

5G Towers

ATS1300

Slimline tower

T3A

Heavy duty tower

Rooftop

Stub tower

Tower upgrades to 5G

5G Headframes

Surmounted

Best access, shorter tower.

3 Ring

Access with no outage

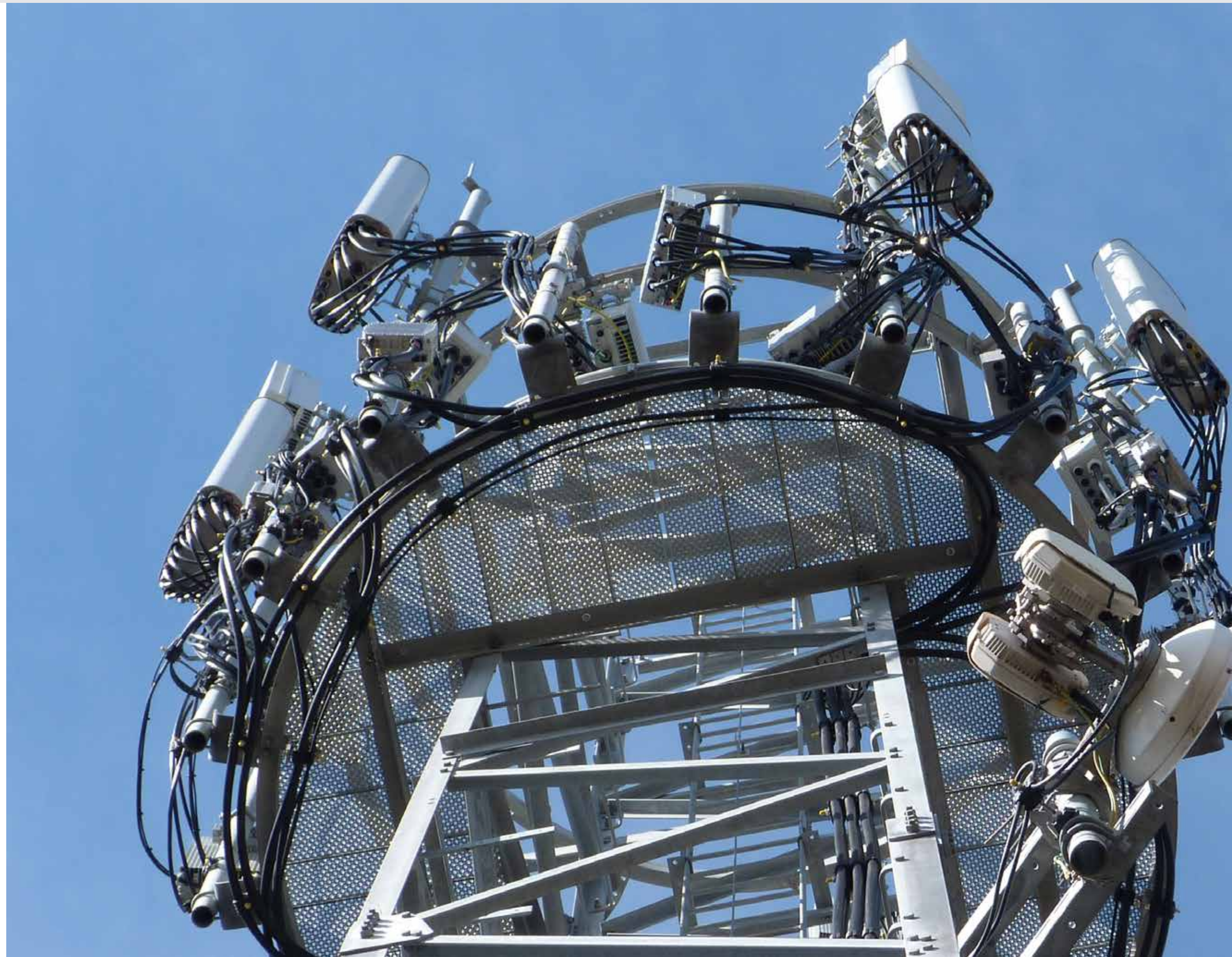
2 Ring

Compact layout

Access with no outage

Yoke

Slimmest profile



FLI structures

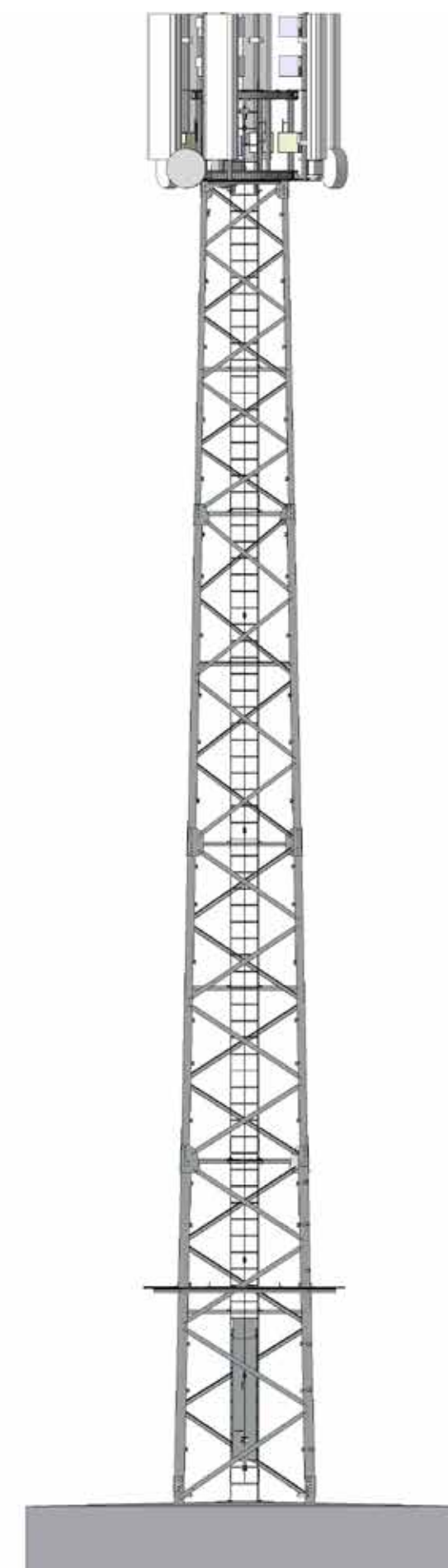
ATS1300 High Capacity Tower

ATS1300 has a slim planning-friendly profile designed for larger 5G antenna & more ancillary equipment. Ideally suited for 2 operators with full 5G or SRN loading.

Heights 15m- 50m in 2.5m increments.

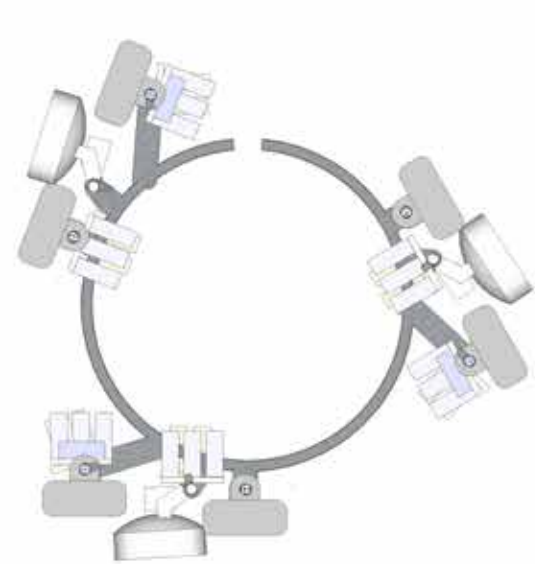
Concrete foundation sizes on page 5, also suited to screw piles & grillage foundations.

Tower includes internal ladder, Latchway Fall Arrest, anti-climb protection, feeder brackets and lightning finials along with various headframe options.

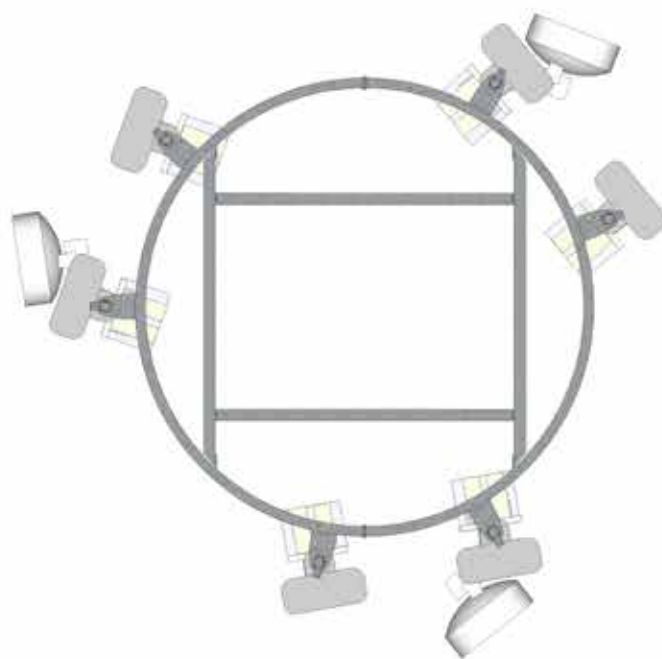


ATS1300 Headframe Options

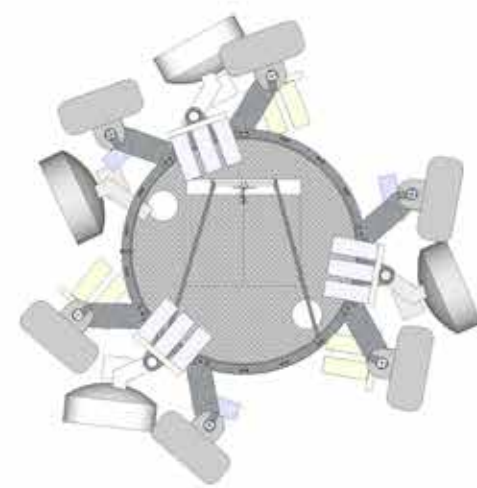
Overmounted ring headframes for multiple operators or surmounted headframes giving improved access and a shorter tower lattice.



2.2m Ø
headframe.



3.0m Ø
headframe.



1.6m Ø
headframe.



Deployment Across Networks

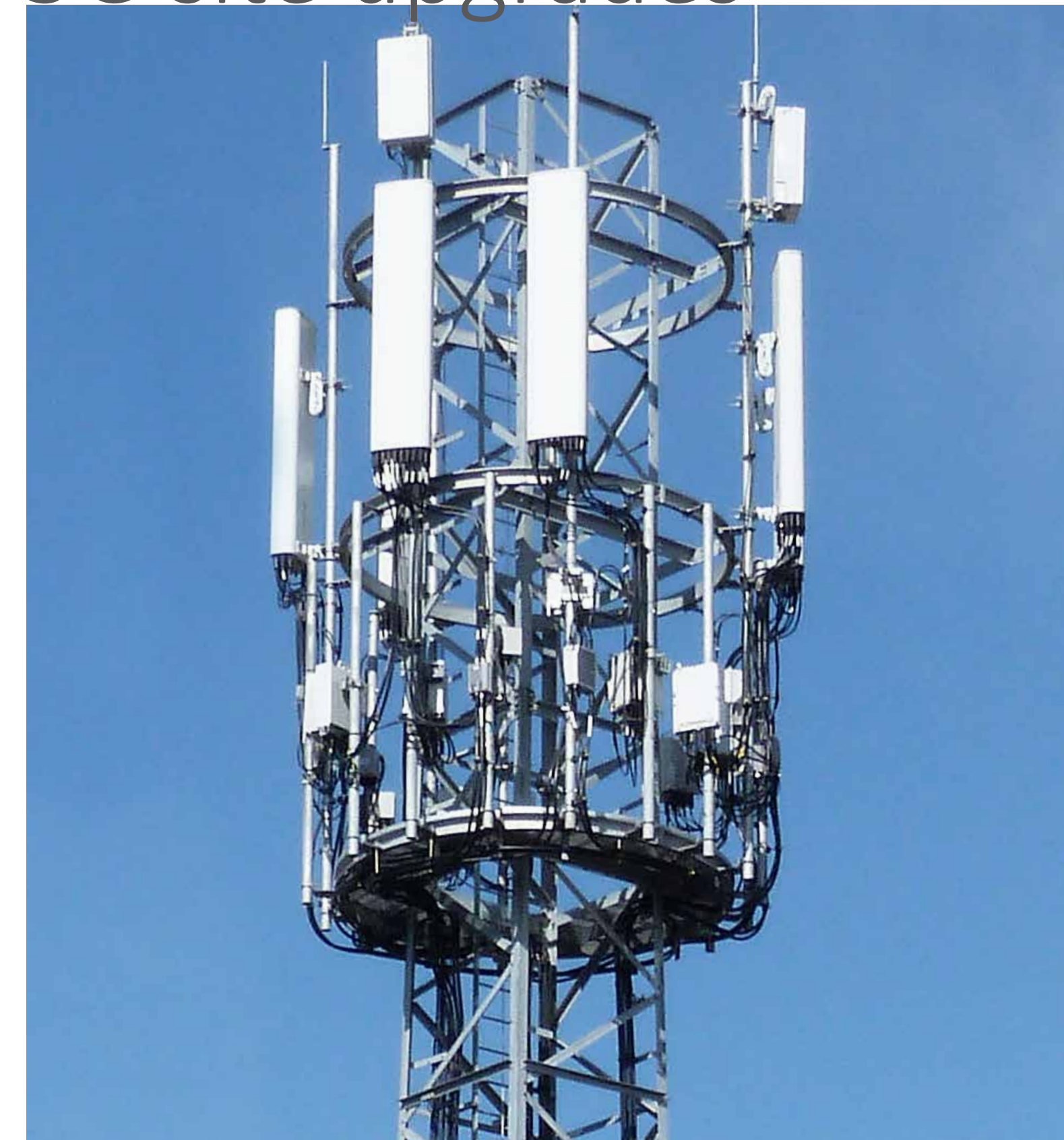
Rail



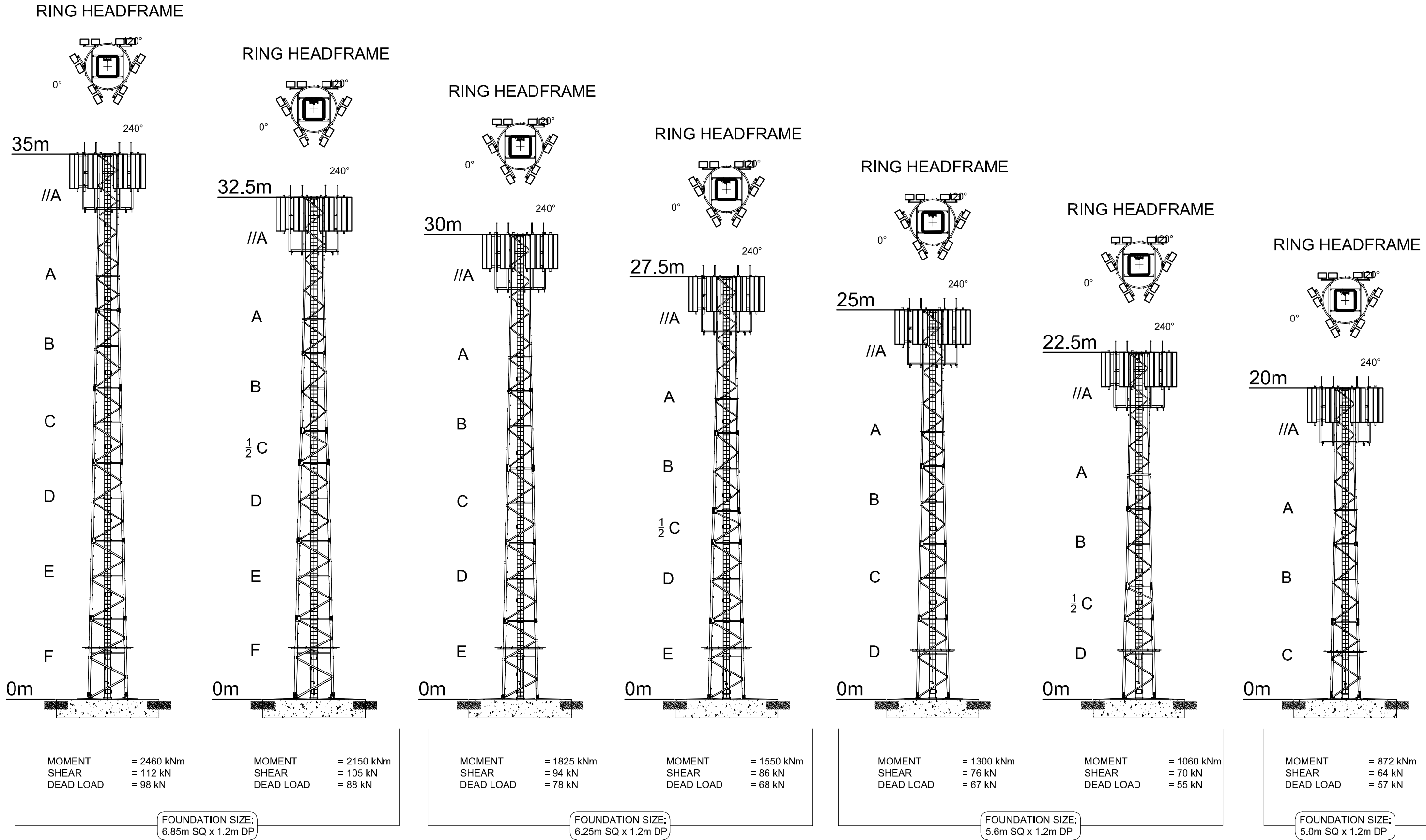
Heavy duty SRN



5G site upgrades



ATS1300
Planning
Drawings
20m-35m



ANTENNA / FEEDERS COMPLIMENT

- 6 No 4400 x 550 x 350 ANTENA APERTURES
- 24 No RRU UNITS
- 12 No MHA UNITS
- 6 No ROUTERS
- 6 No BOB
- 24 No FEEDERS
- 6 No COMBINED DC & FIBRE
- 4 No Ø600 MICROWAVE DISHS

EACH TOWER SUPPLIED WITH:

- FOUNDATION DESIGN
- BASE STUBS
- 4 No EARTH LUGS
- INTERNAL FLI HD LADDER
- LATCHWAYS FALL ARREST SYSTEM
- LEG MOUNTED FEEDER BRACKETS
- LIGHTNING FINIALS.

EQUIPMENT MOUNTING OPTIONS:

- Ø3000 RING HEADFRAME c/w
- 6 No Ø76.1 POLES x 6m LG - FOR ANTENNA APERTURE
- 9 No. Ø76.1 POLES x 2.6m lg - 6 No. FOR EQUIPMENT SUPPORT & 3 No. FOR MW DISH MOUNTING.

DO NOT SCALE
IF IN DOUBT ASK

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UNLESS OTHERWISE STATED:-

MATERIAL:- GRADE AS PER FLI LTD FORM 11G

FINISH:- GALVANISED TO BS EN ISO 1461

DIMENSIONS:- MILLIMETRES (mm)

WELD INSP:- AS PER NSSS LATEST EDITION ANNEX 'B'

TOLERANCES:-

CUT LENGTH	= ±2mm
HOLE CENTRES	= ±2mm
ANGULAR CUT	= ±0.25°
FABRICATED ASSY	= ±3mm
PCD	= ±1mm

CERTIFIED TO EXECUTION CLASS EXC2

NON PRELOADED BOLTING ASSEMBLIES TO BS EN 15048-1

NOTES:-

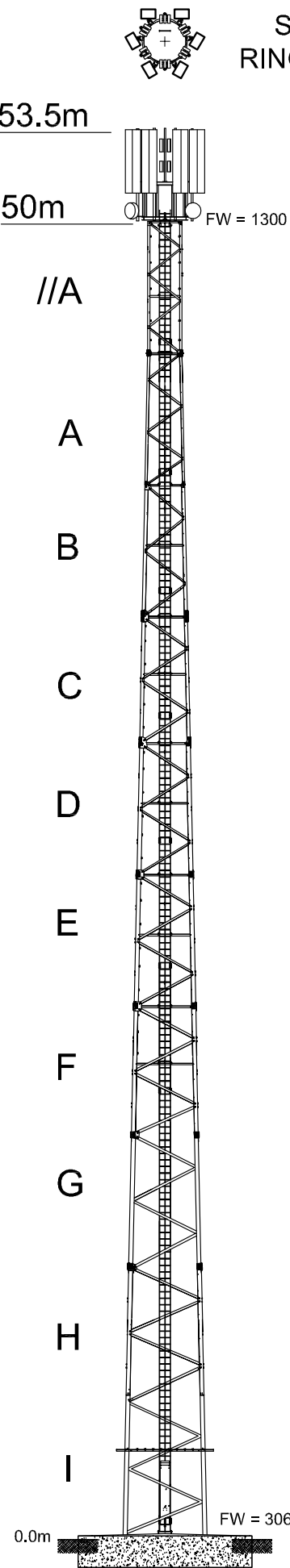
- ALL DRAWING NOTES ARE FOR GUIDANCE ONLY. FOR INSTALLATION INSTRUCTIONS REFER TO THE RELEVANT METHOD STATEMENT
- SITE PARAMETERS:
 - WIND SPEED = 26 m/s (10 MINUTE MEAN)
 - ALTITUDE = 100m ABOVE MEAN SEA LEVEL.
 - TERRAIN CATEGORY = 3 (Kv = 1.0)

A	16/04/21	FIRST ISSUE	BP
ISSUE	DATE	MODIFICATION	CKD

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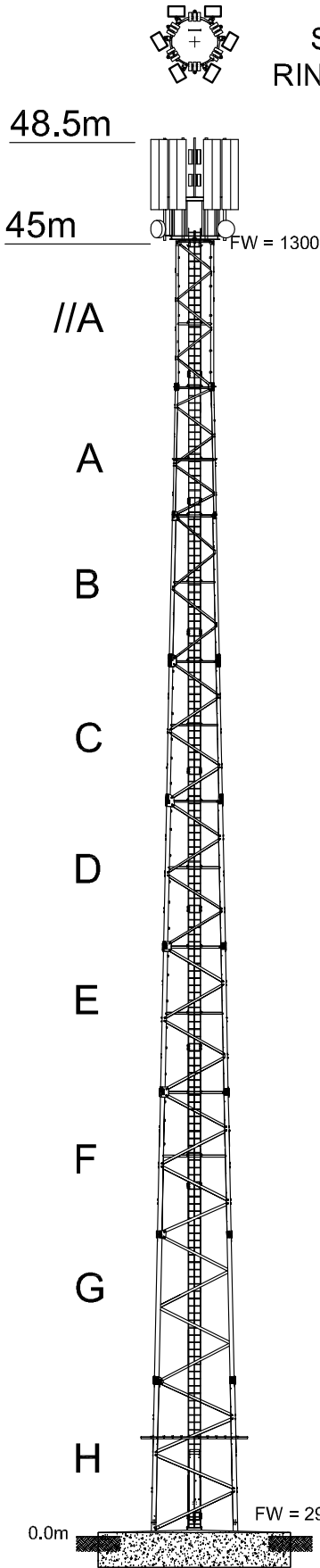
DATE: 16/04/21	SCALE: N.T.S	F&L REF: -----
DRN: BP	CKD:	APP'D:
CUSTOMER FLI		
ORDER No.		
TITLE ATS1300 35m,32.5m,30m,27.5m 25m,22.5m & 20m GREENFIELD SITES PROPOSED TOWER RANGE		
DRG No.	SK4222	REV. A

ATS1300
Planning
Drawings
35m-50m
+ 3.5m
headframe



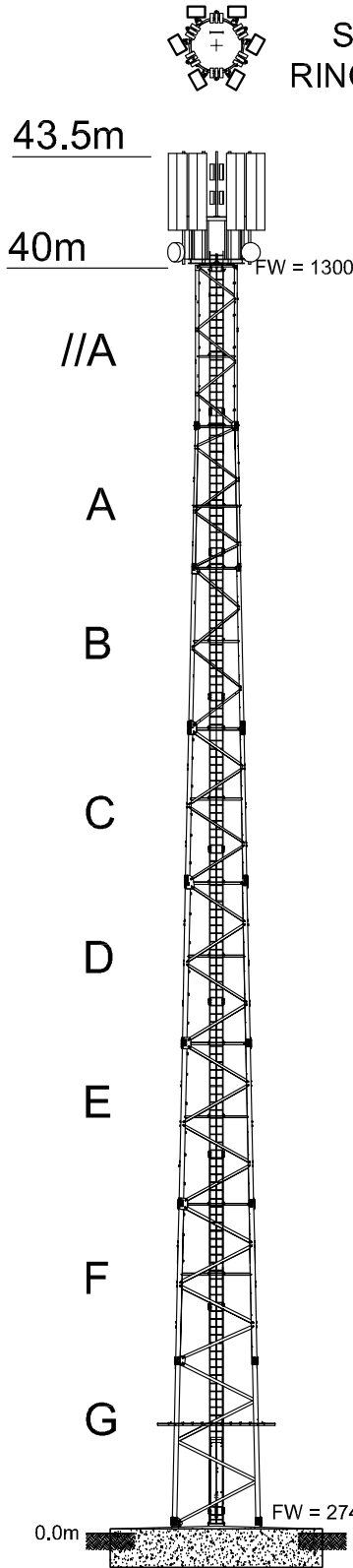
FOUNDATION SIZE:
8.0 x 8.0 x 1.2 DP
BASE FORCES:
MOMENT: 3923 kNm
VERTICAL: 118 kN
SHEAR: 129 kN

WIND SPEED 26.5 m/s
HOURLY MEAN
ALTITUDE 0m



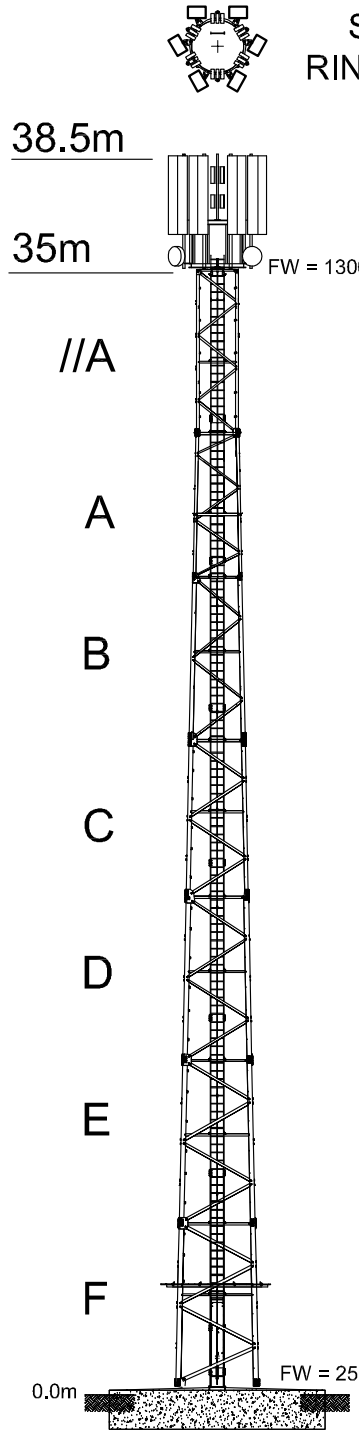
FOUNDATION SIZE:
7.4 x 7.4 x 1.2 DP
BASE FORCES:
MOMENT: 3154 kNm
VERTICAL: 102 kN
SHEAR: 118 kN

WIND SPEED 26.5 m/s
HOURLY MEAN
ALTITUDE 0m



FOUNDATION SIZE:
7.0 x 7.0 x 1.2 DP
BASE FORCES:
MOMENT: 2619 kNm
VERTICAL: 93 kN
SHEAR: 103 kN

WIND SPEED 26.5 m/s
HOURLY MEAN
ALTITUDE 0m



FOUNDATION SIZE:
6.5 x 6.5 x 1.2 DP
BASE FORCES:
MOMENT: 2042 kNm
VERTICAL: 84 kN
SHEAR: 89 kN

WIND SPEED 26.5 m/s
HOURLY MEAN
ALTITUDE 0m

HEADFRAME LOADING ALLOWANCE

- 6 No ANTENNA MAX SIZE 2400x550x350
- 18 No RRU UNITS MAX SIZE 600x400X250
- 6 No DC & FIBER SPLITTER BOXES (BOB)
- 2 No. GPS ANTENNAS
- 4 No Ø600 MICROWAVE DISHES

EACH TOWER SUPPLIED WITH:

- FOUNDATION DESIGN
- BASE GRILLAGE
- 4 No EARTH LUGS
- INTERNAL FLI HD LADDER
- LATCHWAYS FALL ARREST SYSTEM
- LEG MOUNTED FEEDER BRACKETS
- LIGHTNING FINIALS.

OPTION 2 HEADFRAME: EQUIPMENT MOUNTING

- Ø1600 RING HEAD FRAME c/w
- 9 MOUNTING POLES FOR ANTENNA AND ANCILLARY EQUIPMENT.

DO NOT SCALE
IF IN DOUBT ASK

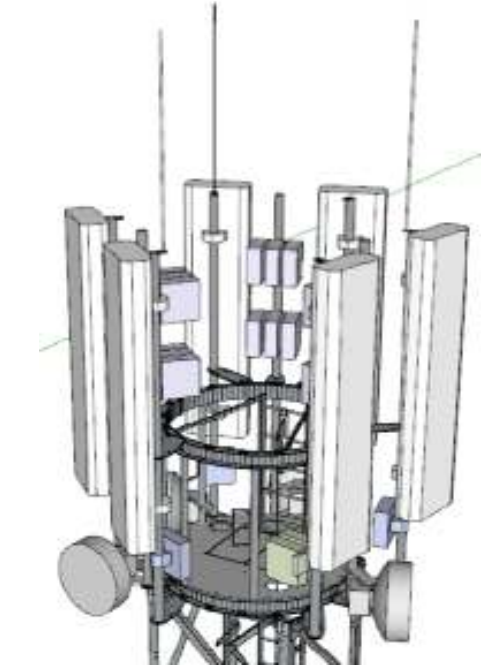
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FINISH:- GALVANISED TO BS EN ISO 1461
DIMENSIONS:- MILLIMETRES (mm)
WELD INSP:- AS PER NSSS LATEST EDITION ANNEX 'B'
TOLERANCES:-
CUT LENGTH = ±2mm
HOLE CENTRES = ±2mm
ANGULAR CUT = ±0.25°
FABRICATED ASSY = ±3mm
PCD = ±1mm

CERTIFIED TO EXECUTION CLASS EXC2
NON PRELOADED BOLTING ASSEMBLIES TO BS EN 15048-1

NOTES:-

- ALL DRAWING NOTES ARE FOR GUIDANCE ONLY. FOR INSTALLATION INSTRUCTIONS REFER TO THE RELEVANT METHOD STATEMENT
- FOR FOUNDATION DETAILS REFER TO DRAWING No. (TBC)



3D VIEW OF HEADFRAME

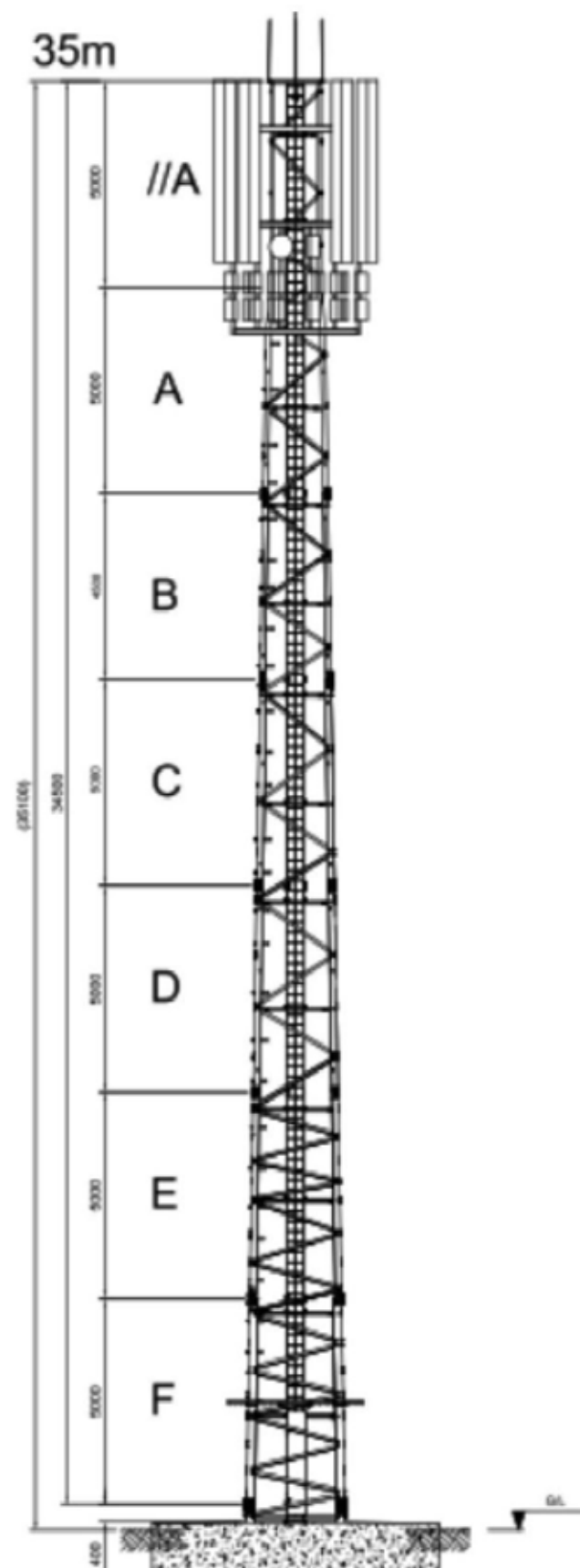
C	19/12/21	FND & BASE FORCES ADDED	BP
B	30/11/21	50m TWR ADDED	BP
A	08/11/21	FIRST ISSUE	BP
ISSUE	DATE	MODIFICATION	CKD

FLI structures

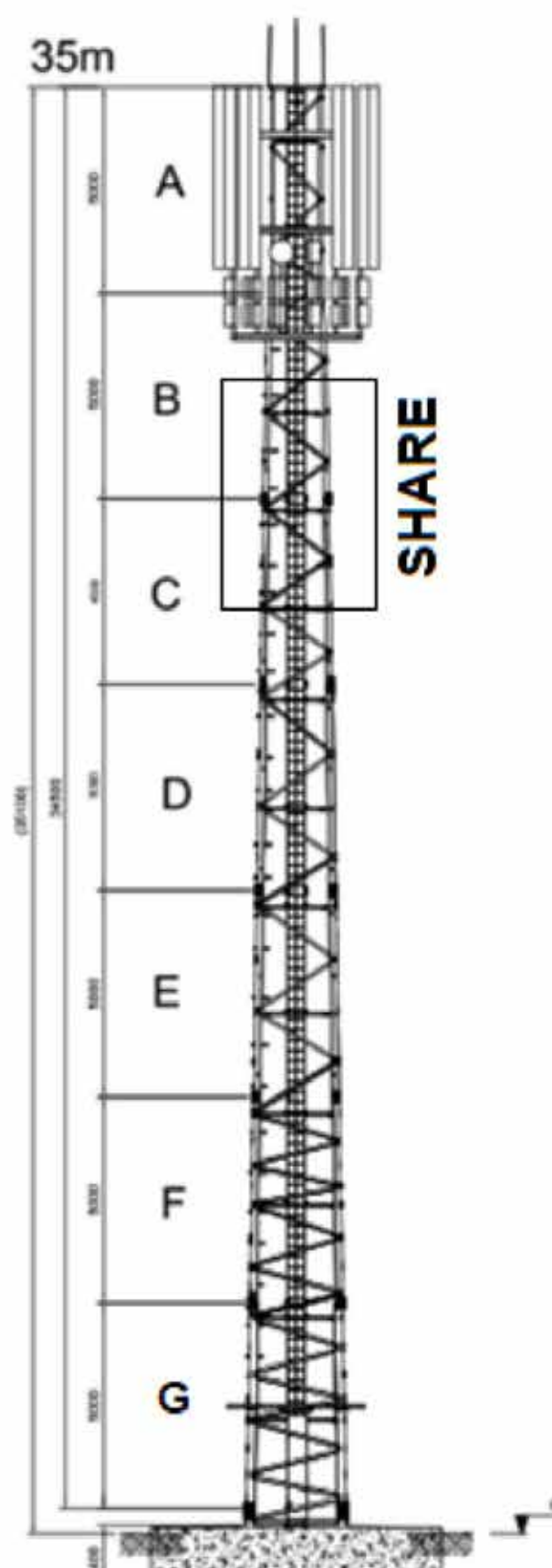
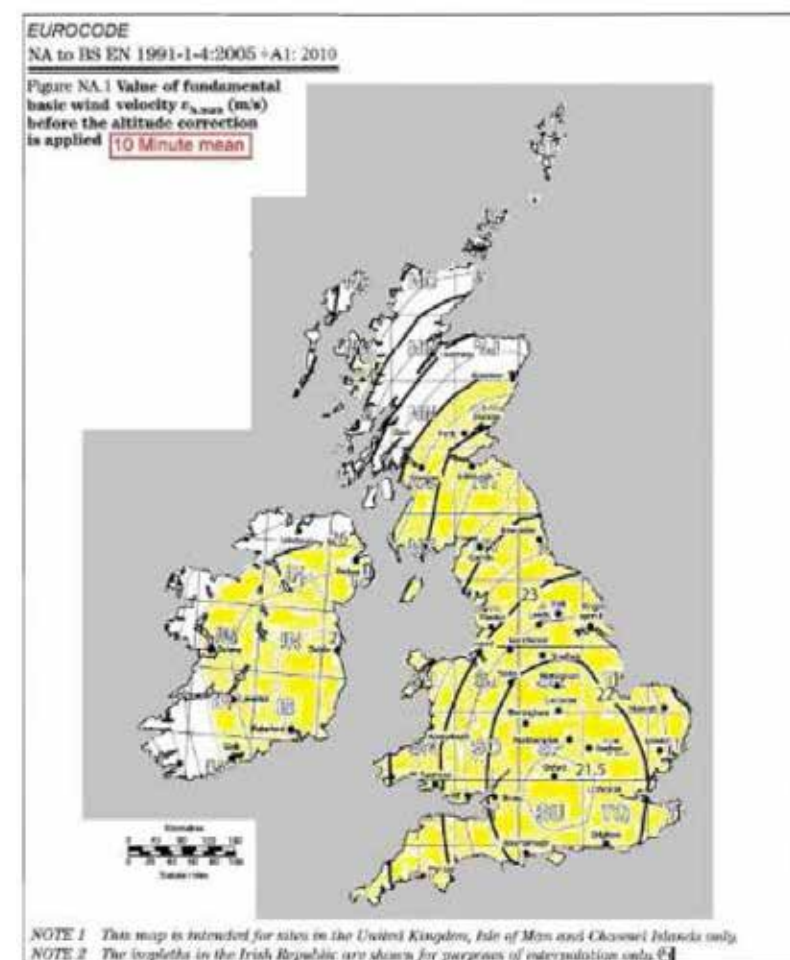
FRANCIS & LEWIS INTERNATIONAL LTD
TEL: +44 (0)1452 722200 WEB: WWW.FLIC.CO.UK

DATE: 08/11/21	SCALE: N.T.S	F&L REF: -----
DRN: BP	CKD: TP	APP'D: TCB
CUSTOMER FLI		
ORDER No.		
TITLE ATS1300 50m, 45m, 40m & 35m ATS1300 TOWER RANGE WITH SURMOUNTED HEADFRAME.		
DRG No.	SK4269	REV. B

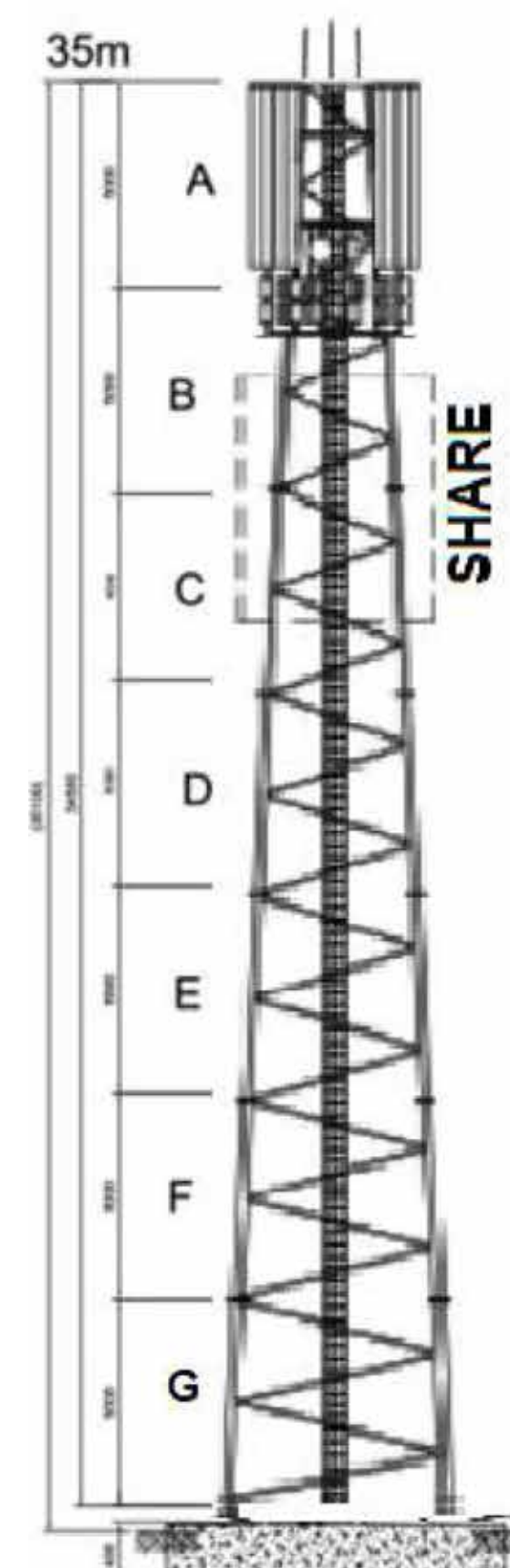
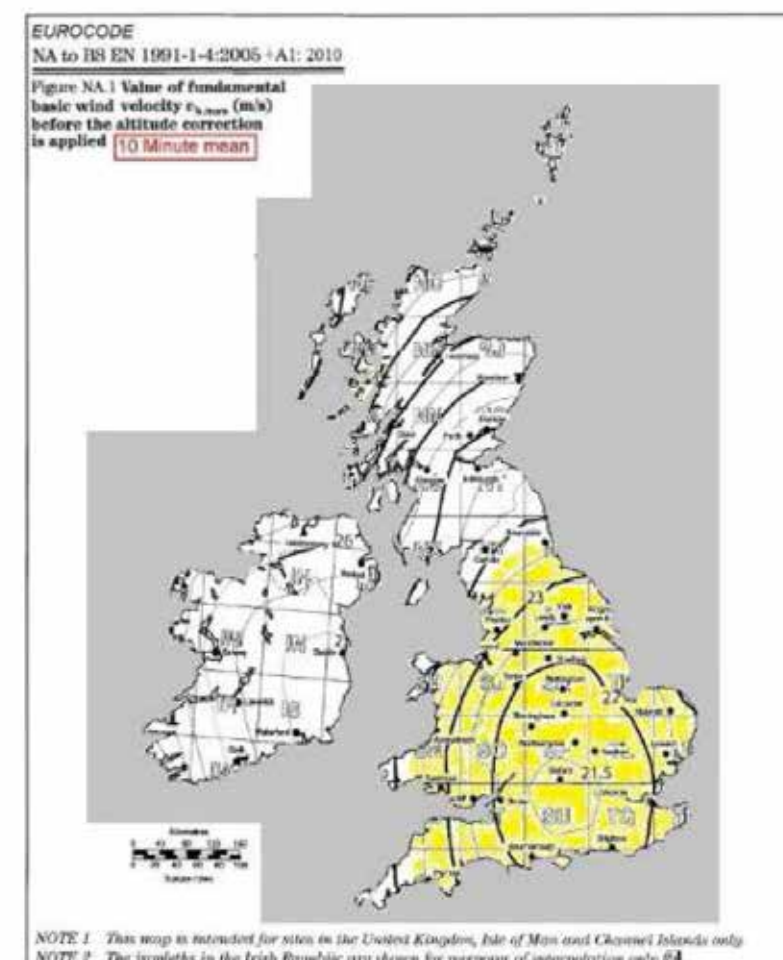
Wind Loadings



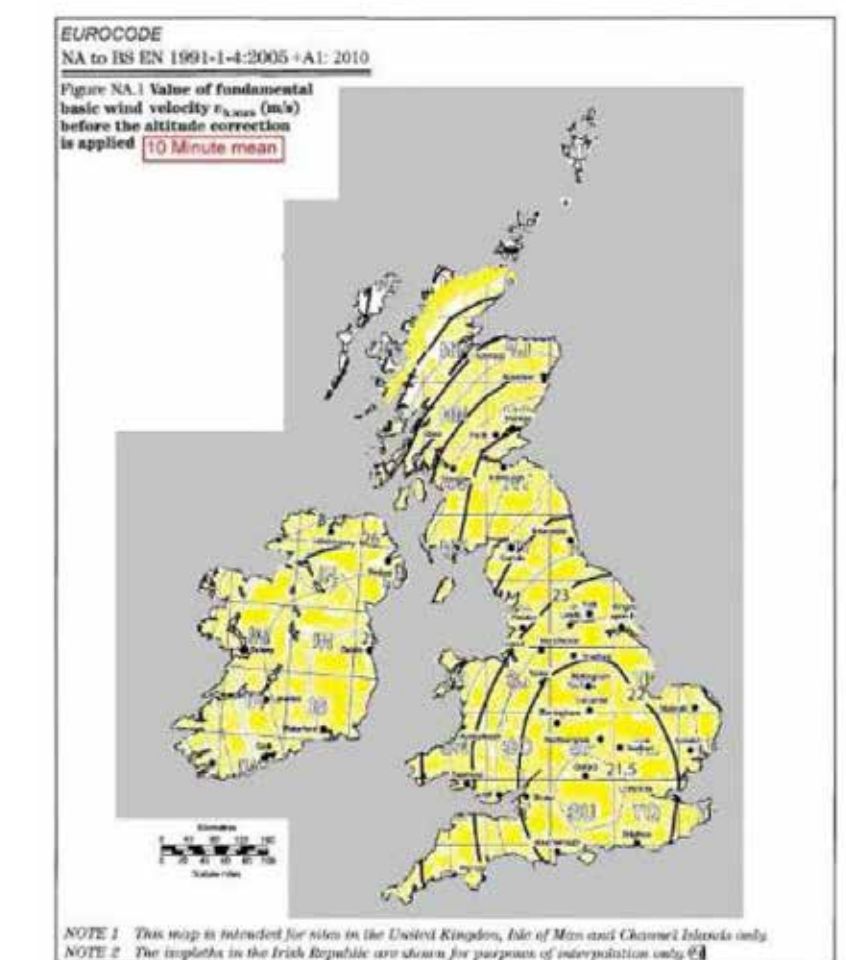
Slimline Tower
35m ATS 1300 Modules//A-F
Vb: 26m/s (EC)
Alt: 100m

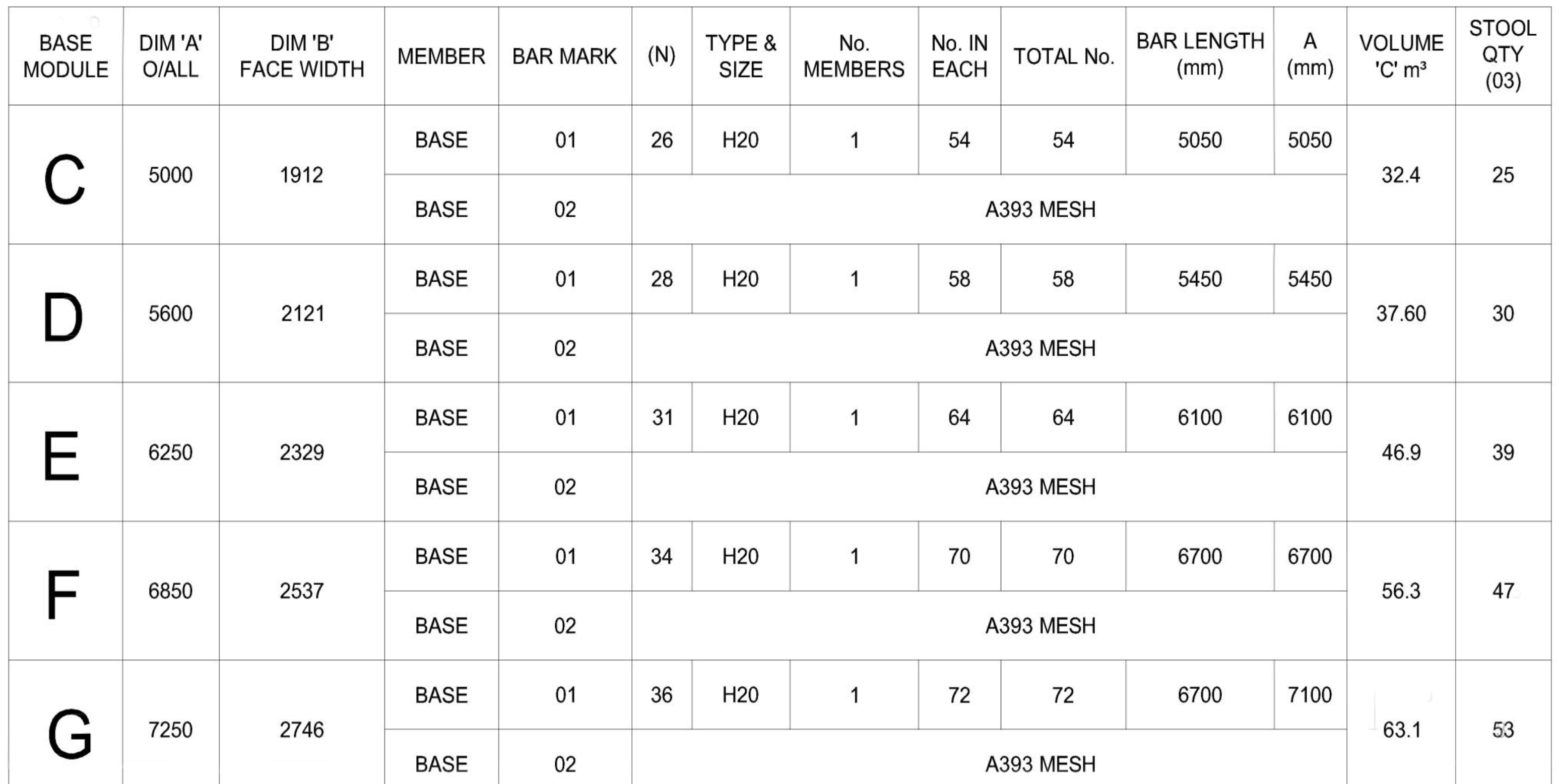


SITE SHARE Slimline Tower
35m ATS 1300 Modules A-G
Low Windspeed
Vb: 23.5m/s (EC)
Alt: 100m



SITE SHARE Heavy Duty
35m T3A Modules A-G
High Windspeed
Vb: 28m/s (EC)
Alt: 200m

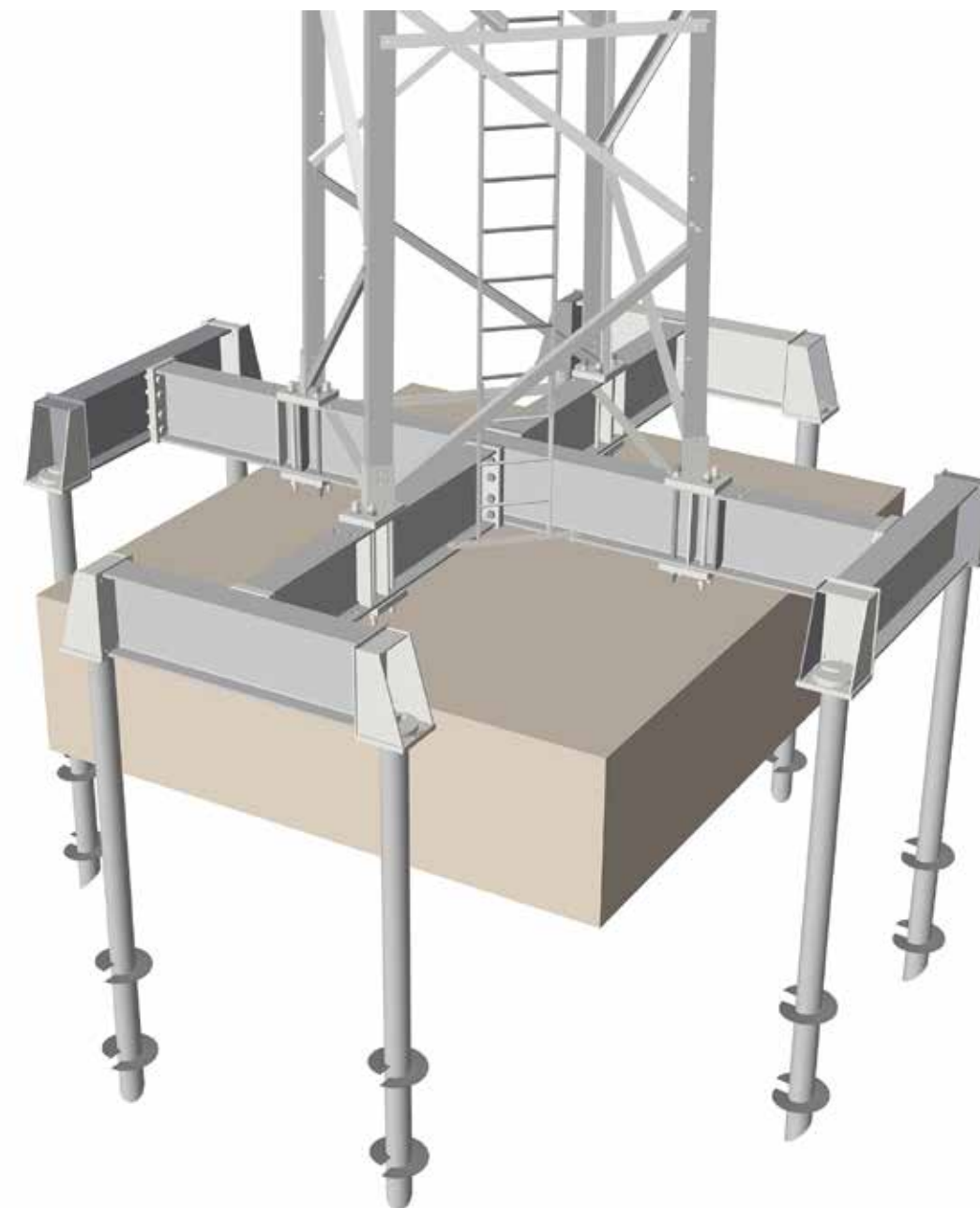




Grillage & Screw piles

FLI's steel grillage and screw pile foundations are narrower than their equivalent in mass concrete. FLI's foundations can enable tower upgrades to be accommodated within existing site boundaries and installed around existing concrete bases.

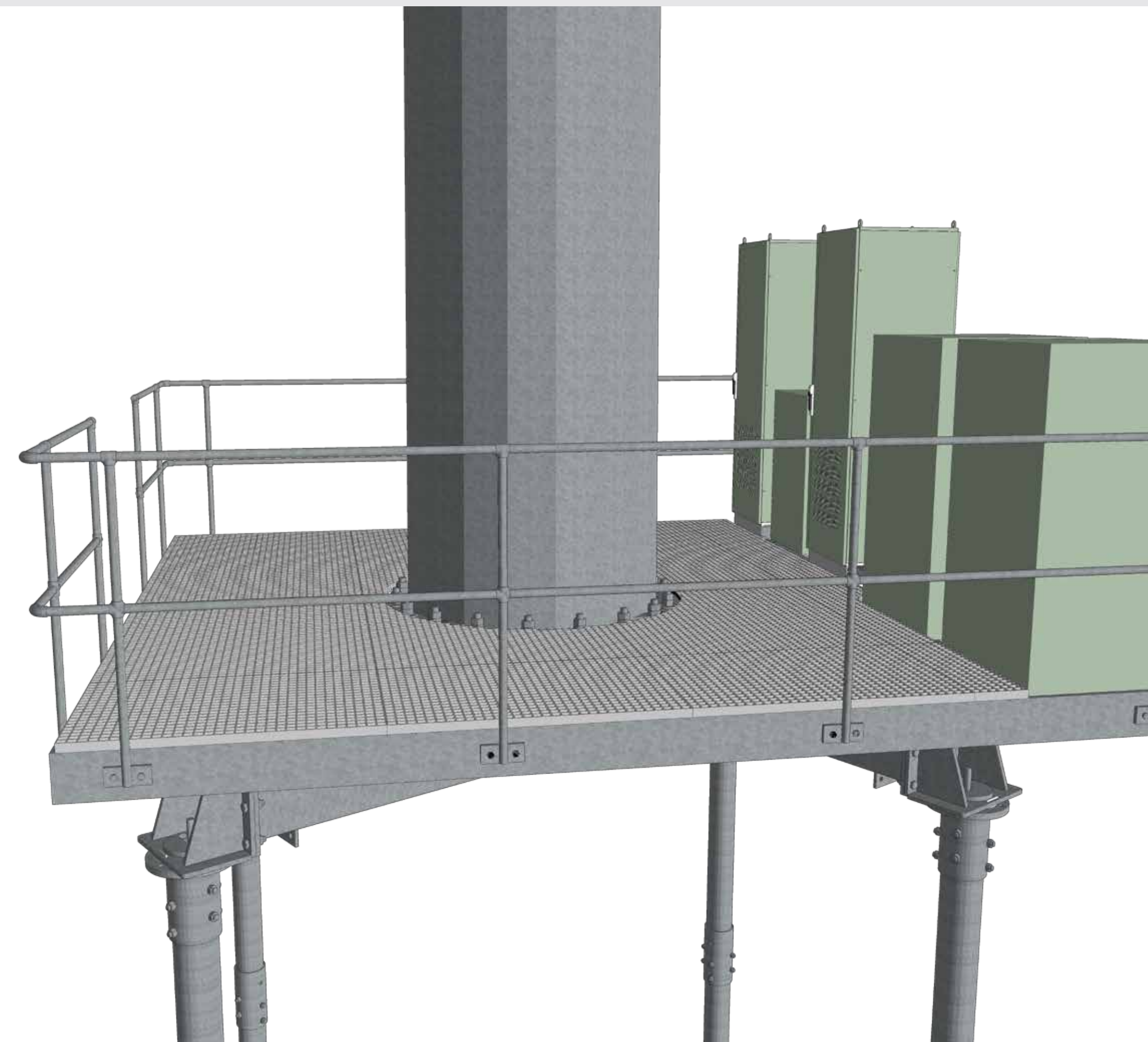
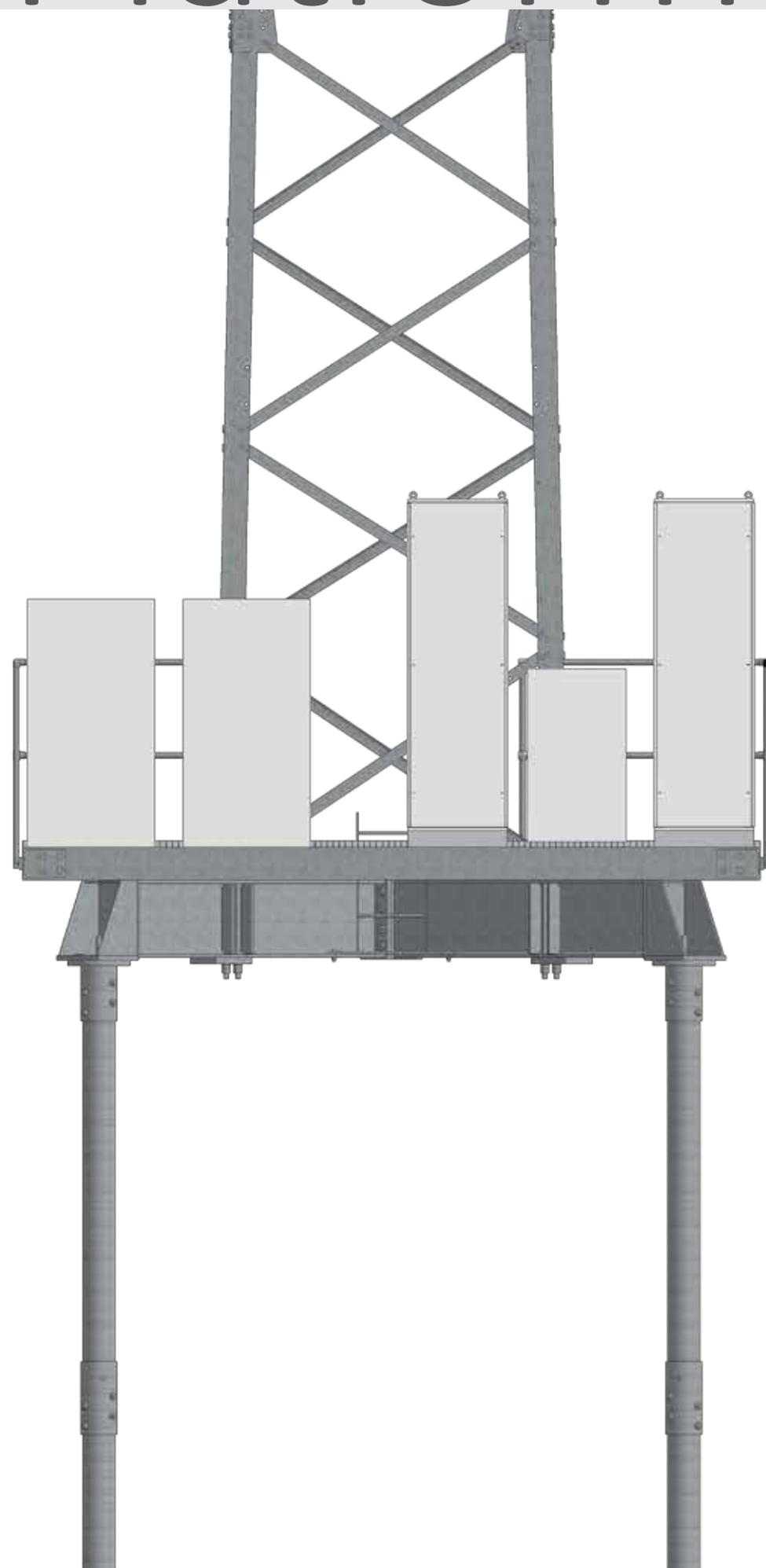
Please contact us, for more information on steel foundation options and solutions.



FLI structures

Platform Grillages

Cabinet platforms on top of grillages require smaller sites and enable larger installations without extending sites.



FLI structures

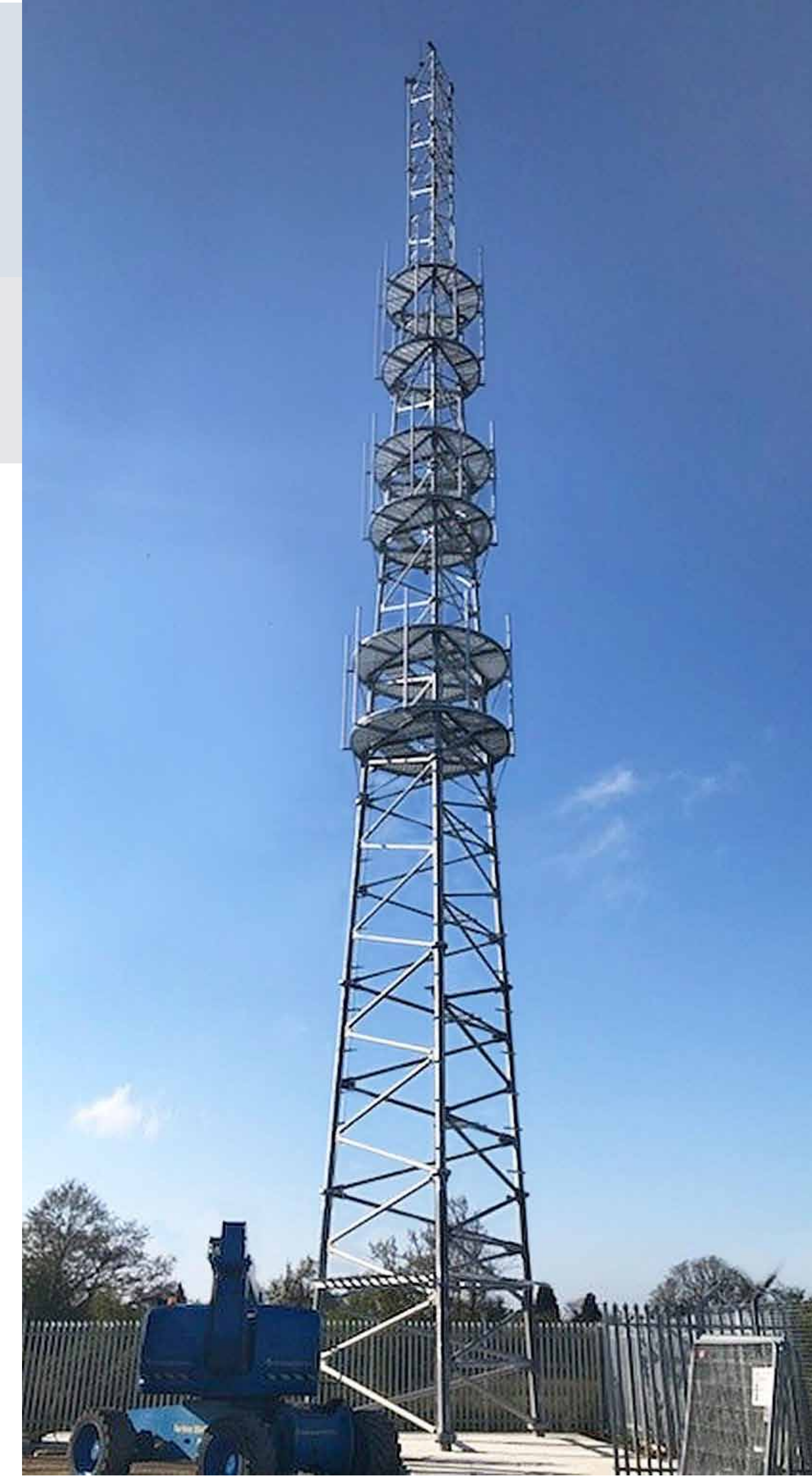
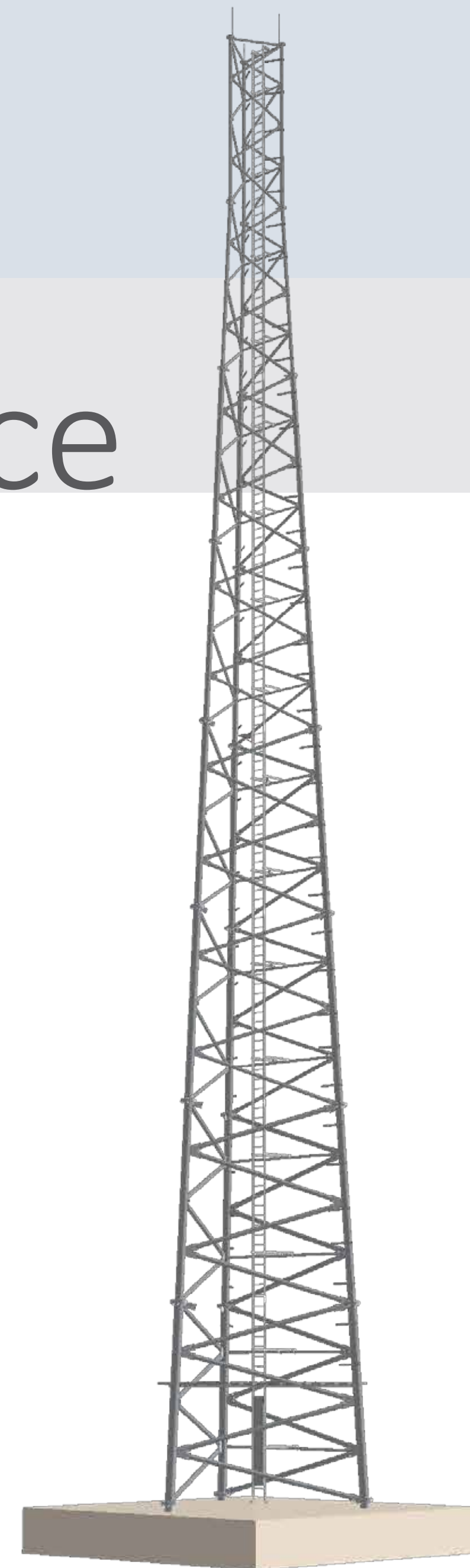
T3A Heavy Duty Lattice

T3A heavy duty lattice tower, is designed for larger 5G antennas, more ancillary equipment and for areas with higher windspeeds. The T3A is ideally suited for site sharing.

Heights: 15m- 50m in 2.5m increments.

Concrete foundation sizes on page 5, also suited to screw piles & grillages.

Tower includes internal ladder, Latchway Fall Arrest, anti-climb protection, feeder brackets and lightning finials along with various headframe options.

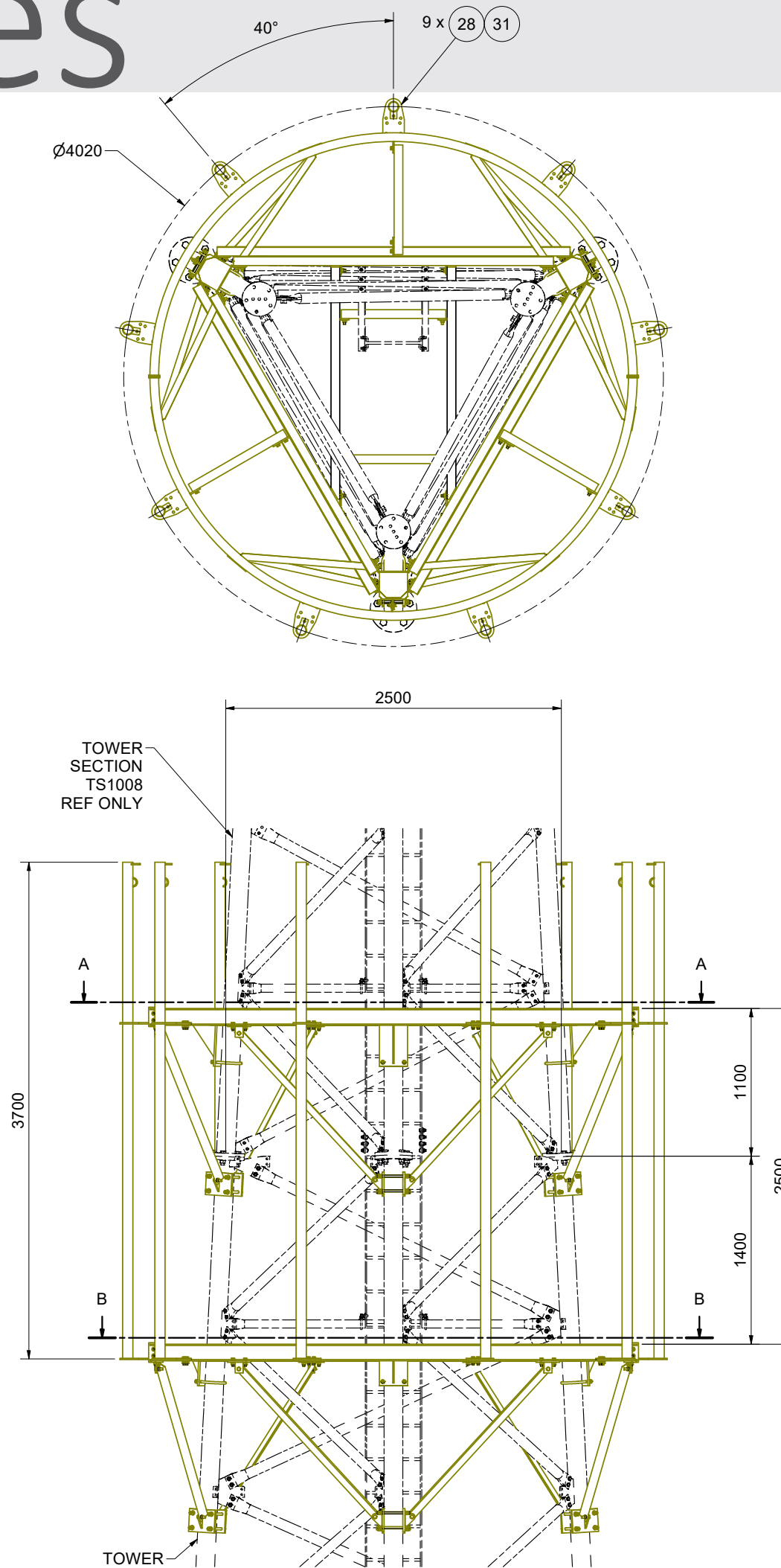


FLI structures

T3A Headframes

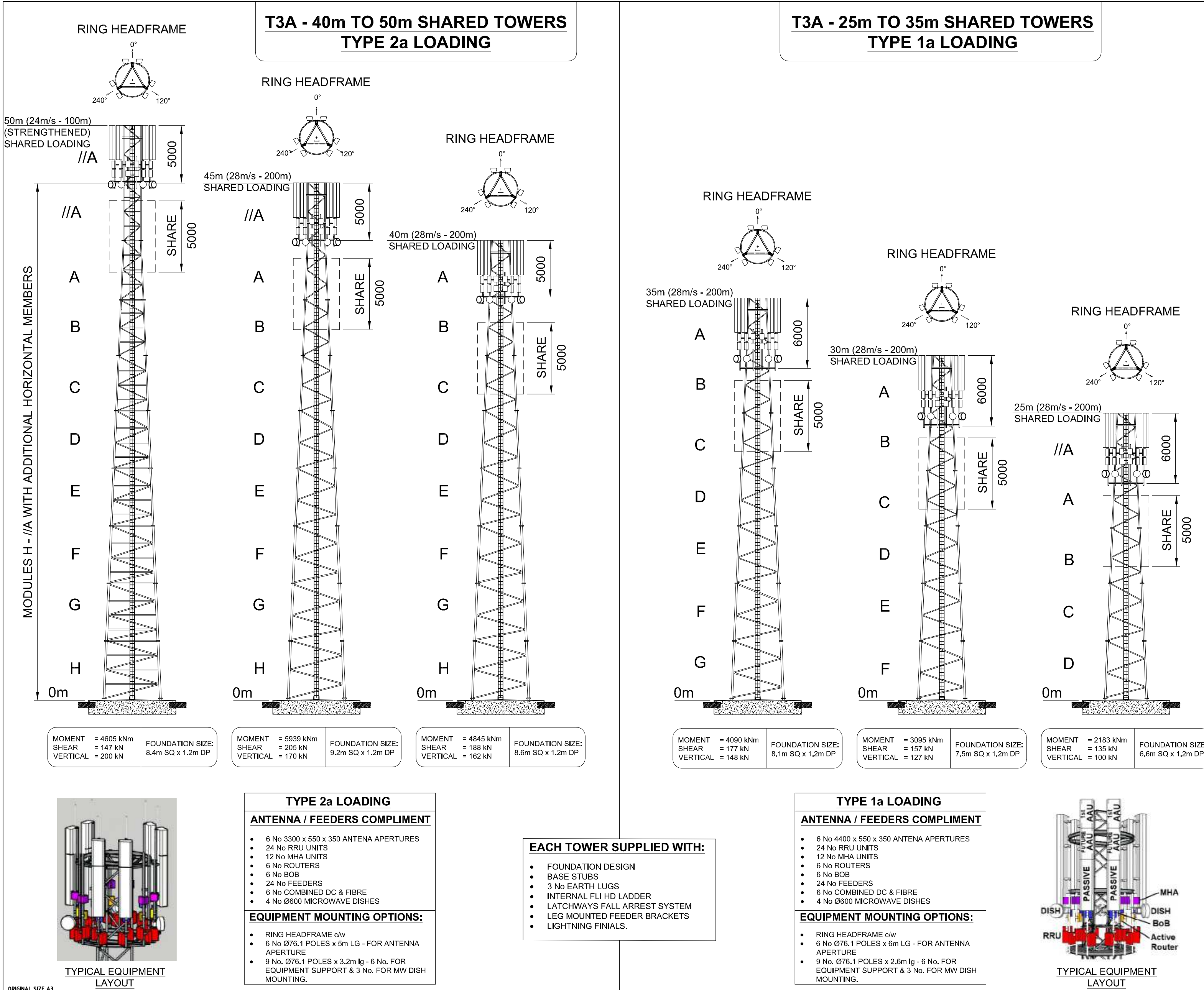
Image shows ring headframes with internal flooring for safer working at height. Leg and face mounting frames are also available.

Head frames can be designed for 5G loading, mounting at various heights, with multiple levels for site sharing.



T3A

Planning drawings



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FINISH:- GALVANISED TO BS EN ISO 1461	
DIMENSIONS:- MILLIMETRES (mm)	
WELD INSP:- AS PER NISS LATEST EDITION ANNEX 'B'	
TOLERANCES:-	
CUT LENGTH	= ±2mm
HOLE CENTRES	= ±2mm
ANGULAR CUT	= ±0.25°
FABRICATED ASSY	= ±3mm
PCD	= ±1mm
CERTIFIED TO EXECUTION CLASS EXC2	
NON PRELOADED BOLTING ASSEMBLIES TO BS EN 15048-1	
NOTES:-	
1. ALL DRAWING NOTES ARE FOR GUIDANCE ONLY. FOR INSTALLATION INSTRUCTIONS REFER TO THE RELEVANT METHOD STATEMENT	
2. SITE PARAMETERS: <ul style="list-style-type: none"> WIND SPEED = AS LISTED (10 MINUTE MEAN) ALTITUDE = AS LISTED TERRAIN CATEGORY = 3 (Kv = 1.0) 	
3. NO SPECIFIC DETAILS HAVE BEEN DEFINED REGARDING SHARE EQUIPMENT OR MOUNTING ARRANGEMENT - THESE NEED TO BE AGREED BEFORE PURCHASING.	
4. FOR FOUNDATION DETAILS REFER TO DRAWING NO. T&A	
5. TOWER ROTATIONS ARE AS FOLLOWS: <div style="margin-left: 20px;"> 25m TO 40m <0.5° 45m = 1.01° 50m = 1.13° ALL FOR UNFACTORED LOADING UNDER A 50 YEAR RETURN PERIOD. </div>	

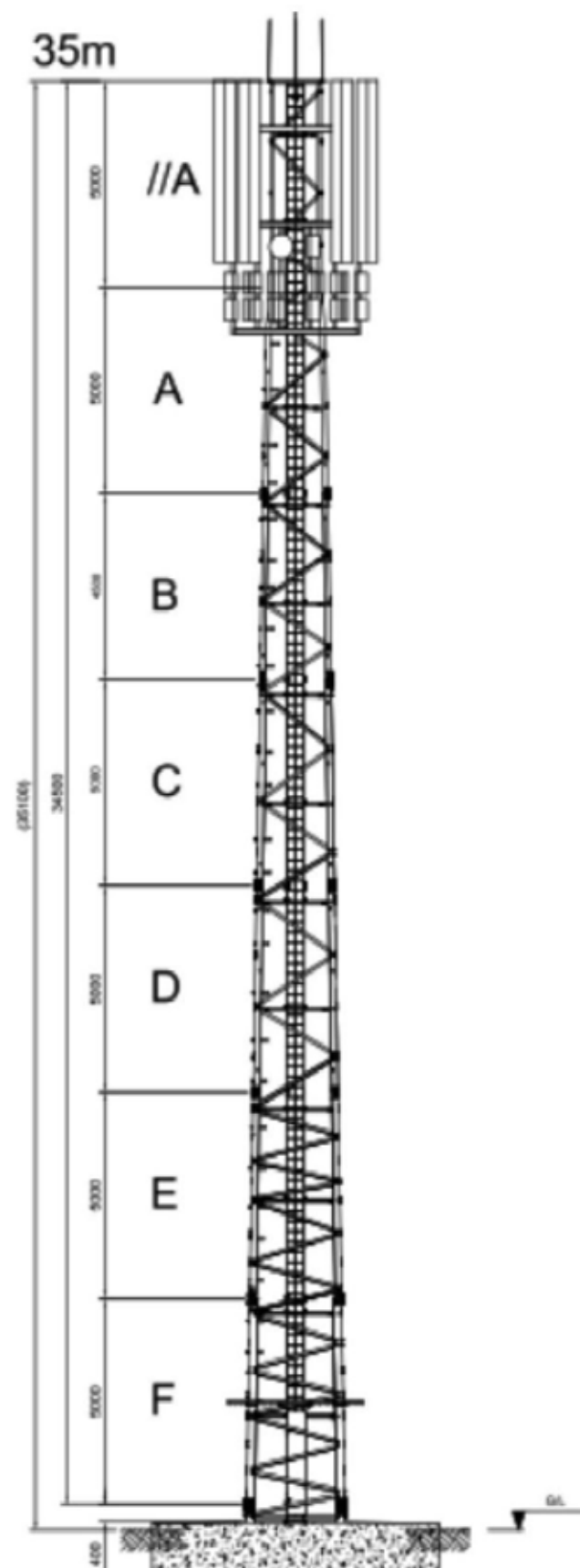
A	01/02/22	FIRST ISSUE	BP
ISSUE	DATE	MODIFICATION	CKD



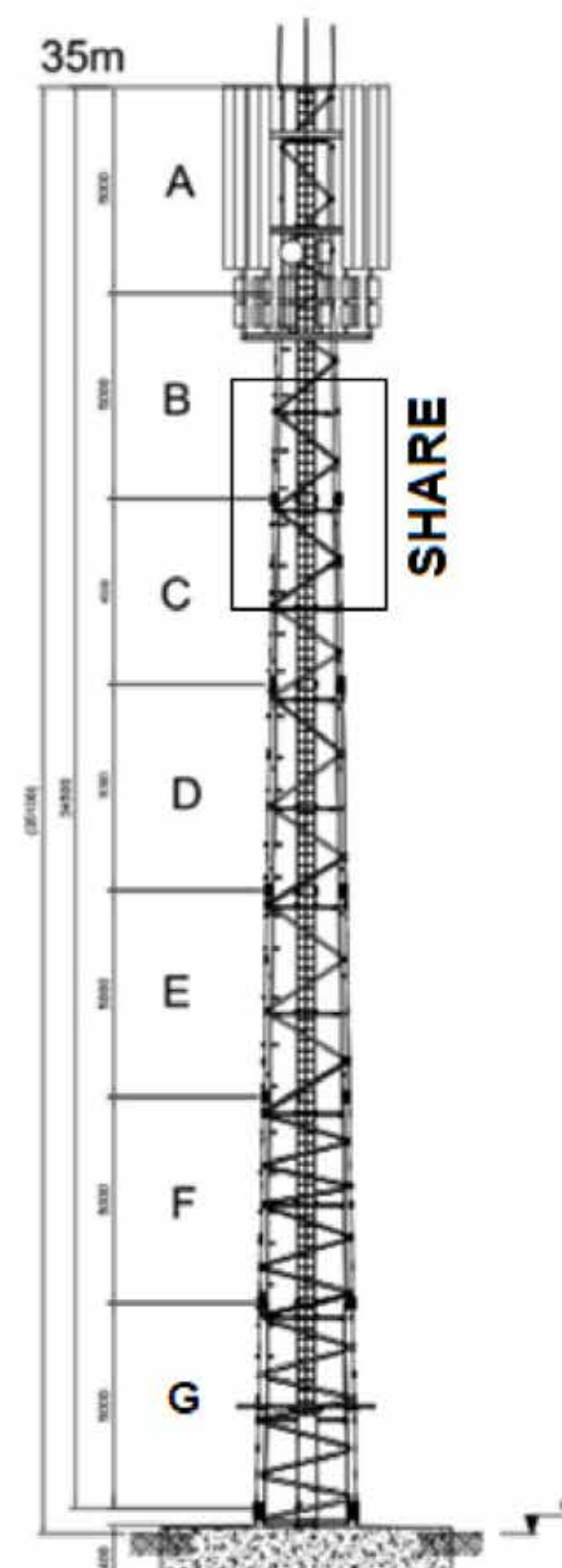
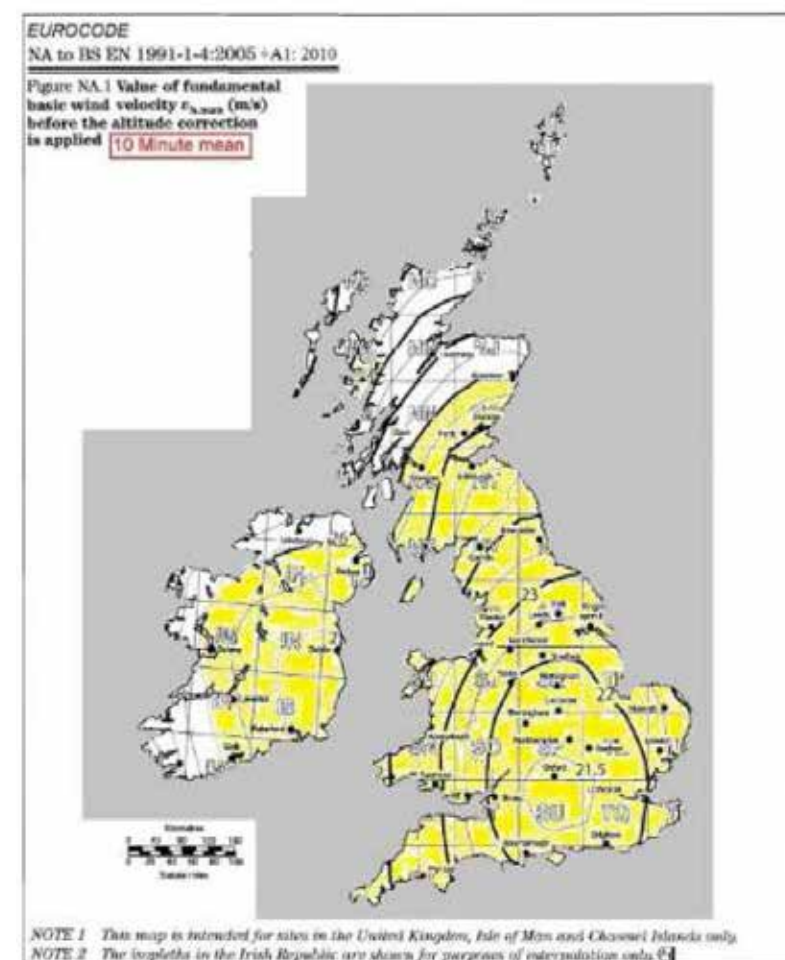
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DATE: 01/02/22	SCALE: N.T.S	F&L REF: -----
DRN: BP	CKD: NC	APP'D: TCB
CUSTOMER FLI		
ORDER No. -----		
T3A PLANNING DRAWING FOR 40m, 45m & 50m HIGH TOWERS (STRENGTHENED)		
DRG No. SK4292		REV. A

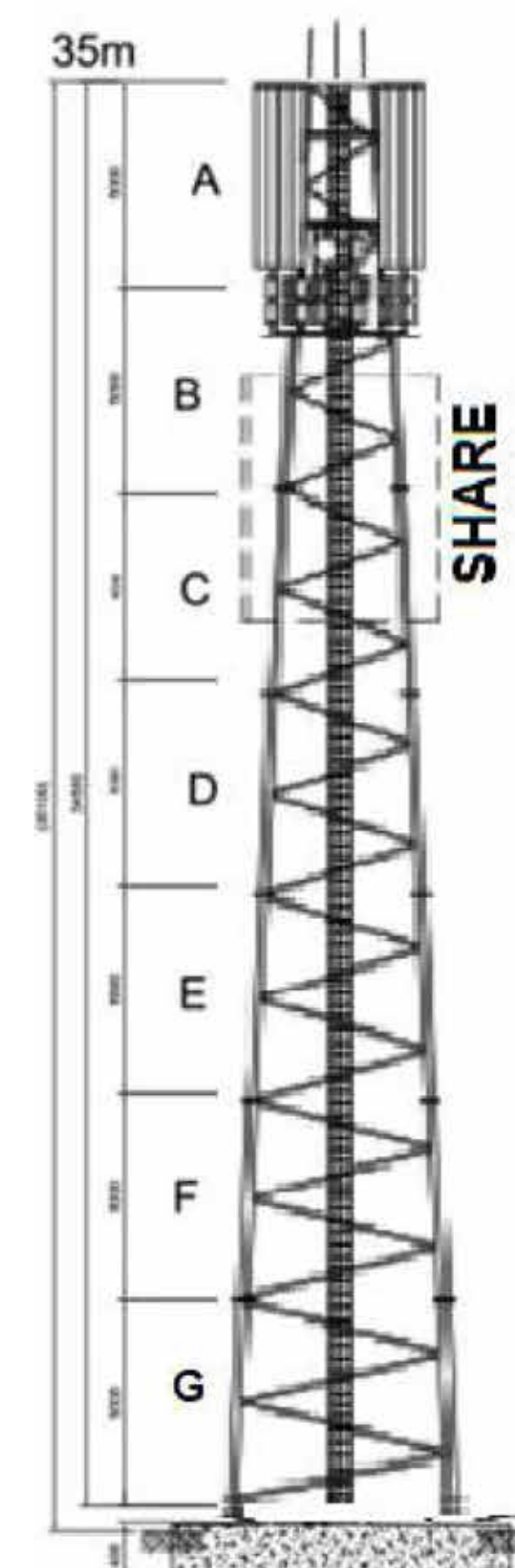
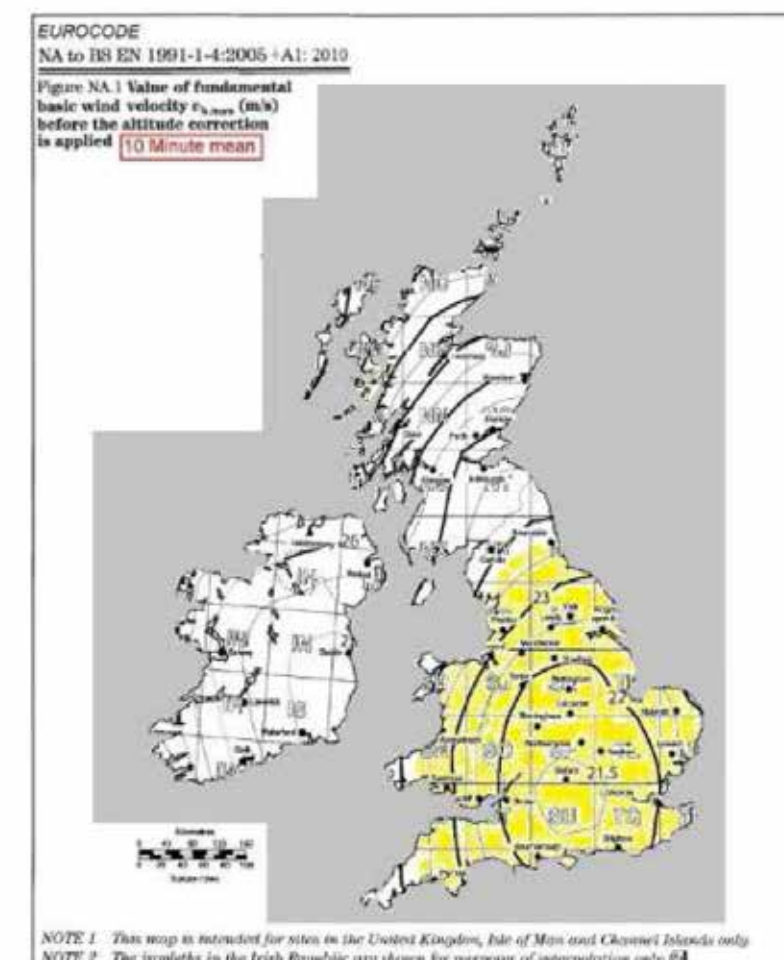
Wind Loadings



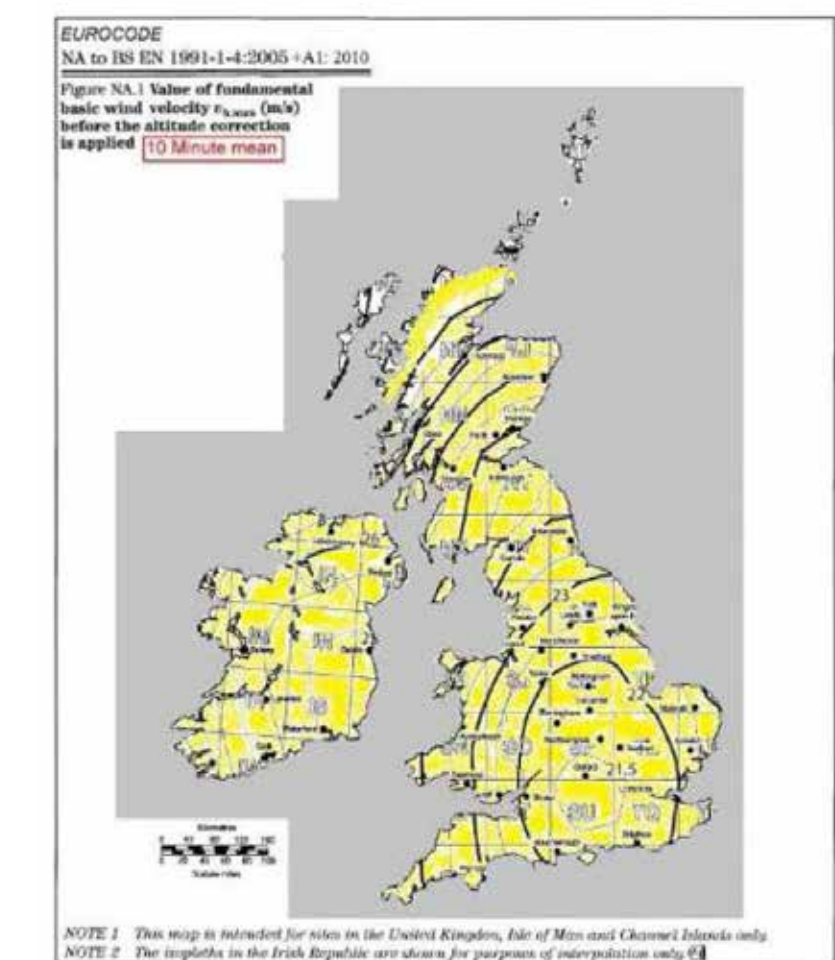
Slimline Tower
35m ATS 1300 Modules//A-F
Vb: 26m/s (EC)
Alt: 100m



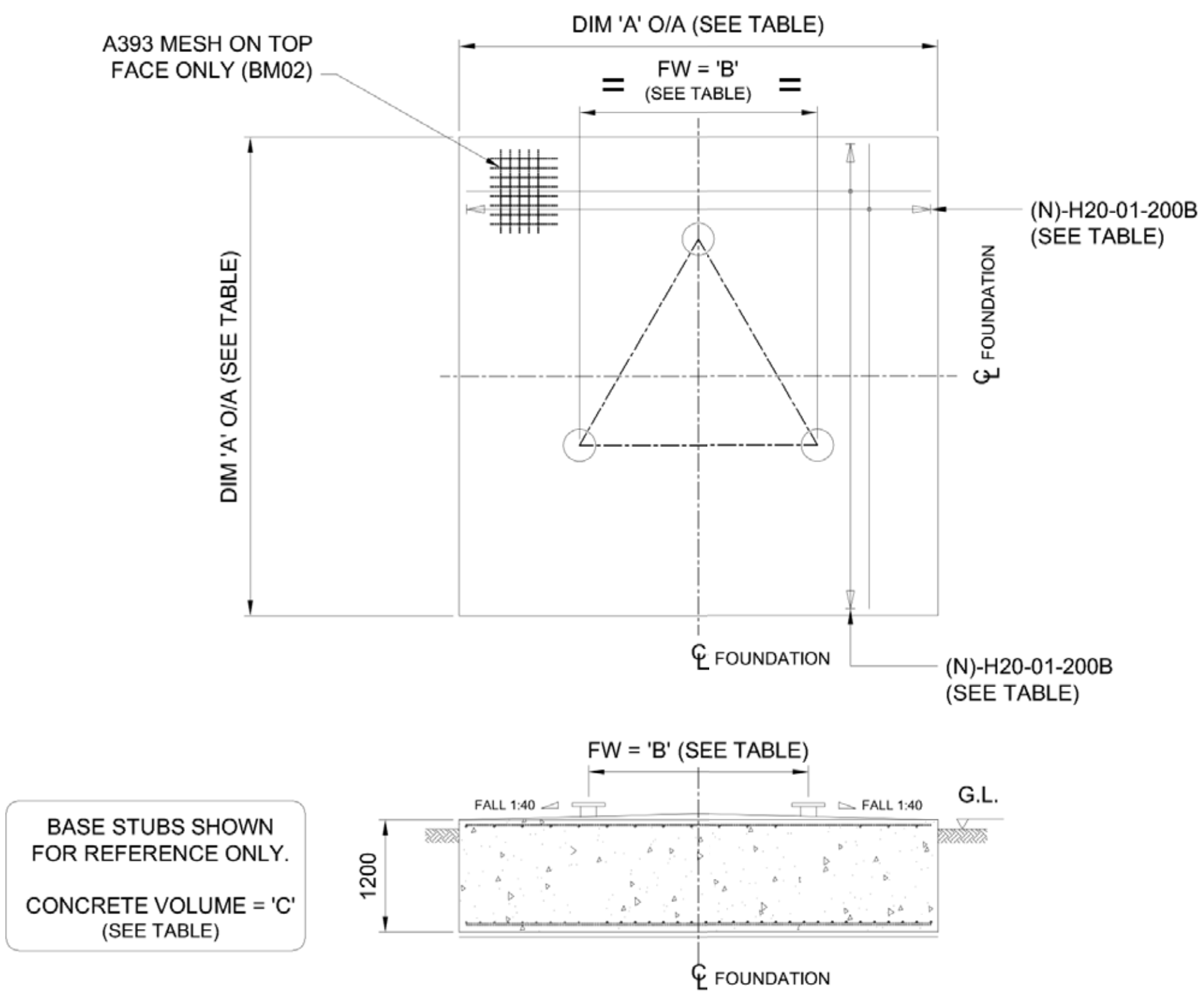
SITE SHARE Slimline Tower
35m ATS 1300 Modules A-G
Low Windspeed
Vb: 23.5m/s (EC)
Alt: 100m



SITE SHARE Heavy Duty
35m T3A Modules A-G
High Windspeed
Vb: 28m/s (EC)
Alt: 200m



Concrete Foundations



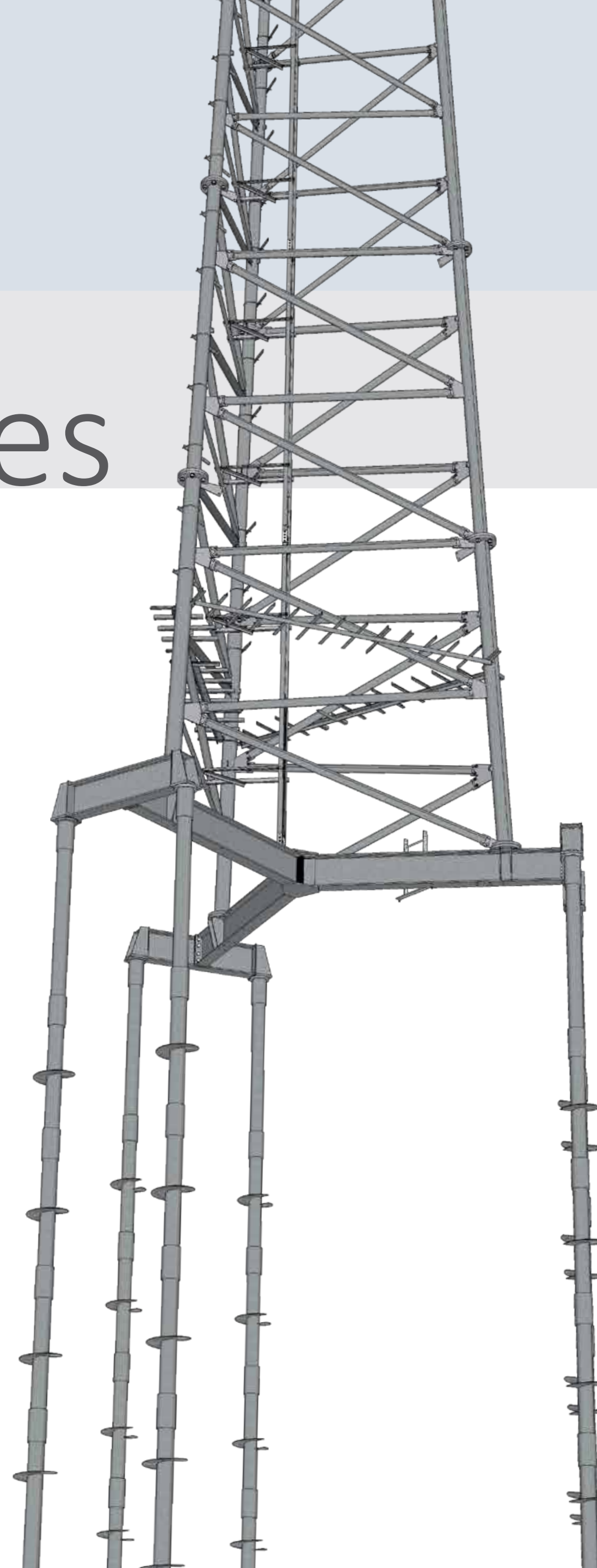
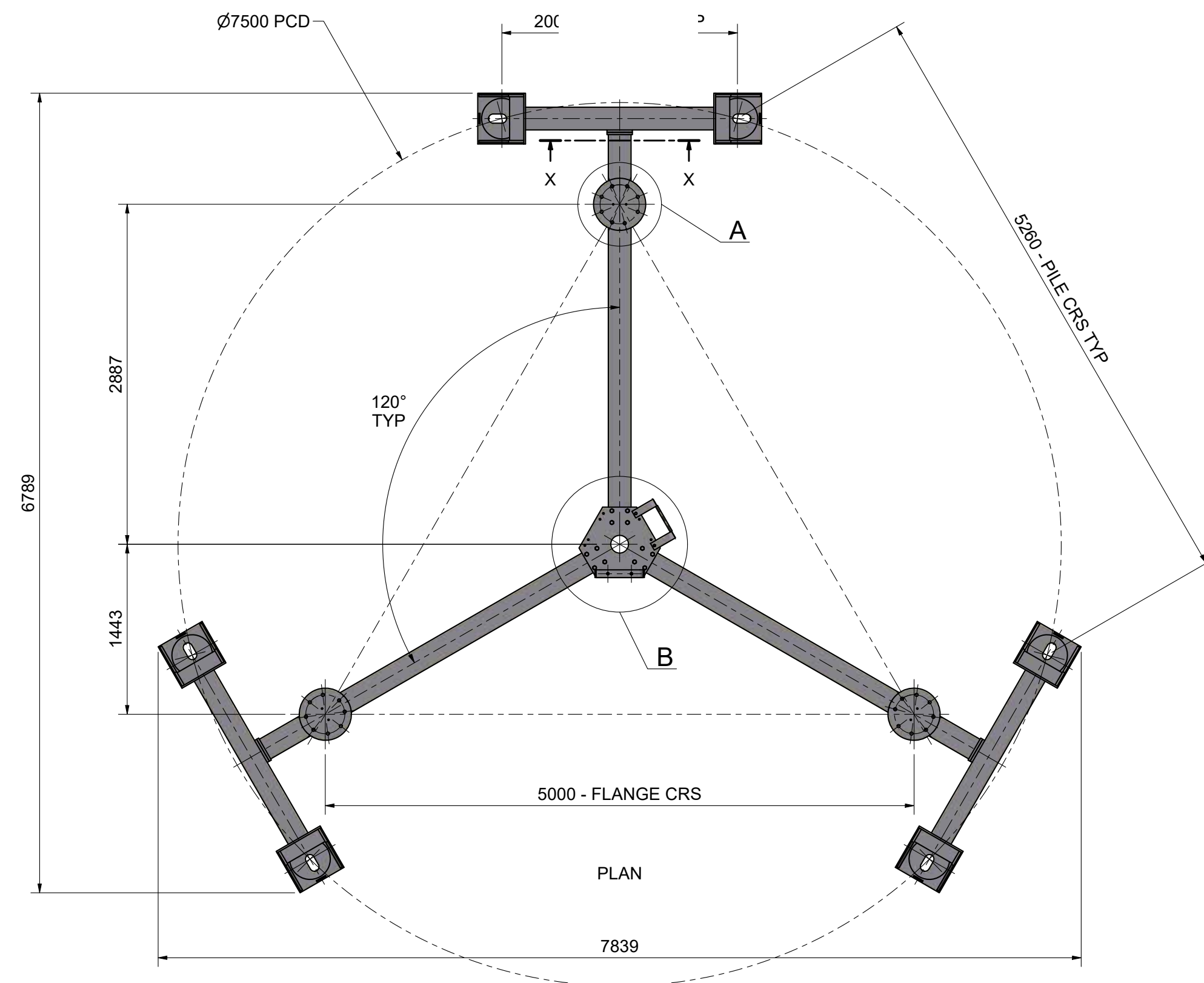
BASE MODULE	TOWER HEIGHT	DIM 'A' O/ALL	DIM 'B' FACE WIDTH	MEMBER	BAR MARK	(N)	TYPE & SIZE	No. MEMBERS	No. IN EACH	TOTAL No.	BAR LENGTH (mm)	VOLUME 'C' m³	STOOL QTY (03)
C	20m	5800	2980	BASE	01	29	H20	1	58	58	5650	40.4	24
				BASE	02	A393 MESH							
D	22.5m	6600	3480	BASE	01	33	H20	1	66	66	6450	52.30	44
	25m			BASE	02	A393 MESH							
F	27.5m	7500	4480	BASE	01	37	H20	1	74	74	7350	67.5	56
	30m			BASE	02	A393 MESH							
G	32.5m	8100	4980	BASE	01	40	H20	1	80	80	7950	78.7	66
	35m			BASE	02	A393 MESH							
H	40m	8700	5480	BASE	01	43	H20	1	86	86	8550	90.8	76
				BASE	02	A393 MESH							

FLI structures

Grillage & Screw piles

Sales@fli.co.uk

01452 722200



FLI's steel grillage and screw pile foundations are narrower than their equivalent in mass concrete. FLI's foundations can enable tower upgrades to be accommodated within existing site boundaries and installed around existing concrete bases.

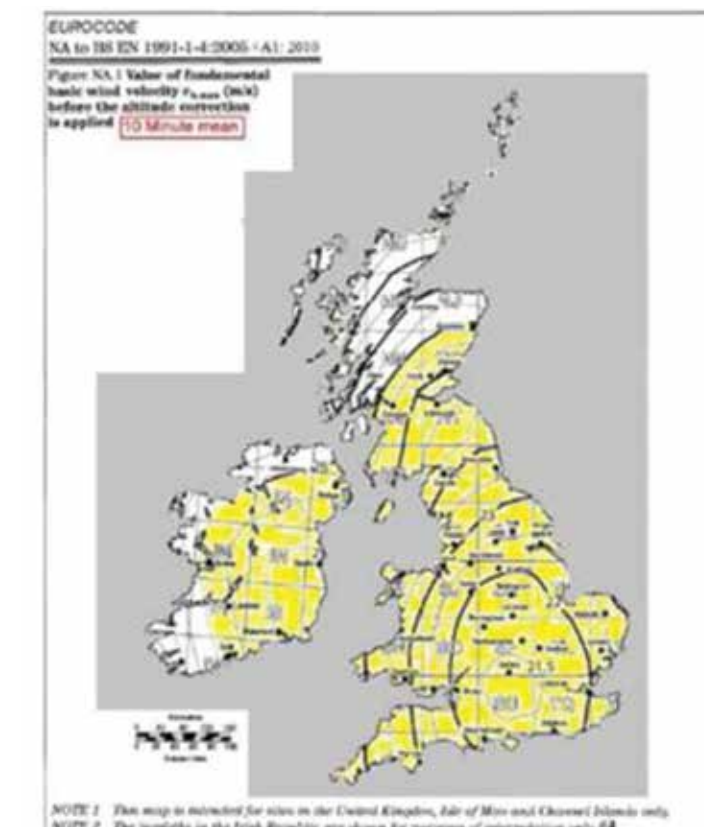
Please contact us, for more information on steel foundation options and solutions.

5G Rooftop Stub Tower

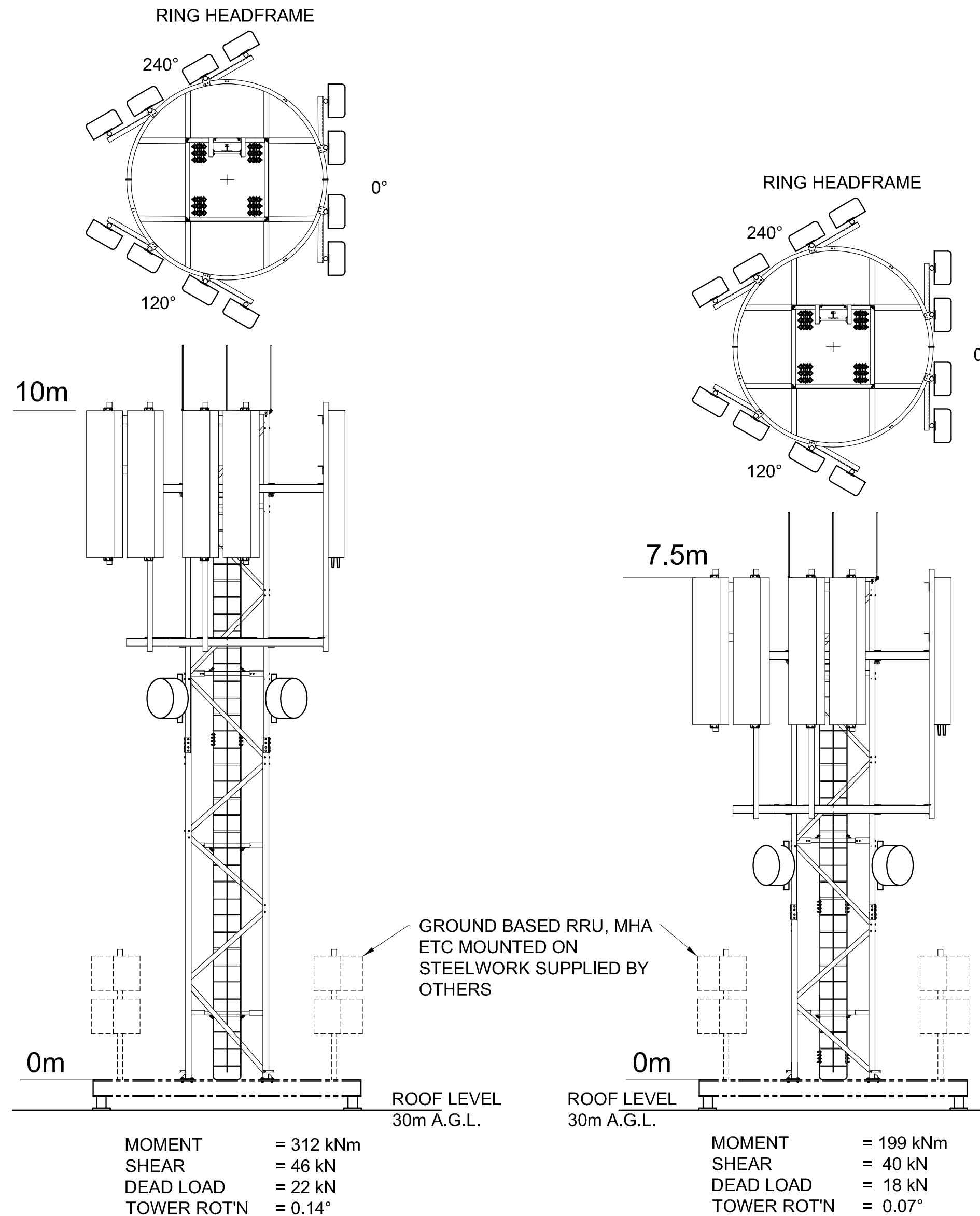


RRUs, MHAs and active routers are mounted on the roof grillage at the base of the structure, avoiding climbing or outages for access.

Vb: 26m/s (EC)
Alt: 100m at base
of building
Roof height: 30m



ATS1300
Planning
Drawings
Lattice
Stub

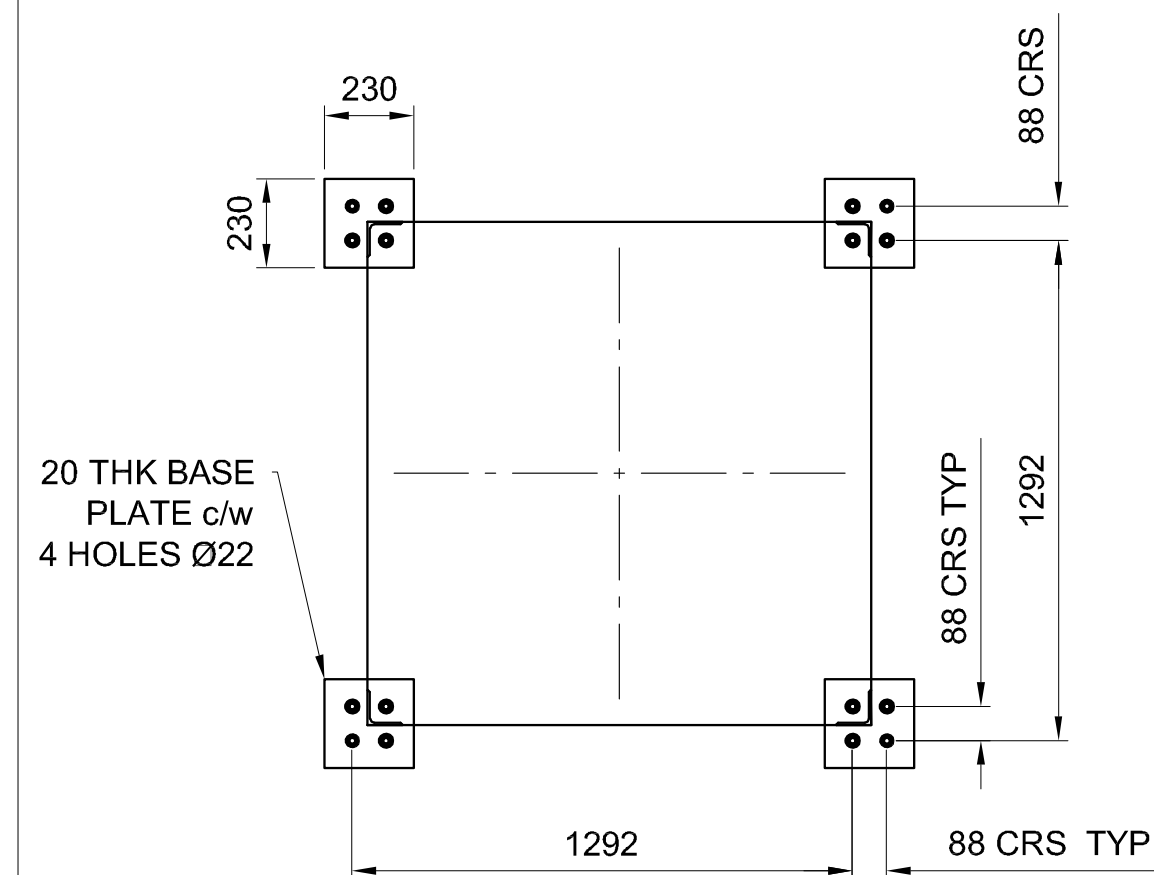


PARAMETERS:

- DESIGN CODE: BS8100
- $V_b = 26 \text{ m/s}$ (10 MINUTE MEAN)
- ALT = 100m AMSL
- T.CAT = 3
- RETURN PERIOD = 50 YEARS
- $\gamma_v = 1.2$
- $\gamma_m = 1.1$
- $\gamma_{dl} = 1.02$

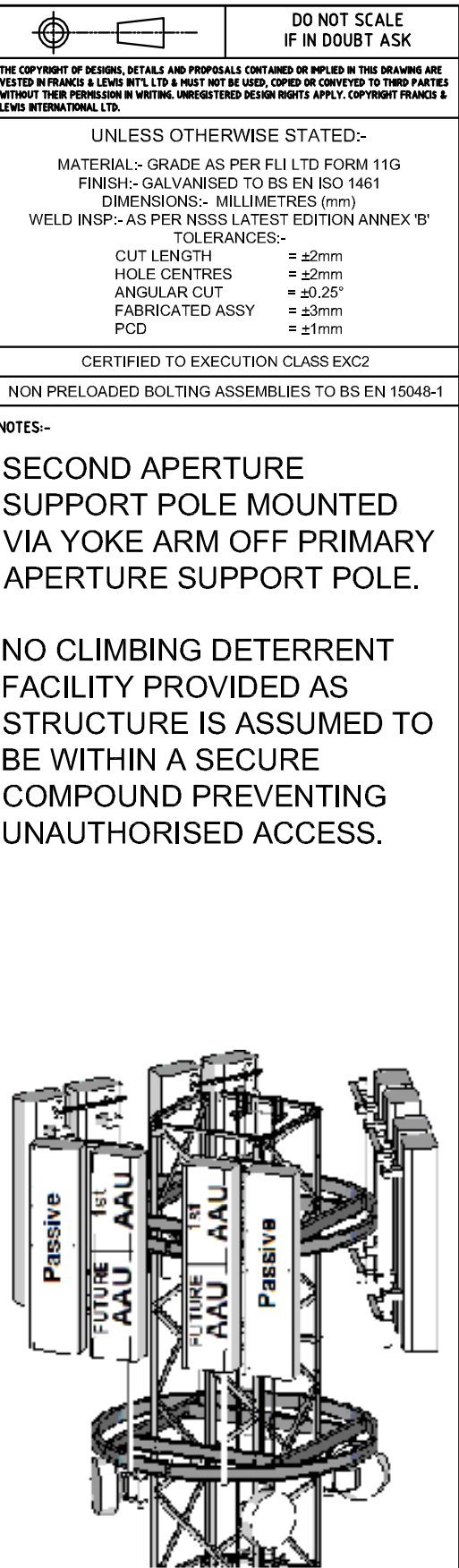
LOADING ON HEADFRAME

12 x APERTURES 2200 x 550 x 350
4 x Ø600 DISHES
24 No. FEEDERS
6 No. COMBINED DC & FIBER.



H.D. BOLT LAYOUT

H.D. BOLTS TO BE SUPPLIED BY
STEELWORK CONTRACTOR
(NOT FLI SUPPLY)



TYPICAL EQUIPMENT LAYOUT

A	16/06/20	FIRST ISSUE	BP
ISSUE	DATE	MODIFICATION	CKD



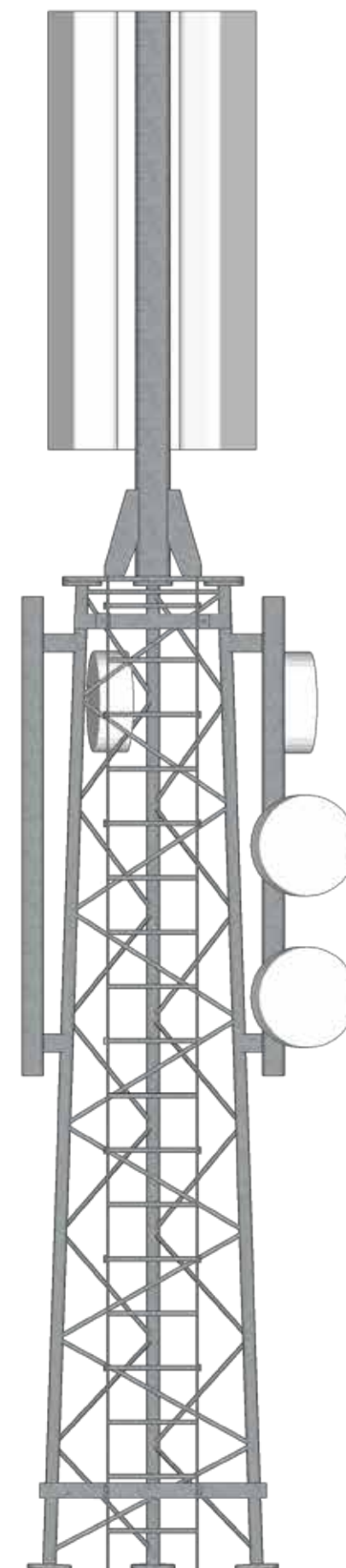
DATE: 16/06/20	SCALE: N.T.S.	F&L REF: -----
DRN: BP	CKD: TCB	APP'D: TCB
CUSTOMER		
ORDER No.		
TITLE ATS1300 ROOF STUB BASE FORCES FOR 7.5m & 10m TOWER & H.D. BOLT LAYOUT DOUBLE RING HEADFRAME		
DRG No.	SK4115	REV. A

UT3 Upgrade Paths

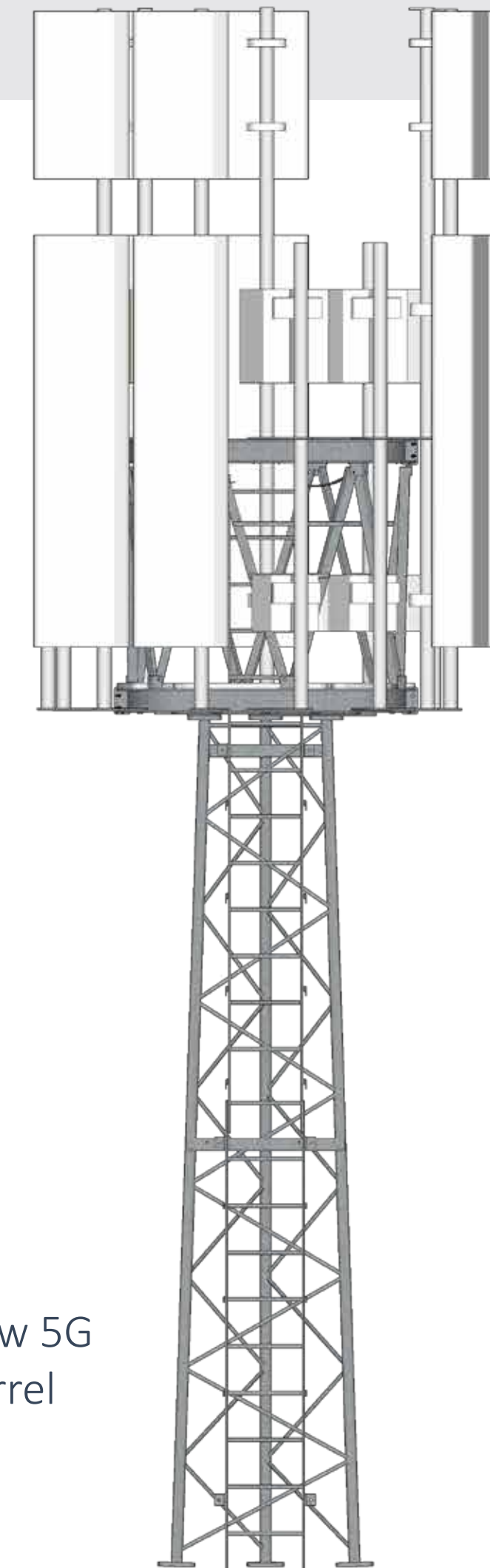
The UT3 tower for the T-Mobile network (1990's-2000's) was supplied with a 650mm tapered top, carrying a central pole (as shown) or TMA Barrel headframe. Also, as a parallel top with 900mm face to carry a Crows Nest headframe.

These towers can be upgraded to carry current 5G Barrel or 5G Crows Nest headframes.

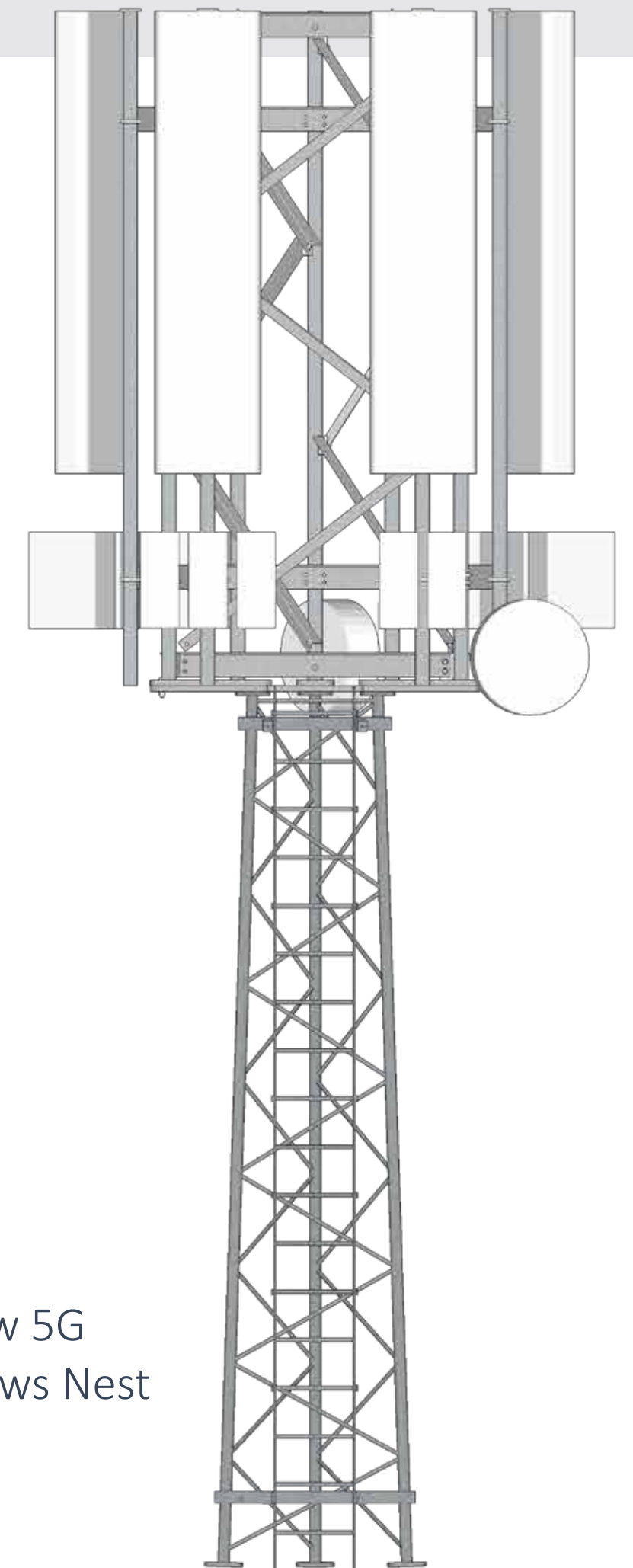
Existing
Headframe



New 5G
Barrel



New 5G
Crows Nest



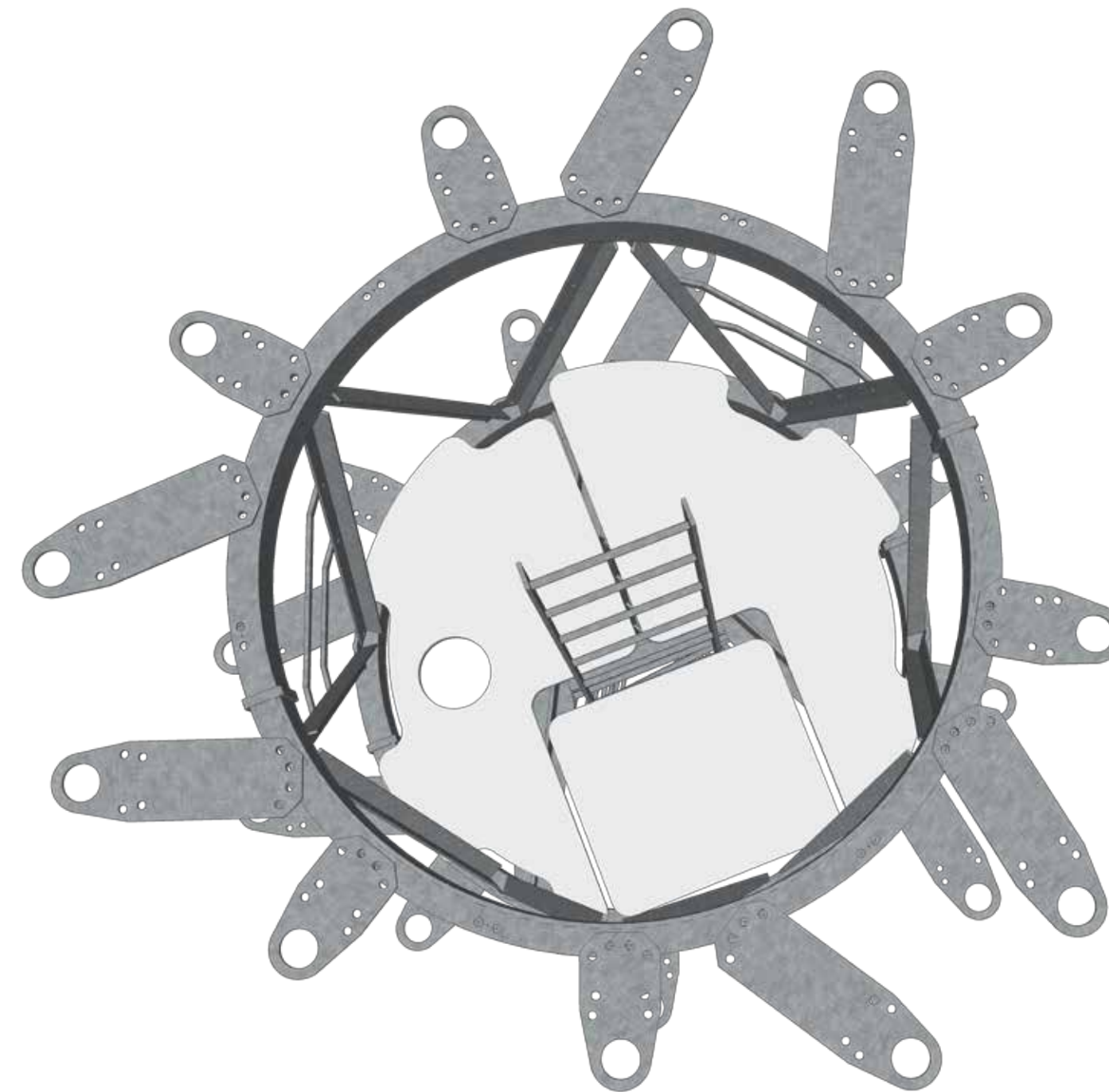
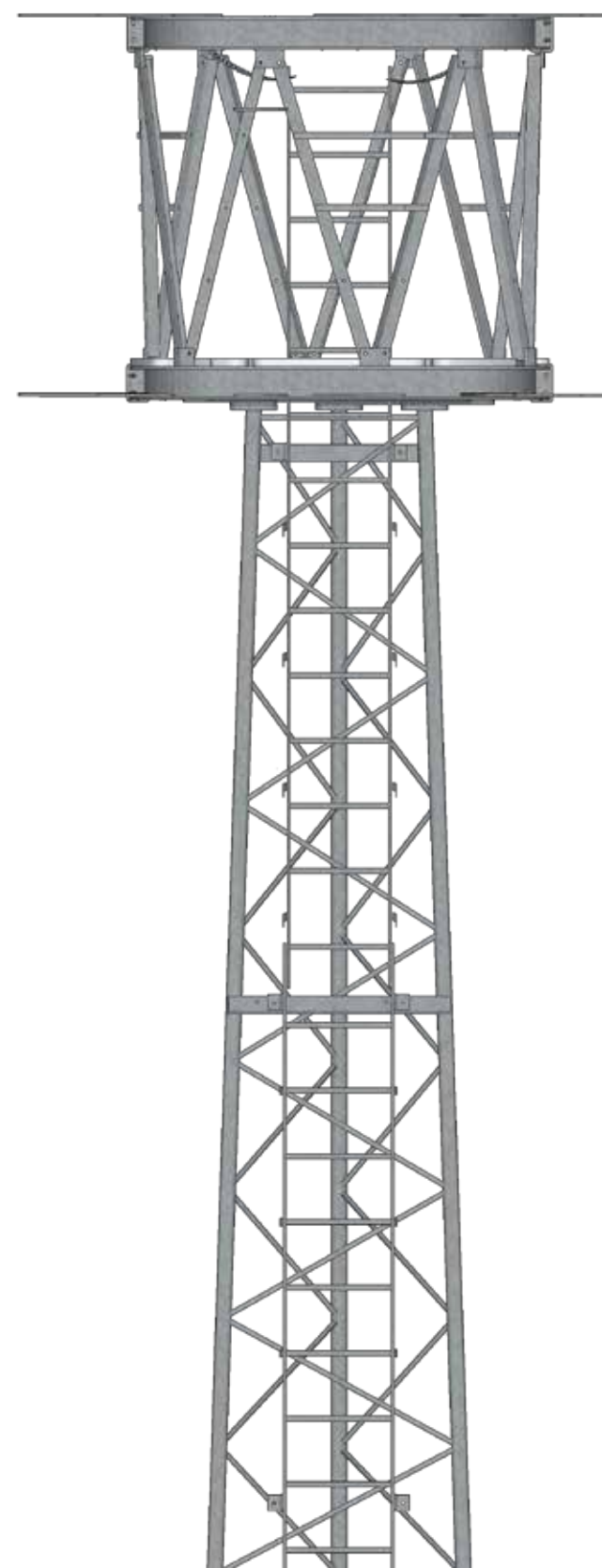
FLI structures

UT3 upgrade to 5G Barrel

Simple headframe upgrade
(suitability subject to GDC).

Surmounted design increases
antenna capacity and gives a
safe work space for install
and maintenance.

Includes flooring, clip on points
and ladder access.



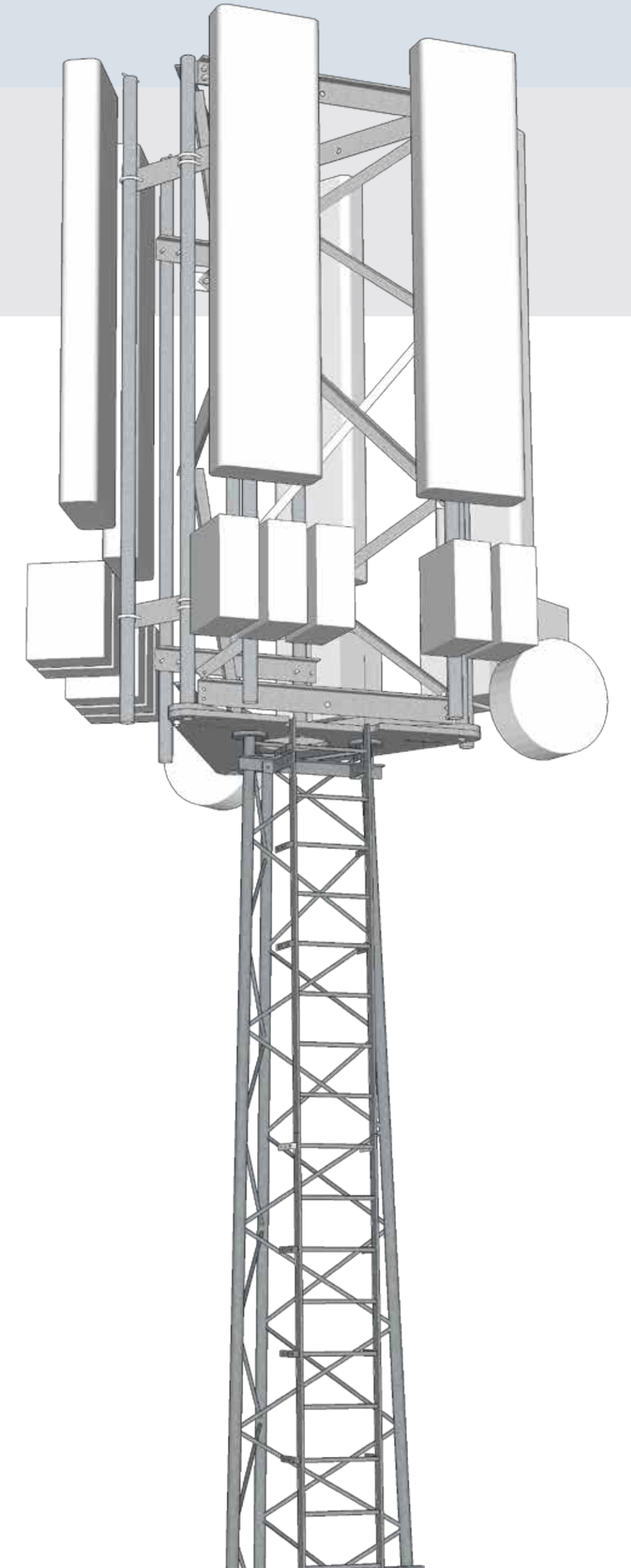
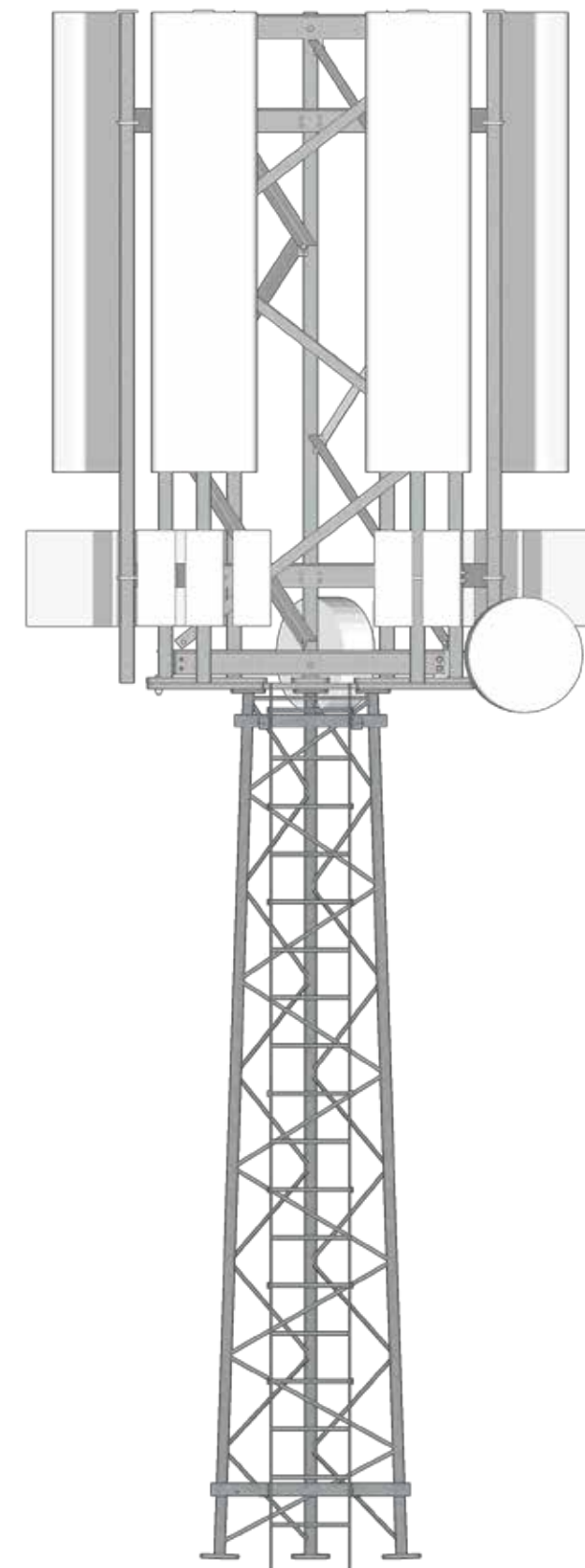
FLI structures

Upgrade to 5G Crows Nest

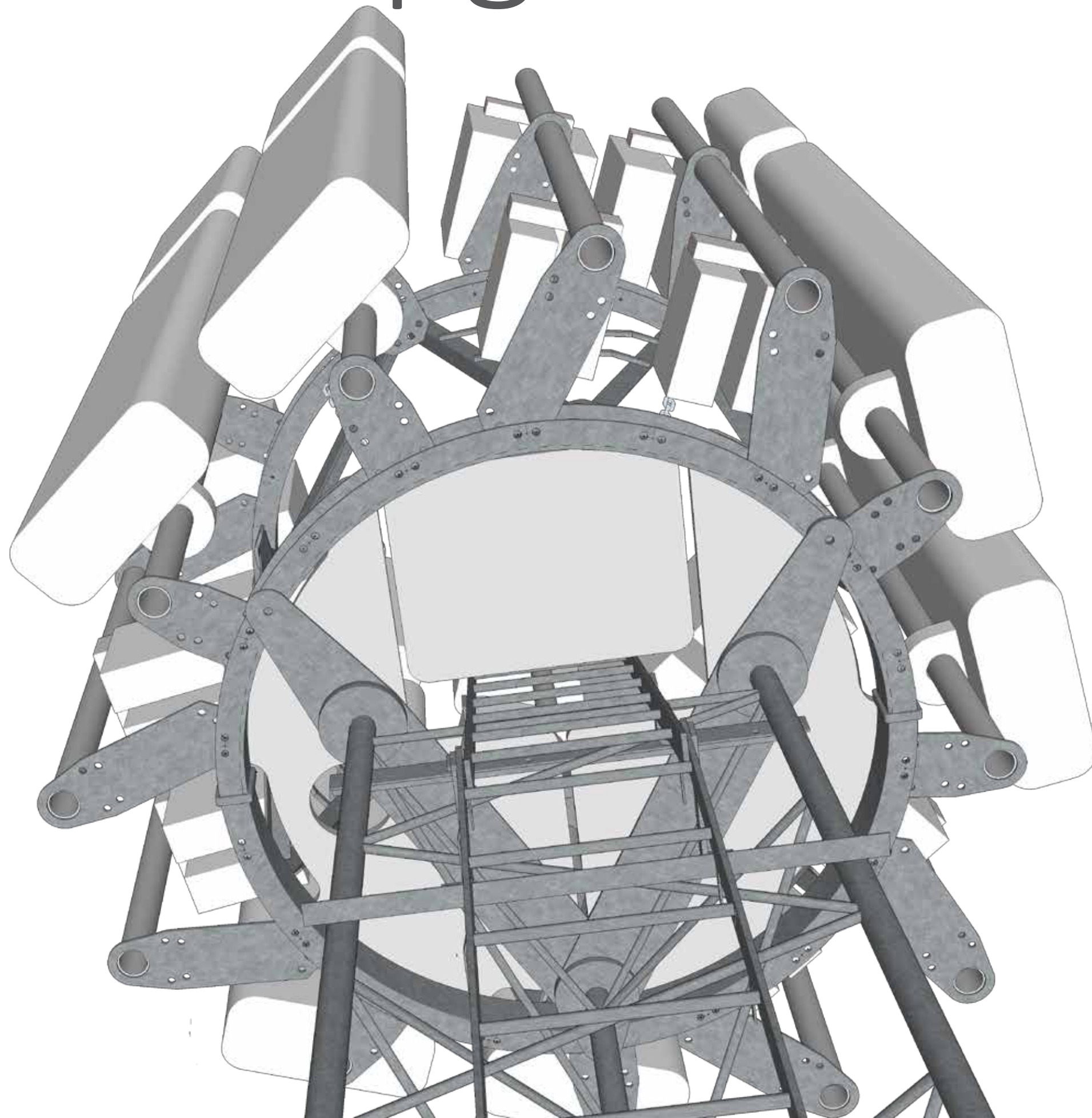
Simple headframe upgrade for UT3
(suitability subject to GDC).

Surmounted design increases
antenna capacity.

Increases distance between antennas.



UT3 upgrade to 5G Barrel for 900mm top



S

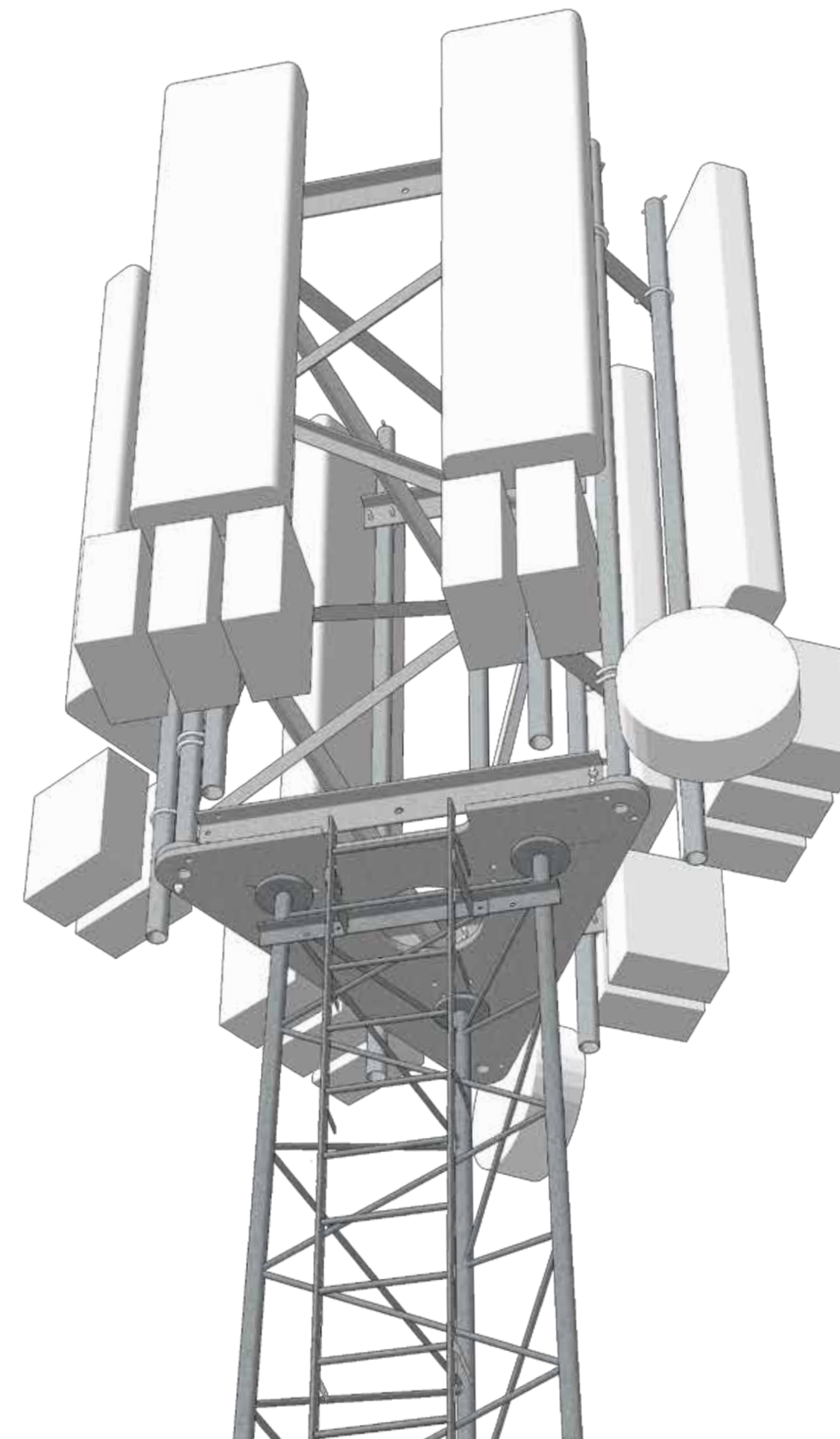
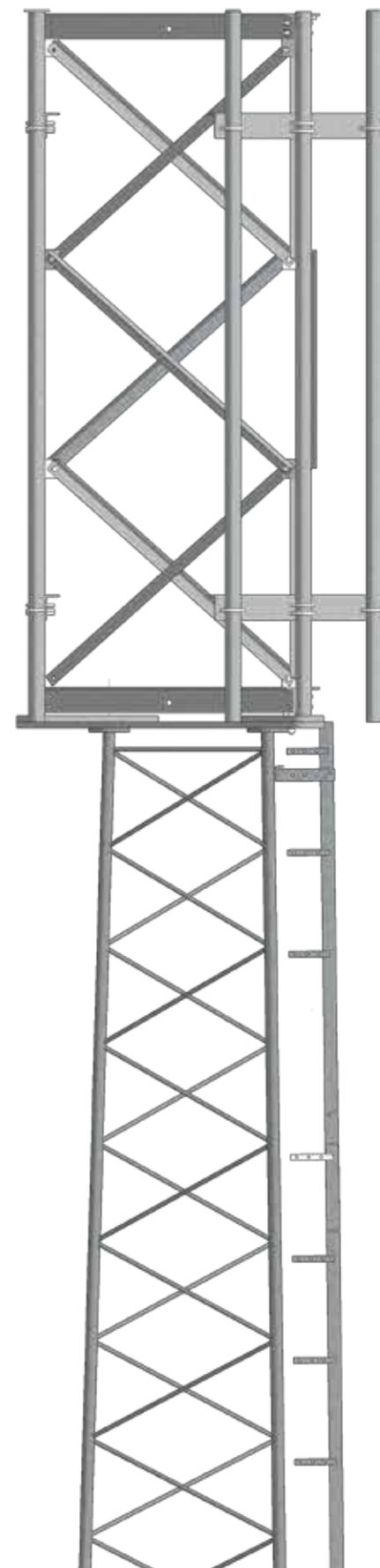
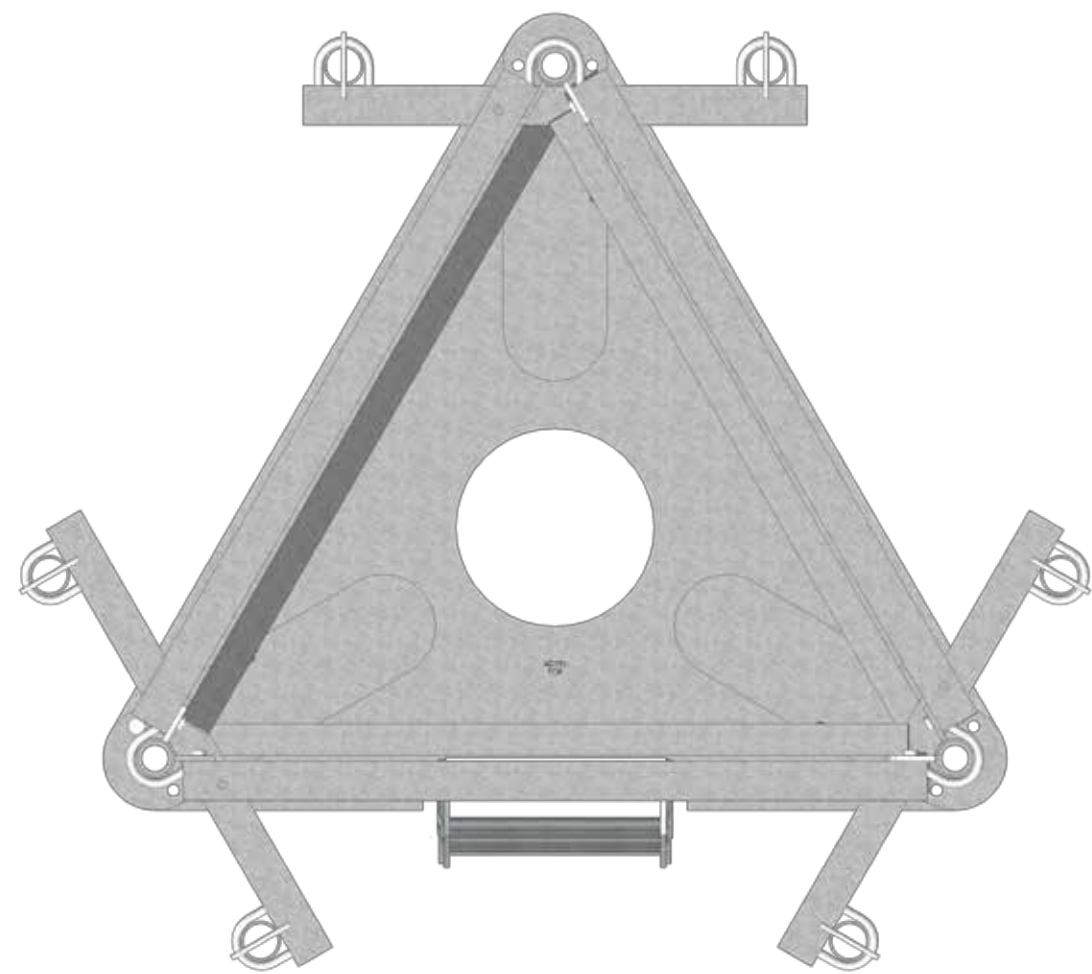


FLI structures

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Upgrade to 5G Crows Nest for 900mm top



5G Towers
5G Headframes
Steel Foundations
Site Upgrades

