



# Lattix Installation Method Statement. F144.

## Contents

For all technical information please refer to [www.lattix.net/traffic](http://www.lattix.net/traffic)

	Page
1) Anchor Cradle and Foundation Stud Set Detail Drawings	
4a) 4412.....	2
4b) 4420.....	3
4c) 4425.....	4
4d) 4438.....	5
2) Mast Centre to Centre Spacing Detail.....	6
3) Installation Method Statement	
7a) Anchor Cradle Installation in Concrete Foundations.....	7-9
7b) Erection of Lattix on their Anchor Cradles.....	9-11
7c) Sign Installation.....	12
7d) Routine Maintenance.....	13
7e) Accident Damage Inspection.....	13



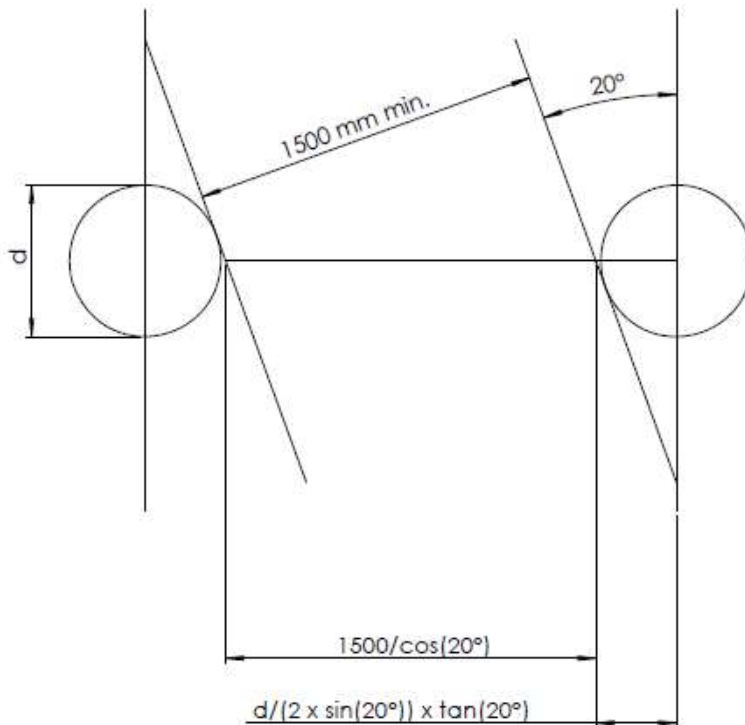






## 2) Lattix Centre to Centre Spacing Detail

To comply with EN 12767 there is a requirement to ensure a 1.5m gap at an impact angle of 20 degrees, which equates approximately to a 1.6m clear opening. Please note, it is important to take into account the size of the post.



$$\begin{aligned} \text{Centre-Centre} &= \frac{1500}{\cos(20^\circ)} + 2 \frac{d}{2\sin(20^\circ)} \tan(20^\circ) \\ &= 1596 + 1.064 d \end{aligned}$$

Mast Type	Centre to Centre Distance
4412	1766mm
4420	1869mm
4425	1937mm
4438	2114mm



### 3) Installation Method Statement

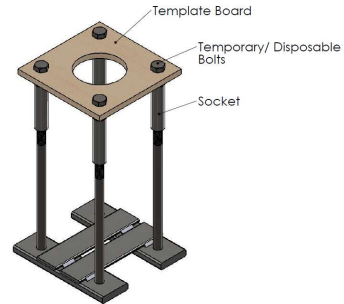
#### 7a) **Anchor Cradle Installation in Concrete Foundations**

Drawing 14001-1 Lattix 4412

Drawing 14002-1 Lattix 4420

Drawing 14003-1 Lattix 4425

Drawing 14004 Lattix 4438

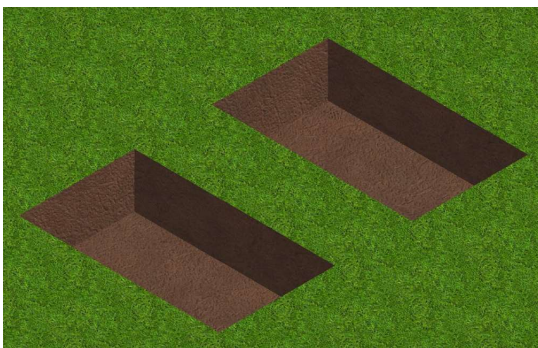


Lattix sign masts are usually installed on concrete foundations using Signpost Solutions cast in anchor cradles. Foundation design dimensions will usually be given at quote stage however; the final foundation dimensions are the responsibility of the independent scheme designer. Lattix sign mast anchor cradles are often installed in un-reinforced concrete foundations. However, steel reinforcement may be used if the designer deems it necessary to provide the required strength or to comply with the highway authority design specifications.

Signpost Solutions recommends a minimum concrete grade of 25N/mm<sup>2</sup> (BS 8500 ST5). However, the final design is the responsibility of the scheme designer.

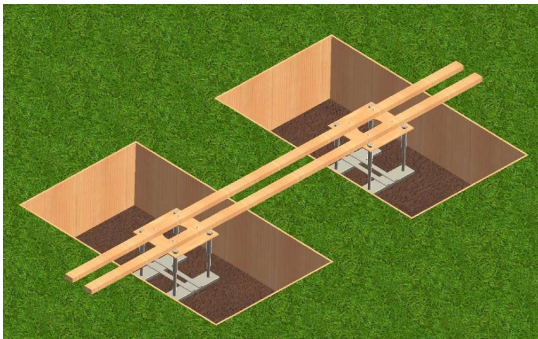
#### 1. **Excavate the Hole/Trench**

Using suitable equipment, excavate the hole/trench to the dimensions specified by the independent scheme designer.



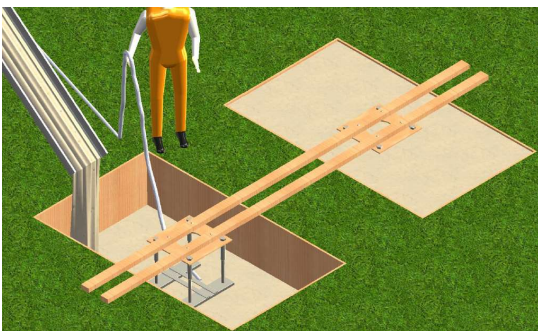
## 2. Secure Anchor Cradle

The anchor cradle must be securely suspended in the foundation in its final position. Level and align prior to concreting the foundation. This is usually achieved by nailing or screwing the template board to timbers spanning across the excavation or the foundation shuttering. The underside of the removable template board is to be set to the top of concrete level. The template board should be checked with a spirit level to ensure it is level and the arrangement checked to ensure it is robust and rigid before concreting.



## 3. Pour Concrete

Anchorage and baseplates of the masts should be exposed and not buried under soil. The top of the concrete foundation should be level or not more than 50mm above the surrounding ground or paving to prevent the underside of errant vehicles catching on the concrete before hitting the sign mast in a vehicle impact. The concrete must be mechanically vibrated to ensure that all air pockets and voids are eliminated from the foundation concrete.



4. Immediately after concreting the bolt position and alignment should be re-checked to ensure the anchor has not moved.



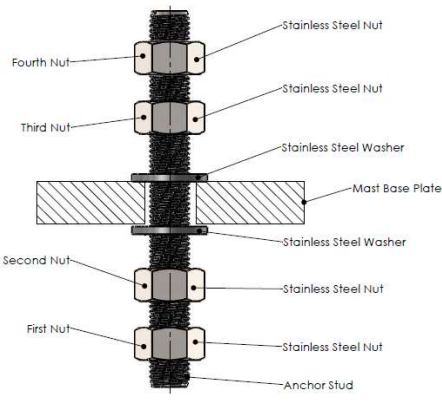
- The templates may be removed the day after concreting but the temporary/disposable bolts should then be replaced to protect the anchor socket threads until the sign mast can be erected.

Masts and sign plates should not be erected until the contractor is satisfied the concrete has reached a cube strength of 17.5 N/mm<sup>2</sup>. To erect masts earlier after concreting, stronger concrete can be used to shorten the time needed to achieve the 17.5 N/ mm<sup>2</sup> cube strength.

### 7b) Erection of Lattix on their Anchor Cradles

Masts and sign plates should not be erected until the concrete has reached a cube strength of 17.5 N/mm<sup>2</sup>.

Torque wrench setting for foundation bolt sets:			
Lattix type	Foundation stud size and material	Torque applied to third nut Nm	Torque applied fourth nut Nm
4412	M16 A4-80	187	94
4420	M20 A4-80	364	182
4425	M24 A4-80	629	315
4438	M30	1313	657

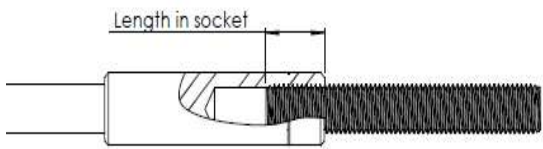


The diagram illustrates the assembly of a foundation bolt set. It shows a vertical anchor stud with four stainless steel nuts and two stainless steel washers. A mast base plate is shown seated on the second nut from the top. Labels indicate the Fourth Nut, Third Nut, Second Nut, and First Nut from top to bottom, as well as the Stainless Steel Nut, Stainless Steel Washer, Mast Base Plate, and Anchor Stud.

- Remove any debris from around the anchor and check the concrete for high spots that may prevent the mast from seating correctly on the bolts.
- Remove and dispose of the temporary/disposable bolts and the template board.
- Grease anchor studs and the internal threads of the anchorage sockets threads with Rocol anti-seize stainless lubricant or similar.

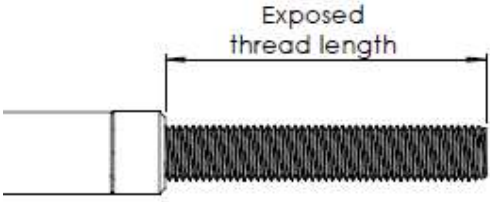
4. Screw the 4 studs by hand into the anchor socket as per table below.

Bolt insertion depths:		
Mast Type	Drawing	Length in socket
4412	14001-1	32mm
4420	14002-1	40mm
4425	14003-1	48mm
4438	14004	60mm



Check the resultant height of the top of the studs above the sockets as per table below.

Maximum height of exposed thread:		
Mast Type	Drawing	Exposed thread length
4412	14001-1	104mm
4420	14002-1	116mm
4425	14003-1	137mm
4438	14004	161mm



- Screw one stainless steel nut down each stud until they lock tight onto each socket in the concrete. Tighten each nut with a spanner but do not apply excess torque, this will prevent the stud from turning during subsequent operations.
- Screw a second stainless nut down onto each stud until they are all approximately 3 mm above the first nut. Check across all four second stainless nuts with a spirit level and adjust by screwing up or down until all four nuts are precisely level to create a level bed for the mast base plate.
- Apply to each stud a stainless steel washer.



8. Lower the mast onto the studs, taking care not to damage the threads. Please note, our Lattix 4412 has two solid sides. Please ensure the solid side is facing oncoming traffic. The baseplate is provided with slotted holes to assist with alignment when being installed.
9. Apply a stainless steel washer to each stud, then a third stainless nut and hand-tighten. Check the base plate is fully seated on all four studs and the mast is vertical. If not, slacken off third stainless nuts and adjust the nuts under the baseplate. Hand-tighten the nuts on top again and re-check.
10. When you are satisfied that the mast is vertical and fully seated, tighten the third stainless nut to the recommended torque using a torque wrench, see above table for torque settings. The nuts below the baseplate should be checked to ensure they do not rotate and if necessary an open ended spanner should be used to prevent any rotation.
11. Apply a fourth stainless steel nut to each stud and tighten to the torque recommended using a torque wrench, see above table for torque settings.
12. Screw the first stainless nut touching the concrete/socket up against the second stainless nut under the base plate and firmly tighten with an open ended spanner.
13. Check the mast is vertical using a suitable measuring device.

## 7c) Sign Installation

The supplied Lattix clamps, nuts bolts and washers are to be used when erecting the sign. If 'Interlocking' Channels are used on the rear of the sign assembly, Lattix Clamps are to be used on the "Lower" channel position of any joint. For connection of the "Upper" channel to its mating section, Butting Plates are to be used.

When the sign is mounted in the current position, the supplied bolts are to be tightened to the correct torque settings of 18 Nm. (18Nm refers to Signfix Channel – please refer to other manufacturers guidelines if alternative channel is used). We advise threads to be lubricated with Rocal anti-seize stainless lubricant or similar.





#### 7d) Routine inspections:

1. It is recommended that a general inspection of the passive mast is carried out by a competent person during routine maintenance and inspections of the sign plates.
2. The following items should be reviewed as part of the inspections:
  - Absence or looseness of nuts or bolts.
  - Accumulation of debris or dirt around baseplates

#### 7e) Accident Damage inspection:

Depending on the level of impact, the following items should be reviewed as part of the inspection:

- Absence or looseness of nuts or bolts.
- Accumulation of debris or dirt around baseplates
- Fracture/buckling of the mast material
- If the mast is partially or completely detached, care is to be taken when handling material with sharp or serrated edges.
- In all instances it is recommended that new nuts, studs and washers are fitted with any new mast installation.

Signpost Solutions Ltd, Unit 5, Clarendon Drive, The Parkway, Tipton, DY4 0QA  
[www.signfix.co.uk](http://www.signfix.co.uk)