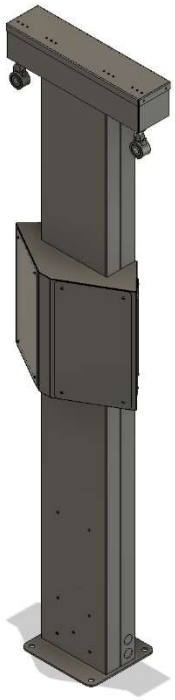
Model ID	CO-1025
Date	April 14, 2025
Revision	R2

Disclaimer and Confidentiality Statement

This report was prepared in confidence for the above and any distribution of this document is not permitted without express, written consent by the undersigned. Its contents shall not be duplicated or transmitted in any way and the opinions and information contained in this report are limited to this project and client.

Contents

1. General Notes



Product Description

Model CO-1025 is an EV pedestal is made up of aluminum sheet metal and fasteners and features a cable retraction module. The product is shipped disassembled where the end user is required to assemble the final product. The pedestal is designed with interchangeable face plates to allow for installation of third-party chargers with their proprietary mounting patterns. The pedestal includes an automatic assembly for retracting the charging cable via a simple counterweight-style retraction mechanism.

Overall Dimensions

This section details the total physical measurements of the assembled components, including length, width, and height, to provide context for spatial requirements and integration constraints.

Description	ISO Value (mm)	US Value (in)
Overall		
Height	2 219	87.4
Depth	279	11.0
Width	572	22.5
Pedestal Without Base Plate		
Height	2 212	87.1
Depth	149	5.9
Width	572	22.5
Base Plate		
Height	76.2	3.0
Depth	279	11.0
Width	305	12.0

Summary of Parts

This section provides an overview of all components, including their dimensions in cubic millimeters and corresponding masses calculated.

Part Number	Description
WU-080	Back Frame Half
WU-069	Front Frame Half
WU-034	Front Frame Bottom Cover
WU-068	Base Plate Assembly
WU-070	Top Retraction Cover Assembly
WU-077	Top Cover Plate
WU-1005	Charger Mount Assembly
WU-031	Internal Cover Plate
WU-030	Back Frame Bottom Cover
WU-031	Back Frame Middle Cover

A note for additional clarity - the assembly below does not include all fasteners, all horizontal cable bars, proprietary retraction mechanism, or proprietary mounting plates for chargers. This section considers only the significant components for an overall analysis which will be used in subsequent sections regarding loading and structural performance.

Description	ISO Value (mm^3)	US Value (in^3)	ISO Value (kg)	US Value (lbs)
Back Frame Half	1,478,959	90.230	3.99	8.80
Front Frame Half	1,801,562	109.971	4.86	10.72
Front Frame Bottom Cover	123,721	7.546	0.33	0.74
Base Plate Assembly	556,889	33.985	1.50	3.31
Top Retraction Cover Assembly	444,782	27.151	1.20	2.65
Top Cover Plate	267,906	16.353	0.72	1.59
Charger Mount Assembly	1,331,628	81.253	3.60	7.93
Internal Cover Plate	213,741	13.034	0.58	1.27
Back Frame Bottom Cover	441,022	26.932	1.19	2.63
Back Frame Middle Cover	213,741	13.034	0.58	1.27
		Total	**18.56**	**40.91**

Fasteners

The following table below includes all the main frame fasteners and mounting plate fasteners which are used to transfer the loads throughout the pedestal assembly. All fasteners are attached in single shear orientations.

Description	Parameter	ISO Value (mm)	US Value (in)
Top Retraction Cover Assembly	Inner Hole Diameter (Frame)	8.81	0.347
	Outer Hole Diameter (Plate)	7.14	0.281
	Count	4	
	Frame Minimum Fastener Edge Distance	25.6	1.01
	Cover Minimum Fastener Edge Distance	25.6	1.01
Top Cap	Inner Hole Diameter (Frame)	6.43	0.253
	Outer Hole Diameter (Cap)	5.6	0.221
	Count	4	
	Minimum Fastener Edge Distance	11.2	0.441
Base Plate to Frame	Inner Hole Diameter (Frame)	12.8	0.503
	Outer Hole Diameter (Base Plate Vertical Tab)	10.1	0.397
	Count	4	
	Minimum Fastener Edge Distance	50.8	2.0
Base Plate to Foundation	Hole Diameter	19.1	0.75
	Count	4	
	Minimum Fastener Edge Distance	25.4	1.0
Charger Mount Assembly to Frame	Inner Hole Diameter (Frame)	8.81	0.347
	Outer Hole Diameter (Mount)	6.6	0.26
	Count	6	
	Frame Minimum Fastener Edge Distance	28.7	1.131
	Mount Minimum Fastener Edge Distance	12.3	0.485
Charger Mount Assembly Cover Plate	Inner Hole Diameter (Frame)	6.43	0.253
	Outer Hole Diameter (Cover)	5.1	0.201
	Count	4	
	Frame Minimum Fastener Edge Distance	12.8	0.502
	Cover Plate Minimum Fastener Edge Distance	19.7	0.777
Charger Mount Assembly	Outer Hole Diameter (Mount)	7.62	0.3
	Count	4	
	Mount Minimum Fastener Edge Distance	49.4	1.943
Back Frame Bottom Cover	Inner Hole Diameter (Frame)	6.4	0.253
	Outer Hole Diameter (Plate)	5.6	0.221

	Count	10	
	Frame Minimum Fastener Edge Distance	12.7	0.50
	Cover Plate Minimum Fastener Edge Distance	24.6	0.969
Back Frame Middle Cover	Inner Hole Diameter (Frame)	6.4	0.253
	Outer Hole Diameter (Plate)	5.6	0.221
	Count	4	
	Frame Minimum Fastener Edge Distance	12.7	0.50
	Cover Plate Minimum Fastener Edge Distance	19.1	0.75

Fastener Capacities

All fastener capacities are based on the minimum hole diameter of the two corresponding pairs, less 1 mm for fitment. Shear and tensile capacities are calculated in accordance with CSA S16-09 Bolts in Bearing Type Connections. The ultimate and yield tensile strength of the fasteners is assumed to be equal to the base sheet metal for simplification. Fasteners are assumed to be 300W grade steel.

The following constants and formulas were used in the fastener calculations.

Formula/Constant	Description
$F_y = 300\ MPa$	Yield strength of fastener material
$F_u = 450\ MPa$	Ultimate strength of fastener material
$\varphi_b = 0.8$	Strength reduction factor
$\varphi_{br} = 0.8$	Bearing capacity reduction factor
$V_r = 0.6 \cdot \varphi_b \cdot A_b \cdot F_u$	Factored shear strength
$B_r = 3 \cdot \varphi_{br} \cdot t \cdot d \cdot F_u$	Factored bearing capacity
$V_{r.pin} = 0.66 \cdot \varphi \cdot A \cdot F_y$	Factored shear strength of pin
$T_r = 0.75 \cdot \varphi_b \cdot A_b \cdot F_u$	Factored tensile strength

Please note that the capacities provided below consider only single fasteners and should be compared with factored loads. The V_r term considered the shear capacity of the fastener, B_r considers the bearing resistance of the adjacent metal (i.e. the connection), T_r considers the tensile resistance of the fastener, and $V_{r.pin}$ considers the gross shear capacity of the pin. All fasteners are assumed to be in single shear with threads excluded. Fasteners are assumed to be 1mm in diameter less than the smallest hole.

Description	SI Value	US Value	Note
Top Retraction Cover Assembly			
Plate Thickness	2.023 mm	0.08 in	
Fastener Diameter	6.1 mm	0.24 in	
Cross Sectional Area	29.6 mm^2	0.046 in^2	
V_r	6.4 kN	1 437 lbs	
B_r	13.4 kN	3 015 lbs	
T_r	8.0 kN	1 797 lbs	
$V_{r.pin}$	4.69 kN	1 054 lbs	
Top Cap			Same fastener for: • Back Frame Bottom Cover • Back Frame Middle Cover
Plate Thickness	2.023 mm	0.08 in	
Fastener Diameter	4.6 mm	0.18 in	
Cross Sectional Area	16.6 mm^2	0.026 in^2	
V_r	3.6 kN	807 lbs	
B_r	10.1 kN	2 259 lbs	
T_r	4.5 kN	1 009 lbs	
$V_{r.pin}$	2.6 kN	592 lbs	
Base Plate to Frame			
Plate Thickness	2.023 mm	0.08 in	Consider only frame thickness since limiting
Fastener Diameter	9.1 mm	0.358 in	
Cross Sectional Area	65 mm^2	0.10 in^2	
V_r	14.1 kN	3 158 lbs	
B_r	19.9 kN	4 468 lbs	
T_r	17.6 kN	3 947 lbs	
$V_{r.pin}$	10.3 kN	2 316 lbs	
Base Plate to Frame			
Plate Thickness	2.023 mm	0.08 in	
Fastener Diameter	5.6 mm	0.22 in	
Cross Sectional Area	24.6 mm^2	0.038 in^2	

V_r	5.3 kN	1 196 lbs	
B_r	12.2 kN	1 495 lbs	
T_r	6.7 kN	1 495 lbs	
$V_{r.pin}$	3.9 kN	877 lbs	
Charger Mount Assembly Cover Plate			
Plate Thickness	2.023 mm	0.08 in	
Fastener Diameter	4.1 mm	0.16 in	
Cross Sectional Area	13.2 mm^2	0.020 in^2	
V_r	2.9 kN	641 lbs	
B_r	8.9 kN	2 013 lbs	
T_r	3.6 kN	801 lbs	
$V_{r.pin}$	2.1 kN	470 lbs	
Charger Mount Assembly			
Plate Thickness	2.023 mm	0.08 in	
Fastener Diameter	6.62 mm	0.26 in	
Cross Sectional Area	34.4 mm^2	0.053 in^2	
V_r	7.4 kN	1 671 lbs	
B_r	14.5 kN	3 251 lbs	
T_r	9.3 kN	2 089 lbs	
$V_{r.pin}$	5.5 kN	1 225 lbs	

Material Properties

The sheet metal material used for the pedestal is 5052-H32 aluminum. This alloy has good workability, good corrosion resistance, high fatigue strength, weldability, and moderate strength.

Description	**ISO Value**	**US Value**
Yield Tensile Strength	193 MPa	28 ksi
Ultimate Tensile Strength	228 MPa	33 ksi
Modulus of Elasticity	70.3 GPa	10 200 ksi
Poissons Ratio	0.33	0.33
Shear Modulus	25.9 GPa	3 760 ksi
Shear Strength	138 MPa	20 ksi
Density	2.68 g/cm^3	167.3 lb/ft^3

The fastener material used for the pedestal is assumed to be 300W grade steel. This is a common steel alloy used for structural steel applications but is often found in general purpose fasteners. It is weldable and is often used interchangeably with ASTEM A36 grade steel from the US.

Description	ISO Value	US Value
Yield Tensile Strength	300 MPa	43.5 ksi
Ultimate Tensile Strength	450 MPa	65 ksi
Modulus of Elasticity	200 GPa	29 000 ksi
Poissons Ratio	0.3	0.3
Shear Modulus	80 GPa	11 600 ksi
Shear Strength	260 MPa	37 700 ksi
Density	7.85 g/cm^3	490 lb/ft^3

References

- Metals Handbook, Vol.2 - Properties and Selection: Nonferrous Alloys and Special-Purpose Materials, ASM International 10th Ed. 1990.
- Metals Handbook, Howard E. Boyer and Timothy L. Gall, Eds., American Society for Metals, Materials Park, OH, 1985.
- Structural Alloys Handbook, 1996 edition, John M. (Tim) Holt, Technical Ed; C. Y. Ho, Ed., CINDAS/Purdue University, West Lafayette, IN, 1996.
- Information provided by The Aluminum Association, Inc. from Aluminum Standards and Data 2000 and/or International Alloy Designations and Chemical Composition Limits for Wrought Aluminum and Wrought Aluminum Alloys (Revised 2001).

2. Foundation And Base Anchoring Analysis and Design

The following analysis is proposed for the foundation and base design for the EV pedestals. Please note that additional charger manufacturers can be added to this list as this is in no way an exhaustive table.

Manufacturer	Height	Width	Depth	Mass	Note
Grizzl-E Ultimate 48A	260 mm	160 mm	93 mm	9.0 kg	
Tesla Gen 3 Wall Connector 48A Single Phase	345 mm	155 mm	110 mm	4.5 kg	
ChargePoint Homeflex	284 mm	179 mm	132 mm	6.3 kg	
Emporia Classic Smart EV Charger	320 mm	230 mm	86 mm	10.3 kg	
Wallbox Pulsar Plus 48A	201 mm	198 mm	99 mm	4 kg	Weight excludes cable
Juicebox 40	470 mm	173 mm	147 mm	6.8 kg	
Juicebox 48	470 mm	173 mm	147 mm	8.6 kg	
Blink HQ 200	330 mm	241 mm	94 mm	7.7 kg	
Lectron V-Box 48A	450 mm	350 mm	265 mm	9.3 kg	
Autel MaxiCharger 50A	336 mm	187 mm	85 mm	7.0 kg	
Siemens VersiCharge	446 mm	180 mm	178 mm	7.8 kg	
FLO Home X8	409 mm	209 mm	190 mm	10.2 kg	
Rivian Wall Charger	414 mm	185 mm	147 mm	6.4 kg	
Ford Connected Charge Station	595 mm	321 mm	175 mm	11.0 kg	
Tap&GoEV EVSE L2-CHRG-S-M01	420.2 mm	380 mm	138 mm	13.6 kg	
Tap&GoEV EVSE L2-CHRG-L-M01	420.2 mm	380 mm	138 mm	13.65 kg	

The following charger manufacturers have provided reference material for their products and are included in this package for reference and cross verification of included values.

Manufacturer	Reference Material
Grizzl-E Ultimate 48A	Yes
Tesla Gen 3 Wall Connector 48A Single Phase	Yes
ChargePoint Homeflex	Yes
Emporia Classic Smart EV Charger	Yes
Wallbox Pulsar Plus 48A	Yes
Juicebox 40	Yes
Juicebox 48	Yes
Blink HQ 200	Yes
Lectron V-Box 48A	Yes
Autel MaxiCharger 50A	Yes
Siemens VersiCharge	Yes
FLO Home X8	Yes
Rivian Wall Charger	Yes
Ford Connected Charge Station	Yes
Tap&GoEV EVSE L2-CHRG-S-M01	Yes

Based on the above information, the following static analysis of the pedestal is proposed. Dual chargers are considered for this analysis due to the available mounting space. The self weight of the charger is applied as a point load at a distance from the center of the EV pedestal body. The load is applied as a vertical downwards load at ½ the depth of the charger. This yields a moment load on the EV pedestal due to the eccentricity of the charger. An appropriate safety factor is applied. The load is assumed to be applied at half of the height of the top mounting plate. This analysis considers the pedestal as a "flagpole" or simple cantilever model. The axial load from the pedestal self weight is considered to be negligible. The applied loads on the pedestal include the load from the charger and the environmental loads. Dynamic loads from the cable retraction mechanisms are assumed to be within the factor of safety envelope. A conservative factor of safety is taken at 2.5:1. Please note that all loads on anchors when comparing to manufacturer specified capacities must be considered as unfactored or specified loads. It is concluded the load applied via self weight from the charger is negligible on the anchorage assembly.

Manufacturer	**Force (N)**	**e, eccentricity (m)**	**Applied Moment (Nm)**
Grizzl-E Ultimate 48a	88.29	0.2359	20.83
Tesla Gen 3 Wall Connector 48a Single Phase	44.15	0.2439	10.77
Chargepoint Homeflex	61.80	0.2549	15.75
Emporia Classic Smart Ev Charger	101.04	0.2319	23.43
Wallbox Pulsar Plus 48a	39.24	0.2389	9.37
Juicebox 40	66.71	0.2629	17.54
Juicebox 48	84.37	0.2629	22.18
Blink HQ 200	75.54	0.2359	17.82
Lectron V-Box 48a	91.23	0.3219	29.37
Autel Maxicharger 50A	68.67	0.2319	15.92
Siemens Versicharge	76.52	0.2779	21.26
Flo Home X8	100.06	0.2839	28.41
Rivian Wall Charger	62.78	0.2629	16.50
Ford Connected Charge Station	107.91	0.2769	**29.88**

Description	**ISO Value**	**US Value**
Height Of Pedestal	2 129 mm	83.8 in
Height Of Charger Mounting Plate	442 mm	17.4 in
From Top Of Top Mounting Plate To Top Of Top Cap	734 mm	28.9 in
Distance From Load To Underside Of Base	1 174 mm	46.2 in
Maximum Charger Moment, Specified	59.76 Nm	44.08 ft lbs
Anchor Spacing, In Direction Of Applied Moment	229 mm	9.0 in
Force Couple On Anchors Pair From Applied Moment, Specified	261.0 N	58.7 lbs
Force Per Anchor From Applied Moment, Specified	130.4N	29.3 lbs
Force Per Anchor From Applied Moment, Factored	326.2 N	73.3 lbs

Environmental Loads

Continuing analysis of environmental loads for units installed in exterior applications. All environmental loading is provided from the National Building Code of Canada (NBCC) 2020 and considers the following loads:

Description	SI Value	US Value
Station	Vancouver City Hall, British Columbia	
Elevation	40 m	131.2 ft
Latitude	49.26	
Longitude	-123.115	
Wind, 1-In-50 Years	0.45 kPa	9.5 psf
Ground Snow Load	1.8 kPa	37.6 kPa
Rain Load	0.2 kPa	4.2 kPa

Description	SI Value	US Value
Importance Factor, I_s	1.0	
Wind Exposure Factor, C_w	1.0	
Basic Roof Snow Load Factor, C_b	0.8	
Accumulation Factor, C_a	1.0	
Slope Factor, C_s	1.0	
Snow Load, Specified	1.64 kPa	34.3 kPa
Factor of Safety	1.5	
Snow Load, Factored	2.46 kPa	51.4 psf

Description	SI Value	US Value
Importance Factor, I_w	1.0	
Exposure Factor, C_e	1.0	
Topographic Factor, C_t	1.0	
Gust Effect Factor, C_g	2.0	
External Pressure Coefficient, C_p	1.0	
Wind Load, Specified	0.9 kPa	18.8 psf
Factor of Safety	1.5	
Wind Load, Factored	1.35 kPa	28.2 psf

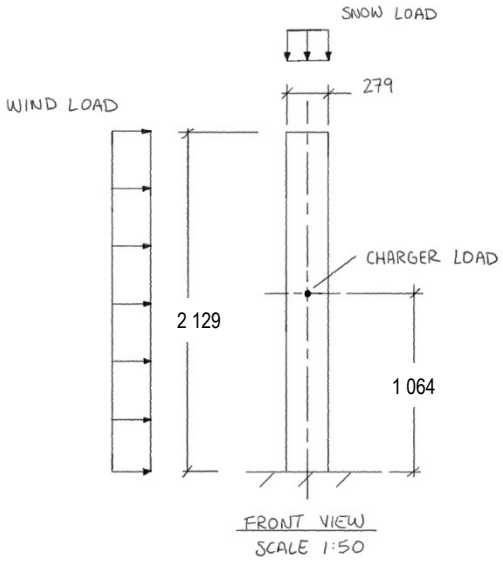
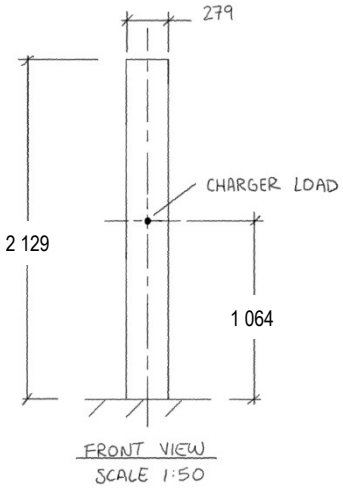
The snow load is assumed to be applied to the top cap of the pedestal acting vertically downwards as a uniformly distributed load (UDL). The wind load is assumed to be applied to the larger side face of the pedestal acting horizontally as a uniformly distributed load (UDL). The equivalent point load is considered by applying the net UDL at the center point of the applied load. No moment is created from the upper vertical snow load and is considered to be negligible in terms of axial demands. The additional snow load on the charger mount assembly is considered and concluded to be a negligible load. It is concluded the load applied via environmental wind load is negligible on the anchorage assembly.

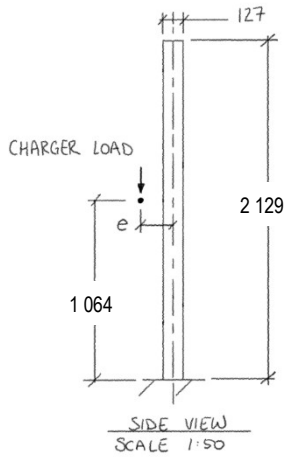
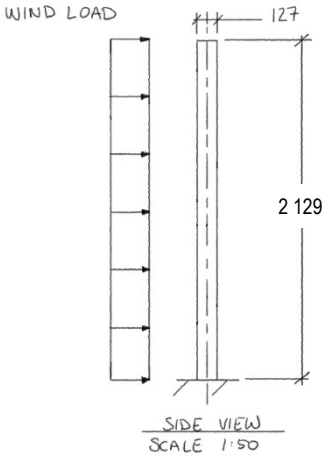
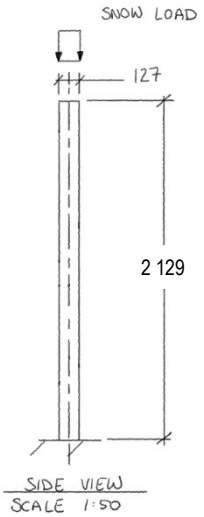
Description	SI Value	US Value
Plan Cross Sectional Area	75 385 mm^2	116.9 in^2
Elevation Area (Largest Face)	692 726 mm^2	1 074 in^2
Horizontal Wind Load Applied, Specified	940 N	210 lbs
Vertical Snow Load Applied, Specified	190 N	42 lbs
Equivalent Horizontal Point Load Relative To Underside Of Base Plate	1 064.5 mm	41.9 in
Equivalent Vertical Point Load	0 mm	0 in
Applied Horizontal Wind Moment, Specified	995 Nm	734 ft lbs
Anchor Spacing, In Direction Of Applied Moment	229 mm	9.02 in
Force Couple On Anchors Pair From Applied Moment, Specified	4 347 N	977 lbs
Force Per Anchor From Applied Moment, Specified	2 174 N	489 lbs
Force Per Anchor From Applied Moment, Factored	3 260 N	733 lbs

Consider snow load on charger mount assembly:

Description	SI Value	US Value
Plan Cross Sectional Area	48 714 mm^2	75.5 in^2
Vertical Snow Load Applied, Specified	120 N	427 lbs
Equivalent Vertical Point Load	126.2 mm	4.97 in
Applied Vertical Snow Moment, Specified	15 Nm	11.2 ft lbs
Anchor Spacing, In Direction Of Applied Moment	229 mm	9.02 in
Force Couple On Anchors Pair From Applied Moment, Specified	66 N	15 lbs
Force Per Anchor From Applied Moment, Specified	33 N	7.4 lbs
Force Per Anchor From Applied Moment, Factored	49.5 N	11.1 lbs

Further to the discussion above, the following sketches below have been prepared to illustrate the various loading conditions.

Item	Sketch
Global load summary on pedestal	
Simplified view with charger load	

Simplified view with charger load	
Simplified view with wind load	
Simplified view with snow load	

Anchorage

Please note that the Contractor must follow all manufacturer's specifications and instructions for installing any third-party hardware as specified below. Alternatives can be requested by the Contractor for approval and may be approved on a case-by-case basis. The tension and shear capacity strengths provided below assume uncracked, normal density concrete with a minimum 25 MPa 28-day concrete compressive strength. No edge distance reductions, group effect reductions, or cracked concrete conditions are considered below. Additionally, the concrete must have minimum reinforcing as per CSA/ACI standards.

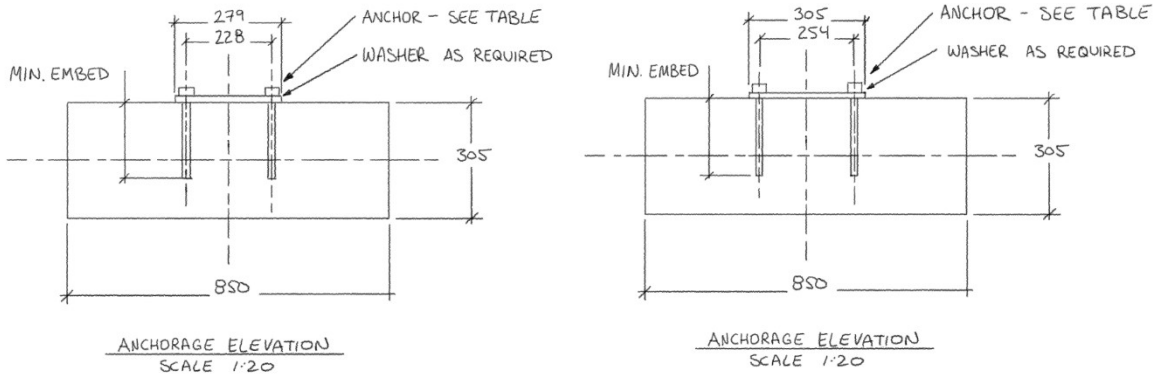
Description	US Tension	ISO Tension	US Shear	ISO Shear
Mechanical Anchors				
HILTI KWIK Bolt TZ2 Wedge Anchor	6 505 lbs	28.9 kN	14 005 lbs	62.3 kN
HILTI KH-EZ Screw Anchor	5 540 lbs	24.6 kN	11 930 lbs	53.1 kN
HILTI HCA Coil Anchor	2 940 lbs	13.1 kN	5 540 lbs	24.6 kN
HILTI KWIK HUS-EZ Screw Anchor	5 540 lbs	24.6 kN	11 930 lbs	53.1 kN
HILTI KWIK BOLT 3 Wedge Anchor SS316	5 285 lbs	23.5 kN	5 495 lbs	24.4 kN
Adhesive Anchors				
HILTI HIT-HY 200-R V3 Adhesive Anchor Epoxy w/ HAS Thread Rod	6 460 lbs	28.7 kN	13 915 lbs	61.9 kN

* Allowable loads

Description	Value
Mechanical Anchor A	HILTI KWIK Bolt TZ2 Wedge Anchor
Diameter	¾ in (19.1 mm)
Minimum Nominal Embedment	4" (102 mm)
Mechanical Anchor B	HILTI KH-EZ Screw Anchor
Diameter	¾ in (19.1 mm)
Minimum Nominal Embedment	4 in (102 mm)
Mechanical Anchor C	HILTI HCA Coil Anchor
Diameter	¾" (19.1 mm)
Minimum Nominal Embedment	3-1/4 in (85 mm)
Mechanical Anchor D	HILTI KWIK HUS-EZ Screw Anchor
Diameter	¾ in (19.1 mm)
Minimum Nominal Embedment	4 in (102 mm)
Mechanical Anchor E	HILTI KWIK BOLT 3 Wedge Anchor SS316
Diameter	¾ in (19.1 mm)

Minimum Nominal Embedment	4-3/4 in (121 mm)
Adhesive Anchor A	HILTI HIT-HY 200-R V3 Adhesive Anchor Epoxy
Anchoring Element	HILTI HAS Thread Rod w/ Hex Nut and Flat Washer HILTI HIT-Z Anchor Rod w/ Hex Nut and Flat Washer
Diameter	¾ in (19.1 mm)
Minimum Nominal Embedment	3-1/2 in (89 mm) 4 in (102 mm)

The following details have been prepared regarding the anchors into the concrete slab. For minimum embedment depths, see associated values for chosen anchors.

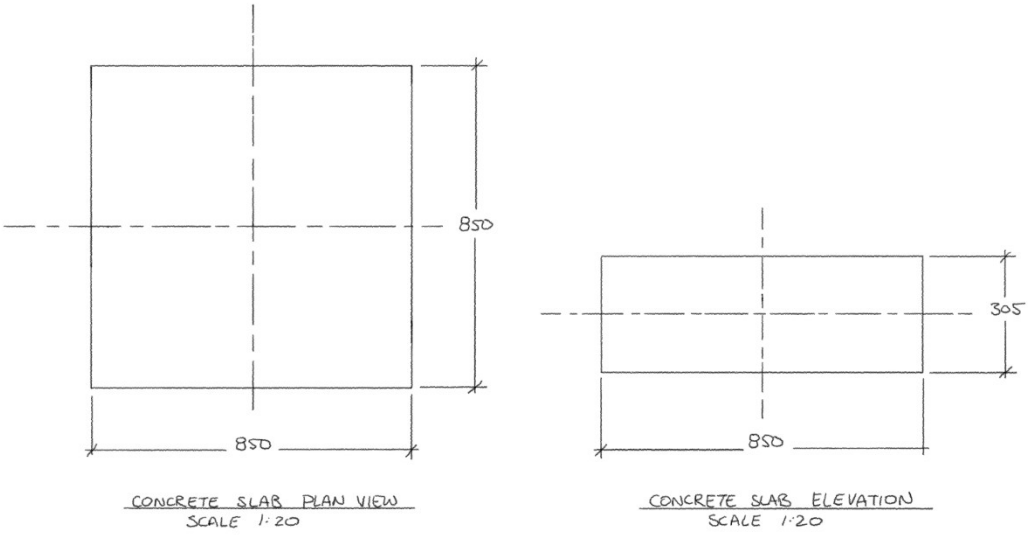


The following requirements regarding the concrete base/foundation below the pedestal is as follows:

Description	**SI Value**	**US Value**
28-day specified concrete compressive strength	25 MPa	4 000 psi
Minimum Slab Thickness	305 mm	12 in
Slab Width	850 mm	33.5 in
Slab Depth	850 mm	33.5 in
Exposure Class	C-1	
Concrete Density Type	Normal	
Minimum soil safe working load	150 kPa	3 132 psf
Maximum allowable slab axial load	108.4 kN	24 3634 lbs
Reinforcing Steel	10M @ 200 T/B EW	#3 @ 8 in T/B EW

Additional Reinforcing steel notes	• Standard hooks to CSA A23.1 • Steel development lengths as per CSA A23.1 • All steel to f_y=400 MPa • Install corner bars top and bottom – minimum development length 300 mm • Mark bars pre-pour or scan with GOR to post install anchors for pedestal – do not cut bars during anchor installation • No splices permitted – use full length bars • Contractor to vibrate concrete as per CSA A23.1 • All formwork to be responsibility of Contractor • All ground preparation to be responsibility of Contractor – ensure base is graded and prepared before placing reinforcing steel and pouring concrete

The following details have been prepared regarding the concrete slab for pedestal support: Please note that the pedestal shall be installed at the center point of the slab. Do not eccentrically install the base plate.



3. Static And Overturning Analysis

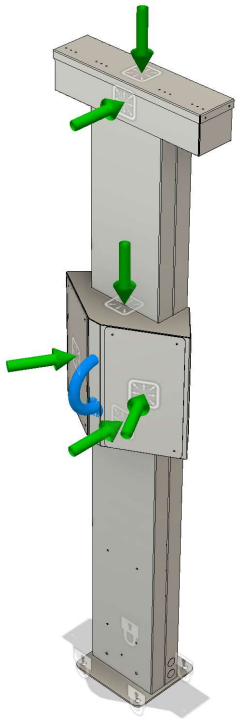
Finite element analysis (FEA) was performed on the entire pedestal assembly to determine more accurately the stress flows and deflections under defined loading conditions. Firstly, the wind loading condition is considered as this yields the largest base moment on the structure. The analysis is followed by the full loading condition on the pedestal with four (4) combinations within the load case. This is to simulate all factored demands on the pedestal and how it behaves. All environmental loads are applied as pressures and the charger load is applied as a concentrated moment for model simplification.

Loading

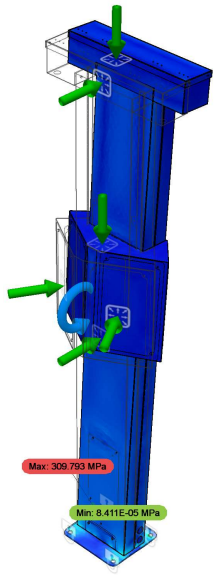
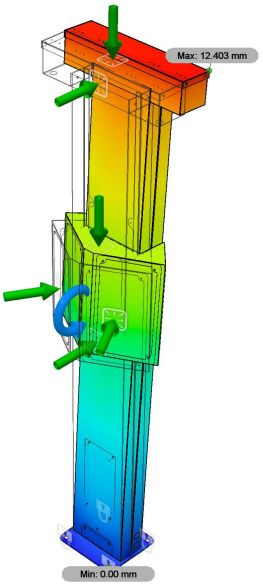
- Vertical snow load, factored 2.46 kPa
- Horizontal wind load, factored 1.35 kPa
- Charger moment, factored 60 Nm

Input Model

- Material Al 5052 H32
- All stresses provided are Von Mises stresses which includes resultant demand vectors of all principal axes



Results

Description	SI Value	US Value	
Wind Loading, Factored			
Max Displacement @ Top	11 mm	0.433 in	
Max Stress @ Base	240 MPa	34 809 psi	
Factor of Safety	1.4:1		
Combination Loading, Factored			
Max Displacement	12.4 mm	0.49 in	
Max Stress @ Base	310 MPa	44 961 psi	
Factor of Safety	1.1:1		
Additional notes: These results included factored loads and still yielded adequate capacity under analysis. It should be noted that the maximum stresses are observed at points and should be generally discarded due to stress accumulation and the solvers attempts at decomposing the matrix at those locations. The average peak stress is 150 MPa and is well within material yield limits.			

In conclusion, the pedestal under ordinary and extraordinary loading will not see demands close to its theoretical stress limits. Deflections are well within perceivable limits. The pedestal is rigid and will resist the applied loads adequately given the above listed assumptions and anchorage. Largest stress spikes occur at frame surface interruptions (i.e. holes, openings, etc.) and should be minimized near the base to distribute stresses more evenly and to prevent concentrations. Additional optimizations can be included in the analysis by refining the mesh, manually defining contact surfaces, and refining the load pressure areas. This may result in reduced stress concentrations and ultimately reduce the current demand conditions. Since the current demands are much less than the capacity, there is no need to further refine the input analysis. Additionally, hand checks have yielded comparable results which is important to verify the output from the finite element model (FEA).

4. Base Bracket Installation Procedure

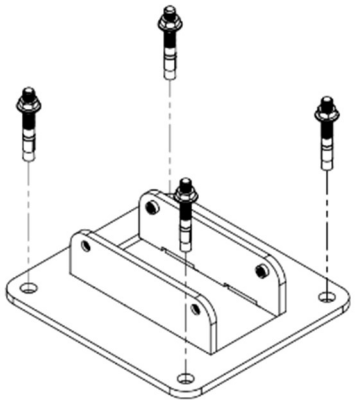
Foundation

- Procedure
    1. Contractor to ensure that the proper foundation/base preparation has been completed
        - For pedestals mounted independently of any structure a base concrete pad is required
            - For example, for pedestals that are installed on soft soils
                - Adjacent to parking lots
                - Commercial properties
                - In residential driveways
                - Etc.
            - Contractor to follow concrete base slab specifications
            - Contractor to cure concrete in accordance with industry best practices and shall provide additional consideration during cold weather pours
            - Contractor to ensure concrete slab compressive strength is reached before post-installing anchors via cylinder compressive tests to be provided at the expense of the Contractor. Cylinder results shall be provided at a minimum for day 3 and day 5, with additional tests at reasonable intervals until cylinder test results show the required minimum concrete compressive strength is reached
            - If ready mix is used, do not add water on site
            - Plasticizers and retarders (i.e. admixtures) may be used as required
        - For pedestals mounted on existing structures, a base pad may not be required to be installed
            - For example, for pedestals installed on existing concrete structures
                - Foundation slabs
                - Garage slabs
                - Approach slabs
                - Etc.
            - If applicable, the engineer of record (EOR) is to review the mounting assembly to their requirement and satisfaction.
            - Otherwise, the Contractor shall review that the base structure is appropriate for mechanical or adhesive anchors
            - Concrete scans shall be performed to identify locations of reinforcing bars prior to post installing anchors to avoid interrupting (i.e. cutting) bars during drilling.

Anchors

- Reference page 7 of Standard Pedestal (CO-1003) Assembly Instruction.pdf
- Contractor to follow all third-party manufacturer's specifications and installation procedures

- Do not interrupt (i.e. cut) into the existing reinforcing steel during anchor installation – mark bars before pouring concrete or GPR scan area to properly identify positions of reinforcing steel



EV pedestal

- Follow Assembly Instruction pdf for pedestal assembly instructions (WU-2015)