



# 358 Prison Mesh Fencing Systems

1.8m, 2.0m, 2.4m & 3.0m High Fencing Kits

Operations, Maintenance & Installation Manual

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This manual provides a comprehensive overview for the installation, operation and maintenance of the First Fence 358 Prison Mesh Fencing system. This system is designed to establish a robust and secure barrier for various applications, including government buildings, data centres and utility sites.

**Disclaimer:** This guide is for informational purposes only. The installer is responsible for ensuring the installation complies with all relevant British Standards, including but not limited to BS 1722 (Fences), local building regulations, codes of practice, and site-specific risk assessments, while every attempt has been made to verify the accuracy of the content in this guide upon its release, we cannot accept liability for any losses or damages resulting from inaccuracies. All tasks outlined must be carried out by certified professionals. Any deviation from these instructions nullifies any guaranteed entitlement or liability from the manufacturer.

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**Contact:** For enquiries regarding the installation, operation or contents of the guide in relation to this product please direct your questions to : The Product and Drawing Office Manager, First Fence Ltd, Off Kiln Way, Swadlincote, South Derbyshire DE11 8EA. Or The Product and Drawing Office Manager [sales@firstfence.co.uk](mailto:sales@firstfence.co.uk) +44 1283 380054.

**Manufacturer and/or Reseller:** First Fence Ltd, Off Kiln Way, Swadlincote, South Derbyshire DE11 8EA. [www.firstfence.co.uk](http://www.firstfence.co.uk) +44 1283 380054.

**Competence:** This product must be installed by a person of competence, defined as an individual who possesses the necessary knowledge, skill and experience in the installation of fences and gates.

**Liability:** This installation guide should be understood and followed before any installation activities commence. If any area of the installation is unclear, the installer must contact the manufacturer, outlined in 'Contact.' First Fence Ltd takes no responsibility for incorrectly installed systems, product, material or components.

# 1.0 Safety & Tools

## Personal Protective Equipment (PPE)

The following minimum PPE is required for installation:

Hard Hat

Must be worn



Eye Protection

Must be worn



Safety Gloves

For all material handling



Foot Protection

Must be worn



## Risk Assessment

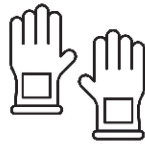
Installers are responsible for completing a site-specific risk assessment and complying with all local risk assessments before starting work. This responsibility includes, but isn't limited to, the following:

| Activity                                  | Risk Assessment Requirements and Not Limited to |
|-------------------------------------------|-------------------------------------------------|
| Breaking ground for post hole excavations | Noise<br>Vibration<br>Manual Handling           |
| Post Installation/Concrete Mixing         | Hazardous Substances (COSHH)<br>Manual Handling |
| Installation of Fixings                   | Noise<br>Vibration                              |
| Handling Panels & Gates                   | Manual Handling<br>Crush Injuries               |

## Tools & Equipment

### Safety Gloves

Required for all material handling and COSHH tasks.



### Spanner/Torque Wrench/Drill

Required for nuts and bolts (eg M8 shear nuts) and drill for bolt-down system



### Time

Required for post mix curing.



### Spirit Level

For plumb (vertical) and level installation



### Shovel/Excavation

For excavation of holes to suit post foundations



### Cable Avoidance Tool

To identify hidden services embedded in the wall



## 2.0 Pre-Installation Planning & Site Preparation

### 2.1 Site Survey & Datum Line

**Working Corridor:** Maintain a clear 1.5m-wide route on both sides of the fence line, removing vegetation, roots, old post stubs, and debris.

**Topographical Check:** Survey level changes and drops to identify where stepped bays are needed to maintain ground clearance.

**Underground Utility Scanning:** Scan proposed post locations with a calibrated CAT and cross-check signals against utility records for electricity, gas, water, drainage, and telecommunications.

### 2.2 Foundation Selection: Dig-In vs. Bolt-Down

**Dig-In Post Foundation:** For undisturbed ground, cohesive soils, and asphalt over aggregate. Embed posts in excavated foundations filled with compacted C20/25 concrete.

**Bolt-Down Baseplate Foundation:** For sound concrete slabs, ground beams, or certified structural retaining walls. Secure each baseplate with four M16 × 125mm through-bolts or resin anchors.

### 2.3 Receipt of Materials & Quality Verification

**Inspect all delivered pallets against the Bill of Materials:**

**Mesh Wire & Aperture Check:** Verify 4mm nominal wire gauge and 76.2 × 12.7mm aperture centres.

**Coating Finish:** Check PPC and galvanised surfaces for transit damage, scratches, and exposed steel.

**Hardware Quantities:** Confirm correct quantities.

# 3.0 System Overview & Technical Specifications

## System Overview

The First Fence 358 Mesh System (commonly known as "Prison Mesh") is engineered for high-security boundary demarcation where physical deterrence, climb resistance, and open visibility are required. The "358" naming convention derives from its imperial dimensions: 3" horizontal aperture width, 0.5" vertical wire spacing, and 8-gauge steel wire diameter (76.2mm x 12.7mm x 4mm).

Anti-Climb Barrier: The narrow vertical gap of 12.7mm prevents toe holds and finger grasps, preventing scaling without specialist apparatus.

Anti-Cut Barrier: The dense matrix of 4mm high-tensile vertical and horizontal wires prevents the insertion of conventional hand tools such as standard bolt croppers.

Through-Fence Visibility: Despite the tight wire spacing, the rectangular mesh maintains transparent sightlines for CCTV coverage and perimeter patrol inspections.

Corrosion Protection: Manufactured from pre-galvanised steel wire conforming to BS EN 10346 (or hot-dip galvanised to BS EN ISO 1461 after fabrication), followed by architectural-grade Polyester Powder Coating (PPC) conforming to BS EN 13438. Standard colours are RAL 6005 (Moss Green) and RAL 9005 (Jet Black), with custom RAL colours available upon request.

## Technical Specification

| Parameter         | Specification             |
|-------------------|---------------------------|
| Mesh Pattern      | 358 Prison Mesh           |
| Wire Thickness    | 4mm diameter              |
| Mesh Aperture     | 12.7mm [H] x 76.2mm [W]   |
| Panel Width       | 2500mm                    |
| Available Heights | 1.8m / 2.0m / 2.4m / 3.0m |
| Post Section      | 60 x 60mm SHS             |

## 4.0 Bill of Materials (Per Intermediate Bay)

### 1.8m High Fencing

| NAME                                    | QUANTITY |
|-----------------------------------------|----------|
| Mesh Fencing Panel                      | 1        |
| Intermediate Post (1.8m 60x60mm 7 hole) | 1        |
| 1.8m Clamp Bar [30x5mm @ 1830mm]        | 1        |
| M8 x 100mm Nuts and Bolts               | 7        |
| Mesh Fencing Ribbed Inserts             | 1        |

### 2.0m High Fencing

| NAME                                  | QUANTITY |
|---------------------------------------|----------|
| Mesh Fencing Panel                    | 1        |
| Intermediate Post 2.0m 60x60mm 8 hole | 1        |
| 2.0m Clamp Bar [30x5mm @ 2030mm]      | 1        |
| M8 x 100mm Nuts and Bolts             | 8        |
| Mesh Fencing Ribbed Inserts           | 1        |

### 2.4m High Fencing

| NAME                                  | QUANTITY |
|---------------------------------------|----------|
| Mesh Fencing Panel                    | 1        |
| Intermediate Post 2.4m 60x60mm 9 hole | 1        |
| 2.4m Clamp Bar [30x5mm @ 2430mm]      | 1        |
| M8 x 100mm Nuts and Bolts             | 9        |
| Mesh Fencing Ribbed Inserts           | 1        |

### 3.0m High Fencing

| NAME                                   | QUANTITY |
|----------------------------------------|----------|
| Mesh Fencing Panel                     | 1        |
| Intermediate Post 3.0m 60x60mm 11 hole | 1        |
| 3.0m Clamp Bar [30x5mm @ 3030mm]       | 1        |
| M8 x 100mm Nuts and Bolts              | 11       |
| Mesh Fencing Ribbed Inserts            | 1        |

# 5.0 Installation

## 5.1 Dig-In Post Installation

**Setting Out Centres:** Establish the fence datum line using a taut string line. Nominal post centres are 2520mm.

**Note:** Because panel edges may overlap across the post face, dry-assemble a single test bay before excavating the entire run.

**Excavation Dimensions:** Excavate square post holes to a minimum plan dimension of 300 x 300mm. Embedment depths: 1.8m Height: 600mm foundation depth. 2.0m – 2.4m Height: 600mm foundation depth. 3.0m Height: 800 mm foundation depth.

**Post Alignment & Bracing:** Insert the post into the centre of the excavation. Align plumb along two perpendicular axes using a spirit level. Securely brace the post using timber props.

**Concrete Pouring:** Place concrete around the post in layers, tamping thoroughly to remove internal air voids. Trowel-finish the top concrete collar slightly proud of finished ground level with a continuous outward fall to shed rainwater away from the steel section.

**Curing Period:** Allow concrete to cure fully (minimum 48 hours for rapid-setting post-mix or 5–7 days for standard ready-mix) before hanging panels or applying tension.

## 5.2 Bolt-Down Post Installation

**Substrate Verification:** Verify that the supporting concrete slab, wall, or foundation plinth is structurally sound.

**Positioning & Marking:** Position the baseplated post baseplate with 4-hole pattern) onto the marked centre line. Ensure a minimum distance of 100mm from any concrete edge. Mark the four drill hole positions.

**Drilling & Anchor Setting:** Drill four holes using an SDS hammer drill fitted with a masonry drill bit matched to the anchor diameter. Vacuum out concrete dust. Install four high-tensile M16 x 125mm through-bolts or resin anchors per post. Torque to the anchor manufacturer's specified values. Check post plumb; install stainless or galvanised shims beneath the baseplate if minor levelling adjustment is required.

## 5.3 Panel Fixing & Clamp Bar Assembly

**Ground Clearance Verification:** Position the 358 panel against the front face (attack side) of the intermediate posts. Maintain a gap between 0mm and 50mm from finished ground level.

**Panel Overlap:** Where panel joints meet on intermediate posts, overlap the mesh panels by at least one full aperture column over the pre-drilled post holes. This overlapping configuration prevents leverage and prying attacks.

**Positioning Clamp Bar:** Place the clamp bar over the outer wire face. Align every punched hole in the clamp bar with the post's factory-drilled through-holes.

**Bolt Insertion:** Push M8 x 100mm cup head bolts through the clamp bar, through the dense wire mesh apertures, and completely through the post section. The smooth mushroom head must face outward on the attack side.

**Torquing Shear Nuts:** Thread an M8 shear nut onto the protruding thread at the rear of the post. Tighten with a standard socket wrench until the hexagonal drive section shears off cleanly from the conical base. The remaining cone creates a tamper-proof, non-removable connection.

**Post Capping:** Drive the 60 x 60mm black ribbed polyethylene cap into the top of the post using a deadblow mallet to complete the weather seal.

# 6.0 Maintenance Schedule & Inspection Regimes

## Structural Inspection Schedule

| Component                          | Inspection Criteria                                                                                                                                                       | Frequency | Remedial Action                                                                                                                              |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Dense Mesh Apertures               | Inspect the 12.7mm gaps for trapped leaves, dead vegetation, mud, or bird droppings. Trapped organic matter holds moisture against wires and accelerates surface rust.    | Monthly   | Clear debris using a high-pressure water washer or stiff, long-bristled non-metallic nylon brush.                                            |
| Security Fasteners (M8 Shear Nuts) | Verify that all shear heads have broken off cleanly and conical nuts remain tight against the post with no vibration loosening.                                           | Monthly   | Replace missing or loose fixings immediately with new M8 cup head bolts and shear nuts. Torque until the hex head shears off.                |
| Continuous Clamp Bars              | Inspect clamp bars along their entire length for bowing, bending, or signs of levering. The clamp bar must sit completely flat against the panel face from top to bottom. | Quarterly | If the clamp bar is distorted or bent away from the post, replace it immediately to retain structural anti-pry performance.                  |
| Panel Face & Welds                 | Check panels for bowing, vehicular impact damage, or fractured cross-wire welds. Inspect wire intersections for hairline weld cracks.                                     | 6 Monthly | 358 mesh cannot be hammered or levered back into shape without breaking neighbouring welds; deformed or compromised panels must be replaced. |
| Stepped / Cut Edges                | If panels were cut to step down slopes, inspect cut wire ends 4mm for paint failure or zinc coating breakdown.                                                            | 6 Monthly | Degrease, abrade, and apply zinc-rich cold galvanising primer; follow with color-matched PPC touch-up paint.                                 |
| Post Verticality & Foundations     | Check posts for plumb. Inspect concrete collar for frost cracking, ground settlement, or loose anchor bolts (on bolt-down units).                                         | Annually  | Excavate and re-bed loose posts with concrete. Re-torque any loose bolt-down anchors to designated values.                                   |
| Plastic Post Inserts               | Confirm 60 x 60mm ribbed inserts are seated securely in post tops.                                                                                                        | Annually  | Replace missing or UV-degraded post caps immediately to prevent internal column water accumulation and freeze splitting.                     |

# 7.0 Troubleshooting Guide

## **Fault Identified**

### Debris Bridging Narrow Wires

The 12.7mm vertical clearance traps leaves and dirt that natural rainfall cannot wash away. Do not use wire brushes, which strip protective PPC. Wash down using a pressure washer or soft-bristle wash wand with mild detergent.

## **Replacement Bolt Refuses to Seat**

358 mesh has zero lateral flex. A post shift of only 2-3mm causes aperture misalignment against pre-drilled post holes.

Do not hammer the bolt through (strips threads). Use a flat-bladed lever to ease wire alignment slightly, or slacken adjacent clamp bolts to realign before inserting the bolt.

## **Ground Gaps ("Stepping" Voids)**

Rigid rectangular 358 panels cannot be raked across ground slopes. Stepping leaves triangular gaps beneath the bottom rail.

Any gap 50mm compromises anti-burrow and perimeter security integrity. Pour a continuous concrete sill up to the bottom wire, or fit a subterranean bottom anti-burrow panel buried 300mm below ground.

## **Wind Rattle / Panel Vibration**

Ground variations prevent the dense panel from seating flush against the post face along its full height.

Install heavy-duty UV-stabilised neoprene isolator washers behind the clamp bar, and torque new shear nuts until the bar is fully compressed.

# 8.0 Installation Sign-Off Checklist

| Action                | Description                                                                                                               | Pass/Fail |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------|-----------|
| Line & Level          | Post centres align within tolerance 2520mm nominal). Fence line is straight; post heights are uniform.                    |           |
| Ground Clearance      | Distance from finished ground level to lower mesh wire is strictly between 0mm and 50mm.                                  |           |
| Clamp Bar Compression | Full-height continuous clamp bar is fitted flush; mesh wires are tightly clamped against post faces without deflection.   |           |
| Shear Nut Fracture    | 100% of M8 shear nuts have had their hexagonal drive heads snapped off, leaving tamper-proof conical nuts.                |           |
| Post Foundations      | Dig-in concrete collars are shed-sloped and cured. Bolt-down baseplate anchors are torqued with approved edge clearances. |           |
| Post Capping          | All ribbed inserts are installed securely in open post tops.                                                              |           |
| Coating Integrity     | Wire matrix and posts inspected; any transit scuffs treated with zinc primer and matched RAL PPC spray.                   |           |
| Site Clearance        | Excavation spoil, surplus packaging, banding, and sheared bolt heads cleared from site.                                   |           |

Sign Off Declaration:  
I hereby confirm the this product has been assembled and installed in accordance with the above requirements and any remedial works have been carried out before the final sign off:

Site Supervisor

Sign Off Date

Relationship to the Client

Signature