UTILITY DISTRIBUTION

CONCRETE POLES

USI UTILITY STRUCTURES INC.

PRESTRESSED CONCRETE UTILITY POLES

CLASS OF POLE	MIN. ULT. TRANSVERSE LOAD (lb.)	EQUIVALENT WOOD POLE CLASS	POLE CATALOGUE NUMBER	OVERALL POLE LENGTH [ft.]	SUGGESTED BURIAL DEPTH [ft.]	POLE TIP DIA. [in.]	POLE BUTT DIA. [in.]	ULTIMATE GROUND LINE MOMENT [ft.lbs.]	NOMINAL POLE WEIGHT [lbs.]
C	1200	5	HA-250-C-1-PG-X	25' 0"	4' 6"	6 1/2"	11' 0"	22200	1515
			HA-300-C-1-PG-X	30' 0"	5' 0"	6 1/2"	11 7/8"	27600	1985
			HA-350-C-1-PG-X	35' 0"	5' 5"	6 1/2"	12 3/4"	33000	2535
			HA-400-C-1-PG-X	40' 0"	6' 0"	6 1/2"	13 11/16"	38400	3180
			HA-450-C-1-PG-X	45' 0"	6' 6"	6 1/2"	14 5/8"	43800	3925
D	1500	4	HA-300-D-1-PG-X	30' 0"	5' 0"	6 1/2"	11 7/8"	34500	2085
			HA-350-D-1-PG-X	35' 0"	5' 5"	6 1/2"	12 3/4"	41250	2635
			HA-400-D-1-PG-X	40' 0"	6' 0"	6 1/2"	13 11/16"	48000	3280
			HA-450-D-1-PG-X	45' 0"	6' 6"	6 1/2"	14 5/8"	54750	4025
			HA-500-D-1-PG-X	50' 0"	7' 0"	6 1/2"	15 1/2"	61500	4800
E	1900	3	HA-350-E-1-PG-X	35' 0"	5' 5"	6 1/2"	12 3/4"	52250	3135
			HA-400-E-1-PG-X	40' 0"	6' 0"	6 1/2"	13 11/16"	60800	3780
			HA-450-E-1-PG-X	45' 0"	6' 6"	6 1/2"	14 5/8"	69350	4525
			HA-500-E-1-PG-X	50' 0"	7' 0"	6 1/2"	15 1/2"	77900	5200
			HA-550-E-1-PG-X	55' 0"	7' 6"	6 1/2"	16 3/8"	86450	5690
F	2400	2	HA-400-F-1-PG-X	40' 0"	6' 0"	6 1/2"	13 11/16"	76800	4030
			HA-450-F-1-PG-X	45' 0"	6' 6"	6 1/2"	14 5/8"	87600	4775
			HA-500-F-1-PG-X	50' 0"	7' 0"	6 1/2"	15 1/2"	98400	5450
			HA-550-F-1-PG-X	55' 0"	7' 6"	6 1/2"	16 3/8"	109200	5940
			HA-600-F-1-PG-X	60' 0"	8' 0"	6 1/2"	17 1/4"	120000	6775
			HA-650-F-1-PG-X	65' 0"	8' 6"	6 1/2"	18 3/16"	130800	7990
G	3000	1	HA-450-G-1-PG-X	45' 0"	6' 6"	8"	16 1/8"	109500	5090
			HA-500-G-1-PG-X	50' 0"	7' 0"	8"	17"	123000	6100
			HA-550-G-1-PG-X	55' 0"	7' 6"	8"	17 7/8"	136500	7200
			HA-600-G-1-PG-X	60' 0"	8' 0"	8"	18 3/4"	150000	8430
			HA-650-G-1-PG-X	65' 0"	8' 6"	8"	19 5/8"	163500	9785
			HA-700-G-1-PG-X	70' 0"	9' 0"	8"	20 1/2"	177000	11280
			HA-750-G-1-PG-X	75' 0"	9' 6"	8"	19 3/4" *	190500	11480
H	3700	H1	HA-500-H-1-PG-X	50' 0"	7' 0"	8"	17"	151700	6190
			HA-550-H-1-PG-X	55' 0"	7' 6"	8"	17 7/8"	168350	7325
			HA-600-H-1-PG-X	60' 0"	8' 0"	8"	18 3/4"	185000	8300
			HA-650-H-1-PG-X	65' 0"	8' 6"	8"	19 5/8"	201650	9855
			HA-700-H-1-PG-X	70' 0"	9' 0"	8"	20 1/2"	218300	11360
			HA-750-H-1-PG-X	75' 0"	9' 6"	8"	19 3/4" *	234950	11680
			HA-800-H-1-PG-X	80' 0"	10' 0"	8"	20 1/2" *	251600	12550
J	4500	H2	HA-600-J-1-PG-X	60' 0"	8' 0"	8"	18 3/4"	225000	8650
			HA-650-J-1-PG-X	65' 0"	8' 6"	8"	19 5/8"	245250	10000
			HA-700-J-1-PG-X	70' 0"	9' 0"	8"	20 1/2"	265500	11510
			HA-750-J-1-PG-X	75' 0"	9' 6"	8"	19 3/4" *	285750	11780
			HA-800-J-1-PG-X	80' 0"	10' 0"	8"	20 1/2" *	306000	12700
K	5400	H3	HA-600-K-1-PG-X	60' 0"	8' 0"	9 1/2"	20 1/4"	270000	10350
			HA-650-K-1-PG-X	65' 0"	8' 6"	9 1/2"	19 5/8" *	294300	10550
			HA-700-K-1-PG-X	70' 0"	9' 0"	9 1/2"	20 3/8" *	318600	11850
L	6400	H4	HA-600-L-1-PG-X	60' 0"	8' 0"	10 1/4"	19 5/8" *	320000	10500
			HA-650-L-1-PG-X	65' 0"	8' 6"	10 1/4"	20 3/8" *	348800	10700
			HA-700-L-1-PG-X	70' 0"	9' 0"	10 1/4"	21 1/8" *	377600	12840

NOTES: This chart outlines typical heights and class of poles. Other sizes are available upon request. Ultimate ground line moment is calculated as follows: Height above grade minus 2 ft. times transverse bending strength. Pole tip diameters indicated with an asterisk (*) have a taper of 13mm/m. Standard taper on all other poles is 15mm/m.

USI

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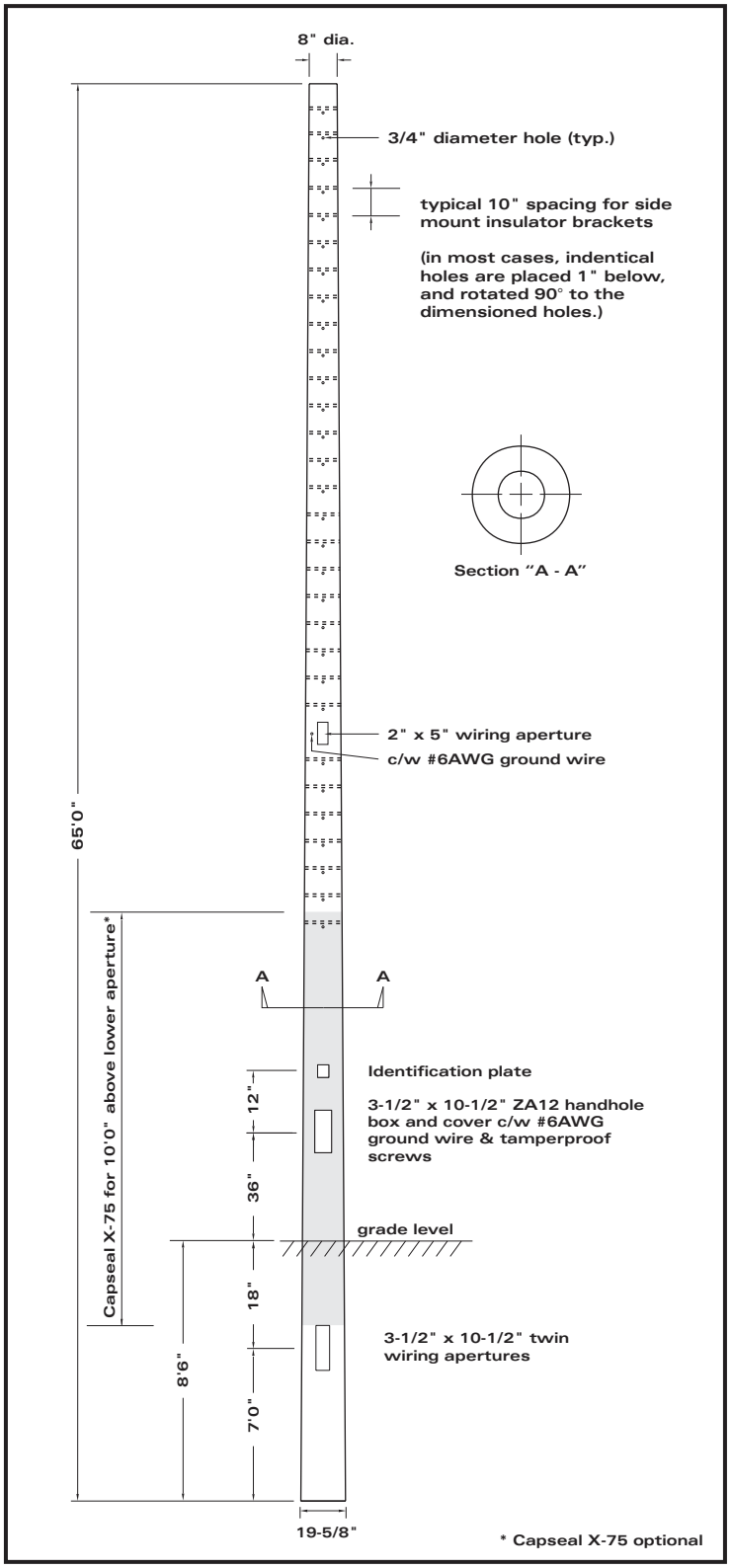
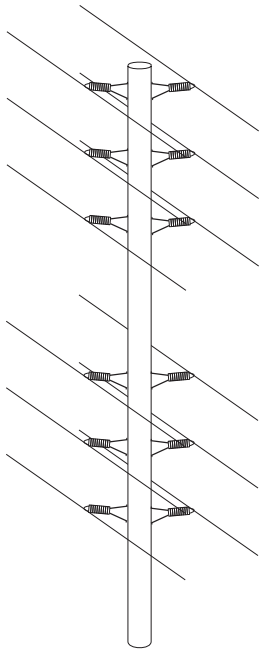
TYPICAL DISTRIBUTION POLE DETAILS

65' 0" CLASS "H" POLE



TYPICAL INSULATOR MOUNTING



TYPICAL CATALOGUE NUMBER

HA	-	650	-	H	-	1	-	PG	-	X
POLE STYLE		OVERALL HEIGHT		CLASS		FINISH		COLOUR		OPTION
Hampton		(x10) 65'0"		"H"		Mold		Plain Grey		Silane Sealer

UTILITY POLES

FEATURES

Utility poles are grey, tapered, round prestressed spun concrete. The Hampton Series pole is the style utilized for distribution and transmission purposes.

This specification is intended to outline the requirement of CSA A.14-07, as they pertain to prestressed concrete distribution and utility poles.

Poles are manufactured in accordance with CSA A.14-07, as well as those amendments which are specified by the clients.

Poles are designed in accordance with CSA Standard CAN3-A23.3M1984, Code for Design of Concrete Structures for Buildings. The poles are tested to confirm these designs for both bending and torsional resistance.

Utility poles have a provision for grounding which consists of either a stranded jumper copper wire (size and length specified by the client) or an insert and ground connector. Both grounding systems are connected to the continuous ground bar (embedded in the concrete) with CSA specifications. C22.2 No 0-M - General Requirements - Canadian Electrical Code, Part II, C22.2 No 0.4-M - Bonding and Grounding of Electrical Equipment (Protective Grounding), and C22.2 No 206-M - Lighting Poles.

The pole strengths are defined by the classes listed in the accompanying table. Poles for which no specific mounting instructions are given, may be assumed, for design and testing purposes, to be clamped at the butt over a length equal to 10 per cent of the length of the pole, plus 2 feet. When a pole is mounted in accordance with this recommendation, it shall be capable of sustaining a transverse ultimate load (applied at two feet from the tip of the pole) equal to or greater than the value shown in the table. The same parameters applied for the axial ultimate torque.

The pole design and selection process involves determining the load magnitudes and locations for the given pole height. The classes of the poles specify the minimum ultimate transverse load the pole must withstand. The loads are tabulated and ground line moment is calculated. If the client has the pole pre-engineered, we simply classify the pole by the letter designation. Alternatively, if the pole has not been designed and the client is unaware of it's strength classification, we will assist the client with design, and determine the strength classification for them.

Traditionally utilities have utilized wood poles for their systems. The poles were readily available and were inexpensive. Many of these existing wooden utility poles are aging, and the utilities are choosing to replace them with concrete poles because of their performance and durability. The accompanying table provides a useful comparison of the classes of wood versus concrete to assist in your selection.

SPECIAL FEATURES

- Long maintenance free life span.
- Resistance to insects, fire, woodpeckers, rot, and corrosion.
- Low cost direct burial design.
- Pleasing color and lines.
- Variety of sizes and strengths (class).
- Manufactured product with consistent quality and strengths.
- Hollow raceway for internal wiring and components.
- Factory made raceways, handholes, wiring apertures, and bolt holes.
- Extremely rigid product with low vibration.
- 10 year limited warranty on product.

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