IN-LINE FENCE & RAILING

HUBZone Small Business · CAGE 3TBE4 · Union (LIUNA Laborers Local 89) · EM 385-1-1 · 0.68 EMR

TECHNICAL PROCEDURES — WORK ON MILITARY INSTALLATIONS

Fencing · Handrails & Railings · Metal Beam Guardrail · Welding · Structural Steel · Hot Work

1. Purpose & Scope

This document defines the standard field procedures In-Line Fence & Railing follows to perform fencing, handrail and railing, metal beam guardrail, welding, and structural-steel work on any military installation. It is written so a Government representative, Contracting Officer, or prime contractor can review In-Line once and know exactly how the work will be planned, performed, inspected, and documented — safely, to standard, and in coordination with installation security and the Government's quality-assurance team. Procedures are applied to each task and conformed to the project specification, submittals, and installation requirements on every assignment.

2. Standards & Compliance Framework

All work is planned and executed to the governing federal, military, and industry standards applicable to each scope and to the project specification (UFGS sections) and installation design standards on each assignment:

- **Safety:** USACE EM 385-1-1 (Safety & Health Requirements Manual), OSHA 29 CFR 1926, and the installation's safety requirements; SSHO-led site safety.
- **Hot work:** EM 385-1-1 fire-prevention provisions and NFPA 51B; installation Hot Work / Welding & Cutting permit program and Fire Department coordination.
- **Welding & steel:** AWS D1.1 Structural Welding Code (qualified WPS and certified welders), AISC 360 structural steel, and RCSC for high-strength bolting.
- **Guardrail:** AASHTO MASH and the applicable State/installation roadside-hardware standard for metal beam guardrail, posts, and end treatments.
- **Fencing & railing:** ASTM F567/F1043 chain-link systems, security-fence specifications, and IBC/handrail loading criteria for railing and guardrail.
- **Site & environmental:** UFGS environmental sections, SWPPP/BMPs, and the installation's dig-permit and utility-location requirements.

3. Base Access, Security & Site Control

1. Personnel are cleared and badged per installation requirements (background checks, base/CAC passes, vehicle decals) before mobilizing; rosters and equipment lists are submitted in advance.
2. Crews comply with all access, escort, and restricted-area rules; work in controlled or secure areas is performed under Government escort where required.
3. Vehicles and equipment are subject to inspection at access points; only listed equipment and materials are brought on base.
4. OPSEC is observed at all times — no photography, recording, or release of installation information without Government authorization; daily check-in/out with the Government representative.
5. Work areas are barricaded and signed; the public, personnel, and Government property are protected throughout.

4. Safety Program & Field Procedures

Safety is the first measure of every task. In-Line sustains a 0.68 EMR through a zero-tolerance program led by SSHO staff and OSHA 30/40-hour trained management, executed to EM 385-1-1.

Pre-mobilization

1. An Activity Hazard Analysis (AHA) is prepared for each definable task and submitted for Government acceptance; an Accident Prevention Plan (APP) is provided where required.
2. Crew qualifications, equipment inspections, and required installation orientations are verified before work begins.

Daily field procedures

1. Tailgate / pre-task safety briefing and Safety Task Assignment at the start of every shift, documented and signed.
2. Hazard identification, PPE verification, and exclusion-zone setup; utility-location and dig permits confirmed before any ground disturbance.
3. Stop-Work Authority — every crew member is empowered to stop work for any unsafe condition, without reprisal.
4. Incident, near-miss, and daily safety reporting captured and made available to the Government the same day.

5. Hot Work Procedures (Welding, Cutting & Grinding)

All welding, cutting, grinding, and any open-flame or spark-producing operation is treated as hot work and performed only under an approved permit, in accordance with EM 385-1-1 and NFPA 51B.

1. Obtain a Hot Work / Welding & Cutting permit from the installation authority (Fire Department / Government representative) before any hot work; post the permit at the work area and observe its conditions and time limits.
2. Prepare a hot-work AHA; survey the area and remove or protect all combustible and flammable materials within 35 feet; cover floor and wall openings, cracks, and drains; protect adjacent finishes and equipment with fire blankets and welding curtains.
3. Assign a trained fire watch equipped with a charged, rated fire extinguisher; the fire watch is maintained during the work and continued for the post-work watch period required by the permit (typically 30–60 minutes), with a final inspection before leaving the area.
4. Control sparks and slag — use spark/slag containment and screens for elevated work, protect personnel and property below, and provide ventilation; where coatings, confined spaces, or hazardous atmospheres are present, perform atmospheric testing and use respiratory protection as required.
5. Manage compressed-gas cylinders safely: secure upright, caps on when not in use, oxygen and fuel-gas separated per code, flashback arrestors fitted, leak-checked, and never stored in unventilated or confined spaces.
6. Close out the permit at the end of each shift; leave the area fire-safe, confirm no smoldering, and report any incident or fire immediately to the installation Fire Department and the Government.

Hold / Witness Point	What is verified	Standard / Record
Permit & area prep	Active permit posted; 35-ft combustible clearance; protection in place	EM 385-1-1 / NFPA 51B — permit
Fire watch	Trained watch with rated extinguisher; post-work watch period	Installation permit — sign-off
Cylinder handling	Secured, separated, arrestors, leak-checked	EM 385-1-1 — daily inspection

6. Field Execution Procedures by Scope

Each scope states the sequence of operations, safety controls, and the quality hold points used to deliver and document the work.

6.1 Fencing & Security Fence (chain-link, security, gates)

1. Review issued-for-construction drawings, security specification, and submittals (fabric, posts, gates, hardware, mill certs); obtain Government approval before installation.
2. Confirm the installation dig permit and complete utility location; hand-dig or pothole near known utilities before any post drilling.
3. Establish line and grade; drill/auger post holes and set posts plumb in concrete to specified embedment.
4. Install fabric/mesh to required tension with top rail, tension wire, and barbed or razor topping as specified; install gates, operators, and hardware; add grounding/bonding and security features where required.

Hold / Witness Point	What is verified	Standard / Record
Utility locate / dig permit	Active permit and located utilities before drilling	Installation permit — record
Post set	Embedment, plumb, line & grade before backfill	Project spec — inspection
Fabric & gates	Tension, height, gate operation & hardware	Project spec — checklist

6.2 Handrails & Railings

1. Produce shop drawings and submittals; fabricate to AWS D1.1 with specified materials and coating (hot-dip galvanizing or specified paint system).
2. Set out anchor locations; core-drill or install embeds/epoxy anchors after utility/embedment verification; set posts to line, grade, and plumb.
3. Make field welds as hot work (Section 5) or bolted connections per the approved details; verify railing height, spacing, and attachment load capacity to specification.

Hold / Witness Point	What is verified	Standard / Record
Anchorage	Anchor type, embedment, epoxy cure	Project spec / mfr data
Welding	Visual & any NDE of field welds	AWS D1.1 — CWI report
Coating / finish	DFT or galvanizing coverage; touch-up	ASTM — coating log

6.3 Metal Beam Guardrail (MBGR)

1. Confirm layout, post spacing, and the approved guardrail and end-treatment system per AASHTO MASH and the project standard.
2. Install posts (driven or drilled) to required embedment after utility location; set blockouts and rail elements.
3. Install rail panels and hardware to specified torque; install crash-tested end treatments/terminals and delineation per the approved system.

Hold / Witness Point	What is verified	Standard / Record
Post installation	Spacing, embedment, alignment	Project / AASHTO MASH
Hardware	Bolt torque & blockout placement	Project spec — checklist
End treatments	Approved MASH terminal installed per drawings	Mfr instructions — record

6.4 Welding

1. Weld only to a qualified Welding Procedure Specification (WPS) supported by PQR per AWS D1.1; submit WPS and welder/operator qualification records for Government acceptance.
2. Use qualified, currently certified welders; control and store consumables per manufacturer and code; apply preheat and interpass control where required; perform all welding under a hot-work permit (Section 5).
3. Perform 100% visual inspection and the specified nondestructive examination (UT/MT/PT) by qualified personnel (CWI); track, repair, and re-inspect any deficiency.

Hold / Witness Point	What is verified	Standard / Record
Qualification	WPS/PQR and welder certs current	AWS D1.1 — submittal
Visual & NDE	100% visual; UT/MT/PT per spec	AWS D1.1 — CWI / NDE report
Repairs	Defects logged, repaired & re-inspected	QC record

6.5 Structural Steel Fabrication & Erection

1. Produce shop and erection drawings; procure with mill certifications; fabricate in-house to AISC 360 and AWS D1.1; apply specified coatings.
2. Deliver and erect; make high-strength bolted connections per RCSC (turn-of-nut or DTI) and field welds per AWS D1.1; verify plumb, alignment, and elevation.
3. Complete inspection of bolting, welding, and erection tolerances; document and close out.

Hold / Witness Point	What is verified	Standard / Record
Material	Mill certs match approved submittals	ASTM / AISC — records
Bolting	Installation method & verified tension	RCSC — inspection record
Erection	Plumb, alignment, weld inspection	AISC / AWS — report

7. Quality Control Program

In-Line runs an in-house three-phase quality control process on every definable feature of work, coordinated with the Government's quality-assurance representative:

- **Preparatory phase:** review specification and submittals, confirm material approvals and crew/equipment qualifications, and hold a pre-work meeting.
- **Initial phase:** inspect the first unit of work against the standard, set the quality benchmark, and correct any deficiency before production continues.
- **Follow-up phase:** ongoing inspection at the hold/witness points above, with deficiencies logged and closed and rework verified.
- **Documentation:** submittal register, material/mill certs, weld and coating records, permits, daily QC reports, photos, and as-builts compiled into a closeout package.

8. Environmental, Material Control & Closeout

- **Environmental:** SWPPP/BMPs, spill kits and SPCC controls, dust and track-out control, and lawful handling/disposal of waste and spoils; installation infrastructure protected at all times.
- **Material control:** submittals approved by the Government before installation; materials stored and laydown areas coordinated with the installation.
- **Closeout:** punchlist completion, redline/as-built drawings, certifications and warranties, final hot-work area inspection, and orderly demobilization with the site restored.

9. Contact

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