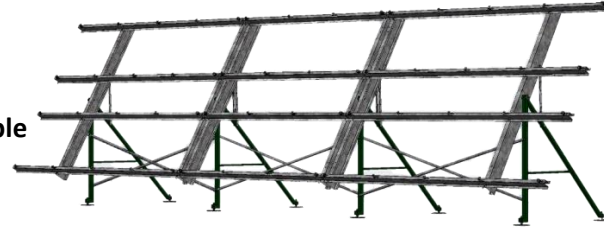
DESIGN PARAMETERS;

Density of Concrete=2,400 kg/m<sup>3</sup>  
 FS (Wind) = 1.4  
 Coefficient of Friction = 0.65 (Concrete on Gravel)



**Adjustable Ground Mount Ballast Table**

Required Ballast Weight Per Block (kg)  
Two Blocks Per A-Frame with Toe Berm



		Base Wind Pressure (q50)								
		0.2 kPa	0.3 kPa	0.4 kPa	0.5 kPa	0.6 kPa	0.7 kPa	0.8 kPa	0.9 kPa	1.0 kPa
KAGM		400	590	785	990	1180	1400	1590	1785	1990

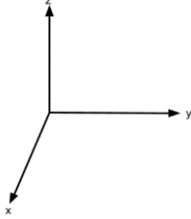
Single leg ballast blocks (2 per A-frame) should be standard precast concrete lock blocks, when combined with compacted toe berm.  
 A compacted toe berm (either built up, or cut into native soil) shall be installed at the outside ends of each set of blocks, to resist sliding.  
 Typical lock block dimensions are 600x600x1200 or 750x750x1500, with a minimum weight of 1000 kg.  
 Ground Preparation = 4" of Compacted Gravel, and compacted toe berm each end (compacted granular, or cut into native soil).  
 Allowable Soil Bearing Capacity=100 kPa.

General Notes:

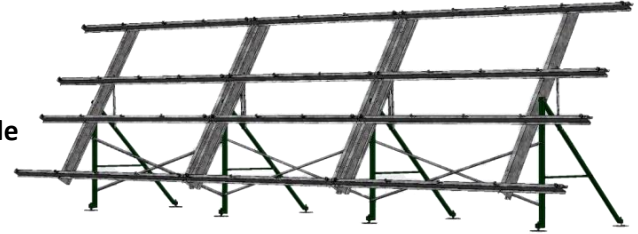
1. DESIGN AS PER CAN/CSA A23 DESIGN OF CONCRETE STRUCTURES STANDARD
2. CONTRACTOR IS RESPONSIBLE FOR PROPER CONSTRUCTION OF CONCRETE BALLAST AND IT'S GRAVEL BASE
3. ALL REINFORCEMENT TO BE GRADE 400 BILLET-STEEL BARS CONFORMING TO CSA G30.18
4. BALLAST DESIGN BASED ON q50 HOURLY WIND PRESSURE UP TO 20.88PSF (1.0 kPa). IN ACCORDANCE WITH STRUCTURAL COMMENTARIES FOR NBCC 2010 FIGURE I-7, Cpi = 0. Iw = 0.8. Open Terrain Factor.
5. **ALL SPECIFICATIONS ARE TO BE USED AS A GUIDE ONLY. IT IS RECOMMENDED TO CONSULT A PROFESSIONAL ENGINEER BEFORE CONSTRUCTION**

DESIGN PARAMETERS;

Density of Concrete=2,400 kg/m<sup>3</sup>  
 FS (Material) = 0.9  
 FS (Wind) = 1.4



**Adjustable Ground Mount Reaction Force Table**



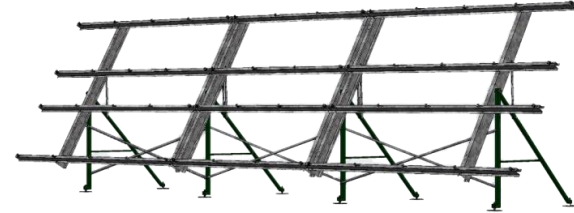
		Factored Reactions (kN)								
		Base Wind Pressure (q50)								
		0.2 kPa	0.3 kPa	0.4 kPa	0.5 kPa	0.6 kPa	0.7 kPa	0.8 kPa	0.9 kPa	1.0 kPa
KAGM	Lateral (x, y)	± 3.49	± 5.20	± 6.90	± 8.68	± 10.39	± 12.31	± 14.02	± 15.72	± 17.50
	Downforce (-z)	38.79	40.50	42.21	43.99	45.71	47.62	49.33	51.04	52.82
	Uplift (+z)	3.49	5.20	6.90	8.68	10.39	12.31	14.02	15.72	17.50

**1. ALL SPECIFICATIONS ARE TO BE USED AS A GUIDE ONLY. IT IS RECOMMENDED TO CONSULT A PROFESSIONAL ENGINEER BEFORE CONSTRUCTION**



**Adjustable Ground Mount Sonotube Table**

All piles are 12" diameter x length noted (feet)



	Min. Winter Angle	Base Wind Pressure (q50)								
		0.2 kPa	0.3 kPa	0.4 kPa	0.5 kPa	0.6 kPa	0.7 kPa	0.8 kPa	0.9 kPa	1.0 kPa
KAGM	20°	8.75	9.25	9.5	10	10.25	10.5	11	11.25	11.75
KAGM	45°	6.75	7	7.5	7.75	8	8.5	8.75	9.25	9.5
KAGM	60°	5	5.25	5.75	6	6.5	6.75	7	7.5	7.75

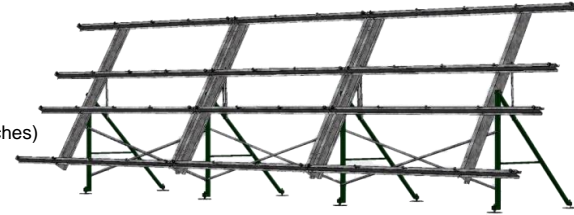
General Notes:

1. DESIGN AS PER CAN/CSA A23 DESIGN OF CONCRETE STRUCTURES STANDARD
2. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT PILES ACHIEVE REQUIRED DEPTH. IF BOREHOLES ARE SLOUGHING OR COLLAPSING, CONCRETE PILES ARE NOT SUITABLE.
3. ALL REINFORCEMENT TO BE GRADE 400 BILLET-STEEL BARS CONFORMING TO CSA G30.18. ALL PILES TO BE REINFORCED WITH 3-10M LONGITUDINAL BARS.
4. PILES UTILIZE SKIN FRICTION (FULL LENGTH) AND END BEARING RESISTANCE IN COMPRESSION, AND SKIN FRICTION (BELOW FROST LINE ONLY) AND SELF WEIGHT RESISTANCE IN UPLIFT.
5. **ALL SPECIFICATIONS ARE TO BE USED AS A GUIDE ONLY. IT IS RECOMMENDED TO CONSULT A PROFESSIONAL ENGINEER BEFORE CONSTRUCTION**



### Adjustable Ground Mount Sonotube Table

All piles are 10" or 12" diameter x 48" long x bell size noted (inches)



	Min. Winter Angle	Base Wind Pressure (q50)								
		0.2 kPa	0.3 kPa	0.4 kPa	0.5 kPa	0.6 kPa	0.7 kPa	0.8 kPa	0.9 kPa	1.0 kPa
KAGM	20°	36	36	36	36	36	36	36	36	36
KAGM	45°	28	28	28	28	28	36	36	36	36
KAGM	60°	24	24	24	28	28	28	28	28	28

General Notes:

1. DESIGN AS PER CAN/CSA A23 DESIGN OF CONCRETE STRUCTURES STANDARD
2. SOIL BACKFILL AROUND BELL PILES (IF HOLES ARE DUG AND PRE-FORMED BELLES ARE USED) MUST BE COMPACTED TO ENSURE FULL WEIGHT OF SOIL IS PRESENT AGAINST PILES.
3. ALL REINFORCEMENT TO BE GRADE 400 BILLET-STEEL BARS CONFORMING TO CSA G30.18. ALL PILES TO BE REINFORCED WITH 3-10M LONGITUDINAL BARS.
4. PILES UTILIZE END BEARING RESISTANCE IN COMPRESSION, AND WEIGHT OF SOIL PLUG ABOVE BELL IN UPLIFT.
5. BASIS OF DESIGN IS PRE-FORMED BELL PILES BY BIGFOOT SYSTEMS. UPLIFT CAPACITIES ARE VERIFIED BY TESTING BY BIGFOOT SYTEMS INC. WITH A 1.5 SAFETY FACTOR APPLIED.
6. **ALL SPECIFICATIONS ARE TO BE USED AS A GUIDE ONLY. IT IS RECOMMENDED TO CONSULT A PROFESSIONAL ENGINEER BEFORE CONSTRUCTION**