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Christopher B. Fisher, Esq.
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November 28, 2016

By Electronic & Overnight Mail
Mr. Marcus Serrano, City Manager
City of Rye
City Hall
1051 Boston Post Road
Rye, New York 10580

Re: Crown Castle – Wireless Pole Attachments to Existing Utility Poles
Additional Information for SEQRA Purposes

Dear Mr. Serrano:

Enclosed for filing with Mayor Sack and Members of the City Council, please find the following additional information prepared by our client, Crown Castle NG East LLC ("Crown Castle")

1) Updated drawings prepared by HBK Engineering last revised November 23, 2016 to replace the drawings included in Exhibit 2 of the Full EAF dated October 18, 2016 (the "Full EAF"). The changes reflect the Consolidated Edison meter location directly below the Crown Castle cabinet.
2) Additional photosimulations of the proposed Crown Castle installation types in various locations in Rye.
3) A November 28, 2016 statement by Ms. Esme Lombard of Crown Castle verifying that the images utilized in the Full EAF are from Google Earth Pro and consistent with existing conditions based on her own field reviews of these areas of Rye.
4) A November 15, 2016 HBK Engineering memorandum with the equipment cabinet specifications for the existing RUA cabinet (current and 'new' 2013 vent design) and the proposed larger cabinet.
5) Manufacturer specification sheets for other Type II typical utility infrastructure on poles in Rye including:
    a. Consolidated Edison transformers which are typically 50-100 KVA;
    b. Strand mounted cable company WiFi antennas;
    c. Standby backup battery power cabinets installed by the cable company.

Thank you and the City Council for your continued review in this matter.

Very truly yours,

Christopher B. Fisher

CBF:yp
Encls.
Cc: Mayor Sack and Members of the City Council
Kristen Wilson, Esq., City Corporation Counsel
Joseph Van Eaton, Esq., City Outside Counsel
Daniel Richmond, Esq., Counsel for Citizens
Crown Castle

EXHIBIT 1

Crown Castle NG East LLC
JDE # 336087

CUSTOMER NODE ID:
WOOD POLE COMMSPACE

PROJECT DETAIL: SEE SHEETS 2 AND 3.

GENERAL NOTES:
1. THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND COMPLY WITH THE REQUIREMENTS OF ALL AGENCIES HAVING JURISDICTION OVER THE WORK AND ALL APPLICABLE CODES, INCLUDING, BUT NOT LIMITED TO: FACILITY OWNER, UTILITY COMPANY, LOCAL MUNICIPALITIES, STATE AND FEDERAL AGENCIES, THE NATIONAL ELECTRIC SAFETY CODE, THE NATIONAL ELECTRIC CODE AND THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION.

NOTE: CONTRACTOR TO CONTACT NEW YORK 811 BEFORE DIGGING. (800-962-7962)

CROWN CASTLE

INDEX TO SHEETS

Crown Castle NG East LLC
Typical Wood Communications Space Pole Specification
Proposed Distributed Antenna System (DAS) Node Installation

The following node(s) apply to this specific installation type:

- ODAS_WEST_N192 4th Pole West of Summit Ave, on the North Side of North St(West of private road entrance)
- ODAS_WEST_N194 SW corner of Marlene Ct and Pondview Rd
- ODAS_WEST_N199 West side of Maple ave, 4th pole south of Nursery Ln
- ODAS_WEST_N206 East side of Grace Church st, and 1st pole south of Ralston st
- ODAS_WEST_N207 SE corner of Holly Ln and Larkspur Ln
- ODAS_WEST_N210 SW corner of Smith St and Boston Post Rd
- ODAS_WEST_N212 2 poles south of Peck Ave, on the east side of Boston Post Rd
- ODAS_WEST_N216 South side of Locust ave, 1st pole west of Ridgewood Dr
- ODAS_WEST_N217 SE corner of Old Post Rd and Boston Post Rd
- ODAS_WEST_N220 NW corner of Cedar st and Boston Post Rd
- ODAS_WEST_N226 9th pole south of Playland Acces Dr on the west side of Theall Rd
- ODAS_WEST_N228 West side of Theall Rd, 6th pole north of Osborne Rd
- ODAS_WEST_N231 NW corner of Osborne Rd and Theall Rd
- ODAS_WEST_N248 11th Wooden pole North side of Soundview Ave/ East of Boston Post Rd
- ODAS_WEST_N255 2nd wooden pole North side of Rye Beach Ave/ East of Halstead Pl
- ODAS_WEST_N261 2nd wooden pole East side of Hix Ave/ North of Dalphin Dr
- ODAS_WEST_N265 NW corner of Dearborn Ave and Forest Ave
- ODAS_WEST_N267 NW corner of Dearborn Ave and Everett St
- ODAS_WEST_N269 South side of Garden Dr, 1st pole in from Milton Dr
- ODAS_WEST_N276 South Side of Valleyview Ave, 1st Pole East of Fairway Ave
- ODAS_WEST_N279 South Side of Pine Island Rd, 7th Pole East from Forest Ave
- ODAS_WEST_N281 3rd wooden pole West side of Milton Rd and South of Hewlett Ave
- ODAS_WEST_N282 West Side of Stuyvesant Ave, 8th Pole North of Dead End
- ODAS_WEST_N285 West Side of Stuyvesant Ave, 4th Pole North of Van Wagenen Ave
- ODAS_WEST_N287 4th Pole South of Magnolia Pl/ East Side of Forest Ave
- ODAS_WEST_N288 West Side of Stuyvesant Ave, 8th Pole South of Van Wagenen Ave
- ODAS_WEST_N289 West Side of Old Milton Rd, 4th Pole south of Stuyvesant Ave

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STATE OF ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION LICENSE NO. 184-002308

OWNER/DEVELOPER:
CROWN CASTLE

NODE LOCATION:

Jurisdiction: ----

REVISIONS

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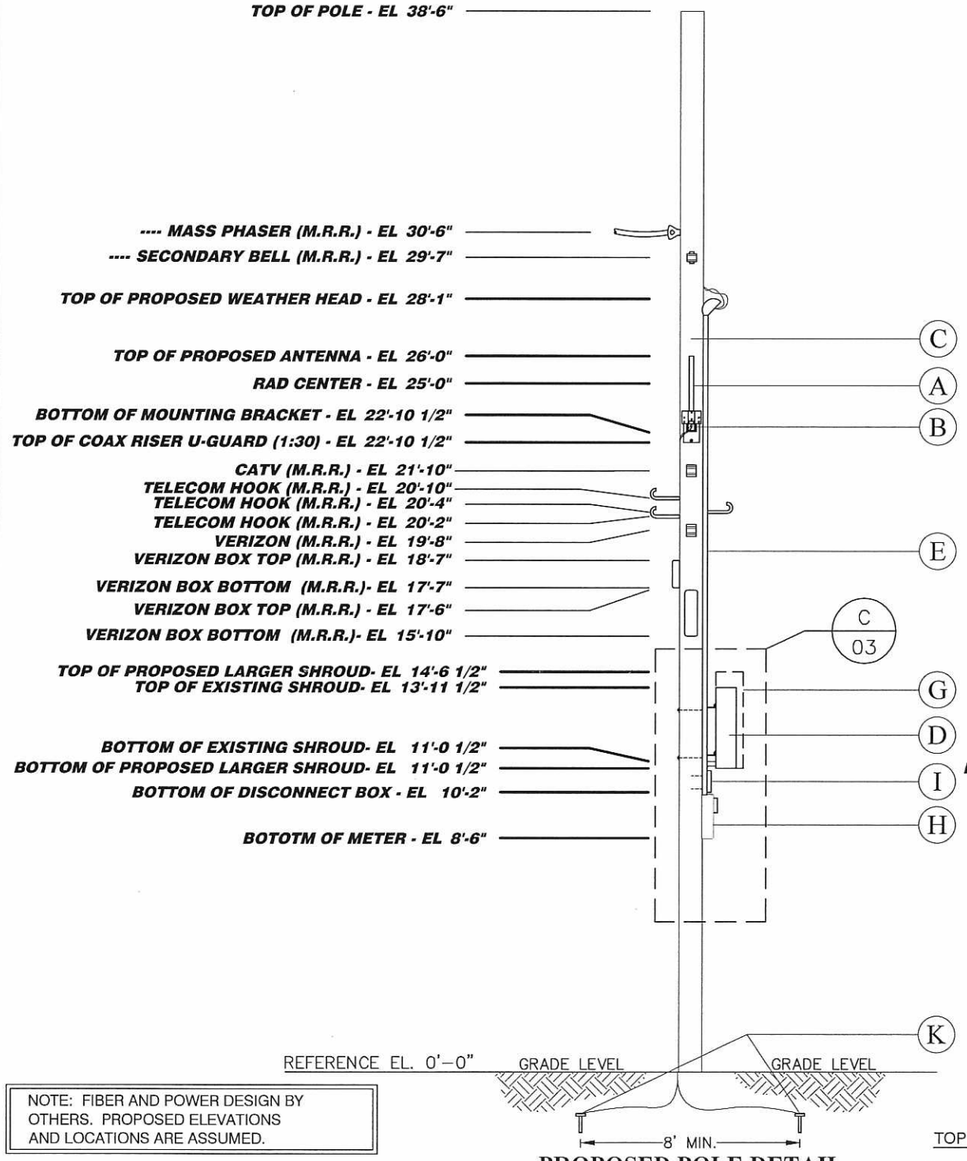
DRAWN BY:	CHECKED BY:	APPROVED BY:
EJD	MEC	MEC

PROJECT NUMBER:	15-1097
FILE NAME:	WOOD POLE COMMSPACE
CROWN ID NUMBER :	----
DATE DRAWN:	06-07-16

Crown Castle NG East LLC
PROPOSED POLE CONFIGURATION

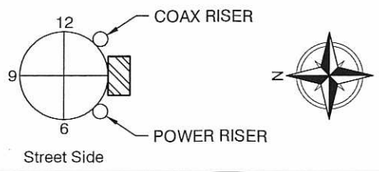


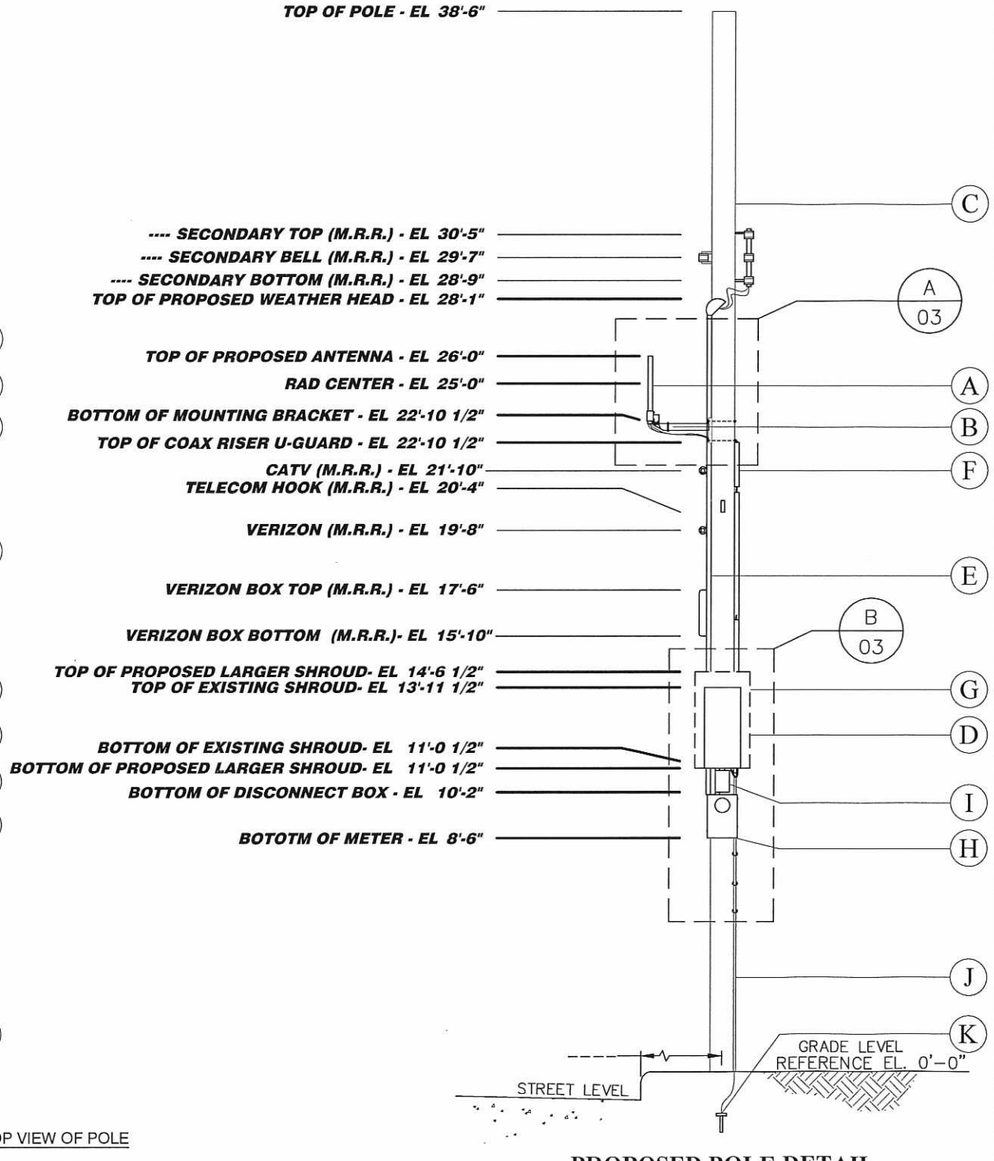
NOTE: FIBER AND POWER DESIGN BY OTHERS. PROPOSED ELEVATIONS AND LOCATIONS ARE ASSUMED.

PROPOSED POLE DETAIL
LOOKING EAST

TOP VIEW OF POLE

QUADRANT LOCATION OF EQUIPMENT





PROPOSED POLE DETAIL
LOOKING NORTH

CUSTOMER NODE ID:
WOOD POLE COMMSPACE

(A) INSTALL NEW ANTENNA
DIMENSIONS – (HxDIA) (24"x2")
WEIGHT – 10 LBS

(B) INSTALL NEW ANTENNA MOUNTING KIT
WEIGHT – 68 LBS

(C) POLE (45' WOOD)
TYPE LINE – CLASS 1
HEIGHT 38'–6" – DIA.= 12.9" (AT GRADE)

(D) INSTALL (2) ION (LOCATED INSIDE EQUIPMENT CABINET)

(E) INSTALL 2" SCHEDULE 40 PVC CONDUIT TO SECONDARY

(F) INSTALL 2" PVC RISER U-GUARD WITH CCI COAXIAL CABLE, VERIZON FIBER CABLE AND #6 STRANDED COPPER MINIMUM

(G) PROPOSED SHROUD
DIMENSIONS – (HxWxD) (42"x24"x12")
WEIGHT – 110 LBS
EXISTING SHROUD
DIMENSIONS – (HxWxD) (35.2"x15.6"x9.0")
WEIGHT – XXX LBS

(H) INSTALL ORANGE AND ROCKLAND APPROVED AMR METER PAN
DIMENSIONS – (HXWXD) (19"X13"X4 7/8")
WEIGHT – 35 LBS

(I) INSTALL ORANGE AND ROCKLAND APPROVED LOCKABLE AND FUSED DISCONNECT SWITCH WITH INDICATOR LIGHT
DIMENSIONS – (HXWXD) (9.5"X6"X4")
WEIGHT – 15 LBS

(J) INSTALL (1) GROUND WIRE, #6 STRANDED COPPER MINIMUM WITH SD MOLDING, 1/2" ID x 8' LG., STAPLE, 1/2" x 2", GALV. BOND TO EXISTING POLE GROUND (IF PRESENT).

(K) INSTALL (1) GROUND ROD, 5/8" X 8' LONG MINIMUM AND COPPER CLAD, 8' FROM EXISTING GROUND ROD. INSTALL (2) GROUND RODS IF NO GROUND ROD EXISTS.

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STATE OF ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION
LICENSE NO. 184-002308

OWNER/DEVELOPER:
CROWN CASTLE

NODE LOCATION:

Jurisdiction: ----

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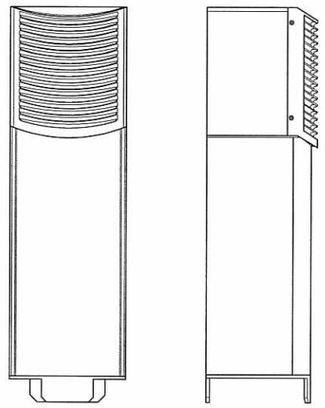
CROWN ID NUMBER :	----
DATE DRAWN:	06-07-16

SHEET: 2 OF: 3

Crown Castle NG East LLC
PROPOSED EQUIPMENT DETAILS



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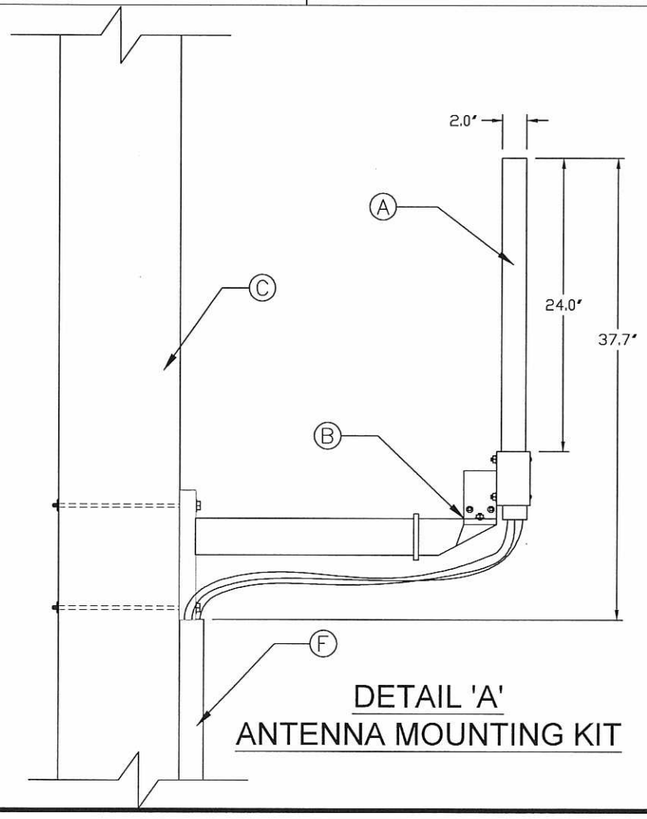
NEW YORK STATE BUILDING CODE: 1603.1.4

Proposed Crown Castle equipment and associated utility pole designed and evaluated as follows:

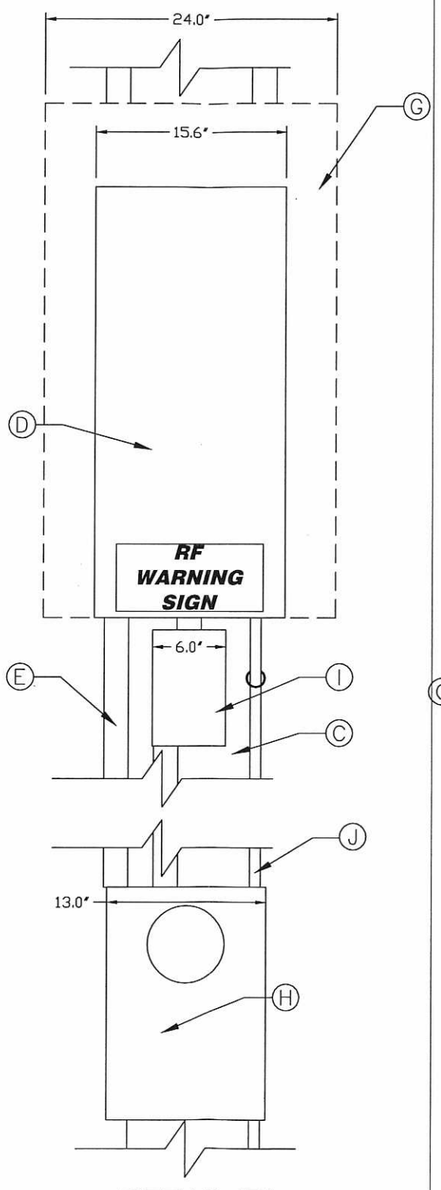
1. To withstand a 3-second wind gust of 110-mph.
2. For a wind importance factor of 1.0.
3. With a wind Exposure C.
4. An internal pressure coefficient was considered and determined to be not applicable (non-building structure).
5. The components of cladding and wind pressures were considered and determined to be not aplicable (non-building structure).

In accordance with the calculatiuons performed by the industry standart Osmose O-Calc program for analysus of timber utility pole structural capacities, and the subsequent field observations with pole owner, it was determined that this utility pole was capable of supporting the proposed Crown Castle equiptment.

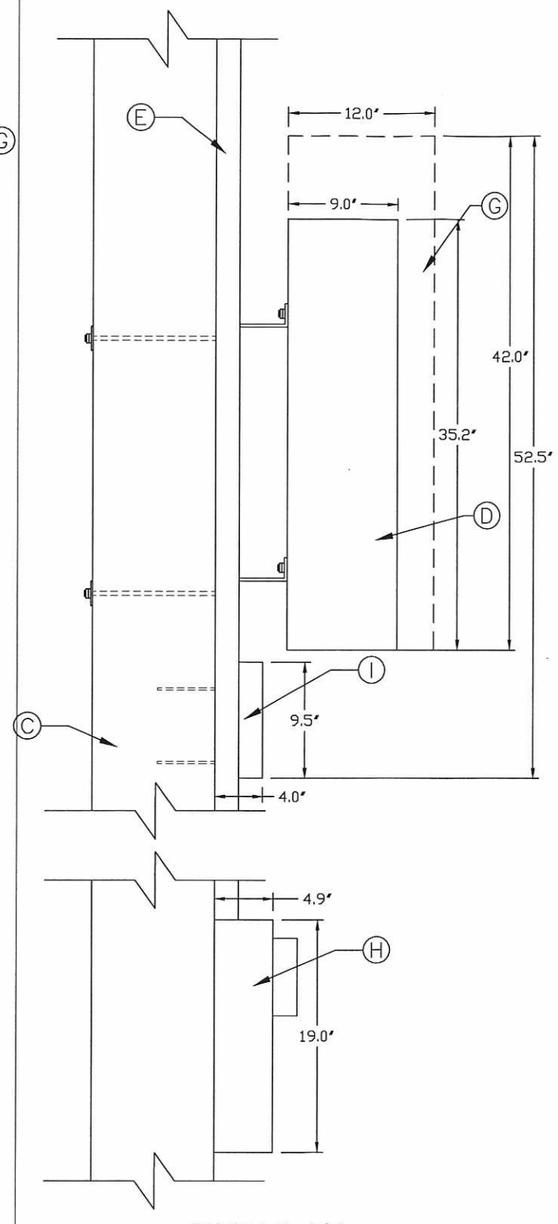
NOTE
The heights shown on the Proposed Pole Configuration sheet are that of a typical pole scenario. Actual heights will vary depending upon existing field conditions.



DETAIL 'A'
ANTENNA MOUNTING KIT



DETAIL 'B'
EQUIPMENT FRONT VIEW



DETAIL 'C'
EQUIPMENT SIDE VIEW

CUSTOMER NODE ID:
WOOD POLE COMMSPACE

- (A) INSTALL NEW ANTENNA
  DIMENSIONS – (HxDIA) (24"x2")
  WEIGHT – 10 LBS
- (B) INSTALL NEW ANTENNA MOUNTING KIT
  WEIGHT – 68 LBS
- (C) POLE (45' WOOD)
  TYPE LINE – CLASS 1
  HEIGHT 38'–6" – DIA.= 12.9" (AT GRADE)
- (D) INSTALL (2) ION (LOCATED INSIDE EQUIPMENT CABINET)
- (E) INSTALL 2" SCHEDULE 40 PVC CONDUIT TO SECONDARY
- (F) INSTALL 2" PVC RISER U–GUARD WITH CCI COAXIAL CABLE, VERIZON FIBER CABLE AND #6 STRANDED COPPER MINIMUM
- (G) PROPOSED SHROUD
  DIMENSIONS – (HxWxD) (42"x24"x12")
  WEIGHT – 110 LBS
  EXISTING SHROUD
  DIMENSIONS – (HxWxD) (35.2"x15.6"x9.0")
  WEIGHT – XXX LBS
- (H) INSTALL ORANGE AND ROCKLAND APPROVED AMR METER PAN
  DIMENSIONS – (HXWXD) (19"X13"X4 7/8")
  WEIGHT – 35 LBS
- (I) INSTALL ORANGE AND ROCKLAND APPROVED LOCKABLE AND FUSED DISCONNECT SWITCH WITH INDICATOR LIGHT
  DIMENSIONS – (HXWXD) (9.5"X6"X4")
  WEIGHT – 15 LBS
- (J) INSTALL (1) GROUND WIRE, #6 STRANDED COPPER MINIMUM WITH SD MOLDING, 1/2" ID x 8' LG., STAPLE, 1/2" x 2", GALV. BOND TO EXISTING POLE GROUND (IF PRESENT).
- (K) INSTALL (1) GROUND ROD, 5/8" X 8' LONG MINIMUM AND COPPER CLAD, 8' FROM EXISTING GROUND ROD. INSTALL (2) GROUND RODS IF NO GROUND ROD EXISTS.

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LICENSE NO. 184-002308

OWNER/DEVELOPER:
CROWN CASTLE

NODE LOCATION:

Jurisdiction: ----

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CROWN ID NUMBER :	----
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SHEET: 3 OF: 3

Crown Castle NG East LLC
JDE # 336087

CUSTOMER NODE ID:
WOOD POLE TOP

NOTE: CONTRACTOR TO CONTACT
NEW YORK 811 BEFORE DIGGING.
(800-962-7962)

CROWN CASTLE

INDEX TO SHEETS

Crown Castle NG East LLC
Typical Wood Pole Top Specifications
Proposed Distributed Antenna System (DAS) Node Installation

The following node(s) apply to this specific installation type:

- ODAS_WEST_N193 First pole east of Hammond Rd, on the South side of North St
- ODAS_WEST_N195 First pole on the median at the split of Old Post Rd and North St
- ODAS_WEST_N196 SW corner of Theodore Fremd Ave and Hammond Rd
- ODAS_WEST_N198 2nd pole East of Summit ave on the South side of Central ave
- ODAS_WEST_N201 NE corner of Bsoton Post Rd and Parsons St
- ODAS_WEST_N203 North side of Locust ave, 1st pole West of Club Rd
- ODAS_WEST_N208 North side of Thistle Ln, 1 Poles north of Mistletoe Ln
- ODAS_WEST_N211 NW corner of Purdy ave and School st
- ODAS_WEST_N218 North side of Peck ave, 3rd pole west of Midland ave
- ODAS_WEST_N219 South side of Cedar st, 1st pole west of New st
- ODAS_WEST_N221 West side of Ridgewood Dr, 6 poles north of Locust ave
- ODAS_WEST_N222 SE corner of Iroquois st and Ridgewood Dr
- ODAS_WEST_N223 NW corner of Highland Rd and Club Rd
- ODAS_WEST_N224 East side of Purchase st, 4th pole north of Highland Rd
- ODAS_WEST_N229 NW corner of Old Post Rd/ Boston Post Rd
- ODAS_WEST_N234 SE corner of Claremont Ave/ Parkway Dr
- ODAS_WEST_N237 NW corner of Glen Oaks Dr and Coolidge Ave
- ODAS_WEST_N240 NE corner of Harding Dr and Hughes Ave
- ODAS_WEST_N242 1st wooden pole South side of Sonn Dr/ West of Crescent Ave
- ODAS_WEST_N246 NW corner of Boston Post Rd/ Glen Oaks Rd
- ODAS_WEST_N250 3rd wooden pole south of Fraydun on west side of Franklin Ave
- ODAS_WEST_N251 NW corner of Boston Post Rd and Osborne Rd
- ODAS_WEST_N252 North side of Haven Ave, 1st pole in from Milton Rd
- ODAS_WEST_N253 1st wooden pole East side of Milton Rd/ North of Rye Beach Ave
- ODAS_WEST_N254 2nd wooden pole West side of Elmwood Ave/ North of Oakwood Ave
- ODAS_WEST_N256 NE corner of Forest Ave and Elmwood Ave
- ODAS_WEST_N258 South Side of Oakland Beach Ave, 1st Pole East of Griffon Pl
- ODAS_WEST_N260 1st wooden pole East side of Byrd St/ North of Helen Ave
- ODAS_WEST_N262 SE corner of Oakland Beach Ave and Riverside View Ln
- ODAS_WEST_N264 NE corner of Halsted Pl and Oakland Beach Ave
- ODAS_WEST_N266 SW corner of Oakland Beach Ave and Rose St
- ODAS_WEST_N270 South Side of Fairlawn Ct, 2nd Pole East of Everett St
- ODAS_WEST_N271 East side of Forest Ave, SE corner of Forest Ave and Hewlett St
- ODAS_WEST_N275 South Side of Green Ave, 1st Pole of East of Fairway Ave
- ODAS_WEST_N278 North Side of Halls Ln, 1st Pole West of Forest Ave
- ODAS_WEST_N280 NW corner of White Birch Dr and Hickory Dr
- ODAS_WEST_N284 SW corner of Stuyvesant Ave and Van Wagenen Ave

PROJECT DETAIL : SEE SHEETS 2 AND 3.

GENERAL NOTES:
1. THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND COMPLY WITH THE REQUIREMENTS OF ALL AGENCIES HAVING JURISDICTION OVER THE WORK AND ALL APPLICABLE CODES, INCLUDING, BUT NOT LIMITED TO: FACILITY OWNER, UTILITY COMPANY, LOCAL MUNICIPALITIES, STATE AND FEDERAL AGENCIES, THE NATIONAL ELECTRIC SAFETY CODE, THE NATIONAL ELECTRIC CODE AND THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION.

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OWNER/DEVELOPER:
CROWN CASTLE

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Jurisdiction: ----

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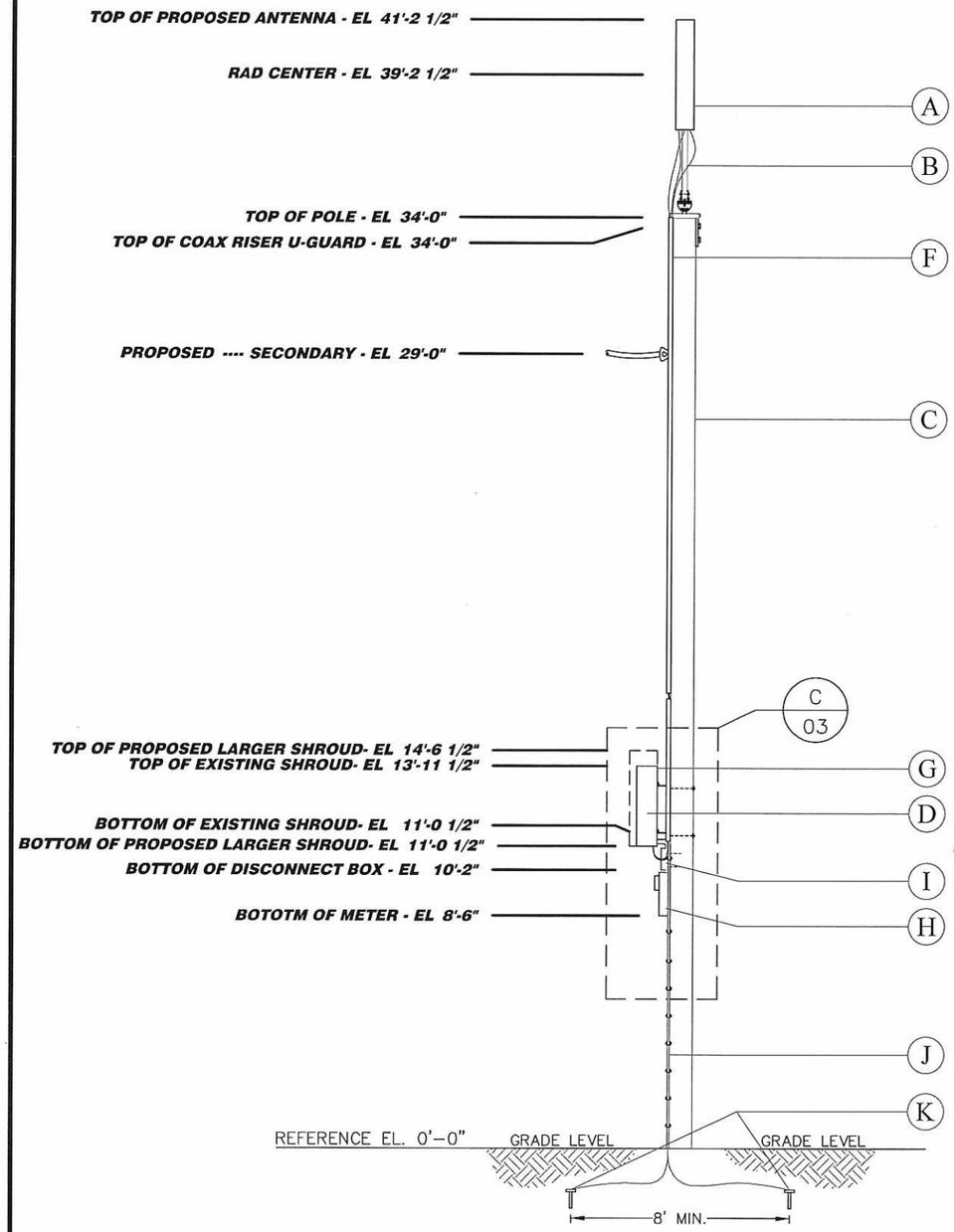
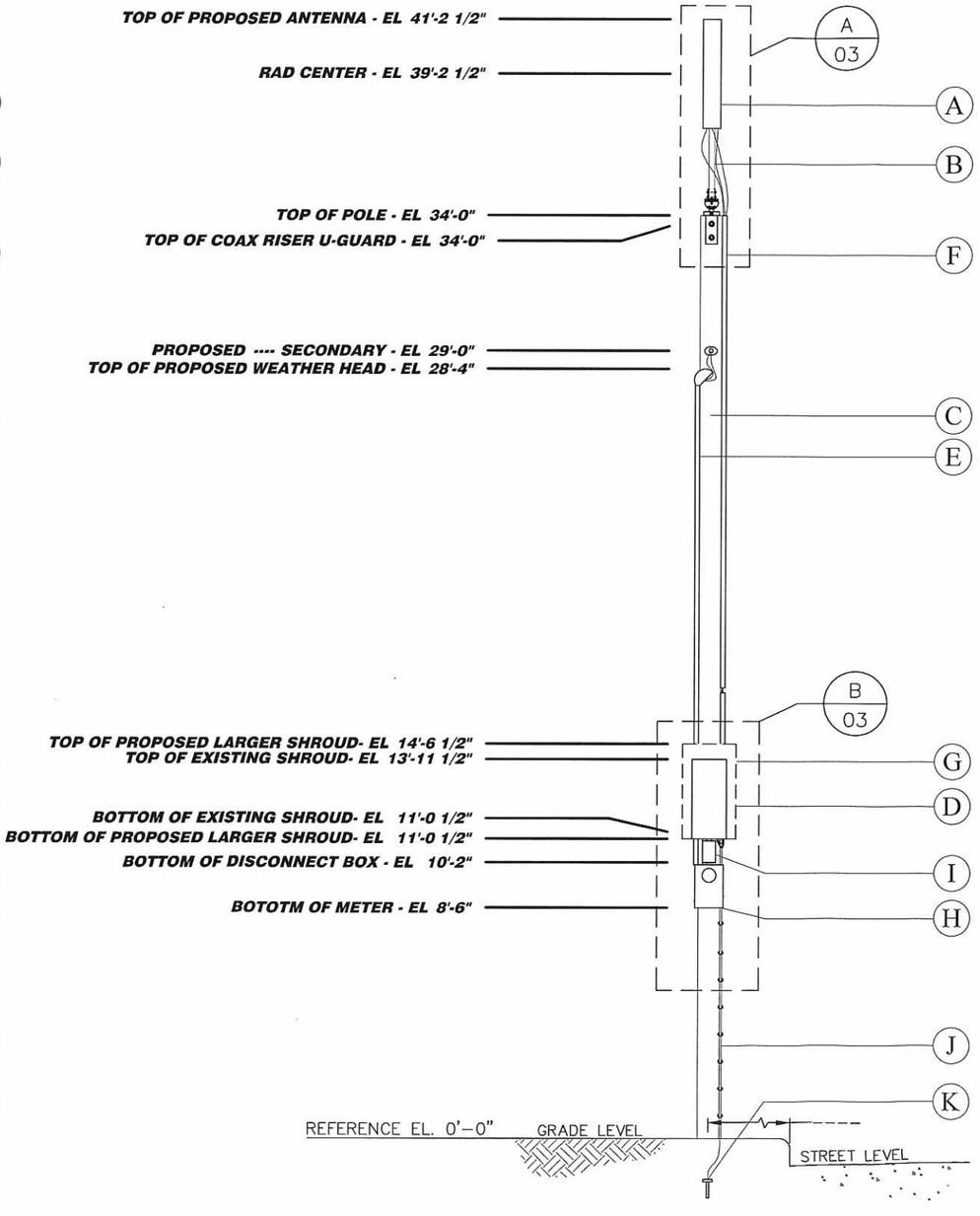
PROJECT NUMBER:	15-1097
FILE NAME:	WOOD POLE TOP
CROWN ID NUMBER :	----
DATE DRAWN:	06-07-16

SHEET: 1 OF: 3

Crown Castle NG East LLC
PROPOSED POLE CONFIGURATION

NOTE: FIBER AND POWER DESIGN BY OTHERS. PROPOSED ELEVATIONS AND LOCATIONS ARE ASSUMED.





CUSTOMER NODE ID:

WOOD POLE TOP

(A) INSTALL NEW ANTENNA
DIMENSIONS – (HXDIA) (48"X8")
WEIGHT – 20 LBS

(B) INSTALL NEW ANTENNA MOUNTING KIT
WEIGHT – 68 LBS

(C) POLE (40' WOOD)
TYPE LINE – CLASS 1
HEIGHT 34'-0" – DIA.= 13.1"" (AT GRADE)

(D) INSTALL (2) ION (LOCATED INSIDE EQUIPMENT CABINET)

(E) INSTALL 2" SCHEDULE 40 PVC CONDUIT TO SECONDARY

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WEIGHT – 35 LBS

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WEIGHT – 15 LBS

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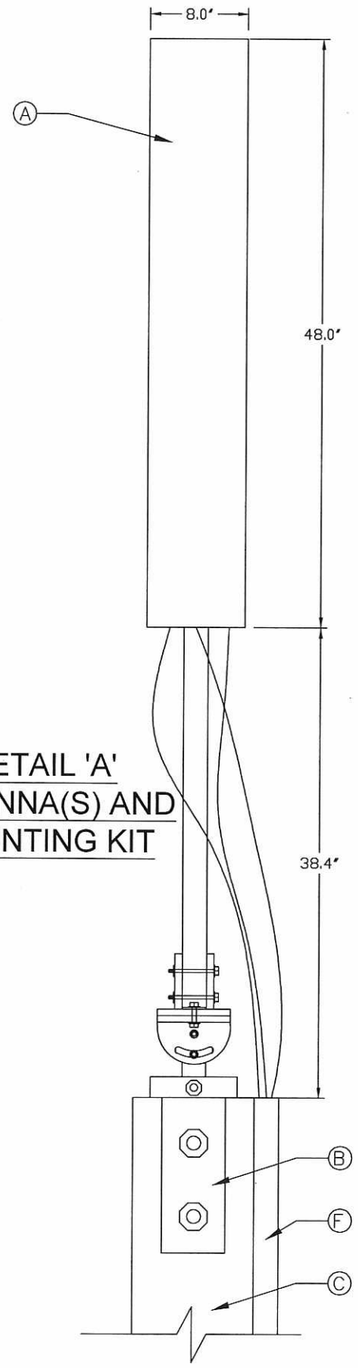
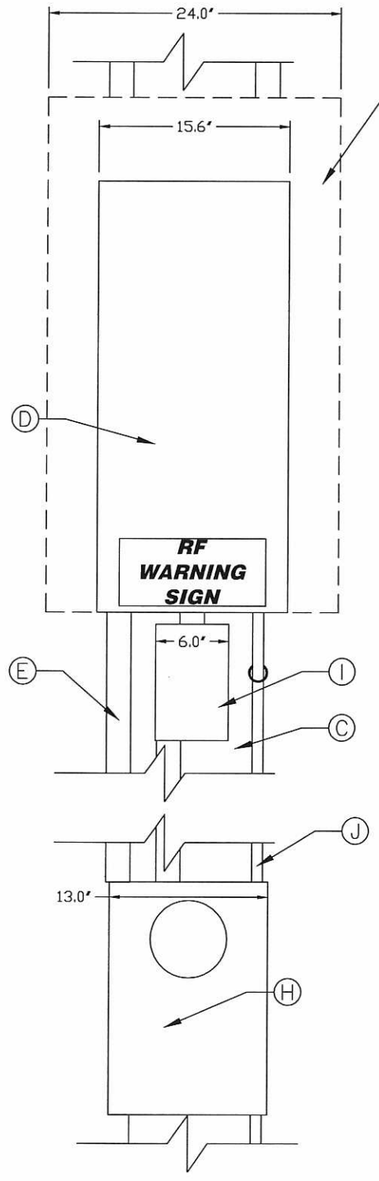
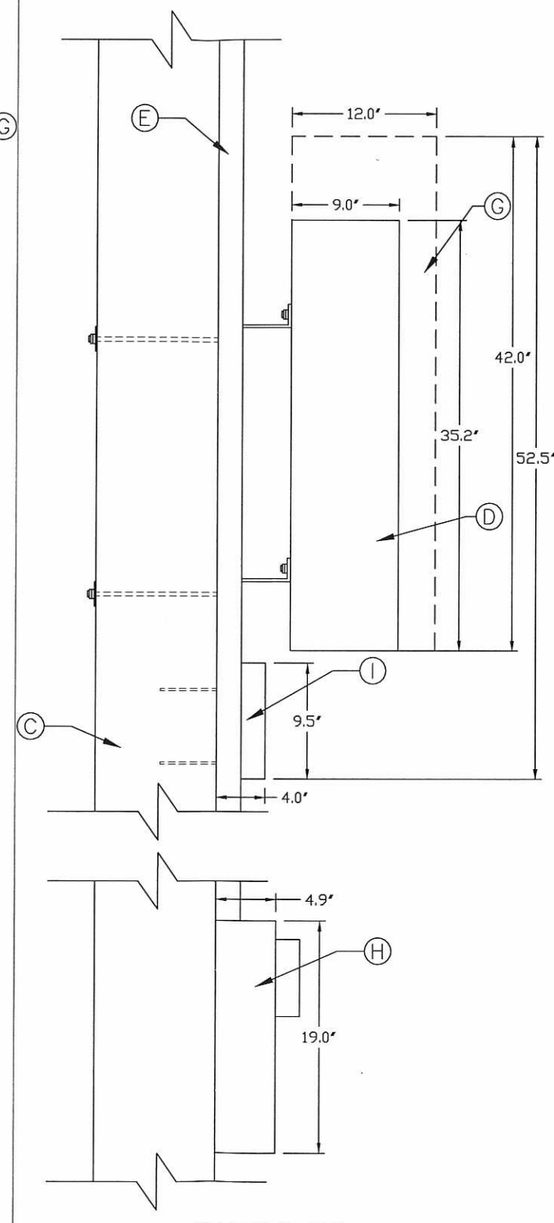
Crown Castle NG East LLC
PROPOSED EQUIPMENT DETAILS



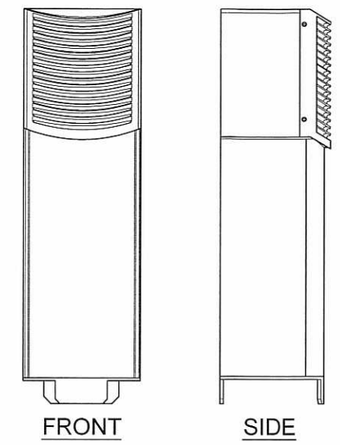
DETAIL 'A'
ANTENNA(S) AND
MOUNTING KIT



DETAIL 'B'
EQUIPMENT FRONT VIEW



DETAIL 'C'
EQUIPMENT SIDE VIEW



ION

NEW YORK STATE BUILDING CODE: 1603.1.4

Proposed Crown Castle equipment and associated utility pole designed and evaluated as follows:

1. To withstand a 3-second wind gust of 110-mph.
2. For a wind importance factor of 1.0.
3. With a wind Exposure C.
4. An internal pressure coefficient was considered and determined to be not applicable (non-building structure).
5. The components of cladding and wind pressures were considered and determined to be not aplicable (non-building structure).

In accordance with the calculatiuons performed by the industry standart Osmose O-Calc program for analysus of timber utility pole structural capacities, and the subsequent field observations with pole owner, it was determined that this utility pole was capable of supporting the proposed Crown Castle equiptment.

NOTE
The heights shown on the Proposed Pole Configuration sheet are that of a typical pole scenario. Actual heights will vary depending upon existing field conditions.

CUSTOMER NODE ID:
WOOD POLE TOP

- (A) INSTALL NEW ANTENNA
  DIMENSIONS – (HXDIA) (48"X8")
  WEIGHT – 20 LBS
- (B) INSTALL NEW ANTENNA MOUNTING KIT
  WEIGHT – 68 LBS
- (C) POLE (40' WOOD)
  TYPE LINE – CLASS 1
  HEIGHT 34'-0" – DIA.= 13.1"" (AT GRADE)
- (D) INSTALL (2) ION (LOCATED INSIDE EQUIPMENT CABINET)
- (E) INSTALL 2" SCHEDULE 40 PVC CONDUIT TO SECONDARY
- (F) INSTALL 2" PVC RISER U-GUARD WITH CCI COAXIAL CABLE, VERIZON FIBER CABLE AND #6 STRANDED COPPER MINIMUM
- (G) PROPOSED SHROUD
  DIMENSIONS – (HxWxD) (42"x24"x12")
  WEIGHT – 110 LBS
  EXISTING SHROUD
  DIMENSIONS – (HxWxD) (35.2"x15.6"x9.0")
  WEIGHT – XXX LBS
- (H) INSTALL ORANGE AND ROCKLAND APPROVED AMR METER PAN
  DIMENSIONS – (HXWXD) (19"X13"X4 7/8")
  WEIGHT – 35 LBS
- (I) INSTALL ORANGE AND ROCKLAND APPROVED LOCKABLE AND FUSED DISCONNECT SWITCH WITH INDICATOR LIGHT
  DIMENSIONS – (HXWXD) (9.5"X6"X4")
  WEIGHT – 15 LBS
- (J) INSTALL (1) GROUND WIRE, #6 STRANDED COPPER MINIMUM WITH SD MOLDING, 1/2" ID x 8' LG., STAPLE, 1/2" x 2", GALV. BOND TO EXISTING POLE GROUND (IF PRESENT).
- (K) INSTALL (1) GROUND ROD, 5/8" X 8' LONG MINIMUM AND COPPER CLAD, 8' FROM EXISTING GROUND ROD. INSTALL (2) GROUND RODS IF NO GROUND ROD EXISTS.

ENGINEER:
hbk ENGINEERING
HBK ENGINEERING, LLC
921 WEST VAN BUREN, SUITE 100
CHICAGO, IL 60607
PHONE: (312) 432-0076 FAX:(312) 432-0231
STATE OF ILLINOIS DEPARTMENT
OF PROFESSIONAL REGULATION
LICENSE NO. 184-002308

OWNER/DEVELOPER:
CROWN CASTLE

NODE LOCATION:

Jurisdiction: ----

REVISIONS

REV	DATE	DESCRIPTION	BY
00	06-07-16	FOR CC REVIEW	EJD
01	06-08-16	PER CC COMMENTS	EJD
02	10-18-16	PER CC COMMENTS	EJD
03	11-23-16	PER CLIENT COMMENTS	EJD
04	11-23-16	PER CLIENT COMMENTS	EJD

DRAWN BY:	CHECKED BY:	APPROVED BY:
EJD	MEC	MEC

PROJECT NUMBER:	15-1097
FILE NAME:	WOOD POLE TOP
CROWN ID NUMBER :	----
DATE DRAWN:	06-07-16

SHEET: 3 OF: 3

EXHIBIT 2

CROWN CASTLE

City of Rye **Site # N220**

11/28/16

View #1a

Applied Imagination 510 914-0500

CROWN CASTLE

City of Rye **Site # N220**

View #1b

11/28/16

Applied Imagination 510 914-0500


Existing


proposed antenna
Proposed


Existing


proposed antenna
Proposed

proposed antenna

proposed antenna


Existing


proposed antenna
Proposed


Existing


proposed antenna
Proposed

CROWN CASTLE

City of Rye Site # N256

11/28/16

CROWN CASTLE

City of Rye Site # N256

11/28/16

CROWN CASTLE

City of Rye Site # N265

11/28/16


Existing


proposed antenna
Proposed

EXHIBIT 3

Crown Castle
16-16 Whitestone Expressway
Whitestone, NY 11357

November 28, 2016

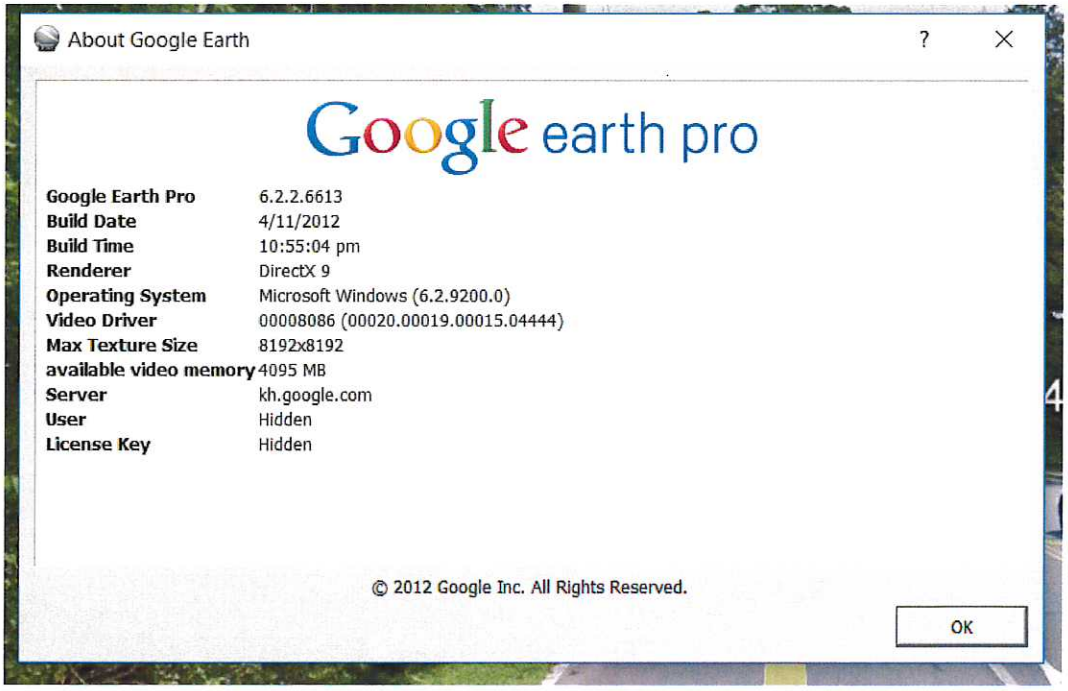
Re: Crown Castle NG East LLC – City of Rye Full EAF Dated October 18, 2016

Photographic Images in Exhibits 4-6 - No Material Changes

On behalf of Crown Castle NG East LLC ("Crown Castle"), please accept this statement as my opinion that there have been no material changes in conditions to the immediate environment surrounding the pole(s) identified in images submitted in Exhibits 4-6 of the Full Environmental Assessment Form for the sixty-four (64) pole attachments proposed in public rights-of-way.

The program used to prepare the images supplied to the City was Google Earth Pro. Upon review it has been confirmed that the images were taken at various points in time including as recently as July 2016. Upon review of the images in Google Earth and my own personal visits to these areas of Rye, I can verify that there have been no material changes in the surrounding environment that would alter the visibility of the proposed nodes in the City.

The enclosed image below reflects the exact version of Google Earth Pro utilized to create the images included in the Full EAF.



If you have any questions or comments on the enclosed, please do not hesitate to email me at: Esme.Lombard@crowncastle.com or call me at 203-919-0896.

Signature

EXHIBIT 4

UTILITY
INFRASTRUCTURE
SOLUTIONS

hbk
ENGINEERING

November 15, 2016

Brian Gieda, P.E.
HBK Engineering

Esme Lombard
Crown Castle

Dear Ms. Lombard,

Per your request, below is the comparison of the volumes of the two shrouds being proposed in Rye, New York.

- Calculation for the 'New' shroud represented in the attached PDF cut sheet titled "20130731 shroud_comp (compare Crown DOITT 2013 version).pdf"
  - Dimensions provided on the cutsheet
    - Height = 890 mm
    - Width = 394 mm
    - Depth = 228 mm
  - Calculated Volume = 2.82ft^3 (4,878.1in^3)

- Calculation for the shroud represented in the attached PDF cut sheet titled 'ea022_rev_2-9-2016.pdf'
  - Dimensions provided on the cutsheet
    - Height = 41.99 in
    - Width = 23.86 in
    - Depth = 12.00 in
  - Calculated Volume = 6.95ft^3 (12,022.57 in^3)

Regards,

Brian Gieda, P.E.
HBK Engineering

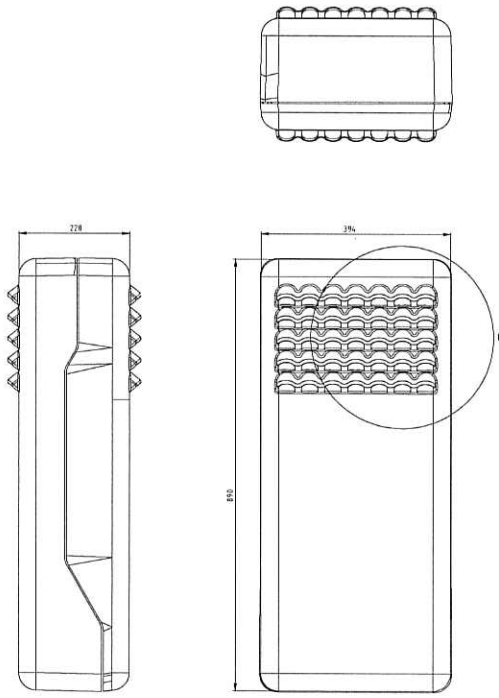
921 W. Van Buren, Suite 100 • Chicago, IL 60607 • tel: 312.432.0076 • fax: 312.432.0231 • www.hbkengineering.com
705 General Washington Ave., Suite 500 • Norristown, PA 19403• tel: 610.879.7541 • fax: 610.631.2349

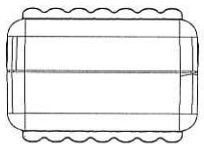
FIRST ANGLE PROJECTION

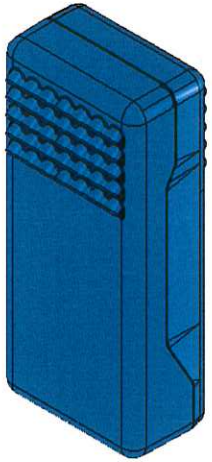
New

Current

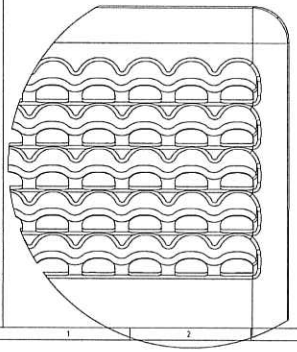
20130731 shroud_comp (compare Crown DOITT 2013 version).pdf

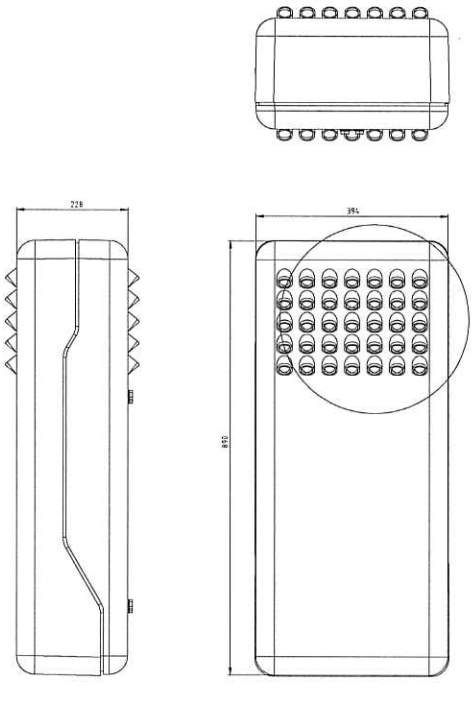


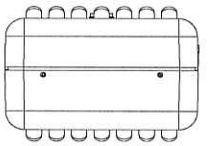




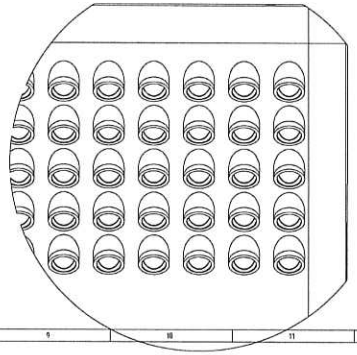
C 2 : 5

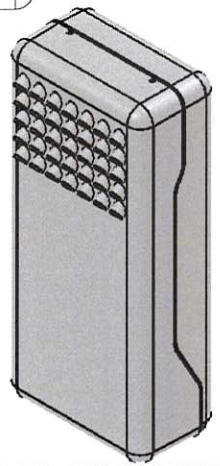






D 2 : 5





		MODEL			DRAWING		
ECN:		VERSION	STATUS	REVISION	VERSION	STATUS	REVISION
AUTH. GROUP:							
SAP Material Master	Tolerance	SCALE 1:1		SW A1			
		Finish	MATERIAL			CAGE CODE 84147	
	DATE	NAME	TITLE				
	DRW						
	CHK						
	APP						
	Issued						
		ANDREW	Drawing No.			Sheet 1	
Land	Modification	Date	Name	Origin	Weight Net	Weight Gr.	

FIRST ANGLE PROJECTION

ea022_rev_2-9-2016.pdf SEE PG #3

TABLE 1			
CORE PART NO.	DESCRIPTION	SUFFIX CODE	COLOR
EA022-SB	ANDREWS LARGE SZ. ASM BOX,BROWN	-SB	BROWN
EA022-SC	ANDREWS LARGE SZ. ASM, SILVER	-SC	SILVER
EA022-SD	ANDREWS LARGE SZ. ASM BOX,GREEN	-SD	GREEN
EA022-SD-14050	ANDREWS LARGE SIZE ASM.BOX,GREEN,14050	-SD-14050	GREEN
EA022-SE	ANDREWS LARGE SZ ASM.BOX BLACK	-SE	BLACK

NOTES:

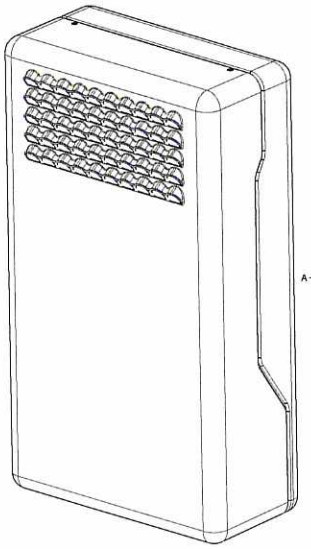
1. PART NUMBER ACCORDING TABLE 1
2. COLOR PART ACCORDING TABLE 1
   PAINT APPLICABLE FOR OUTSIDE SURFACE ONLY
   PAINT SUPPLIER:: SHERWIN WILLIAMS CODE
3. PART MUST MEET WITH FOLLOWING INFORMATION IN LABEL ID.
   PART NUMBER:
   REV:
   SERIAL NUMBER:
   DATE CODE (MFD)
4. THE ITEMS 1,2,3,4,5, WILL BE MATING WITH PLEXUS ADHESIVE AO420.
5. THE CAD MODEL EA022 IS AVAILABLE IN ENG DEP IF IT IS REQUIRED
6. TOLERANCES:

PROFILE ⌓ .250 A B C

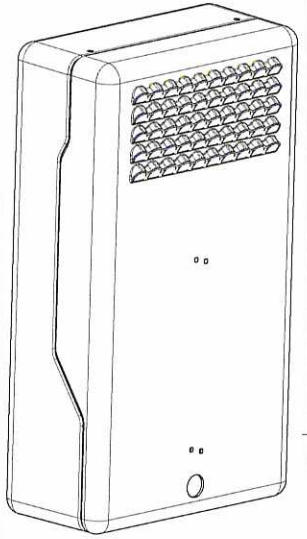
TRIM EDGES ⌒ .250 A B C

HOLES SIZE ±0.010

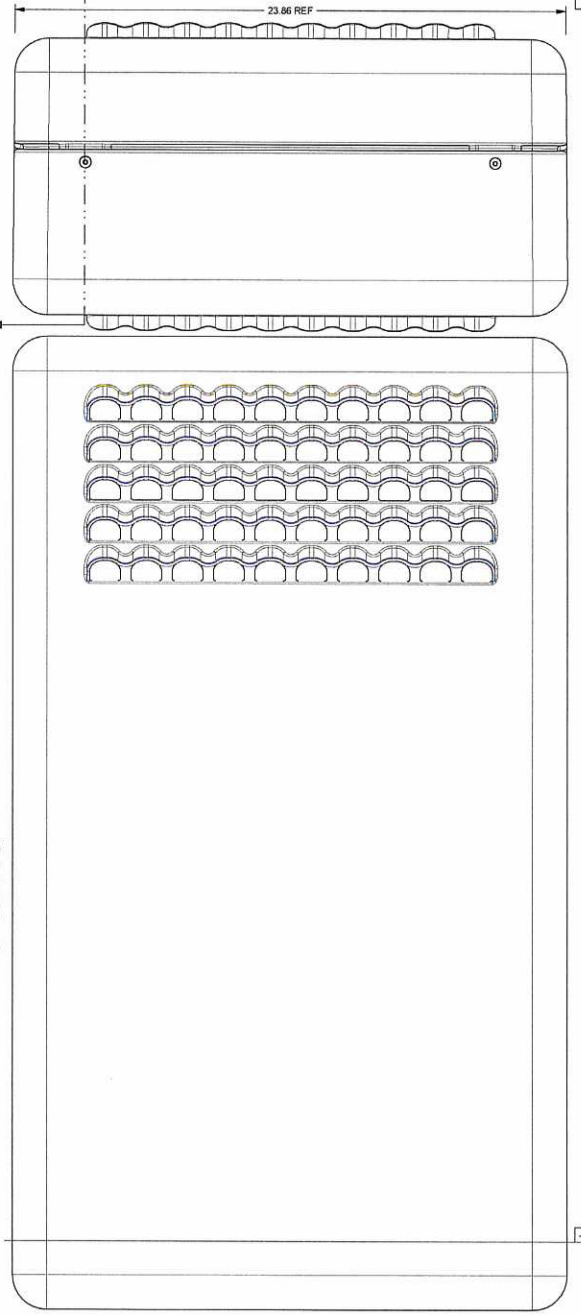
POSITIONAL TOL HOLES ⌖ .125 A B C



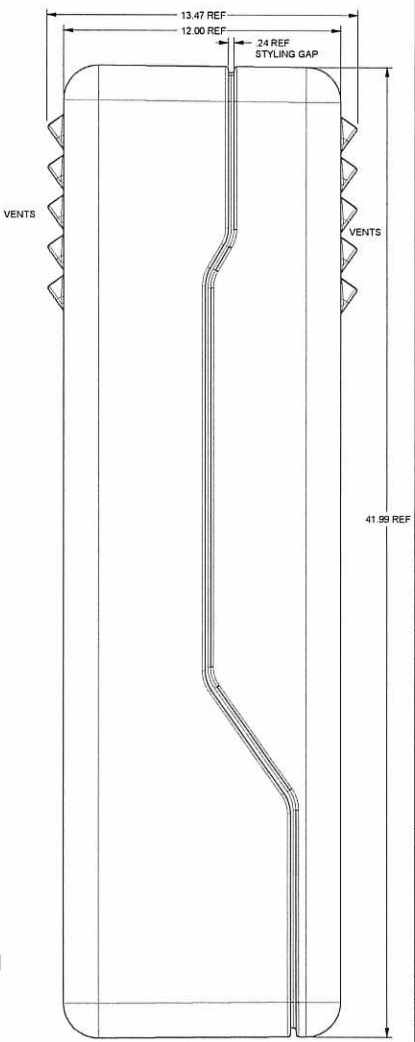
FRONT PANEL
ISO VIEW
SCALE 0.250



BACK PANEL
ISO VIEW
SCALE 0.250



FRONT VIEW



SIDE VIEW

EA022 LARGE SIZE SHROUD PARTS LIST					
ITEM	PART NUMBER	DESCRIPTION	TYPE	QTY	MATERIAL
1	EA014_LH	LATCH ASSY, LOCKING SYSTEM, LH	ASSEMBLY	1	
2	EA014_RH	LATCH ASSY, LOCKING SYSTEM, RH	ASSEMBLY	1	
3	ER392_LH	FEMALE PART, LH, LOCKING SYSTEM	PART	1	AL6061
4	ER392_RH	FEMALE PART, RH, LOCKING SYSTEM	PART	1	AL6061
5	ER421_	L ANGLE,BRACKET, STRAP	PART	2	AL6061
6	ER422_	STRAP, 16 IN LONG	ASSEMBLY	1	
7	ER424	1/4"-20, RIVET NUT-INSERT	PART	2	STEEL
8	ER425_	1/4"-20 TORX MACHINE SCREW, ZINC-PLATED STL FLAT,3/4" LENGHT	PART	2	STEEL
9	ER857_-	Housing-Back, Panel,Large	PART	1	GFRP_CORE
10	ER858_-	Housing-Front, Panel,Large	PART	1	GFRP_CORE

REVISION HISTORY				
PART NO.	EA022			
ZONE	REV	DESCRIPTION	DATE	APPROVED
	--	RELEASED TO PRODUCTION	FEB 9, 2016	A.A.

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES: FRACTIONAL ± 1/32 ANGULAR ± 1°
TWO PLACE DECIMAL ± .010
THREE PLACE DECIMAL ± .005

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

DRAWN	J MARQUEZ
DATE	Feb-9-16
CHKD	J TREJO
DATE	Feb-9-16
APPROVED	A ALANIS
DATE	Feb-9-16

N/A	NYC LARGE BOX
NEXT ASSY	USED ON
APPLICATION	

CORE COMPOSITES CORPORATION

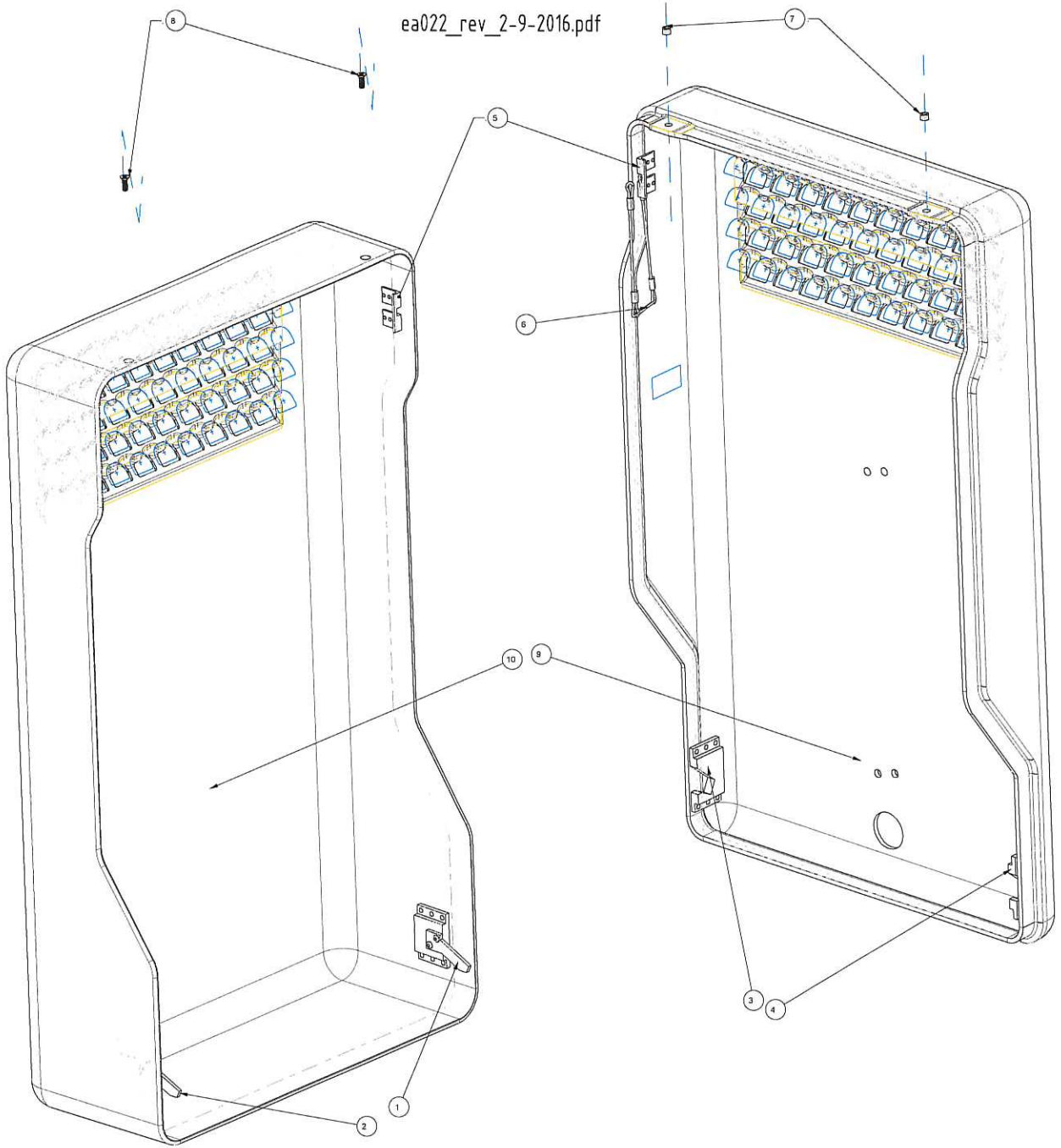
TITLE: LARGE SIZE BOX ASM.
ANDREW CORPORATION
SHROUD-SUFFIX

SIZE	DRAWING NO	REV
E	EA022	--

SCALE	WT. (LBS) APROX	SHEET
0.500	46.27	1 OF 3

ea022_rev_2-9-2016.pdf

PART NO.	EA022	REVISION HISTORY		
ZONE	REV	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



PARTS LIST

ITEM	PART NUMBER	DESCRIPTION	TYPE	QTY	MATERIAL
1	EA014_LH	LATCH ASSY, LOCKING SYSTEM, LH	ASSEMBLY	1	
2	EA014_RH	LATCH ASSY, LOCKING SYSTEM, RH	ASSEMBLY	1	
3	ER392_LH	FEMALE PART, LH, LOCKING SYSTEM	PART	1	AL6061
4	ER392_RH	FEMALE PART, RH, LOCKING SYSTEM	PART	1	AL6061
5	ER421_	L ANGLE.BRACKET, STRAP	PART	2	AL6061
6	ER422_	STRAP, 16 IN LONG	ASSEMBLY	1	
7	ER424	1/4"-20, RIVET NUT-INSERT	PART	2	STEEL
8	ER425_	1/4"-20 TORX MACHINE SCREW, ZINC-PLATED STL FLAT,3/4" LENGHT	PART	2	STEEL
9	ER857_-	Housing-Back, Panel,Large	PART	1	GFRP_CORE
10	ER858_-	Housing-Front, Panel,Large	PART	1	GFRP_CORE

CORE COMPOSITES CORPORATION

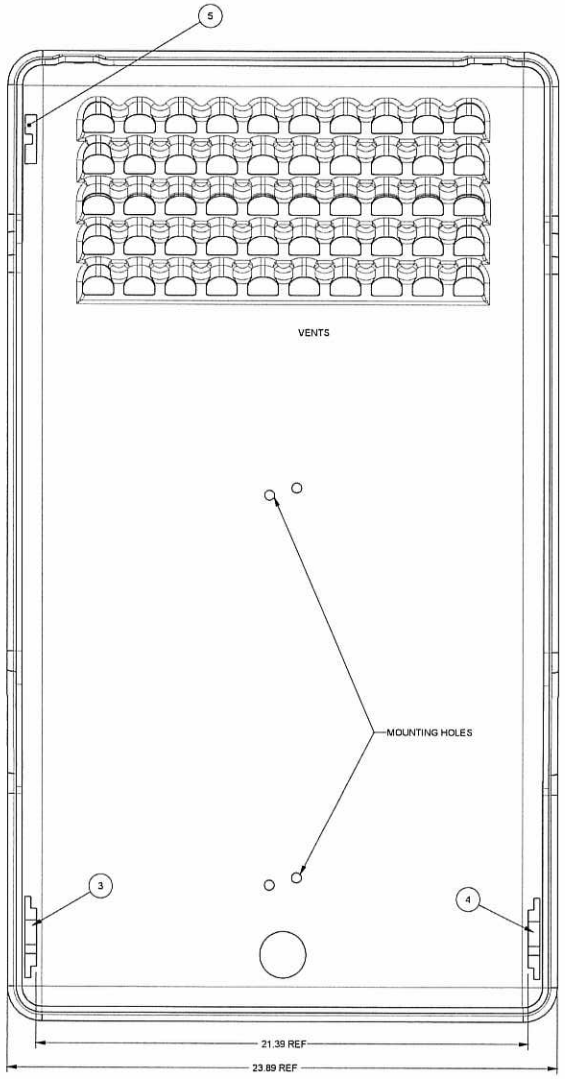
TITLE: LARGE SIZE BOX ASM.
ANDREW CORPORATION
SHROUD-SUFFIX

SIZE	DRAWING NO.	REV
E	EA022	--

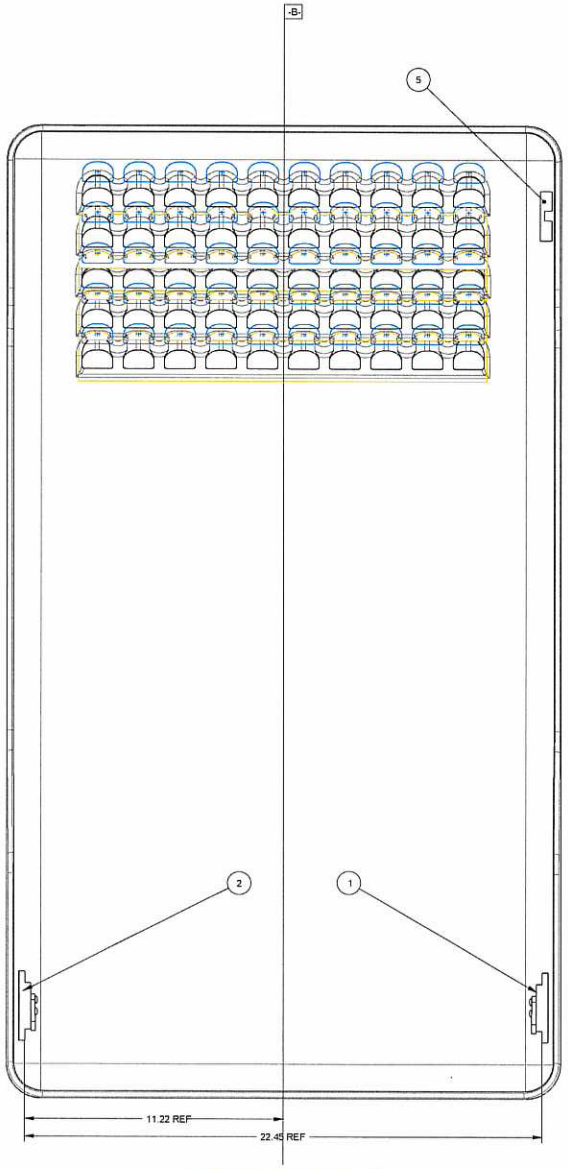
SCALE	WT. (LBS) APROX	SHEET
0.500	46.27	2 OF 3

ea022_rev_2-9-2016.pdf

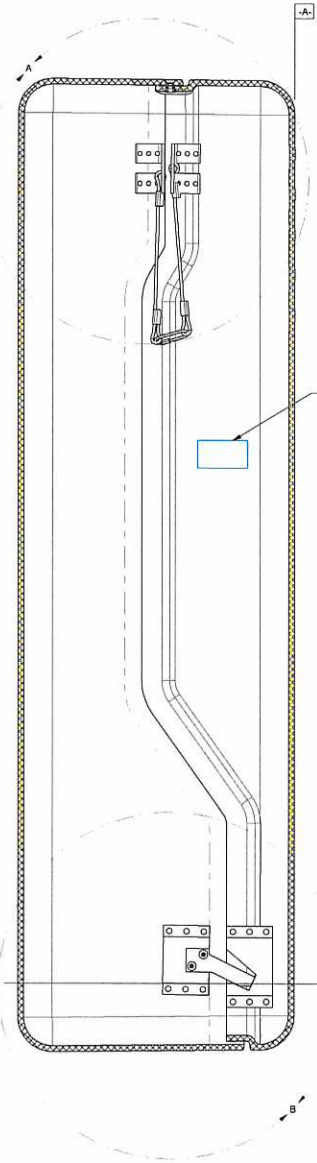
PART NO	EA022	REVISION HISTORY		
ZONE	REV	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



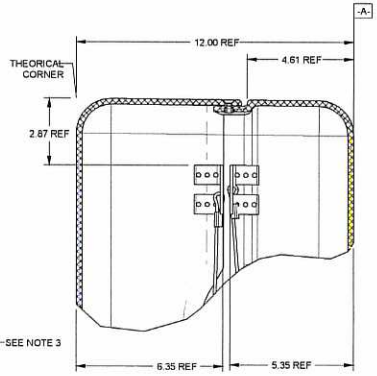
INNER HOUSING BACK
VIEW ONLY
(ER857)



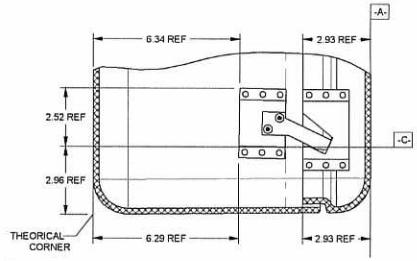
INNER HOUSING FRONT
VIEW ONLY
(ER858)



SECTION A-A
COMMING FROM PG 1



DETAIL A
SCALE 0.500



DETAIL B
SCALE 0.500

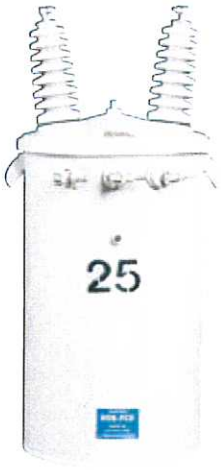
CORE COMPOSITES CORPORATION			
TITLE	LARGE SIZE BOX ASM. ANDREW CORPORATION SHROUD-SUFFIX		
SIZE E		DRAWING NO EA022	REV --
SCALE 0.500	WT. (LBS) APROX 46.27	SHEET 3 OF 3	

EXHIBIT 5

2009

Single Phase Overhead Distribution Transformers

Type CSP



Type S

Power Partners, Inc. single phase, oil-filled, pole-mounted distribution transformers are specifically designed for servicing residential overhead distribution loads. They are also suitable for light commercial loads, industrial lighting and diversified power applications. These transformers are designed for the application conditions normally encountered on electric utility power distribution systems.

Ratings

- 5-1000 kVA
- 65° C temperature rise
- 60 hertz standard, 50 hertz optional
- Low voltages: 120/240, 240/480 and 277
- High voltages: 2400 through 34,400 Volts
- Insulation levels:

Rated Voltage Ranges	Insulation Class	Basic Impulse Level (kV)
120-600	1.2	30
2160-2400	5.0	60
4160-4800	8.7	75
7200-12470	15.0	95
Optional 125 kV BIL 12000 volts available.		
13200-14400	18.0	125
19920-22900	25.0	150
Optional 125 kV BIL 19920 volts available.		
-34400	34.5	200

Standard Features:

1. Lifting lugs.
2. Arrester mounting pads.
3. Cover-mounted high voltage porcelain bushing(s) with eyebolt terminal (10-100 kVA) or spade terminal.
4. Low voltage insulators are available in fiberglass reinforced polyester material or porcelain (both eyebolt and spade terminals).
5. Low voltage neutral grounding strap (furnished on 10-50 kVA single HV bushing units).
6. ANSI support lugs (hanger brackets).
7. Cover has 13 mils minimum of polyester coating providing 15 kV dielectric insulation of tank ground parts from live parts and increased resistance to corrosion.
8. Self-venting and resealing cover assembly.
9. The core/coil bolt-in pads are 180° apart.
10. Embossed low voltage leads.
11. Oil filled plug with cover ground strap.
12. Tank ground pad.
13. Laser etched anodized aluminum nameplate with bar coded serial number.
14. The paint finish process applies a durable, corrosion resistant finish to the product. The finish meets or exceeds all the performance requirements of ANSI C57.12.28. The multi-step process includes an epoxy primer uniformly applied by cationic electro-deposition and a urethane top coat.

The following additional features are all standard on self-protected type CSP® units:

15. Primary protective link.
16. Surge arrester.
17. Secondary circuit breaker.
18. Secondary breaker operating handle with emergency overload reset and overload signal light.

Options

1. Primary Termination
   - Cover-mounted high voltage porcelain bushing(s) with spin top terminal.
   - Side-wall mounted high voltage porcelain bushing(s) with spin top terminal (Standard on all 4800 volts and below).
   - Primary current limiting backup fuse.
2. Secondary Termination
   - Low voltage porcelain bushings with NEMA spade terminals (Standard on all units 167 kVA and above).
3. Primary Switching
   - Externally-operated tap changer.
   - Externally-operated dual voltage switch or internal terminal board.
4. Overcurrent Protection
   - Internally-mounted current limiting fuse in series with protective link.
5. Contact the division for voltages and dimensions on 666 through 1000 kVA.

Optional Accessories

1. High voltage bushings are of two types and are made of wet process porcelain:
   - Speed wrench operable eyebolt bushing for cover mounting.
   - Spin-top bushings for either cover or side-wall mount.
2. Tap changers compensate for small voltage variations along the distribution system. The externally-operated tap changer is a single-phase, five-position design for de-energized operation.
3. A dual voltage switch permits use of the same transformer on distribution systems with different system voltages.
4. The CSP® protection package consists of four related components that work together to provide complete self-contained protection against surge currents, short circuits and overloads:

- The protective link removes an internally-faulted transformer from the primary line, maintaining service to other customers on the line not served by the faulted unit.
- The MOV polymer arresters handle surges of 65,000 amperes (small block) and 100,000 amperes (large block).
- Secondary circuit breakers protect against overloads and external short circuits.
- An optional current limiting fuse supplements the protective link when the fault current exceeds the link's rating.

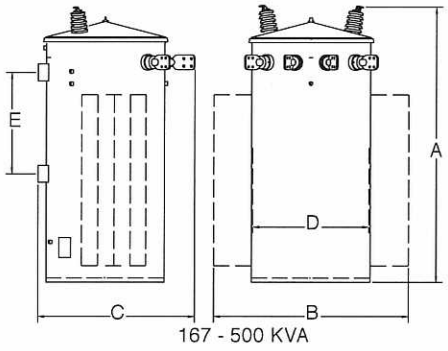
5. Stainless steel tanks and covers are available.

Overhead Distribution Transformers

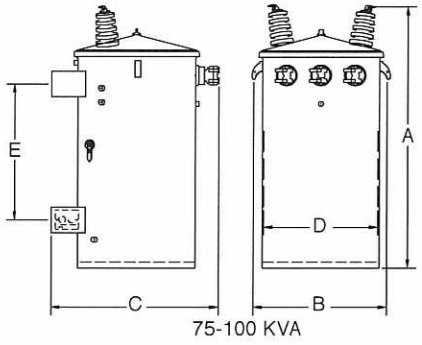
Approximate weights and dimensions

Standard Design Dimensions and Weights
(All weights and dimensions are approximate. Dimensions may change to meet the customer spec.)
Single Phase, 60 HZ, OISC, 65° Rise High Voltage
(Refer to Division for available tap positions and dimensions for other primary voltages.)
Low Voltage 120/240 or 240/480 or 277
Standard Performance level

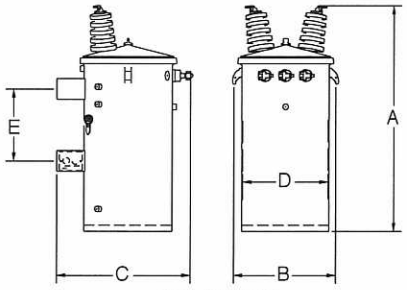
APPROXIMATE WEIGHTS AND DIMENSIONS
OVERHEAD DISTRIBUTION TRANSFORMERS



167 - 500 KVA



75-100 KVA



1.5 - 50 KVA

Overall weights and dimensions are given in pounds, inches or gallons and are approximates
'A'=Overall Height, 'B'=Overall Width, 'C'=Overall Depth, 'D'=Tank Diameter, 'E'=Hanger Spacing

1 Phase

Type 'S' - Class 0A - 7200 /12470Y Primary Voltage

KVA	A	B	C	D	E	Wgt	Ship Wgt	OIL Qty
10	34	17	20	13.25	11.25	205	217	11
15	36	17	20	13.25	11.25	236	247	12
25	41	19	22	15.25	11.25	349	363	18
37.5	44	22	24	17.5	11.25	489	510	29
50	49	22	24	17.5	11.25	585	605	31
75	49	25	27	20	23.25	850	875	40
100	50	27	28	20	23.25	923	968	42
167	58	38	33	24	23.25	1475	1542	78
250	66	38	33	24	24	1820	1885	90
333	62	42	37	24	24	2040	2110	82
500	66	45	41	27	36	2850	2950	109

Type 'S' - Class 0A - 14400 /24940Y Primary Voltage

KVA	A	B	C	D	E	Wgt	Ship Wgt	OIL Qty
10	38	17	20	13.25	11.25	205	217	11
15	38	17	20	13.25	11.25	245	256	11
25	46	22	24	17.5	11.25	455	470	29
37.5	46	22	24	17.5	11.25	505	526	28
50	51	25	27	20	11.25	730	755	41
75	52	25	28	20	23.25	910	936	38
100	56	27	28	20	23.25	985	1025	46
167	56	38	33	24	23.25	1430	1495	70
250	68	38	33	24	24	1865	1930	91
333	61	42	35	24	24	1970	2041	75
500	72	45	39	27	36	2960	3055	121

All Approximate Dimensions shown reference designs with +/- 2.5% Taps

ERICSSON

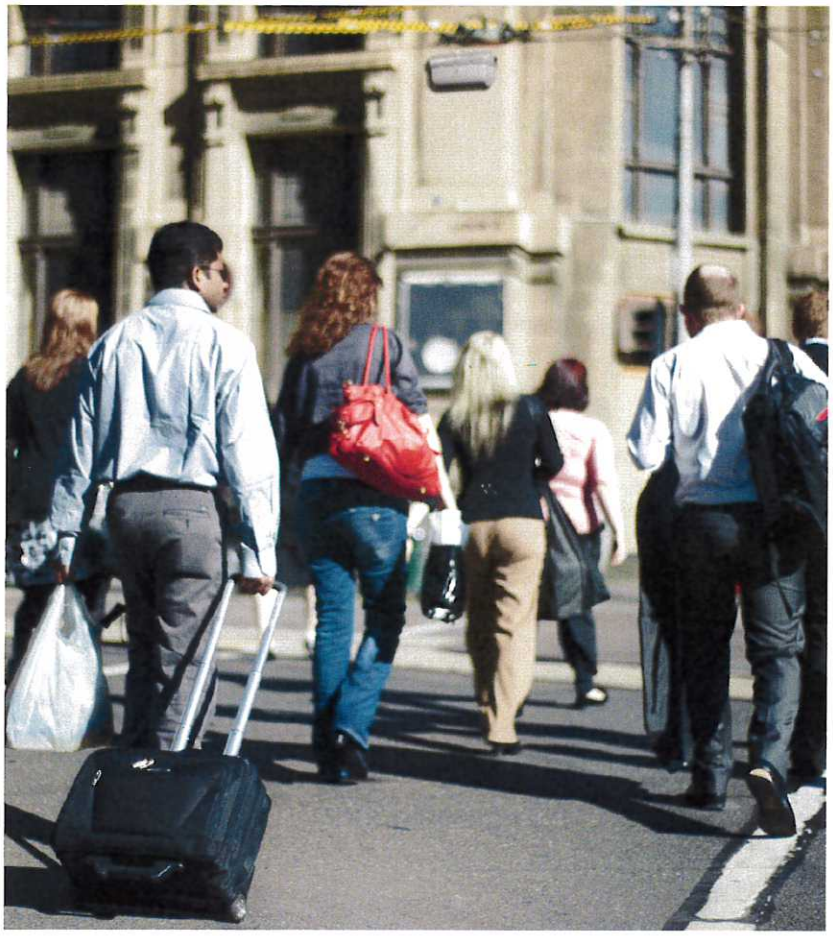
BELAIR 100NE

Versatile High Performance Outdoor Wi-Fi for Pole, Wall, and Strand Mounting

The BelAir 100NE Series of Ericsson Wi-Fi Access Points are optimized for the highest performance in carrier Wi-Fi equipment. Product variants are available to address diverse deployment scenarios, backhaul and power options to enable successful service provider Wi-Fi deployment. The BelAir 100NE Series is optimized for such outdoor applications as:

- Mobile and cable operator hot zones
- 3G and 4G network offload
- Stadiums and large outdoor venues
- Campus
- Public safety

Together with other product series within the Ericsson Wi-Fi portfolio, the BelAir 100NE Series provides a cost-effective means of deploying managed hot zone, 3G and 4G traffic offload and operator-managed Wi-Fi services for enterprise customers, without sacrificing the performance and reliability that network operators demand.



All products in the BelAir 100NE Series share the same high-performance radio architecture. The concurrent dual-radio design supports both 2.4 GHz and 5 GHz operation simultaneously with 3x3 MIMO and 3 spatial streams per band. Each stream supports a peak rate of 150 Mbps, thereby providing 450 Mbps per radio and 900 Mbps per access point.

Both radios are compliant to IEEE 802.11n-2009 standards. The 2.4GHz radio also provides full backwards compatibility for IEEE 802.11b and IEEE 802.11g clients.

Each radio supports up to 8 Subscriber Set Indentifiers (SSIDs) for a total of 16 SSIDs for each AP. Similarly, MBSSID support for up to 8 virtual APs per radio is available.

The BelAir 100NE Series is available in pole or wall mounted variants and strand-mounted options.

The BelAir 100NE Series comes with a variety of backhaul interface options - including ethernet, SFP optical and DOCSIS. It also supports integrated wireless mesh backhaul.

Security Features

- WPA and WPA2 compliant
- 802.1x (RADIUS) and EAP authentication
- WEP 64 and 128 bit encryption
- TKIP / MIC encryption per IEEE 802.1x
- AES encryption per IEEE 802.11i
- MAC address Access Control Lists (ACL's)
- Wireless client blacklist
- Rogue AP detection
- Inter-client communication control
- Denial of Service (DoS) attack prevention (including Deauthenticaion DoS)
- Honeypot detection
- MAC spoofing protection
- RADIUS authentication and accounting is supported

Performance Features

- Standards-Based Beamforming
- Space-Time Block Coding (STBC)
- Improved Maximal Ratio Combining (MRC)
- Maximum Likelihood Demodulation (MLD)
- Low-Density Parity Check (LDPC)

Management

Device-level fault, configuration and performance management can be performed via the CLI and GUI interfaces, while BelView NMS adds network-level fault correlation and performance management support. Firmware upgrade with support for automatic rollback is supported via the management interfaces. Local and remote management interfaces can be accessed via open (Telnet / HTTP) or optionally using secure (SSH / HTTPS) protocols.

The products also support SNMP v1/v2c/v3 and TR-069 management interfaces for use with any compliant management system. Standard MIBs supported include MIB-II, SNMPv2, 802.11, Ethernet-like, Interface Group. User accounts with multiple privilege levels can be supported.

TECHNICAL SPECIFICATIONS
BELAIR 100NE SERIES

ELECTRICAL SPECIFICATIONS

Power requirements for BelAir 100NE, BelAir 100NEF, BelAir100SNEF:
Site Power -Power supply: 100 to 240 V AC, 47 to 63 Hz

Power requirements for BelAir 100SNE:
Site Power -Power supply: 40 to 90 V AC, +- 10%, Quasi-Square Wave, 47 – 63 Hz

Backhaul Requirements:
BelAir 100NE: Wired Ethernet, Wireless Point-to-Point/Mesh
BelAir 100NEF: SFP Optical, Wireless Point-to-Point/Mesh
BelAir 100SNE: DOCSIS Modem, Wireless Point-to-Point/Mesh
BelAir 100SNEF: SFP Optical, Wireless Point-to-Point/Mesh

Transmission:
1 10/100/1000Base-TX (Cat.5 RJ-45) port
1000BaseT, 1000BaseLX, 1Gbps EPON (SFP Optical Port)
IEEE 802.1D Bridging, IEEE 802.1Q VLANs, IEEE 802.1w RSTP and IEEE 802.1p QoS
Wide range of L2 and L3 VPN protocols to support mobility
Support for GTP and PMIP for mobile core integration

MECHANICAL SPECIFICATIONS

Mechanical Dimensions:(WxHxD): 50cm* x 23 cm x 21.6cm
*width varies by +/- 10cm depending on product variant

Weight: 6.5kg

ENVIRONMENTAL SPECIFICATIONS

Temperature range:
Operating: -20° to +50 °C
Storage: -40° to +80 °C

Mounting requirements:
A range of standard light pole, cellular co-location, building side-mount, street level cabinet, pedestal, ground-level stand and vault mounting options

TRANSMIT POWER*

Mode	Spatial Streams					
	1		2		3	
	Rate	Total Tx	Rate	Total Tx	Rate	Total Tx
802.11b	1 Mbps	29.7				
	2 Mbps	29.7				
	5.5 Mbps	29.7				
	11 Mbps	29.7				
802.11g	6 Mbps	27.7				
	9 Mbps	27.7				
	12 Mbps	27.7				
	18 Mbps	27.7				
	24 Mbps	27.7				
	36 Mbps	27.7				
	48 Mbps	27.7				
	54 Mbps	27.7				
802.11n HT20	MCS0	27.4	MCS8	27.7	MCS16	27.7
	MCS1	27.3	MCS9	27.7	MCS17	28.7
	MCS2	27.1	MCS10	27.7	MCS18	28.7
	MCS3	27	MCS11	27.7	MCS19	28.7
	MCS4	26.8	MCS12	27.7	MCS20	27.7
	MCS5	26.7	MCS13	26.7	MCS21	26.7
	MCS6	26.5	MCS14	26.7	MCS22	26.7
	MCS7	26.7	MCS15	26.7	MCS23	24.7
802.11n HT40	MCS0	27.7	MCS8	27.4	MCS16	27.4
	MCS1	27.7	MCS9	27.4	MCS17	26.8
	MCS2	27.7	MCS10	27.4	MCS18	26.1
	MCS3	27.7	MCS11	27.4	MCS19	25.4
	MCS4	27.7	MCS12	27.4	MCS20	24.7
	MCS5	26.7	MCS13	25.4	MCS21	24
	MCS6	26.7	MCS14	25.4	MCS22	23.3
	MCS7	26.7	MCS15	25.4	MCS23	23.7

Average Combined TX Power FCC 2.4 GHz

Mode	Spatial Streams					
	1		2		3	
	Rate	Total Tx	Rate	Total Tx	Rate	Total Tx
802.11b						
802.11g	6 Mbps	27.7				
	9 Mbps	27.7				
	12 Mbps	27.7				
	18 Mbps	27.7				
	24 Mbps	27.7				
	36 Mbps	27.7				
	48 Mbps	27.7				
	54 Mbps	27.7				
802.11n HT20	MCS0	27.7	MCS8	27.7	MCS16	25.7
	MCS1	26.6	MCS9	25.7	MCS17	26.7
	MCS2	25.5	MCS10	25.7	MCS18	26.7
	MCS3	24.4	MCS11	23.7	MCS19	23.7
	MCS4	23.3	MCS12	23.7	MCS20	23.7
	MCS5	22.2	MCS13	19.7	MCS21	18.7
	MCS6	21.1	MCS14	19.7	MCS22	18.7
	MCS7	21.7	MCS15	19.7	MCS23	18.7
802.11n HT40	MCS0	27.7	MCS8	27.4	MCS16	27.7
	MCS1	27.7	MCS9	27.4	MCS17	26.2
	MCS2	27.7	MCS10	27.4	MCS18	25.3
	MCS3	25.7	MCS11	27.4	MCS19	24.4
	MCS4	25.7	MCS12	27.4	MCS20	23.5
	MCS5	21.7	MCS13	25.4	MCS21	22.6
	MCS6	21.7	MCS14	25.4	MCS22	21.7
	MCS7	21.7	MCS15	25.4	MCS23	20.7

Average Combined TX Power FCC 5 GHz

Mode	Spatial Streams					
	1		2		3	
	Rate	EIRP	Rate	EIRP	Rate	EIRP
802.11b	1 Mbps	37.1				
	2 Mbps	37.1				
	5.5 Mbps	37.1				
	11 Mbps	37.1				
802.11g	6 Mbps	35.1				
	9 Mbps	35.1				
	12 Mbps	35.1				
	18 Mbps	35.1				
	24 Mbps	35.1				
	36 Mbps	35.1				
	48 Mbps	35.1				
	54 Mbps	35.1				
802.11n HT20	MCS0	34.8	MCS8	35.1	MCS16	35.1
	MCS1	34.7	MCS9	35.1	MCS17	36.1
	MCS2	34.5	MCS10	35.1	MCS18	36.1
	MCS3	34.4	MCS11	35.1	MCS19	36.1
	MCS4	34.2	MCS12	35.1	MCS20	35.1
	MCS5	34.1	MCS13	34.1	MCS21	34.1
	MCS6	33.9	MCS14	34.1	MCS22	34.1
	MCS7	34.1	MCS15	34.1	MCS23	32.1
802.11n HT40	MCS0	35.1	MCS8	34.8	MCS16	34.8
	MCS1	35.1	MCS9	34.8	MCS17	34.2
	MCS2	35.1	MCS10	34.8	MCS18	33.5
	MCS3	35.1	MCS11	34.8	MCS19	32.8
	MCS4	35.1	MCS12	34.8	MCS20	32.1
	MCS5	34.1	MCS13	32.8	MCS21	31.4
	MCS6	34.1	MCS14	35.8	MCS22	30.7
	MCS7	34.1	MCS15	32.8	MCS23	31.1

EIRP - 2.4GHz - 4.4 dBi Omni - Beamforming

Mode	Spatial Streams					
	1		2		3	
	Rate	EIRP	Rate	EIRP	Rate	EIRP
802.11b						
802.11g	6 Mbps	39.1				
	9 Mbps	39.1				
	12 Mbps	39.1				
	18 Mbps	39.1				
	24 Mbps	39.1				
	36 Mbps	39.1				
	48 Mbps	39.1				
	54 Mbps	39.1				
802.11n HT20	MCS0	39.1	MCS8	39.1	MCS16	37.1
	MCS1	38	MCS9	37.1	MCS17	38.1
	MCS2	36.9	MCS10	37.1	MCS18	38.1
	MCS3	35.6	MCS11	35.1	MCS19	35.1
	MCS4	34.7	MCS12	35.1	MCS20	35.1
	MCS5	33.6	MCS13	31.1	MCS21	30.1
	MCS6	32.5	MCS14	31.1	MCS22	30.1
	MCS7	33.1	MCS15	31.1	MCS23	30.1
802.11n HT40	MCS0	39.1	MCS8	39.1	MCS16	39.1
	MCS1	39.1	MCS9	39.1	MCS17	37.6
	MCS2	39.1	MCS10	39.1	MCS18	36.7
	MCS3	37.1	MCS11	37.1	MCS19	35.8
	MCS4	37.1	MCS12	37.1	MCS20	34.9
	MCS5	33.1	MCS13	33.1	MCS21	34
	MCS6	33.1	MCS14	33.1	MCS22	33.1
	MCS7	33.1	MCS15	33.1	MCS23	32.1

EIRP - 5GHz - 6.7 dBi Omni - Beamforming

* Maximum supported transmit power may be limited by local regulations in the country of operation

RECEIVE SENSITIVITY

Mode	Spatial Streams					
	1		2		3	
	Rate	Rx Sens	Rate	Rx Sens	Rate	Rx Sens
802.11b	1 Mbps	-101				
	2 Mbps	-98				
	5.5 Mbps	-95				
	11 Mbps	-92				
802.11g	6 Mbps	-96				
	9 Mbps	-95				
	12 Mbps	-93				
	18 Mbps	-92				
	24 Mbps	-88				
	36 Mbps	-87				
	48 Mbps	-83				
	54 Mbps	-81				
802.11n HT20	MCS0	-96	MCS8	-96	MCS16	-95
	MCS1	-93	MCS9	-93	MCS17	-92
	MCS2	-92	MCS10	-92	MCS18	-89
	MCS3	-88	MCS11	-87	MCS19	-85
	MCS4	-87	MCS12	-86	MCS20	-82
	MCS5	-83	MCS13	-80	MCS21	-78
	MCS6	-81	MCS14	-78	MCS22	-77
	MCS7	-79	MCS15	-76	MCS23	-75
802.11n HT40	MCS0	-93	MCS8	-93	MCS16	-92
	MCS1	-90	MCS9	-90	MCS17	-89
	MCS2	-89	MCS10	-89	MCS18	-86
	MCS3	-85	MCS11	-84	MCS19	-82
	MCS4	-84	MCS12	-83	MCS20	-79
	MCS5	-80	MCS13	-77	MCS21	-76
	MCS6	-78	MCS14	-75	MCS22	-73
	MCS7	-76	MCS15	-73	MCS23	-70

Rx Sensitivity - 2.4 GHz

Mode	Spatial Streams					
	1		2		3	
	Rate	EIRP	Rate	EIRP	Rate	EIRP
802.11b						
802.11g	6 Mbps	-95				
	9 Mbps	-94				
	12 Mbps	-92				
	18 Mbps	-91				
	24 Mbps	-87				
	36 Mbps	-86				
	48 Mbps	-82				
	54 Mbps	-80				
802.11n HT20	MCS0	-94	MCS8	-94	MCS16	-94
	MCS1	-91	MCS9	-91	MCS17	-91
	MCS2	-90	MCS10	-90	MCS18	-88
	MCS3	-86	MCS11	-85	MCS19	-85
	MCS4	-85	MCS12	-84	MCS20	-82
	MCS5	-81	MCS13	-78	MCS21	-79
	MCS6	-80	MCS14	-76	MCS22	-76
	MCS7	-78	MCS15	-75	MCS23	-73
802.11n HT40	MCS0	-91	MCS8	-92	MCS16	-91
	MCS1	-88	MCS9	-89	MCS17	-88
	MCS2	-87	MCS10	-88	MCS18	-85
	MCS3	-83	MCS11	-82	MCS19	-82
	MCS4	-82	MCS12	-81	MCS20	-79
	MCS5	-78	MCS13	-75	MCS21	-76
	MCS6	-77	MCS14	-73	MCS22	-73
	MCS7	-75	MCS15	-72	MCS23	-70

Rx Sensitivity - 5 GHz

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287 01-FGC 101 1762 Rev C

Pole Mount Enclosures

Engineered to accommodate unique broadband powering applications in pole or wall mount configurations.

All aluminum welded construction with removable, lockable doors and easy opening lid.

Durable powder coat finish provides superior corrosion resistance and long service life.

Enclosure designs are optimized for thermal and environmental performance.

Single power supply enclosures to support distributed powering architectures. The power module is located in a separate compartment above the batteries for maximum convection cooling. Ideal for use in all climates, each enclosure comes with a removable door and lid. Standard features include pole mounting brackets, battery slide trays, high magnetic circuit breaker, duplex AC receptacle. service power inserter with cable TV coaxial VSF fitting and LRI lamp which duplicates the function of the power module's standby indicator for simple status monitoring.

PWE Series
Standard Features and Available Options

Standard Standby	Model	Battery Capacity	Pole Mount Bracket	Powder Coat Finish	All Aluminum Const.	Removable Door/Lid	Battery Slide Tray	120V 20A Breaker	240V 15A Breaker	Duplex/Quad AC	1st Service Power Inserter	2nd Service Power Inserter	Service Power Inserter - 25	Local Remote Indicator light	Battery/Enclosure Fan	Storm Hood	Battery Heater Mat	Internal Service Entrance	Breaker Box	Factory Installed Breaker Box	LA-P+	AC Output Indicator light	Gemlock	Module Retaining Cable
PWE-3	PWE-3-120	3	●	●	●	●	1	●		●	●	■	■	●	■	■	■	■	■	■	■	■		■
Dimensions:	PWE-3-240	3	●	●	●	●	1		●	●	●	■	■	●	■	■	■	■	■	■	■	■		■
24.25"W x 23.5"H x 14"D																								
(615mm x 596mm x 355mm)																								
Weight: 39lb (18kg)																								
PWE-4	PWE-4-120	4	●	●	●	●	1	●		●	●	■	■	●	■	■	■	■	■	■	■	■		■
Dimensions:	PWE-4-240	4	●	●	●	●	1		●	●	●	■	■	●	■	■	■	■	■	■	■	■		■
32.75"W x 23.5"H x 14"D																								
(813mm x 597mm x 355mm)																								
Weight: 57lb (26kg)																								
Extended Standby																								
PWE-6 (PWV)	PWE-6-120	6	●	●	●	●	2	●		●	●	■	■	●	■	■	■	■	■	■	■	■	●	■
Dimensions:	PWE-6-240	6	●	●	●	●	2		●	●	●	■	■	●	■	■	■	■	■	■	■	■	●	■
24.25"W x 35.75"H x 14"D																								
(615mm x 908mm x 355mm)																								
Weight: 68lb (31kg)																								
PWE-8	PWE-8-120	8	●	●	●	●	2	●		●	●	■	■	●	■	■	■	■	■	■	■	■	■	■
Dimensions:	PWE-8-240	8	●	●	●	●	2		●	●	●	■	■	●	■	■	■	■	■	■	■	■	■	■
30.25"W x 31"H x 16"D																								
(768mm x 787mm x 406mm)																								
Weight: 121lb (55kg)																								

● Standard Features ■ Available Options

Note: Standard color gray.

Weights with standard options only.

PWE-3

PWE-4

PWE-6 (PWV)

PWE-8

Battery Cable Kits for Ground and Pole Mount Enclosures

	36 Volt	36 Volt	48 Volt
Pole Mount Enclosures	XM2 610 XM2 615	XM2 910 XM2 915 XM2 1350	XM 1350T XM2 1350-48 XM2 922
PWE-3	BCK-HD BCK-FHD	BCK-HD BCK-FHD	
PWE-4			BCK-HD4 BCK-FHD4
PWE-6 (PWV)	BCK-HD6 BCK-FHD6	BCK-HD6 BCK-FHD6	
PWE-8			BCK-HD8 BCK-FHD8
Ground Mount Enclosures			
UPE-M3	BCK-HD BCK-FHD	BCK-HD BCK-FHD	
UPE-4			BCK-HD4 BCK-FHD4
UPE-M6	BCK-HD6 BCK-FHD6	BCK-HD6 BCK-FHD6	
UPE-M8			BCK-HD8 BCK-FHD8
GM-6L	BCK-FHD-6L	BCK-FHD-6L	
CTE	BCK-CTE-36	BCK-CTE-36	BCK-CTE-48
PN-FN	BCK-F1236	BCK-F1236	

BCK-HD = Heavy Duty Battery Cable Kit for up to 8 batteries.
BCK-FHD = Fused Heavy Duty Battery Cable Kit for up to 8 batteries.

Enclosure Expansion Modules for Pole and Ground Mount Enclosures.

BE-PWE / BE-UPE Standard Features and Available Options

Enclosure Expansion Modules	Model	Battery Capacity	Pole Mount Bracket	Powder Coat Finish	All Aluminum Const.	Removable Door/Lid	Battery Slide Tray	Battery Heater Mat	Battery/Cable Kit
 BE-PWE Dimensions: 24.25"Wx13.7"Hx14.2"D (616mmx348mmx361mm) Weight: 28 lbs (12.7kg)	BE-PWE-Kit	3	●	●	●	●		■	●
 BE-UPE Dimensions: 28"Wx19"Hx17"D (711mmx482mmx431mm) Weight: 32lbs (15kg)	BE-UPE-Kit	3		●	●	●	●	■	●

● Standard Features ■ Available Options

Options for Ground and Pole Mount Enclosures

TS-NC Tamper Switch: Provides a magnetic door switch which plugs into USM2 option for XM2 power supplies. Most status monitoring systems provide an alarm if the enclosure door is opened. Order NC for normally closed or NO for normally open systems.

SPI Service Power Inserter: Standard on most enclosures. Rated for 15 Amps.

SPI-25 Service Power Inserter: Same as SPI but rated for 25 Amps. For use with higher output current power supplies.

LA-P+ Surge Suppressor: Consists of three Metal Oxide Varistors (MOVs). Plugs directly into the enclosure's convenience outlet providing additional protection from voltage spikes caused by lightning and other power disturbances. (specify 120V or 240V model)

LRI-LL Local and Remote Indicator Light (Long Life): Long life version of the LRI. The LRI lamp (Red) is located on outside of enclosure to indicate standby operation. The lamp is on when in standby operaton, and FLASHING when service is required.

ACI AC Output Indicator Light: The ACI lamp (Green) is located on the outside of enclosures. The lamp is ON only when the power supply output is present allowing the cable technician to check the operational status of the power supply without opening the enclosure. (specify 60V or 90V model)

ACI-LL AC Output Indicator Light (Long Life): Long life version of the ACI. AC Output Indicator Light: The ACI lamp (Green) is located on the outside of enclosures. The lamp is ON only when the power supply output is present allowing the cable technician to check the operational status of the power supply without opening the enclosure. (specify 60V or 90V model)

BHM Battery Heater Mat: Turns on at 40°F (5°C) to increase battery capacity in cold environments. (AC line operated)

PED-10 Pedestal Extension10": Used on the UPE or UPE-6 to extend the height of the enclosure.

PED-18 Pedestal Extension18": Used on the UPE or UPE-6 to extend the height of the enclosure.

ECF Enclosure Fan: Adds a standby powered, thermostat controlled fan system to the basic ground or pole mount enclosures. Recommended for high temperature environments.

BCF Battery Fan: Adds an AC powered, thermostat controlled fan system to the basic ground or pole mount enclosures. Recommended for high temperature environments.

TBB Test Bypass Block. Used only on UPE-M series enclosures. 1 per 120 V VAC.

BRB Battery Retaining Bar: Provides added security against batteries being accidentally thrown out of the enclosure.

MRC Module Retaining Cable: Provides added security against power supplies being accidentally thrown out of enclosure.

STH Storm Hood Kit: Provides protection from snow/dirt ingress.

Metering Options for Ground Mount and Powernode Enclosures.

Meter base options come factory installed and pre-wired to the service disconnect, or can be shipped loose for installation.

UMB Universal Meter Base: Factory Installed 100 Amp meter base. Meets most utility requirements.

EMB EUSERC Meter Base: Factory Installed 100 Amp meter base with Test Bypass Blocks. Meets EUSERC Utility requirements and is recommended for locations where bypass capability is needed.

Note: Optional meter height brackets are available for locations with a specific meter height requirement.
Note: Other factory-installed special meter base options are available upon request.

EUSERC
MeterBase
PN-3 shown

Universal
MeterBase
PN-3 shown