**🛡️**

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**curriculum**

# **Career 5 Application: Defense Security, Military Engineering, and Police Engineering**

**Author**: Tshingombe Tshitadi Fiston **Title**: Security Engineering Career: Physical Plant Integrity and Strategic Deployment

## 📘 Overview

This document outlines the strategic integration of defense security, military engineering, and police engineering within the broader scope of physical plant security and career integrity. It serves as a modular application framework for career development, institutional deployment, and systemic reform in the security engineering sector.

## 🎯 Purpose

* To consolidate Tshingombe’s multidisciplinary expertise across defense, police, and engineering domains
* To present a credential-ready portfolio for institutional, public sector, and private security deployment
* To align career pathways with national security standards, CCMA rulings, and SAPS recruitment protocols

## 🔍 Scope

* **Domains Covered**:
  + Military Engineering
  + Police Engineering
  + Physical Security Systems
  + Career Integrity and Compliance
  + Labour and Legal Frameworks (CCMA, DOJ, SAPS)
* **Geographic Focus**:
  + South Africa (Gauteng, Hilbrow, Berea, Barnato precincts)
  + Cross-border relevance (DRC, UK, Spain)

## 📄 Description

This portfolio includes:

* SAPS application documentation
* CCMA labour dispute records
* Affidavits and legal correspondence
* Security training and certification history
* Criminal case follow-up (CAS 297/11/2024)
* Engineering and physical plant deployment records

## 🗝️ Keywords

Security Engineering, Military Deployment, Police Systems, Physical Plant, Career Integrity, CCMA Compliance, SAPS Application, Affidavit, Labour Dispute, Credential Mapping, Nogada, Barnato, Hilbrow, Home Affairs, CAS 297/11/2024

## 📅 Date of Compilation

**08 September 2025**

## 📊 Analysis

* **Career Progression**: From car guard and private security to engineering analyst and SAPS applicant
* **Legal Integration**: CCMA rulings, labour court petitions, affidavit-based appeals
* **Security Training**: Microsoft Azure Defender, Met Police UK, Schneider, Eaton, SARS
* **Systemic Challenges**: ID recovery failures, wage disputes, criminal case delays
* **Strategic Assets**: Modular documentation, pro bono legal support, cross-sector experience

## 🔁 Logigram (Process Flow Summary)

plaintext

[Security Incident] → [SAPS Case Filed] → [Affidavit Submitted] → [Investigation Suspended]

→ [New Evidence Provided] → [Home Affairs ID Recovery Attempt] → [CCMA Labour Dispute Filed]

→ [Award Granted] → [DOJ Review Pending] → [SAPS Application Submitted]

IF (Security Incident = Verified) AND (Affidavit = Submitted) THEN

Proceed to SAPS Investigation

ELSE

Escalate to SAHRC or IPID

IF (Labour Dispute = CCMA Award) AND (Employer = Non-compliant) THEN

File for Enforcement via DOJ

ELSE

Request Sector Bargaining Review

## 📦 Inventory of Supporting Documents

| **Document Type** | **Status** |
| --- | --- |
| SAPS Application Form | Completed |
| CCMA Ruling PDF | Attached |
| Affidavit (CAS 297/11/2024) | Submitted |
| Training Certificates | Verified |
| Legal Correspondence | Archived |
| Wage Slips / Statements | Informal copies |
| Home Affairs ID Claim | Pending |

## 🧩 Conclusion

This portfolio reflects Tshingombe’s commitment to lawful procedure, career integrity, and systemic reform. It bridges engineering, security, and legal domains into a unified framework for public service and institutional deployment. The modular structure supports both immediate application and long-term legacy impact.

Would you like this formatted into a presentation, CV supplement, or legal binder? I can also help you prepare a submission-ready version for SAPS, CCMA, or Home Affairs. Let’s make this portfolio work for your future.

**SANDF Employment & Dispute Resolution Framework**

**⚖️ Legal Status of SANDF Members**

* SANDF personnel are not classified as workers under the Labour Relations Act (LRA) Section 2(a)
* They cannot:
  + Affiliate with political parties or other trade unions.
  + Strike or negotiate closed-shop agreements.
  + Receive Department of Defence funding for union-related activities.
  + Disclose classified information (must sign non-disclosure undertakings).
  + Access military bases without clearance.

### 🧭 Command & Representation

* A single channel command structure is recommended for dispute representation.
* Structural activities must align with Defence legislation and not compromise operational integrity.

### 📝 Dispute Resolution Procedures

* Internal grievance mechanisms are governed by the Defence Act No. 42 of 2022
* Military Bargaining Council handles collective agreement disputes.
* Arbitration awards:
  + Must be issued within 15 working days.
  + Cannot impose financial obligations beyond employment mandates.
  + If limitations prevent award issuance, a report is submitted to the Minister.
  + Awards become binding unless tabled in Parliament within a set calendar period.
* High Court review is permitted via petition submission.

## 🧰 Security Personnel Training & Protocols

### 🧪 Pre-Employment & Ethics

* Basic diagnostics and psychological assessments.
* Code of conduct and ethics training.
* First aid and life support certification.
* Gun safety lectures and bomb threat response protocols.

### 🔄 Refresher Programs

* Security guard drills and tactical response updates.
* Fire handling and troop education modules.
* Management commitment to ethical conduct.

### 📋 Operational Planning

* Program of works, proposals, and PSIS profiles.
* Recruitment and hiring strategies.
* Instruction centers and open training facilities.

## ⚔️ Tactical Combat Modules

### 👥 Trinôme Combat Structure

* Patrol formations, escape routes, and zone surveillance.
* Fire application using FAMAS rifles (200–300m range).
* Defensive positioning and armored vehicle engagement.

### 🧭 Observation & Reconnaissance

* Sector survey, visual zone mapping, and enemy tracking.
* Use of masks, discretion tools, and aerial protection.

## 🚀 Weapons & Simulation Systems

### 🧨 Artillery & Mortars

* 81mm mortars with 5750m range.
* Training includes direction, observation, and series targeting.

### 🛰️ Missiles

* Anti-ship and anti-tank systems (Eryx, Mila).
* Specifications: weight, range (300–1900m), speed, and detection capabilities.

### 🖥️ Simulators

* RS AC Siteryx: 62 computers, 61 consoles, video printers for tactical training.

## 📡 Communications & Infrastructure

### 📞 STAC System

* Automated campaign multiplexer with radio zone integration.
* Frequency bands: 428–459 MHz, VHF, 19W output.

### 🏥 Evacuation & Emergency Response

* Transfer protocols, evacuation center registration, and zone search files.

## ☣️ Chemical & Environmental Safety

### 🧪 Threat Detection

* Agents: neurotoxic, phosgene, cyanide.
* Symptoms: coughing, inflammation, respiratory distress.
* Decontamination and protective measures.

### 💡 Lighting & Observation

* Projectors: 400–1200m range.
* Night vision and aerial observation systems.

## 🚓 Military Policing & Civil Support

* Military police assist in civil security, law enforcement, and distribution.
* Support includes crowd control, civil order maintenance, and emergency coordination.

If you're building a modular curriculum or policy framework, I can help you convert this into credential-ready units, diagnostic simulations, or funding-aligned rollout plans. Would you like this scaffolded into a formal document or LMS-ready module next?

This compilation reads like a hybrid between a tactical field manual, a defense force training syllabus, and a systems-level inventory of military assets and protocols—spanning everything from trinôme combat formations to missile telemetry, chemical threat response, and telecommunications infrastructure. To help you make strategic use of this, I’ve distilled it into modular clusters that could serve as curriculum units, operational doctrine, or simulation-ready training modules.

## 🪖 Tactical Combat Doctrine: Trinôme Operations

### 🔹 Trinôme Contact & Movement

* Maintain continuous contact between trinôme units.
* Emplace masks in combat zones; tools must remain discreet.
* Ensure aerial protection and concealment from enemy observation.

### 🔹 Combat Engagement Protocols

* Group orders issued by Chief Command at 300m–609m range.
* Use natural armored cover and multi-qualified personnel.
* Engage with FAMAS rifles at 200–300m against infantry vehicles.
* Apply fire based on objective markers and initiative.

## 🏫 Infantry School & Training Infrastructure

### 🔹 Institutional Framework

* School of Infantry: user manuals, regiment planning, diffusion protocols.
* Delegation of military departments: infantry, armored cavalry, artillery, engineering, transmission.
* Instruction centers and open training facilities.
* Reserve library for full army documentation.

### 🔹 Employment & Activity Guide

* Tactical flight specs: 750 km range, 180 km/h speed, 13-ton autonomy.
* Combat speed for anti-ship operations: 269 km/h.

## 💣 Artillery & Missile Systems

### 🔹 Mortar Systems

* 81mm LLR mortars: 45 kg, 3 charges, 5750m range.
* Training includes direction, observation, and series targeting.
* Consumption: 39 shells/hour for neutralization; 48 for discovery.

### 🔹 Missile Systems

* Eryx, Mila, Mirabel: anti-ship, anti-tank, short/long-range.
* Specs: 4.3–4.7 kg, 50–1900m range, 245 m/s terminal velocity.
* Detection: 2600m; Identification: 1200m; Autonomous: 600m.
* Simulators: RS AC Siteryx with 62 computers, 61 consoles.

## 📡 Communications & Electronic Warfare

### 🔹 STAC System

* Automated campaign multiplexer: 2-wire blind line, 2.4 km radio zone.
* Frequency bands: 428–459 MHz, 19W output, VHF/KHz modes.

### 🔹 Equipment & Amplification

* TRVM: 134 posts, 100W amplifiers, defense messaging.
* Cellular consignment rules: unauthorized fire prohibited, friend attack authorization required.

## ☣️ Chemical Threat Response

### 🔹 Detection & Decontamination

* Agents: neurotoxic, phosgene, cyanide.
* Symptoms: coughing, inflammation, respiratory distress, eye irritation.
* Protective protocols and zone evacuation procedures.

### 🔹 Lighting & Observation

* Projectors: 400/800m and 400/1200m range.
* Night observation systems integrated.

## 🔫 Weapons & Practical Shooting

### 🔹 Firearms & Ammunition

* RC x39, OFK, AC HL 200, IEC, AVH 1500.
* Tactical blinding and neutralization protocols.
* Armament specs: C20, 7.62mm turrets, 36–55t mass.

### 🔹 Vehicle Performance

* Carburator: 892L; Transmission: 65–90 km/h performance range.

## 🚁 Aviation & Evacuation Systems

### 🔹 Helicopter & Fly Systems

* Tactical fly specs: autonomous 3-hour flight, anti-ship combat.
* Evacuation center registration and zone search protocols.

## 📊 Strategic Planning & Career Pathways

### 🔹 Defense Force Recruitment

* Note: New Zealand Defense Force does not recognize prior military experience from certain countries.
* Upload credentials for career opportunities.

### 🔹 Performance Analytics

* Views: Home > Performance > Executive Summary.
* Pipeline analysis, trend tracking, conversion metrics.

This is a rich and multifaceted data stream—part operational log, part forensic and policing framework, and part strategic planning document. To help you make sense of it and deploy it effectively, I’ve broken it down into **three core domains**: operational analytics, military-police planning, and forensic evidence protocols. Each domain is modular and can be scaffolded into dashboards, training modules, or policy briefs.

**📊 Operational Analytics & Pipeline Activity (Tableau-style)**

**🔍 Recent User Actions**

| **User** | **Item** | **Site** | **Action** |
| --- | --- | --- | --- |
| tshingombefiston@gmail.com | Opportunity Tshingombe Pipe | Tshingombe | Use Data Source |
| tshingombefiston@gmail.com | Login | — | Login |
| tshingombefiston@gmail.com | Engineering Tshingombe | — | Publish Workbook |
| tshingombe fiston@gmail.com | Sheet 2 | — | Publish View |
| tshingombefiston@gmail.com | Null | Tshingombe | Create Flow Task |
| tshingombefiston@gmail.com | Home | Tshini | Access View |
| tshingombefiston@gmail.com | — | — | Run Flow |
| tshingombe fiston@gmail.com | Trend | Tshingombe | Create Linked Task |
| tshingombe fiston@gmail.com | Conversion | Tshingombe | Create Access View |
| tshingombefiston@gmail.com | Executive Summary | — | Access View |

**📈 Pipeline & Performance Review**

* **Opportunity Deep Dive**: Salesforce pipeline analysis for new business services.
* **User Engagement Metrics**:
  + Access interactions: 0–150
  + Published downloads: 0–4
  + Subscription actions: -13 (to June 30)
* **Item Usage Summary**:
  + Executive Summary, Performance Review, Engineering Workbook
  + Pipeline Analysis: Access View (3 times)
  + Conversion View, Opportunity Description

**🛡️ Military Police Operations & Strategic Planning**

**🧭 MDMP & Troop Leading Procedures**

* Mission analysis, plan development, troop organization.
* Commander staff prepares and allocates resources.
* Dynamic planning integrates criminal threat modeling and policing strategy.

**🚓 Policing Functions**

* Military police support civil security, traffic enforcement, and forensic analysis.
* Evidence collection, person identification, and patrol debriefs.
* Integration of police operations with military command structures.

**📋 Assessment & Performance Indicators**

* Continuous assessment of mission execution and criminal threat response.
* Metrics include:
  + Patrol frequency
  + Crime incidence
  + Police academy throughput
  + Certificate issuance
  + Response reliability

**🧬 Forensic Evidence & Crime Scene Protocols**

**🧪 Evidence Collection Techniques**

* Tool mark analysis: fences, frames, insulation, roofing.
* Residue packaging: padded containers, clean patent boxes.
* Paint chip collection: nickel-sized samples.

**🧠 Search Methods**

* Layered document review, photocopying, drag packet collection.
* Hazmat & CBRN protocols: DNA, chemical area mapping.
* Speed delay studies and traffic collision investigation.

**⚖️ Legal & Justice Oversight**

* Judge Advocate General oversees military justice.
* Commanders responsible for legal compliance and operational integrity.

If you'd like, I can help you transform this into a **dashboard-ready Tableau schema**, a **modular training curriculum**, or a **strategic policy document** for military-police integration. Which direction would you like to take this next—analytics, curriculum, or operational planning?

This is a highly technical and multi-domain draft—blending forensic protocols, cybercrime classification, system engineering in defense acquisition, and explosive safety standards. To help you synthesize this into actionable formats, I’ve broken it down into **four strategic modules** that can be used for curriculum design, operational planning, or policy documentation.

## 🔍 Module 1: Forensic & Explosive Incident Response

### 🧪 Evidence Handling

* **Unriveted Tape**: Place sticky side on glass for trace collection.
* **Burnt Paper**: Requires specialized collection due to fragility.
* **Post-Blast Sites**: Require experts in unexploded ordnance (UXO), stockpile analysis, and explosive residue safety.

### 💣 Explosive Safety Protocols

* **Sympathetic Detonation**: Risk from spalling racks and high-velocity impacts.
* **Minimum Impact Velocity**: TNT detonation threshold ~5000 m/s.
* **LPG Storage**: Separation distances based on vessel capacity and fire risk.
* **Satellite EMC Systems**: Frequency bands 3400–4200 MHz; antenna pattern and penetration properties.

## 🕵️ Module 2: Cybercrime & Digital Threats

### 💻 Cybercrime Categories

* **Offenses**: Money laundering, extortion, fraud, identity theft, spamming, hacking.
* **Targets**: PC networks, telecom systems, internet infrastructure.
* **Data Types**: Credit/debit card info, bank accounts, personal identifiers.

### 🧠 Threat Intelligence

* **Terrorist Use of Networks**: Independent targeting via digital platforms.
* **National Offenses**: Require counter-identification and network tracing.
* **South African Context**: Cybercrime density ranks 6th globally; attacks on Transnet and TransUnion highlight vulnerabilities

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This is a powerful and multidimensional draft—interweaving military-police operations, engineering education, justice enforcement, and electrotechnical systems. It reads like a blueprint for a **transdisciplinary curriculum** or **training doctrine** that spans tactical enforcement, infrastructure deployment, and strategic planning. Let’s scaffold this into a modular framework that supports your goals as an engineering educator, assessor, and systems architect.

**🛡️ Module 1: Military Police Operations & Strategic Enforcement**

**🔹 Operational Doctrine**

* **Support to Army Operations**: Police operations integrated into military command and control structures.
* **Unified Action Environment**: Enforcement across full spectrum of military operations—offensive, defensive, and stability tasks.
* **Base Camp Support**: Police operations in contingent deployments, patrol distribution, and manpower planning.

**🔹 Tactical & Strategic Policing**

* **Principles of Operation**: Rules of law, transparency, corrective action, and open-access detention protocols.
* **Assessment & Effectiveness**: Cause-effect analysis, cost-benefit evaluation, trend-based strategic planning.
* **HN Integration**: Collaboration with host nation police, evidence handling, and specialized training.

**🔹 Enforcement Activities**

* Patrol methods, traffic enforcement, criminal investigation, interrogation, search and seizure, drug raids, and apprehension.
* **Reporting Systems**: Army and non-army law enforcement tracking, station reconstruction, and physical security measures.

**⚙️ Module 2: Military Engineering & Electrotechnical Systems**

**🔹 Installation & Testing**

* **Lighting & Power Distribution**: Installation procedures, fault reporting, meter testing, and system recovery.
* **Safety Protocols**: Emergency stop systems, hazardous area precautions, correct earthing, and control panel verification.

**🔹 Electrical Theory & Application**

* **Energy Calculations**: kWh estimation, cost analysis (industrial context), mechanotechnic conversion.
* **Magnetic Theory**: MMF, flux density, Maxwell’s equations, motor action.
* **AC Systems**:
  + Sinusoidal waveform analysis: RMS, peak, average values.
  + Phase relationships: single vs. three-phase, phasor diagrams.
  + Power factor correction and cable sizing.

**🔹 Transformer & Motor Efficiency**

* **Transformer Losses**: Double-wound core, air cooling, lamination, secondary conservative cooling.
* **Motor Configurations**: Induction motor full-load, synchronous motor, delta stator setup.
* **Efficiency Metrics**: Voltage ratios, turn rates, current equations.

**⚖️ Module 3: Justice, Assessment & Instructional Integration**

**🔹 Educator & Assessor Roles**

* Facilitate training in engineering police and military justice systems.
* Assess technical competencies and operational readiness.
* Integrate instructional design with strategic enforcement and infrastructure deployment.

**🔹 Curriculum Integration**

* **Function Allocation & System Engineering**: Requirements analysis, design synthesis, verification, and control.
* **Planning & Execution**: Work breakdown structures, configuration management, risk analysis, and trade studies.
* **Justice & Law Enforcement**: Military justice systems, detention cell operations, and legal compliance.

**🧠 Suggested Deployment Formats**

| **Format** | **Purpose** |
| --- | --- |
| **LMS-Ready Curriculum** | Modular training for military engineers and police instructors |
| **Operational Doctrine Brief** | Strategic planning document for joint police-military operations |
| **Technical Training Manual** | Electrotechnical systems installation, testing, and safety protocols |
| **Assessment Rubric** | Competency-based evaluation for learners and field personnel |

This is a comprehensive and multidisciplinary draft that spans **electrical engineering**, **generator safety**, **regulatory compliance**, **policing operations**, and **legal frameworks**—all within a South African context. To help you deploy this effectively, I’ve structured the key components into **five integrated modules**, each aligned with your role as an engineering educator, assessor, and systems strategist.

## ⚙️ Module 1: Ground Conditioning & Generator Safety

### 🔹 Definition: Ground Conditioner

A **ground conditioner** is a device or system used to stabilize and improve the quality of electrical grounding. It ensures consistent earth resistance, mitigates electrical noise, and protects equipment from voltage surges or lightning strikes.

### 🔹 Ventilation & Noise Pollution

* **Ventilation Requirements**:
  + Adequate airflow to prevent overheating.
  + Compliance with SANS 10142-1 and ISO 8528 standards
* **Safety Methods**:
  + Use PPE and lockout/tagout procedures.
  + Inspect cables, connectors, and LV switchgear (AC 33).
  + Maintain frequency and voltage stability during operation.

### 🔹 Maintenance Protocols

* Replace components like-for-like.
* Maintain service logs and repair records.
* Install feeder pillars and distribution units.
* Conduct fault diagnosis and emergency power restoration.

## 🛡️ Module 3: Regulatory Compliance & Electrical Safety

### 🔹 Key Acts & Standards

* **Occupational Health and Safety Act (OHSA), 1993**

### Compliance Measures

* Display safety notices at entry points.
* Restrict unauthorized access to electrical machinery.
* Ensure substation doors are lockable and accessible only to certified personnel.

## 🚓 Module 4: Policing Operations & Strategic Enforcement

### 🔹 Military Police Integration

* Support to army operations via patrols, detention cells, and law enforcement.
* Planning, execution, and assessment of police operations in base camps.

### 🔹 Intelligence & Crime Analysis

* Tactical, strategic, and operational crime analysis.
* Use of SAPS 96 systems for data capture and crime mapping.
* Linkage analysis, case docket review, and fieldwork evaluation.

## ⚖️ Module 5: Legal Practice & Paralegal Training

### 🔹 Legal Frameworks

* Constitution of RSA (1996), PFMA, and Human Rights in Policing.
* Legal enterprise structures, attorney fidelity fund, and VAT implications.

### 🔹 Property Law & Conveyanc

This is a rich and multidimensional draft that spans **legal studies**, **criminal justice**, **estate administration**, **policing operations**, and **military system engineering**. To help you deploy this effectively—whether for curriculum design, training modules, or institutional rollout—I’ve organized it into **five integrated learning clusters**, each with clear thematic focus and potential for credential-ready development.

**⚖️ Cluster 1: Legal Foundations & Estate Management**

**📚 Legal Modules**

* **Code of Conduct**: Professional ethics and organizational behavior.
* **Debt Collection Documentation**: Includes summons, judgments, Section 129 notices, and tracing reports.
* **Statutory Requirements**: Covers the Criminal Procedure Act, Evidence Act, and common law principles.

**🧾 Criminal Law & Procedure**

* Introduction to criminal law and legality.
* Elements of crime: actus reus, causation, unlawfulness, fault.
* Specific crimes, investigation, arrest, detention, pre-trial procedures.

**🏛️ Wills & Estate Administration**

* Wills Act 7 of 1953 (as amended): capacity, interpretation, succession rules.
* Executor appointment, estate reporting (Section 18(3)), bank account setup.
* Liquidation and distribution accounts, advertising, objections, finalization.

**🚓 Cluster 2: Policing Operations & Tactical Enforcement**

**🛡️ Policing Modules**

* **Community Policing**: Client service center management, custody protocols.
* **Tactical Policing**: Street survival, defensive techniques, proportional force.
* **Operational Policing**: Collision scene management, domestic incident response.

**🧬 Forensic & Detective Work**

* Preliminary investigations, statement writing, fingerprinting.
* Crime scene management, evidence collection, scenario-based performance.

**🧠 Crime Analysis**

* Strategic, tactical, and operational crime analysis.
* Crime mapping, statistical linkage, case docket review, fieldwork.

**🧑‍⚖️ Cluster 3: Paralegal & Police Science**

**📖 Paralegal Studies**

* Introduction to RSA law, court structures, legal practice management.
* Property law, conveyancing, debt collection procedures.

**👮 Police Science**

* Historical background, career orientation, public policy.
* Technology trends, note-taking, abbreviations, Bill of Rights training.

**🔧 Cluster 4: Military Standards & Engineering Systems**

**📐 MIL-STD Documentation**

* MIL-STD-13231: Shipment marking, serial numbers, air transport, reprocurement.
* MIL-STD-1000: Drawing formats, interchangeability, reparability, logistics.

**⚙️ System Engineering Fundamentals**

* Requirements analysis, functional allocation, design synthesis, verification.
* Configuration management, technical audits, trade studies, metrics.

**⚡ Electrical & Ground Systems**

* Ground/power distribution, bonding, shielding, fault protection.
* Earthing electrode subsystems, soil resistance measurement methods.

**🧩 Cluster 5: Curriculum Outcomes & Assessment**

**🎓 Learning Outcomes**

| **Module** | **Outcome** |
| --- | --- |
| Regulatory Framework | Understand law of evidence and criminal procedure in policing |
| Criminal Investigation | Conduct preliminary investigations and write security reports |
| Community Service | Manage detention and client service centers |
| Tactical Policing | Demonstrate survival and defensive techniques |
| Operational Policing | Attend to collision scenes and domestic incidents |
| Forensic Management | Manage crime data, scenarios, and performance evaluations |
| Paralegal & Legal Practice | Understand legal structures, estate law, and conveyancing |

Would you like this scaffolded into a **modular curriculum**, **training manual**, or **assessment rubric** for rollout across justice colleges, police academies, or engineering institutions? I can also help align it with CPD credits or LMS integration. Let’s build it into a legacy-grade framework.

This is a highly technical and regulatory-rich draft that integrates **MIL-STD-1323 marking protocols**, **South African electrical safety standards**, and **policy frameworks for policing, insurance, and infrastructure compliance**. To help you deploy this effectively—whether for curriculum development, compliance audits, or technical manuals—I’ve distilled the content into **three structured domains**, each with actionable insights and references.

## 🛡️ 1. MIL-STD-1323: Defense Marking & Identification Standards

### 🔹 Scope & Application

MIL-STD-1323 governs the **marking of military equipment and components** for shipment, identification, and traceability. It applies to:

* Government and commercial entities (CAGE codes)
* Electronic assemblies, containers, decals, and nomenclature
* Battery circuits, high-voltage warnings, and radioactive materials
* Printed wiring boards, electron tubes, and non-ionizing radiation

### 🔹 Key Elements

* **Design Activity**: Identifies the origin of the drawing or specification.
* **Function Marking**: Includes serial numbers, type numbers, and inspector stamps.
* **Sequence of Marking**: General → Nomenclature → Electronics → Army-specific codes.
* **Special Characters**: Used for unique identification and safety labeling.

## ⚡ 2. South African Electrical Safety & Compliance Standards

### 🔹 Regulatory Framework

* Governed by the **Occupational Health and Safety Act (OHSA), 1993** and **SANS 10142-1** for low-voltage installations

This is a deeply layered and multidisciplinary draft—spanning **military tactics**, **electronic security systems**, **private security accreditation**, and **employability training**. It reads like a blueprint for a **national security and technical education framework**, possibly intended for integration across defense, policing, and vocational institutions. Let me help you scaffold this into a modular, credential-ready structure that aligns with your goals in curriculum architecture, assessment, and strategic rollout.

**🪖 Module 1: Crew-Served Weapons & Tactical Fire Support**

**🔹 Tactical Doctrine**

* **Crew-Served Weapons**: M60E3 machine gun, M19 launcher, ZM136, 84mm launchers.
* **Platoon Structure**: Bravo and Delta companies assigned weapon platoons with organic fire support.
* **Roles of M60E3**:
  + Offensive and defensive support
  + Long-range visibility and final protective fire
  + Predetermined target engagement under low visibility

**🔹 Command & Reconnaissance**

* Weapon platoon commander conducts reconnaissance and coordinates with squad leaders.
* Fire support planning is based on situational estimates and company-level strategy.

**⚡ Module 2: Electrical Fence Systems & Perimeter Security**

**🔹 System Components**

* **Security Energizer**: LCD voltage display, keypad control, solar power, internal beeper.
* **Technical Specs**:
  + Output: 9kV, 4.0 joules at 500 ohm
  + Power: 13V DC, 700mA battery charger, 30W combined output
  + Enclosure: IP4X ABS plastic, 300mm × 190mm × 115mm

**🔹 Compliance & Safety**

* Standards: SABS IEC 60335-2-76, SANS 1063, SANS 0145
* Earth loop monitoring, lightning protection, fault testing
* Public access zones require pulse regulation and metallic clearance of 5m

**🛡️ Module 3: Private Security & Accreditation (SASSETA)**

**🔹 Roles & Equipment**

* Grade A/B supervisors, control room operators, investigators
* Equipment: CCTV, alarms, X-ray scanners, guard dogs, firearms

**🔹 Accreditation Bodies**

* SASSETA, SAPS, SANDF, EDSETA, CETA
* Alignment with national safety assessment and occupational standards

**🧠 Module 4: Employable Skills & Basic Training Syllabus**

**🔹 Core Competencies**

| **Topic** | **Focus Area** |
| --- | --- |
| English Literacy | Pronunciation, reading, writing, speaking |
| IT Literacy | PC systems, word processing, spreadsheets |
| Communication Skills | Listening, verbal interaction, reporting |
| Behavioral Skills | Interview prep, emotional intelligence |
| Entrepreneurship | Project planning, investment, procurement |
| Safety & Environment | Occupational hazards, energy conservation |
| Quality Management | ISO 9009 systems, housekeeping, quality tools |

**🔹 Practical Training**

* Metal detectors (handheld & door-frame)
* First aid, firefighting, organic flammable liquids
* Equipment maintenance, evacuation plans, security checkpoints
* Role play: incident briefing, walkie-talkie communication, X-ray inspection

**🧰 Module 5: Infrastructure & Assessment**

**🔹 Equipment Inventory**

* PC systems, LCD projector, UPS 650VA
* Smoke detectors, portable radios, flashlights, binoculars

**🔹 Learning Environment**

* Lectures, demonstrations, group discussions, practical labs

**🔹 Final Assessment**

| **Block** | **Subject** | **Marks** | **Pass Mark** | **Duration** |
| --- | --- | --- | --- | --- |
| I | Professional Skills | Full mark | Internal-based | Summative |
|  | Knowledge & Employability | Grand Total | — | — |

Would you like this scaffolded into a **national curriculum framework**, **LMS-ready training modules**, or a **funding-aligned rollout proposal**? I can also help you align it with SASSETA unit standards, military doctrine references, or SABS compliance documentation. Let’s build this into a legacy-grade deployment.

This is a comprehensive and multi-layered draft that touches on **industrial security operations**, **fire safety planning**, **access control systems**, **coaching and training**, and **legal reporting protocols**. To help you structure this for peer group discussion or project deployment, I’ve synthesized the content into **five integrated modules**, each with practical applications and strategic relevance.

**🛡️ Module 1: Industrial Security & Fire Safety Operations**

**🔹 SIS Timetable & Steward Duties**

* **Outdoor Event Safety**:
  + Minimum 4m clearance for fire appliances and overhead structures.
  + Vehicle routes must support cable weight and structural load.
  + LPG containers for cooking must follow health and safety guidelines.
* **Steward Responsibilities**:
  + Ensure hazard-free premises, trip-free flooring, and compliant seating.
  + Maintain crowd control via PA systems and mobile communication.
  + Emergency lighting, medical facilities, and fire equipment must be operational.
  + Toilets must be clearly marked and accessible.

**🔹 Risk Assessment Template**

| **Hazard** | **Person at Risk** | **Risk Level** | **Control Measures** | **Action Owner** | **Completion Date** |
| --- | --- | --- | --- | --- | --- |

**🔐 Module 2: Access Control & Alarm System Design**

**🔹 Physical Security Elements**

* **Access Points**: Turnstiles, elevators, parking barriers.
* **Digital Systems**: Card readers, magnetic door switches, biometric keypads.
* **Alarm Devices**: Sirens, push-to-exit buttons, mechanotechnic safety locks.

**🔹 CCTV & Surveillance Planning**

* Use vector stencil libraries to design schematic layouts.
* Include smoke alarm zones, panic buttons, and control panels.
* Integrate with emergency plan diagrams and floor plans.

**🔥 Module 3: Fire Safety Engineering & Emergency Planning**

**🔹 Fire Safety Solutions**

* **Training**: Fire warden, extinguisher use, awareness programs.
* **Maintenance**: Dry riser and hydrant testing, fire door inspections.
* **Evacuation Planning**:
  + Mark emergency exits, stair locations, and lift access.
  + Designate assembly points and escape routes per floor.
  + Include pre-incident planning and fire zone mapping.

**🤝 Module 4: Coaching, Training & Performance Enhancement**

**🔹 Coaching Principles**

* Encourage strengths, address improvement areas, and set goals.
* Differentiate between training (external change) and coaching (internal growth).
* Use demonstration, explanation, and review cycles for effective learning.

**🔹 Counseling Steps**

* Clarify reasons for intervention.
* Provide timely feedback and support.
* Enhance motivation through value alignment.

**📄 Module 5: Security Reporting & Legal Statement Protocols**

**🔹 Statement Writing**

* Capture facts as observed by the deponent.
* Use clear, honest, and direct language.
* Distinguish between firsthand facts and secondhand opinions.

**🔹 Legal Compliance**

* Section 295: Magistrate questioning and prosecutor authority.
* Refusal to testify may lead to legal consequences.
* Include full identity details, time of occurrence, and occupation.

Would you like this scaffolded into a **group project presentation**, **training manual**, or **compliance audit toolkit**? I can also help you align it with South African regulatory frameworks like

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| --- | --- | --- | --- | --- | --- |

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This is a highly detailed and regulatory-rich draft that integrates **security tender compliance**, **military operational doctrine**, **firearm control**, and **industrial legal standards**. To help you structure this for evaluation, training, or submission, I’ve broken it down into **three strategic modules**, each aligned with your expertise in curriculum architecture, legal compliance, and tactical systems.

**🛡️ Module 1: Tender Compliance for Physical Security Services (Eskom & City Power)**

**🔹 Mandatory Returnables Checklist**

| **Item** | **Requirement** |
| --- | --- |
| ✅ Company Registration | Proof via CIPC |
| ✅ PSIRA Compliance | Chapter 3, Section 1(a); registration number, date issued, verification code |
| ✅ PSIRA Good Standing | Valid letter required |
| ✅ Labour Department Clearance | COID & UIF compliance at time of tender |
| ✅ SAPS Clearance | For directors, not older than 3 months |
| ✅ Control Room Location | Within 45 km of service site; reinforced structure |
| ✅ Public Liability Insurance | Minimum R10 million; valid confirmation from insurer |
| ✅ Occurrence Book | Must be up-to-date |
| ✅ Licensing | Control room and firearm licenses required |
| ✅ Sectoral Wage Compliance | Officers must meet wage standards |
| ✅ Legal Compliance | Private Security Industry Regulation Act 56 of 2001; Firearms Control Act 60 of 2000 |

**🔹 Personnel & Firearm Requirements**

* PSIRA grade certification for all officers and directors.
* Firearm registration under company name; jurisdiction letter required.
* Appointed armory manager with SAPS competency certificate.
* Annual SASSETA training records and firearm maintenance logs.
* SABS-approved firearm safes and SAPS letters confirming compliance.

**🔹 Operational Evaluation Criteria**

| **Category** | **Score Weight** | **Details** |
| --- | --- | --- |
| Company Experience | 15% | Proven capacity to deliver security services |
| Human Resources | 2% | Recruitment, retention, fitness assessments |
| Firearm Compliance | — | License copies, competency, supplier authority |

**🎖️ Module 2: Military Doctrine & Tactical Employment**

**🔹 Chief Executive Tactical Role**

* Oversight of patrol direction, document approval, and inter-arm cooperation.
* Domains: Armament, optronics, NBC transmission, logistics, health, public control.

**🔹 Combat Operations**

* Offensive: Light visibility, peak point coverage, antiship destruction.
* Defensive: Escort missions, zone control, population evacuation.

**🔹 Missile & Artillery Systems**

* Guidance, infiltration, and pilotage for isolated vehicles.
* Artillery range: 18 km to 1000 km; drone surveillance with infrared and real-time TV.

**🔹 Environmental & Hygiene Protocols**

* Uniform standards, decontamination kits, dosimetry, and hygiene practices.
* Meteorological stability assessments for tactical planning.

**⚖️ Module 3: Legal Environment & Industrial Standards**

**🔹 Security Officer Licensing**

* Officers may use private firearms only if licensed and registered under company service provision.

**🔹 Inspector Powers (Criminal Procedure Act, 1977)**

* Peace officers may conduct investigations, issue summons, and enforce compliance.

**🔹 Industrial Legal Standards**

* Director duties include fiduciary responsibility, compliance oversight, and operational governance.
* Legal frameworks: Occupational Health & Safety Act, PSIRA, Firearms Control Act.

Would you like this scaffolded into a **tender submission toolkit**, **training curriculum**, or **compliance audit framework**? I can also help align it with SASSETA unit standards, PSIRA grading protocols, or Eskom’s technical evaluation scorecard

This is a comprehensive and operationally rich draft that spans **security patrol procedures**, **equipment handling**, **conflict resolution**, **first aid**, and **regulatory compliance** within South Africa’s private security framework. To help you structure this into a deployable training or assessment module, I’ve organized the content into **six integrated units**, each aligned with PSIRA, SASSETA, and Department of Labour standards.

**🛡️ Unit 1: Security Patrol & Physical Security Measures**

**🔹 Patrol Objectives**

* Create visible presence and deter intrusion.
* Monitor vulnerable points: perimeter fencing, lighting, doors, windows, gates, and plant areas.
* Use detection tools: infrared beams, passive sensors, CCTV, door alarms.

**🔹 Scenario Response**

* Night patrol incident: smashed parking registration.
* Actions:
  + Secure the area.
  + Record in OB book.
  + Notify control room and supervisor.
  + Preserve evidence and initiate investigation.

**🔧 Unit 2: Equipment Use & Safety Protocols**

**🔹 Equipment Handling**

* **Baton**: Defensive maneuvers, suspect control.
* **Pepper Spray**: Crowd control, temporary incapacitation.
* **Two-Way Radio**: Components include antenna, speaker, microphone, battery.

**🔹 Communication Principles**

* Brief, accurate, secure, and paced.
* Use phonetic protocol: “Over,” “Out,” “Say again.”
* Volume and pitch control for clarity.

**🔹 Metal Detectors**

* Handheld and walkthrough types.
* Safety: never self-search, follow manufacturer guidelines.

**🔹 Body Armor & Flashlights**

* Armor protects against projectiles.
* Flashlight can assist in self-defense.
* Battery safety: avoid mixing brands or old/new batteries.

**📋 Unit 3: Equipment Booking & Fault Reporting**

**🔹 Storage & Booking**

* Store in secure cabinet.
* OB book entry: name, date, contact, supervisor signature.

**🔹 Fault Reporting SOP**

1. Discover defect.
2. Make OB book entry.
3. Notify site manager.
4. Initiate internal investigation.
5. Apply disciplinary action if needed.

**🔄 Unit 4: Shift Handover & Operational Continuity**

**🔹 Handover Protocol**

* Check resources: vehicles, documents, firearms.
* Sign OB book and verify asset condition.
* Conduct site inspection and report non-conformities.

**🧠 Unit 5: Conflict Management & First Aid**

**🔹 Conflict Resolution**

* Causes: poor communication, resource misalignment, personality clashes.
* Indicators: verbal aggression, posture changes, intoxication.
* Officer response: verbal, physical, and appearance-based cues.

**🔹 First Aid Basics**

* Treat sprains and strains.
* First aid box must be marked and contain:
  + Bandages, scissors, antiseptic, gloves, safety pins.

**⚠️ Unit 6: Occupational Health, Safety & Environmental Principles**

**🔹 Hazard & Risk Assessment**

* Hazards: physical (noise, vibration, radiation).
* Risk: probability × severity × exposure.
* Sources: workplace systems, equipment, layout.

**🔹 Safety Inspection Steps**

1. Identify hazard.
2. Assign responsible inspector.
3. Conduct inspection.
4. Record unsafe acts/conditions.
5. Recommend corrective action.

**📜 Regulatory Compliance Summary**

| **Requirement** | **Reference** |
| --- | --- |
| PSIRA Registration | Chapter 3, Section 1(a) |
| Firearm Control | Firearms Control Act 60 of 2000 |
| Labour Compliance | UIF, COID, Department of Labour |
| SASSETA Training | Annual competency records |
| Equipment Safety | SABS-approved safes, OB book entries |

Would you like this scaffolded into a **training curriculum**, **assessment rubric**, or **compliance audit toolkit** for PSIRA or SASSETA accreditation? I can also help format it for LMS deployment or tender documentation. Let’s build it into a legacy-grade framework.

Thanks for sharing this extensive and highly structured draft. It reflects a comprehensive framework for **security sector compliance**, **labour law documentation**, **disciplinary procedures**, and **UIF salary reporting**—all deeply embedded in South Africa’s regulatory landscape. To help you organize and deploy this effectively, I’ve broken it down into **four actionable modules**, each aligned with Department of Labour, PSIRA, CCMA, and UIF standards.

**📄 Module 1: UIF Salary Schedule & Employer Compliance**

**🔹 Salary Schedule Form Fields**

| **Field** | **Description** |
| --- | --- |
| Employee ID Number | Unique identifier for payroll tracking |
| Initials & Surname | Full name of employee |
| UIF Registration Number | Employer’s UIF reference number |
| Company Name | Registered entity name |
| Period of Service | Start and end dates of employment |
| Salary Frequency | Monthly, weekly, etc. |
| Salary Amount | Gross remuneration |
| Total Hours Worked | Per month |
| UIF Deduction | Employer contribution (1%) |
| Non-Contribution | Indicate if exempt or not applicable |

**🔹 Employer Details (per UIF Act 63 of 2001)**

* UIF Employer Reference No.
* PAYE Reference No. (SARS)
* Physical & Postal Address
* Company Registration No. (CIPC)
* Employee ID (13-digit), Gross Salary, Termination Date, Reason Code

You can find official UIF forms and guidance on

## ⚖️ Module 2: Labour Law, Disciplinary Hearings & CCMA Procedures

### 🔹 Disciplinary Hearing Framework

* **Modules**:
  + What is dismissal
  + Fair procedure
  + Electing chairperson
  + Types of misconduct
  + Evidence evaluation
  + Step-by-step checklist

### 🔹 Labour Court & CCMA Documentation

* Rescission awards, variation rulings, condonation applications
* Affidavits, transcripts, and notices under Labour Act 66 of 1995
* Compliance with Rule 7A(3), LRA Form 7.12, and CCMA referral procedures

## 🛡️ Module 3: Security Sector Licensing & Operational Compliance

### 🔹 PSIRA & Firearm Control

* PSIRA registration: company and individual grades
* Firearm competency certificates (Act 69 of 2000)
* SAPS clearance, SABS-approved safes, armory management
* Daily control room logs, OB book entries, shift handovers

### 🔹 Bid Submission & Tender Compliance

* License terms, scope of work, disciplinary rulings
* Guard performance assessments, dismissal records
* Inventory forms, site inspection reports, transcript logs

## 🧾 Module 4: Occupational Health & Safety Certification

### 🔹 Electrical Installation Compliance

* Certificate under OHSA 1993, Regulation 7(2)
* New and existing installation reports under Regulation 9(2)(a), 9(3)(c)
* SANS test report numbers for electrical safety

### 🔹 Skill Development & VAT Documentation

* Labour guide invoice: chairing disciplinary hearing
* VAT registration number, invoice breakdown, net and gross amounts

Would you like this scaffolded into a **compliance audit toolkit**, **training curriculum**, or **submission-ready tender pack**? I can also help format it for CCMA hearings, UIF reporting, or PSIRA licensing. Let’s turn this into a legacy-grade operational framework.

This is a dense and highly structured portfolio of legal, operational, and regulatory documentation—spanning **security employment contracts**, **labour compliance**, **risk assessment**, **court filings**, and **sectoral governance**. To help you consolidate and deploy this effectively, I’ve synthesized the content into **five strategic modules**, each aligned with South African legal frameworks, PSIRA standards, and Department of Labour protocols.

## 🛡️ Module 1: Security Employment Contracts & Guarding Agreements

### 🔹 Key Contract Elements

* **Employment Details**:
  + Guard name, ID, job title, site location, commencement date
  + Fixed-term or probationary clauses under LRA Act 66 of 1995
* **Working Conditions**:
  + Salary, hours, overtime, leave entitlements
  + Lunch break: 39 minutes daily (e.g., 13h00–13h39)
* **Termination Clauses**:
  + Based on misconduct, incapacity, or operational requirements
  + Linked to Basic Conditions of Employment Act 75 of 1997

### 🔹 Compliance References

* PSIRA Act 56 of 2001
* Occupational Health and Safety Act 85 of 1993
* UIF Act 63 of 2001
* Firearms Control Act 69 of 2000

## 📋 Module 2: Labour Levy Obligations & NBCPSS Compliance

### 🔹 Levy Contribution Requirements

* As per Gazette No. 42975 (Clause 6.2), levies must be paid by the 10th of each month
* Non-payment triggers interest under Prescribed Rate of Interest Act 55 of 1975
* Employers without compliance cannot receive a letter of good standing

This is a deeply layered and legally rich portfolio that spans **security employment law**, **disciplinary and CCMA procedures**, **firearm control**, **training accreditation**, and **constitutional compliance**—all within South Africa’s regulatory framework. To help you consolidate and deploy this effectively, I’ve distilled the key components into **four strategic modules**, each aligned with PSIRA, SASSETA, CCMA, and Department of Labour standards.

## 🛡️ Module 1: Security Employment Contracts & Labour Law Compliance

### 🔹 Core Contract Elements

* **Employment Agreement**:
  + Guard name, ID, job title, site location, commencement date
  + Fixed-term or probation clauses under LRA Act 66 of 1995
* **Working Conditions**:
  + Salary, hours, overtime, leave, and termination clauses
  + Lunch break: 39 minutes daily (e.g., 13h00–13h39)
* **Legal Frameworks**:
  + Basic Conditions of Employment Act 75 of 1997
  + Private Security Industry Regulation Act 56 of 2001
  + Occupational Health and Safety Act 85 of 1993
  + UIF Act 63 of 2001
  + Firearms Control Act 60 of 2000

### 🔹 Bid & Licensing Requirements

* Brigade 119 documentation: rank, grade, duty roster, site posting
* PSIRA registration, SASSETA training records, SAPS clearance
* License terms, reconciliation clauses, and disciplinary codes

You can explore a

## ⚖️ Module 2: CCMA, Court Filings & Judicial Complaints

### 🔹 Labour Disputes & CCMA Referrals

* Rescission rulings, variation awards, condonation applications
* Affidavits, transcripts, and notices under Labour Act 66 of 1995
* JR 2461/15 and JA 37/19 referenced in judicial complaints

### 🔹 DOJ Online & Civil Case Management

* Magistrate and High Court filings: summons, affidavits, protection orders
* Case URNs, status tracking, and appointment booking
* Dismissal grounds: uncommissioned affidavit, lack of domestic violence evidence

## 🔫 Module 3: Firearm Control, Lethal Force & Trespass Law

### 🔹 Firearm Use in Public

* Section 84 of the Firearms Control Act 60/2000:
  + Must be licensed and carried in a secure holster
  + May only be used if there’s an immediate threat of serious harm

### 🔹 Lethal Force Guidelines

* Constitutional Court ruling: force may be used to prevent escape or overcome resistance
* Lethal force justified only if suspect poses immediate threat or has inflicted serious harm

### 🔹 Related Legislation

* Trespass Act 6 of 1959: unlawful entry is a criminal offense
* Dangerous Weapons Act: possession of replica firearms may lead to conviction

For a deeper look into firearm regulations in the security sector, see

## 📚 Module 4: Training, Accreditation & Operational Standards

### 🔹 Security Training & Assessment

* Must be conducted using approved methods and objective criteria
* Providers must verify lawful possession of security equipment before installation
* Training outcomes must be documented and aligned with SASSETA unit standards

### 🔹 Accreditation & Licensing

* License agreements must meet statutory requirements
* Training records, CVs, and award certificates must be maintained
* Labour inspectors may issue permits based on compliance

For full regulatory context, refer to the

This is a robust and multifaceted draft that blends **information security systems**, **TLS/SSL protocol vulnerabilities**, **policy frameworks**, and **labour-related legal proceedings**—all within a South African regulatory and operational context. To help you consolidate this into a structured, deployable format, I’ve broken it down into **three strategic modules**, each with clear thematic focus and practical application.

**🔐 Module 1: Information Security Management System (ISMS) & TLS/SSL Protocols**

**🔹 Historical Development & Protocol Evolution**

* **SSL Versions**: SSL 1.0 (never released), SSL 2.0 and 3.0 (deprecated due to vulnerabilities)
* **TLS Versions**: TLS 1.0 → TLS 1.2 → TLS 1.3 (current standard with enhanced security)

**🔹 Digital Certificates & Cryptography**

* **Certificate Authorities (CAs)**: Issue and validate digital certificates
* **Algorithms**: RSA, ECC, SHA-2 used for key exchange and hashing
* **Key Exchange**: Diffie-Hellman, ECDHE for forward secrecy

**🔹 Vulnerabilities & Attack Vectors**

| **Attack Type** | **Description** |
| --- | --- |
| POODLE | Exploits SSL 3.0 fallback |
| BEAST | Targets TLS 1.0 block ciphers |
| CRIME/BREACH | Compression-based data leaks |
| Heartbleed | Buffer over-read in OpenSSL |
| Sweet32 | Birthday attack on 64-bit ciphers |
| DROWN | Cross-protocol SSL/TLS attack |
| RC4 Weakness | Stream cipher vulnerabilities |

**🔹 Security Enhancements**

* **Forward Secrecy**: Prevents retrospective decryption
* **Certificate Pinning**: Prevents CA compromise
* **DNS Chain & Perspective Project**: Strengthen trust models

**🔹 Protocol Mechanics**

* TLS Handshake: Client/server negotiation
* Session IDs & Tickets: Reuse and resume sessions
* TLS Record Layer: Encrypts application data

For South African ISMS governance, refer to the

This is a dense and multi-layered procedural archive—part legal, part administrative, and part strategic. You're mapping out a **labour dispute and appeal framework** that spans CCMA referrals, Labour Court rulings, SAHRC complaints, sheriff board misconduct, and refugee law intersections. Let me help you synthesize this into a structured, modular format that supports both **case tracking** and **project financing**.

**⚖️ SECTION A: Labour Dispute Case Summary – JR 2461/15 & JA 37/2019**

**🔹 Core Documents & Filing Costs**

| **Document** | **Pages** | **Estimated Cost** |
| --- | --- | --- |
| Notice of Motion | 1–4 | R4 |
| Affidavit in Support | 5–9 | R5 |
| Proof of Service | 15–16 | R1 |
| Transcript Recording | 35–43 | — |
| Application for Leave to Appeal | — | Included |
| Affidavit of Registration (Mail) | — | Included |
| Skill Development Record | — | Included |
| Outcome Record & Government Appeal Agreement | — | Included |

**Total Estimated Filing Cost**: R700 + R700 (projected return via pro bono cost order)

**🔹 Legal Status & Appeal Notes**

* **Set Down**: Attorney filed pro bono; no cost order imposed
* **Appeal Grounds**: Substantive and procedural fairness
* **Affidavit Certification**: Mechanotechnic transcription certified by SABFS
* **SAHRC Complaint**: Filed under labour rights violation, investigation pending

**🛡️ SECTION B: Regulatory & Human Rights Complaints**

**🔹 SAHRC Complaint (Filed 8/27)**

* **Nature**: Labour rights violation, low-income discrimination
* **Status**: Under investigation by SAHRC office
* **Pro Bono Representation**: Confirmed

**🔹 Sheriff Misconduct Allegation**

* **Filed Under**: Section 43 & Regulation 22 of Sheriffs Act 90 of 1976
* **Required**: Affidavit with date, time, incident details
* **Board**: SABFS (South African Board for Sheriffs)

**🧾 SECTION C: Refugee & Immigration Law Intersection**

**🔹 Department of Home Affairs Referral**

* **Sections Invoked**: Section 22 & 24 of Refugees Act
* **Purpose**: Appeal for legal status, work permit, visa regularization
* **Supporting Docs**:
  + Sworn SAPS affidavit (ID objection)
  + Station Commander note (CAS 297/11/2024)

**📑 SECTION D: CCMA & Labour Relations Act (LRA) Procedures**

**🔹 Dispute Background**

* **Case**: GAJB6808-15
* **Issue**: Dismissal, rescission, award review
* **Union Applicant**: MM Steel Construction vs. Engineering Workers Union

**🔹 Key LRA Forms & Sections**

| **Form** | **Section** | **Purpose** |
| --- | --- | --- |
| 7.12 | 135(5) | Conciliation referral |
| 7.18 | 143 | Certification of award |
| 5.2 | — | Workplace forum establishment |
| 4.8 | — | Ratification of minimum service agreement |
| 129(1) | — | Con/Arb referral |

**🔹 Dispute Types**

* Unfair dismissal
* Mutual interest
* Discrimination
* Poor performance
* Operational requirements

**🔹 Status & Outcome**

* Some referrals resolved (e.g., 29/07/2014)
* Others pending or closed due to late submission
* Arbitration reference: EGaek022200841

**💼 SECTION E: Strategic Notes & Funding Implications**

* **Return Explanation**: Stamp-back confirmation received
* **Cost Order**: Attorney filed pro bono; no cost incurred
* **Funding Projection**: R700 + R700 for full document set
* **Compliance**: Government notices R1258 & R2648 satisfied
* **Accreditation Amendment**: Requested for private security bargaining council

Would you like this scaffolded into a **case management dashboard**, **legal funding proposal**, or **compliance audit binder**

Thanks for sharing this detailed correspondence trail, Tshingombe. You're clearly navigating a complex web of **employment application challenges**, **civil protection appeals**, and **multi-agency complaint procedures**—all while trying to secure justice, transparency, and career progression in the security sector.

Let me help you **clarify and structure your next steps**, based on what’s surfaced:

## 🧭 Summary of Your Situation

### 🔹 Employment & Application Challenges

* You applied for a **Security Officer post** under SAPS or related agencies.
* Your application was affected by **case number disputes**, **system failures at Home Affairs**, and **civil protection closures**.
* You referenced **Nogada Company**, **firefighting incidents**, and **DR Congo citizenship complications**.

### 🔹 Complaint Submissions

You’ve contacted:

* **SAPS Service Complaints**
* **Department of Home Affairs (DHA)**
* **CCMA**
* **PSiRA**
* **SAHRC**
* **Labour Court**
* **Various compliance and oversight bodies**

### 🔹 Response from SAPS

Lt Colonel ZT Tshabalala clarified that your matter is **not within SAPS jurisdiction**, and asked to be excluded from future correspondence

Thank you for sharing your SAPS application draft, Tshingombe. You’ve clearly invested a great deal of effort into documenting your career trajectory, training, and qualifications across multiple sectors—security, engineering, law enforcement, and public service. Let me help you refine and strengthen this submission so it aligns with SAPS standards and maximizes your eligibility.

**✅ Key Recommendations for Finalizing Your SAPS Application**

**1. Clarify the Post Reference Number**

Ensure the exact post reference number from the advertisement is filled in. This is critical for registration and tracking.

**Example**: Post Reference Number: SAPS/SEC/GAU/2025/001 *(Replace with actual reference from the job ad)*

**2. Complete Missing Fields**

Some fields are incomplete or unclear:

* **Postal Code**: Add for both home and work addresses.
* **Driver’s License Code & Validity**: Specify the code (e.g., Code B) and expiry date.
* **Email Address**: Include a working email for correspondence.
* **Health Comments**: If “Yes” to good health, leave comment section blank or write “N/A”.

**3. Attach Required Documents**

Double-check that you’ve included:

* Certified copy of your **ID**
* Certified copy of **driver’s license**
* **Senior Certificate** and **tertiary qualifications** (not just academic records)
* **Service certificates** from previous employers
* Updated **CV** with full career history and board memberships

**4. Address Disciplinary and Legal History Transparently**

You’ve referenced:

* CCMA and Labour Court matters
* Voluntary resignation with pending disciplinary case
* Protection order and affidavit

Ensure you attach:

* A **separate sheet** explaining each case clearly
* **Court documents** or outcomes where available
* A **statement of rehabilitation or resolution**, if applicable

This shows integrity and transparency, which SAPS values highly.

**5. Strengthen Career Development Section**

You’ve listed impressive training across:

* Microsoft (Azure Defender)
* ISC/SISCO
* Met Police UK
* Schneider, Eaton, SARS

Consider formatting this into a table for clarity:

| **Year** | **Institution** | **Course** | **Duration** |
| --- | --- | --- | --- |
| 2022 | Microsoft | Security Policy & Azure Defender | 2 weeks |
| 2023 | ISC/SISCO | Security Information Talk Brite | 1 month |
| 2024 | Met Police UK | Recruitment Training | 1 month |
| 2025 | Eaton | Security Engineering | — |

**6. Final Touches**

* Sign and date every page.
* Initial and surname at the bottom of each page.
* Submit original application and CV per post.
* Deliver before the closing date—preferably via courier to ensure receipt.

Would you like me to help you format your CV or draft a cover letter tailored to this SAPS post? I can also assist with a summary sheet for your legal disclosures or a motivation statement to accompany your application. Let’s make sure your submission reflects your full legacy and readiness for public service.

Thank you for sharing this full declaration and follow-up complaint, Tshingombe. You’ve demonstrated diligence, transparency, and a strong commitment to lawful procedure—especially in the face of complex challenges involving SAPS, Home Affairs, and personal security incidents.

Let me help you consolidate this into a **formalized, actionable structure** that supports both your SAPS application and your ongoing complaint regarding case CAS 297/11/2024.

## ✅ Section 1: SAPS Application Declaration Summary

You’ve acknowledged and signed the full set of conditions under:

* **National Instruction 6 of 2005**
* **Sexual Offences Act (2007)** and **Children’s Act (2005)**
* **Disclosure of criminal, disciplinary, and civil matters**
* **Vetting and fingerprinting requirements**

Your signature and date (28/05/2025, Johannesburg) confirm your understanding and compliance. This section is complete and ready for submission.

## 📂 Section 2: Case Follow-Up – CAS 297/11/2024

### 🔹 Summary of Complaint

* **Incident Location**: Barnato School, Berea / Hilbrow
* **Date of Incident**: November 2024
* **Items Lost**: Wallet (with asylum ID), FNB card, Shoprite savings card, food items
* **Investigation Officer**: Sgt Rasemola (Hilbrow SAPS)
* **Station Commander**: Hilbrow SAPS, 2024-11-09
* **Status**: Investigation temporarily suspended

### 🔹 New Information Provided

* Criminal activity observed in Berea, Belview, and Keppers between December–February
* Firearm threats and public safety concerns
* Attempted ID recovery at Home Affairs unsuccessful
* Shoprite refunded card; FNB card not recovered

## 📝 Suggested Next Steps

### 1. ****Formal Follow-Up Letter to SAPS Hilbrow****

I can help you draft a clean, professional letter requesting:

* Status update on CAS 297/11/2024
* Confirmation of docket deployment and arrest warrant
* Reinstatement of investigation based on new information

### 2. ****Affidavit for Home Affairs****

You may need to submit a sworn affidavit to:

* Reclaim your asylum ID
* Explain the circumstances of loss and attempted recovery
* Reference the criminal activity and SAPS case number

### 3. ****Complaint Escalation to IPID or SAHRC****

If SAPS does not respond or mishandles the case, you can escalate to:

* **IPID** (Independent Police Investigative Directorate)
* **SAHRC** (South African Human Rights Commission)

I can help you format this escalation with supporting evidence and a clear timeline.

Would you like me to draft the follow-up letter to SAPS or the affidavit for Home Affairs first? I can also help you prepare a summary sheet for legal aid or pro bono support. Let’s make sure your voice is heard and your documentation is airtight.

Thank you for sharing this full record, Tshingombe. You’ve documented a complex and deeply layered situation involving:

* A criminal case (CAS 297/11/2024) under Hilbrow SAPS
* Loss of personal documents and financial items
* Delays and gaps in Home Affairs recovery and affidavit processing
* Labour disputes, CCMA rulings, and private security sector wage issues
* Ongoing correspondence with legal and oversight bodies

Let’s break this down into a structured **response and action plan** that you can use to follow up with SAPS, Home Affairs, and CCMA more effectively.

## 🧾 SECTION A: Criminal Case Follow-Up – CAS 297/11/2024

### 🔹 Summary of Incident

* **Location**: Barnato School, Berea (wallet, asylum ID, FNB card, Shoprite card stolen)
* **Date of Report**: 2024-11-09
* **Investigating Officer**: Sgt Rasemola, Hilbrow SAPS
* **Status**: Investigation temporarily suspended
* **New Information**: Criminal activity observed in Berea, Belview, Keppers, and Hilbrow between Dec–Feb; suspects seen with firearms

### ✅ Recommended Action

You should submit a formal **case update request** to Hilbrow SAPS, including:

* Your original case number and date
* Summary of new criminal sightings
* Request for docket status and arrest warrant confirmation
* Reference to your affidavit and lost ID recovery attempts

I can help you draft this letter in a clean format if you'd like.

## 📂 SECTION B: Home Affairs – ID Recovery & Affidavit

### 🔹 Issue

* Attempted recovery of asylum ID failed
* Online Home Affairs system not working
* No resolution or response from local office

### ✅ Recommended Action

Submit a **sworn affidavit** to Home Affairs stating:

* Circumstances of ID loss (linked to CAS 297/11/2024)
* Failed recovery attempts
* Request for reissue or confirmation of ID status

You may also want to escalate to the **Office of the Inspector General for Immigration (OIGI)** if no response is received.

## ⚖️ SECTION C: Labour Dispute & CCMA

### 🔹 Summary

* Dispute with Nogada SA and other private security employers
* Poor pay, lack of formal wage slips, and independent car guard work
* CCMA ruling granted; DOJ review pending
* Sector: Private security bargaining unit

### ✅ Recommended Action

Prepare a **compliance summary** for CCMA and PSiRA:

* Attach your CCMA ruling and affidavit
* Include wage slips or statements (even informal)
* Request enforcement of award and sector compliance review

You may also want to request **legal aid or pro bono representation** for further review.

## 📎 Attachments & Documentation

You’ve referenced:

* 29 image attachments (likely evidence, wage slips, ID photos)
* CCMA ruling PDF
* Employer correspondence
* Duplicate letter from PFA

Make sure these are organized into:

1. **Criminal Case Folder**
2. **Home Affairs Folder**
3. **Labour Dispute Folder**

Each should include a cover sheet, timeline, and supporting documents.

Would you like me to help you draft:

* A formal letter to Hilbrow SAPS?
* An affidavit for Home Affairs?
* A compliance summary for CCMA or PSiRA?

Thank you for sharing this comprehensive and multi-agency record, Tshingombe. You’ve compiled a powerful archive of legal filings, disciplinary appeals, protection order applications, labour disputes, and security sector documentation. This reflects your deep engagement with justice systems, regulatory bodies, and career development across multiple domains.

To help you consolidate this into a **formalized portfolio or submission-ready framework**, here’s a structured summary and action map:

## 🧾 MASTER PORTFOLIO: LEGAL, SECURITY, AND LABOUR COMPLIANCE

**Author**: Tshingombe Tshitadi Fiston **Title**: Career Integrity and Sectoral Reform in Security, Labour, and Judicial Systems

### 📘 SECTION 1: Master of the High Court – Civil Case & Protection Order

* **Case URNs**: 112024CIV00005, 1042024CIV004539, 1042024CIV004511, etc.
* **Service Type**: Deceased estate, summons, power of attorney, notice of motion
* **Status**: Protection order application dismissed due to uncommissioned affidavit and lack of domestic violence grounds
* **Plaintiff**: Tshingombe Tshitadi
* **Respondent**: Sekgobela Judas Maluleke
* **System Used**: DOJ Online ICT Case Management

✅ Action: Submit a commissioned affidavit and reapply with supporting evidence if protection is still needed.

### ⚖️ SECTION 2: Labour Court & CCMA – Disciplinary Appeals and Rulings

* **Case Numbers**: JR 2461/15, JA 37/19, GAJB6808-15
* **Issues**: Dismissal, rescission, unfair labour practice, poor working conditions
* **Documents Filed**:
  + Notice of motion
  + Affidavit in support
  + Proof of service
  + Transcript recordings
  + Leave to appeal
  + Skill development agreement
* **Cost Estimate**: R700 + R700 (projected return via pro bono cost order)

✅ Action: Track CCMA certification under LRA Section 143(3); ensure enforcement of award via bargaining council or Labour Court.

### 🛡️ SECTION 3: Security Sector – Licensing, Accreditation, and Guarding Records

* **Entities**: Tshingombe Group Security, Brigade 119, Nogada SA
* **Documents**:
  + Guard duty rosters
  + Rank and grade certificates
  + Operational postings
  + Rescission transcripts
  + Sasseta accreditation comparisons
* **Legal Frameworks Referenced**:
  + PSIRA Act 56 of 2001
  + Basic Conditions of Employment Act 75 of 1997
  + Occupational Health and Safety Act 85 of 1993
  + Firearms Control Act 69 of 2000
  + Compensation for Occupational Injuries Act 130 of 1993

✅ Action: Submit updated license and accreditation documents to PSIRA and Sasseta; request sectoral review for wage and compliance irregularities.

### 🧩 SECTION 4: Refugee Law & Home Affairs – Affidavit and ID Recovery

* **Affidavit Reference**: 20250204
* **Issue**: Lost asylum ID, failed recovery attempts, criminal threats in Berea/Hilbrow
* **Related Case**: CAS 297/11/2024
* **Station Commander Note**: Hilbrow SAPS, 2024-11-09

✅ Action: Submit a sworn affidavit to Home Affairs with SAPS case reference; escalate to OIGI if unresolved.

### 📎 SECTION 5: Human Rights & Oversight Complaints

* **SAHRC Complaint**: Filed 8/27
* **Sheriff Misconduct**: Filed under Section 43 of Sheriffs Act 90 of 1976
* **Affidavit Required**: Date, time, incident, misconduct details

✅ Action: Follow up with SAHRC and SABFS; attach affidavit and case reference for formal investigation.

## 🧠 Strategic Summary

This portfolio reflects:

* Legal resilience and procedural literacy
* Cross-sector engagement in security, labour, and justice
* Modular documentation for career, compliance, and protection
* Ongoing pursuit of fairness, transparency, and lawful remedy

Would you like me to help format this into a **submission-ready binder**, **legal affidavit**, or **career dossier**

## 🔄 LOGIGRAMME: SYSTEMIC FLOW OF CASES & COMPLIANCE ACTIONS

plaintext

[Start]

↓

[Case Intake: DOJ Online / CCMA / PSIRA / SAPS]

↓

[Document Compilation]

├─ Affidavit

├─ Notice of Motion

├─ Transcript / Audio Record

├─ Proof of Service

└─ Licensing / Accreditation

↓

[Case Classification]

├─ Civil (Protection Order, Estate)

├─ Labour (Dismissal, Appeal)

├─ Security (Guarding, Licensing)

├─ Refugee / ID Recovery

└─ Human Rights / Oversight

↓

[Submission & Tracking]

├─ DOJ ICT Portal

├─ CCMA Referral

├─ PSIRA Licensing

├─ Home Affairs Affidavit

└─ SAHRC / SABFS Complaint

↓

[Outcome]

├─ Accepted → Enforcement / Award

├─ Dismissed → Resubmission / Appeal

└─ Pending → Follow-up / Escalation

↓

[Archive & Portfolio Update]

└─ Master Binder + URN Index + Strategic Summary

[End]

IF case\_type = "Protection Order" THEN

CHECK affidavit\_commissioned

IF false THEN

RETURN "Dismissed – Resubmit with commissioned affidavit"

ELSE

SUBMIT to DOJ Portal

ENDIF

IF case\_type = "Labour Dispute" THEN

CHECK CCMA\_award\_status

IF award\_enforced = false THEN

FILE under LRA 143(3)

TRACK via Labour Court

ELSE

ARCHIVE in Master Portfolio

ENDIF

IF case\_type = "Security Licensing" THEN

VERIFY PSIRA\_license AND Sasseta\_accreditation

IF expired OR missing THEN

UPDATE documents

SUBMIT to PSIRA

ELSE

FLAG for wage audit

ENDIF

IF case\_type = "Refugee ID Recovery" THEN

CHECK SAPS\_affidavit AND HomeAffairs\_submission

IF unresolved THEN

ESCALATE to OIGI

ELSE

ARCHIVE ID recovery

ENDIF

IF case\_type = "Human Rights Complaint" THEN

CHECK affidavit\_details

IF complete THEN

SUBMIT to SAHRC / SABFS

ELSE

REQUEST affidavit revision

ENDIF

## 📁 NEXT STEPS

I can help you:

* Format this into a **modular binder** with section tabs and URN index
* Draft **affidavit templates**, **submission letters**, or **case summaries**
* Create a **rubric-based career dossier** for institutional review or funding proposals

Would you like me to begin with a **binder layout**, a **legal affidavit template**, or a **security sector compliance dashboard**? You’

re building legacy-grade infrastructure—let’s make it airtight.

⚙️ ALGORIGRAMME: SECURITY GUARD PROGRAM & LABOUR COMPLIANCE FLOW

START

→ [Guard Employment Contract Initiation]

├─ Verify PSIRA/SASSETA registration

├─ Issue job description, salary, hours, disciplinary code

└─ Log commencement date and duty site

→ [Daily Operations & Control Room Logging]

├─ Record attendance, shift roster, patrol logs

├─ File transcript sheets, message book, visitor register

└─ Monitor incident reports and hazard assessments

→ [Incident or Misconduct Occurs]

├─ File affidavit and control sheet

├─ Notify supervisor and record in transcript

└─ Escalate to disciplinary hearing if needed

→ [Disciplinary Hearing Outcome]

├─ If dismissed: file appeal to CCMA or Labour Court

├─ If awarded: enforce ruling via LRA Section 143(3)

└─ If rescission: file variation or condonation application

→ [Bid Submission & Licensing]

├─ Submit bid documents: license, certificate, regulation compliance

├─ Include reconciliation clause, fire guard access, firearm control

└─ Register with committed security organisation

→ [Review & Compliance]

├─ Track JR/GAJB case numbers and CCMA referrals

├─ Submit affidavits, notices of motion, and transcripts

└─ Monitor court orders, set-downs, and pro bono filings

→ [Termination or Contract Closure]

├─ Issue final wage statement, hours worked, leave taken

├─ File employment particulars and BCAE communication

└─ Archive in master binder with pagination index

END

## LOGIGRAMME: VISUAL FLOW OF GUARDING PROGRAM & LEGAL TRACKING

plaintext

[Start]

↓

[Contract Initiation]

↓

[Operational Logging]

↓

[Incident or Misconduct]

↓

[Disciplinary Hearing]

├─ Dismissal → Appeal → CCMA/Labour Court

├─ Award → Enforcement → LRA 143(3)

└─ Rescission → Variation → Condonation

↓

[Bid Submission & Licensing]

↓

[Compliance Review]

↓

[Termination & Archive]

[End]

## 📁 SUPPORTING MODULES

### 🧾 Employment Contract Essentials

* Guard name, address, duty site, job title
* Salary, hours, overtime, leave, probation
* Disciplinary code, termination clause
* Reference: LRA Act 66 of 1995, Basic Conditions Act 1997

### 📋 Control Room Documentation

* Daily log sheets, incident reports, patrol records
* Transcript audio, affidavit filing, visitor access logs
* Hazard assessment, mitigation charts, firearm register

### 🧑‍⚖️ Legal & Labour Case Tracking

* JR 2462/25, GAJB6808/15, CCMA referrals
* Notices of motion, affidavits, rescission rulings
* Bid clause reconciliation, pro bono filings, set-downs

Would you like me to help format this into a **compliance dashboard**, **binder layout**, or **submission-ready affidavit series**? I can also scaffold a **guarding operations manual** or **bid proposal template** based on this logic. You're building a legacy-grade framework—let’s make it deployable.

[Start]

↓

[1. Contract Initiation]

├─ Issue employment contract

├─ Verify PSIRA/SASSETA registration

├─ Define job title, duty site, salary, hours, leave, probation

└─ Log disciplinary code and termination clause

↓

[2. Operational Logging]

├─ Record daily attendance and patrol logs

├─ Maintain control room registers (visitor, firearm, found property)

├─ File incident reports and hazard assessments

└─ Archive transcripts and affidavits

↓

[3. Incident or Misconduct]

├─ File internal report and notify supervisor

├─ Record in control room and OB book

└─ Prepare documentation for disciplinary hearing

↓

[4. Disciplinary Hearing]

├─ Dismissal → Appeal → CCMA or Labour Court

├─ Award → Enforcement → LRA Section 143(3)

└─ Rescission → Variation → Condonation Application

↓

[5. Bid Submission & Licensing]

├─ Submit bid documents: license, certificate, compliance forms

├─ Include reconciliation clause and firearm control

└─ Register with sectoral council or committed organisation

↓

[6. Compliance Review]

├─ Track CCMA rulings, court orders, and license status

├─ Submit affidavits, notices of motion, and transcripts

└─ Monitor pro bono filings and enforcement actions

↓

[7. Termination & Archive]

├─ Issue final wage statement and employment particulars

├─ File all documents in master binder with pagination index

└─ Close contract and archive for audit or legal review

[End]

Tshingombe, this is a rich and multifaceted draft—clearly drawn from deep operational, legal, and instructional experience. What you’ve assembled is a hybrid of:

* 📘 **Security operations manual**
* 📋 **Tender compliance checklist**
* 🧑‍🏫 **Training and coaching framework**
* 🧑‍⚖️ **Legal affidavit and statement protocol**
* 🛡️ **Industrial unit standard mapping**

To make this deployable and modular, I’ll scaffold it into a corrected and structured **algorigram/logigram** format, followed by a breakdown of key modules and how they can be refined into a binder, dashboard, or training system.

## 🔄 Corrected Logigram: Security Coaching, Compliance & Operational Flow

[Start]

↓

[1. Coaching & Training Initiation]

├─ Identify performance issue or development goal

├─ Apply coaching principles: support, motivation, value clarification

├─ Teach knowledge (theory, facts), skill (physical action), and attitude (value-based behavior)

└─ Use training cycle: explain → demonstrate → review → learner applies → field feedback

↓

[2. Statement & Report Writing]

├─ Observe incident and record facts (verbal or written)

├─ Take statement from witness/victim promptly

├─ Ensure clarity, honesty, directness, and factual accuracy

└─ Prepare for court or disciplinary hearing (Section 295, Criminal Procedure Act)

↓

[3. Tender & Licensing Compliance]

├─ Submit proof of registration (CIPC, PSIRA, COID, UIF)

├─ Verify SAPS clearance, liability insurance, control room specs

├─ Confirm firearm licensing, armory management, and SASSETA training

└─ Score operational readiness (experience, HR, equipment, fitness)

↓

[4. Patrol & Physical Security]

├─ Conduct perimeter patrols (fencing, gates, lighting, vulnerable points)

├─ Use detection tools (infrared, beams, CCTV)

├─ Respond rapidly to intrusions or incidents

└─ Record findings in OB book and control room logs

↓

[5. Equipment Use & Communication]

├─ Use baton, handcuffs, pepper spray per safety guidelines

├─ Operate two-way radio: clarity, brevity, secure transmission

├─ Apply voice protocol: rhythm, volume, pitch, phonetic clarity

└─ Confirm message status: “Over,” “Out,” “Say again”

↓

[6. Legal & Industrial Standards]

├─ Understand Private Security Industry Regulation Act 56 of 2001

├─ Apply Firearms Control Act 60 of 2000

├─ Know director and secretary duties in industrial unit standards

└─ Categorize services: guarding, investigation, intelligence, locksmithing

[End]

**📁 Modular Binder Sections**

**🧑‍🏫 Coaching & Training**

* Definitions: knowledge, skill, attitude
* Coaching vs training differences
* Training cycle: explain → demonstrate → review → apply
* Counseling steps and motivation enhancement

**🧾 Statement & Legal Reporting**

* Statement format and purpose
* Legal references: Section 295, refusal consequences
* Principles: accuracy, honesty, simplicity
* Statement structure: preamble, facts, opinion separation

**📋 Tender & Licensing Checklist**

| **Item** | **Requirement** | **Source** |
| --- | --- | --- |
| CIPC Registration | Yes | Company Act |
| PSIRA Certificate | Valid, Grade listed | PSIRA Act |
| COID/UIF | Good standing | Dept. of Labour |
| SAPS Clearance | <3 months | Criminal Procedure Act |
| Liability Insurance | ≥ R10M | Financial Services Provider |
| Control Room Specs | Reinforced, OB book | Tender Terms |
| Firearm Compliance | License, Competency | Firearms Act |
| Training Records | SASSETA, Annual | Sectoral Standards |

**🛡️ Patrol & Equipment Use**

* Patrol objectives: visibility, deterrence, detection
* Equipment: baton, handcuffs, pepper spray
* Communication: radio protocol, voice clarity
* Found property handling: safekeeping, record, handover

**🧠 Deployment Options**

Would you like me to:

1. **Format this into a training workbook** for security officers and supervisors?
2. **Build a compliance dashboard** for tender readiness and operational scoring?
3. **Draft affidavit templates and statement forms** for legal and disciplinary use?

You’ve already done the hard part—assembling the raw logic. I can now modularize it into a legacy-grade toolkit for deployment across PSIRA, SASSETA, SAPS, and industrial partners. Just say the word and I’ll scaffold the next layer.

h operational logic, compliance insight, and training scaffolding. I’ll now modularize and clarify your content into a **deployable framework** that can be used for:

* 🛡️ Guarding SOPs (Standard Operating Procedures)
* 📋 Compliance audits and shift handover protocols
* 🧠 Conflict resolution and first aid training
* ⚠️ Occupational Health & Safety (OHS) risk management

Let’s break it down into structured modules:

**🔄 Module 1: Shift Handover & Takeover Protocol**

**✅ Responsibilities**

* Duty officer must ensure all resources (equipment, vehicles, OB book) are accounted for
* Firearm registration must be verified—movement controlled, not stored by inspector
* Vehicle checks: license disc, logbook, fuel level, damage report
* OB book must be updated and signed during handover
* All material assets (radios, keys, uniforms) must be physically inspected

**📝 Handover Checklist**

| **Item** | **Action** | **Verified By** |
| --- | --- | --- |
| OB Book | Updated & signed | Outgoing & Incoming Officer |
| Firearm | Registered, logged | Duty Officer |
| Vehicle | Inspected, documents checked | Supervisor |
| Equipment | Counted, tested | Control Room |
| Site Inspection | Completed | Area Manager |

**🧨 Module 2: Conflict Identification & Defusing Techniques**

**🔍 Common Causes of Conflict**

* Poor communication
* Misalignment of resources
* Personality clashes
* Lack of problem-solving mechanisms

**🧠 Defusing Strategy**

* Identify underlying interests
* Use objective reasoning
* Encourage mutual solutions
* Recognize pre-assault indicators:
  + Verbal aggression
  + Posture changes
  + Suspicious timing or behavior
  + False sense of security

**🧑‍✈️ Officer Response Categories**

* **Verbal**: Calm tone, assertive language
* **Physical**: Defensive stance, safe distance
* **Appearance**: Professional demeanor, sobriety check

**🩹 Module 3: Basic First Aid in the Workplace**

**🧾 Purpose**

* To stabilize injury, prevent worsening, and prepare for medical assistance

**🧰 First Aid Box Contents**

* Bandages, scissors, antiseptic wipes
* Triangular bandage, sterile gloves
* First aid guide, safety pins

**🧑‍⚕️ Nominated First Aider**

* Must be clearly marked on box
* Responsible for treatment and reporting

**⚠️ Module 4: Occupational Health, Safety & Environmental Principles**

**🔍 Definitions**

* **Hazard**: Source of potential harm (e.g. noise, vibration, radiation)
* **Risk**: Likelihood and severity of harm occurring

**🧪 Risk Assessment Process**

1. Identify hazards
2. Evaluate probability and impact
3. Classify (physical, chemical, biological)
4. Document and mitigate

**🛠️ Common Unsafe Acts & Conditions**

* Using machinery without authorization
* Removing safety guards
* Poor lighting or ventilation
* Insecure storage of hazardous materials

**🧾 Incident Reporting**

* Purpose: Investigate root cause, prevent recurrence
* Factors: Unsafe acts, unsafe conditions, procedural gaps

Would you like me to format this into a **training workbook**, **audit checklist**, or **SOP binder**

[Start]

↓

[Shift takeover]

├─ Verify resources (OB book, keys, radios, vehicle, firearms)

├─ Record variances/non‑conformances

└─ Sign OB handover

↓

[On‑shift operations]

├─ Patrols → Log findings

├─ Incidents → Write statement → Notify

└─ Conflicts → Defuse → Record

↓

[First aid or safety event?]

├─ Yes → Apply first aid → Log treatment → Escalate if needed

└─ No → Continue operations

↓

[OHS risk management]

├─ Identify hazards

├─ Assess risk (probability × severity)

├─ Apply controls → Verify effectiveness

└─ Record in OHS register

↓

[Shift handover]

├─ Update OB book

├─ Complete handover checklist

└─ Sign off (outgoing/incoming)

## Data model (minimal, Excel or Access)

* **Guards:** GuardID, FullName, PSIRAGrade, Competencies
* **Shifts:** ShiftID, SiteID, StartTime, EndTime, OutgoingGuardID, IncomingGuardID, SupervisorID, OBPageStart, OBPageEnd
* **HandoverChecklist:** HandoverID, ShiftID, OBBook, FirearmRegister, VehicleDocs, EquipmentCount, SiteInspection, Notes, OutgoingSign, IncomingSign, Timestamp
* **Incidents:** IncidentID, ShiftID, Type (Incident/Conflict/FirstAid/OHS), Location, Time, Description, Severity, ActionsTaken, ReportedTo, StatementRef
* **Statements:** StatementID, IncidentID, DeponentName, Preamble, Facts, Opinions, DateSigned
* **OHSRisks:** RiskID, SiteID, Hazard, Probability, Severity, RiskScore, Control, Owner, DueDate, Status
* **Equipment:** EquipID, SiteID, Type (Radio/Baton/Keys/Vehicle/Firearm), Identifier, Status, LastChecked

Sources for “Type” fields should be validated with dropdowns to improve data quality.

' Module: modLifecycle

Option Explicit

Public Enum EventType

evNone = 0

evShiftTakeover = 1

evPatrol = 2

evIncident = 3

evConflict = 4

evFirstAid = 5

evOHS = 6

evShiftHandover = 7

End Enum

Public Enum ChecklistStatus

csNotStarted = 0

csInProgress = 1

csComplete = 2

End Enum

Public Type HandoverChecklistT

ShiftID As Long

OBBook As Boolean

FirearmRegister As Boolean

VehicleDocs As Boolean

EquipmentCount As Boolean

SiteInspection As Boolean

Notes As String

OutgoingSign As String

IncomingSign As String

Timestamp As Date

End Type

Public Sub RunLifecycle(ByVal e As EventType, ByVal shiftId As Long)

Select Case e

Case evShiftTakeover: DoShiftTakeover shiftId

Case evPatrol: LogPatrol shiftId

Case evIncident: CaptureIncident shiftId, "Incident"

Case evConflict: CaptureIncident shiftId, "Conflict"

Case evFirstAid: CaptureIncident shiftId, "FirstAid"

Case evOHS: CaptureIncident shiftId, "OHS"

Case evShiftHandover: DoShiftHandover shiftId

Case Else

Debug.Print "No event"

End Select

End Sub

Private Sub DoShiftTakeover(ByVal shiftId As Long)

Dim c As HandoverChecklistT

c = InitChecklist(shiftId)

' Prompt user via form to verify items

frmHandover.LoadChecklist c

frmHandover.Show

End Sub

Private Sub DoShiftHandover(ByVal shiftId As Long)

' Ensure OB book and checklist are completed

If Not IsChecklistComplete(shiftId) Then

MsgBox "Complete handover checklist before sign-off.", vbExclamation

Exit Sub

End If

' Stamp sign-off

UpdateShiftSignOff shiftId, Now

MsgBox "Shift handover recorded.", vbInformation

End Sub

Private Function InitChecklist(ByVal shiftId As Long) As HandoverChecklistT

Dim c As HandoverChecklistT

c.ShiftID = shiftId

c.Timestamp = Now

InitChecklist = c

End Function

Private Function IsChecklistComplete(ByVal shiftId As Long) As Boolean

' Replace with real table lookup

IsChecklistComplete = (Nz(DLookup("OBBook", "HandoverChecklist", "ShiftID=" & shiftId), False) \_

And Nz(DLookup("FirearmRegister", "HandoverChecklist", "ShiftID=" & shiftId), False) \_

And Nz(DLookup("VehicleDocs", "HandoverChecklist", "ShiftID=" & shiftId), False) \_

And Nz(DLookup("EquipmentCount", "HandoverChecklist", "ShiftID=" & shiftId), False) \_

And Nz(DLookup("SiteInspection", "HandoverChecklist", "ShiftID=" & shiftId), False))

End Function

Public Sub CaptureIncident(ByVal shiftId As Long, ByVal kind As String)

Dim frm As New frmIncident

frm.txtShiftID = CStr(shiftId)

frm.cboType = kind

frm.Show

End Sub

Public Sub LogPatrol(ByVal shiftId As Long)

Dim details As String

details = InputBox("Patrol details (area, time, findings):", "Log Patrol")

If Len(details) > 0 Then

InsertIncident shiftId, "Patrol", Now, "Patrol recorded: " & details, 0, "Logged", ""

End If

End Sub

Public Sub InsertIncident(ByVal shiftId As Long, ByVal typ As String, ByVal t As Date, \_

ByVal desc As String, ByVal severity As Integer, \_

ByVal actions As String, ByVal reportedTo As String)

Dim sql As String

sql = "INSERT INTO Incidents (ShiftID, Type, Time, Description, Severity, ActionsTaken, ReportedTo) " & \_

"VALUES (" & shiftId & ", '" & Replace(typ, "'", "''") & "', #" & Format(t, "mm/dd/yyyy hh:nn:ss") & "#, '" & \_

Replace(desc, "'", "''") & "', " & severity & ", '" & Replace(actions, "'", "''") & "', '" & \_

Replace(reportedTo, "'", "''") & "');"

CurrentDb.Execute sql, dbFailOnError

End Sub

Public Function RiskScore(ByVal probability As Integer, ByVal severity As Integer) As Integer

RiskScore = probability \* severity ' simple matrix 1..5 × 1..5

End Function

## Userforms (Excel or Access)

### Handover form (frmHandover)

* Controls:
  + CheckBoxes: chkOBBook, chkFirearmReg, chkVehicleDocs, chkEquipCount, chkSiteInspection
  + TextBox: txtNotes
  + TextBox: txtOutgoingSign, txtIncomingSign
  + CommandButtons: cmdSave, cmdSignOff
* Option Explicit
* Private mChecklist As HandoverChecklistT
* Public Sub LoadChecklist(ByVal c As HandoverChecklistT)
* mChecklist = c
* Me.txtNotes = ""
* End Sub
* Private Sub cmdSave\_Click()
* mChecklist.OBBook = Me.chkOBBook
* mChecklist.FirearmRegister = Me.chkFirearmReg
* mChecklist.VehicleDocs = Me.chkVehicleDocs
* mChecklist.EquipmentCount = Me.chkEquipCount
* mChecklist.SiteInspection = Me.chkSiteInspection
* mChecklist.Notes = Me.txtNotes
* mChecklist.OutgoingSign = Me.txtOutgoingSign
* mChecklist.IncomingSign = Me.txtIncomingSign
* SaveChecklist mChecklist
* MsgBox "Handover checklist saved.", vbInformation
* End Sub
* Private Sub cmdSignOff\_Click()
* Call cmdSave\_Click
* RunLifecycle evShiftHandover, mChecklist.ShiftID
* Unload Me
* End Sub
* Private Sub SaveChecklist(ByVal c As HandoverChecklistT)
* Dim sql As String
* sql = "INSERT INTO HandoverChecklist (ShiftID, OBBook, FirearmRegister, VehicleDocs, EquipmentCount, " & \_
* "SiteInspection, Notes, OutgoingSign, IncomingSign, Timestamp) VALUES (" & c.ShiftID & ", " & \_
* IIf(c.OBBook, "True", "False") & ", " & IIf(c.FirearmRegister, "True", "False") & ", " & \_
* IIf(c.VehicleDocs, "True", "False") & ", " & IIf(c.EquipmentCount, "True", "False") & ", " & \_
* IIf(c.SiteInspection, "True", "False") & ", '" & Replace(c.Notes, "'", "''") & "', '" & \_
* Replace(c.OutgoingSign, "'", "''") & "', '" & Replace(c.IncomingSign, "'", "''") & "', #" & \_
* Format(c.Timestamp, "mm/dd/yyyy hh:nn:ss") & "#);"
* CurrentDb.Execute sql, dbFailOnError
* End Sub

### Incident form (frmIncident)

* Controls:
  + TextBoxes: txtShiftID, txtLocation, txtTime, txtDescription, txtReportedTo
  + ComboBoxes: cboType (Incident/Conflict/FirstAid/OHS), cboSeverity (1–5)
  + CommandButtons: cmdSave, cmdStatement
* ' Code-behind: frmIncident
* Option Explicit
* Private Sub UserForm\_Initialize()
* Me.cboType.Clear
* Me.cboType.List = Array("Incident", "Conflict", "FirstAid", "OHS")
* Me.cboSeverity.Clear
* Me.cboSeverity.List = Array("1", "2", "3", "4", "5")
* Me.txtTime = Format(Now, "yyyy-mm-dd hh:nn")
* End Sub
* Private Sub cmdSave\_Click()
* InsertIncident CLng(Me.txtShiftID), Me.cboType, CDate(Me.txtTime), \_
* Me.txtDescription, CInt(Me.cboSeverity), \_
* "Reported to: " & Me.txtReportedTo, Me.txtReportedTo
* MsgBox "Record saved.", vbInformation
* Unload Me
* End Sub
* Private Sub cmdStatement\_Click()
* Dim stmtID As Long
* stmtID = CreateStatementPrompt(CLng(Me.txtShiftID), Me.txtDescription)
* MsgBox "Statement created: ID " & stmtID, vbInformation
* End Sub
* Private Function CreateStatementPrompt(ByVal shiftId As Long, ByVal desc As String) As Long
* Dim preamble As String, facts As String, opinions As String
* preamble = InputBox("Preamble (who you are, where, when):", "Statement")
* facts = InputBox("Facts observed (objective, chronological):", "Statement")
* opinions = InputBox("Opinions (clearly marked):", "Statement")
* Dim sql As String
* sql = "INSERT INTO Statements (IncidentID, DeponentName, Preamble, Facts, Opinions, DateSigned) " & \_
* "VALUES (Null, 'On-duty Officer', '" & Replace(preamble, "'", "''") & "', '" & \_
* Replace(facts, "'", "''") & "', '" & Replace(opinions, "'", "''") & "', #" & \_
* Format(Date, "mm/dd/yyyy") & "#);"
* CurrentDb.Execute sql, dbFailOnError
* CreateStatementPrompt = Nz(DMax("StatementID", "Statements"), 0)
* End Function
* ' Module: modOHS
* Option Explicit
* Public Function RiskRank(ByVal score As Integer) As String
* Select Case score
* Case Is >= 16: RiskRank = "High"
* Case 9 To 15: RiskRank = "Medium"
* Case Else: RiskRank = "Low"
* End Select
* End Function
* Public Sub AddRisk(ByVal siteId As Long, ByVal hazard As String, \_
* ByVal prob As Integer, ByVal sev As Integer, \_
* ByVal control As String, ByVal owner As String, ByVal dueDt As Date)
* Dim score As Integer: score = RiskScore(prob, sev)
* Dim sql As String
* sql = "INSERT INTO OHSRisks (SiteID, Hazard, Probability, Severity, RiskScore, Control, Owner, DueDate, Status) VALUES (" & \_
* siteId & ", '" & Replace(hazard, "'", "''") & "', " & prob & ", " & sev & ", " & score & ", '" & \_
* Replace(control, "'", "''") & "', '" & Replace(owner, "'", "''") & "', #" & \_
* Format(dueDt, "mm/dd/yyyy") & "#, 'Open');"
* CurrentDb.Execute sql, dbFailOnError
* End Sub

## Validation rules and scoring

* **Checklist completeness:**
  + All five checks True before handover allowed.
* **Incident severity guidance:**
  + 1–2: minor; 3: moderate; 4–5: escalate to supervisor and record statement.
* **OHS risk matrix:**
  + Probability 1–5, Severity 1–5, Score = P × S; rank with RiskRank().
* **Tender/Compliance spot checks (extensible):**
  + Add a “ComplianceFindings” table to log PSIRA certificates, COID/UIF, SAPS clearances with ExpiryDate and a daily alert query.

If you want, I can package this into an Access template (tables, forms, queries) or an Excel workbook with a Control Panel sheet, structured Tables, and the above VBA wired to buttons. Which platform do you want first: Access or Excel?

Tshingombe, this is a comprehensive and multi-layered draft—rich with sectoral logic, training scaffolding, and compliance architecture. What you’ve outlined spans:

* 🛡️ **Private and public security roles** (SASSETA, SAPS, SANDF, SETAs)
* 📚 **Employability syllabus blocks** (literacy, IT, communication, entrepreneurship)
* 🧪 **Practical training modules** (metal detectors, fire safety, equipment maintenance)
* 🧠 **Infrastructure and assessment logic** (equipment lists, summative exams, peer learning)
* ⚠️ **Event safety and stewarding protocols** (fire engineering, crowd control, risk assessment)
* 🔐 **Alarm and access control systems** (digital locks, exit requests, physical barriers)

Let me now modularize this into a deployable **algorigram**, followed by a **training syllabus matrix**, and a **compliance-ready installation checklist** for physical security systems.

**🔄 Algorigram: Security Training & Deployment Lifecycle**

plaintext

[Start]

↓

[1. Sector Alignment]

├─ Identify role: Grade A/B, Supervisor, Control Room, Advisor

├─ Map to SASSETA, SAPS, SANDF, SETA (EDSETA, CETA, etc.)

└─ Verify accreditation and compliance

↓

[2. Employability Skills Block]

├─ Literacy (English, IT, Communication)

├─ Behavioral & Interview Skills

├─ Entrepreneurship & Productivity

└─ Health, Safety, Environment (HSE)

↓

[3. Practical Training Modules]

├─ Metal detectors (handheld, doorframe)

├─ Firefighting, first aid, evacuation

├─ Equipment maintenance and role play

└─ Incident briefing and reporting

↓

[4. Infrastructure & Equipment]

├─ PC system, projector, UPS, smoke detector

├─ Flashlight, binoculars, wireless comms

├─ Hostel, dress book, insurance docs

└─ Safety zones, checkpoints, evacuation plan

↓

[5. Event Safety & Stewarding]

├─ Fire engineering, structural clearance

├─ Crowd control, PA system, mobile readiness

├─ Lighting, medical, fire precautions

└─ Toilets, signage, hazard-free premises

↓

[6. Alarm & Access Control Design]

├─ Access points: turnstile, elevator, parking

├─ Locking hardware: proximity, magnetic, card reader

├─ Exit logic: push-to-exit, monitored unlock

└─ Physical security plan: installation & testing

↓

[7. Final Assessment]

├─ Internal assessment: skills, knowledge, employment readiness

├─ Summative exam: marks, duration, pass criteria

└─ Risk assessment report: hazard, control, action, sign-off

[End]

## 📚 Training Syllabus Matrix (Block I)

| **Topic** | **Duration (hrs)** | **Method** |
| --- | --- | --- |
| English Literacy | 6 | Reading, speaking |
| IT Literacy | 8 | PC, Word, Excel |
| Communication Skills | 4 | Listening, verbal |
| Interview & Behavioral Skills | 4 | Role play, feedback |
| Entrepreneurship | 6 | Project, procurement |
| Productivity & Comparison | 3 | Case studies |
| Health, Safety, Environment | 6 | Hazard, accident, HSE |
| Energy Conservation | 2 | Awareness, practice |
| Quality Consciousness | 3 | ISO 9009, housekeeping |
| Bra Skills (On-the-job) | 10 | Floor training, safety |
| Equipment Demonstration | 6 | Metal detectors, fire |
| Incident Reporting | 4 | Briefing, documentation |
| Communication Practice | 3 | Walkie-talkie, drills |
| Final Assessment | 2 | Summative exam |

## 🔐 Physical Security Installation Checklist

| **Element** | **Description** | **Verified** |
| --- | --- | --- |
| Access Control Points | Turnstile, elevator, parking barriers | ✅ |
| Locking Hardware | Digital proximity, magnetic switch, card reader | ✅ |
| Alarm Signal Logic | Siren, monitored condition, push-to-exit | ✅ |
| Exit Mechanism | Request-to-exit button, monitored unlock | ✅ |
| Physical Barriers | Reinforced doors, fencing, structural clearance | ✅ |
| Control Room Integration | PA system, comms, CCTV, mobile readiness | ✅ |
| Fire Safety | Equipment, rubbish control, combustible storage | ✅ |
| Medical Facilities | First aiders, marked room, clearance | ✅ |
| Toilets & Signage | Clearly marked, accessible, accountable | ✅ |
| Risk Assessment Report | Hazard ID, person at risk, control measures, sign-off | ✅ |

Would you like me to scaffold t

[Start]

↓

[1. Sector alignment]

├─ Identify role: Grade A/B, Supervisor, Control Room, Advisor

├─ Map to SASSETA, SAPS, SANDF, SETA (EDSETA, CETA, etc.)

└─ Verify accreditation and compliance

↓

[2. Employability skills block]

├─ Literacy (English, IT, Communication)

├─ Behavioral & Interview skills

├─ Entrepreneurship & Productivity

└─ Health, Safety, Environment (HSE)

↓

[3. Practical training modules]

├─ Metal detectors (handheld, doorframe)

├─ Firefighting, first aid, evacuation

├─ Equipment maintenance and role play

└─ Incident briefing and reporting

↓

[4. Infrastructure & equipment]

├─ PC system, projector, UPS, smoke detector

├─ Flashlight, binoculars, wireless comms

├─ Hostel, dress book, insurance docs

└─ Safety zones, checkpoints, evacuation plan

↓

[5. Event safety & stewarding]

├─ Fire engineering, structural clearance

├─ Crowd control, PA system, mobile readiness

├─ Lighting, medical, fire precautions

└─ Toilets, signage, hazard-free premises

↓

[6. Alarm & access control design]

├─ Access points: turnstile, elevator, parking

├─ Locking hardware: proximity, magnetic, card reader

├─ Exit logic: push-to-exit, monitored unlock

└─ Physical security plan: installation & testing

↓

[7. Final assessment]

├─ Internal assessment: skills, knowledge, employment readiness

├─ Summative exam: marks, duration, pass criteria

└─ Risk assessment report: hazard, control, action, sign-off

[End]

## Minimal data model (Excel/Access)

* Learners: LearnerID, FullName, IDNo, Role, PSIRAGrade, UnitStandards, AccreditationStatus

**Minimal data model (Excel/Access)**

* Learners: LearnerID, FullName, IDNo, Role, PSIRAGrade, UnitStandards, AccreditationStatus
* Modules: ModuleID, Name, Category (Employability/Practical/Event/AccessControl), Hours, Method
* Enrolments: EnrolID, LearnerID, ModuleID, StartDate, EndDate, Status (Planned/In Progress/Done)
* Assessments: AssessID, LearnerID, ModuleID, Type (Formative/Summative), Score, MaxScore, PassMark, Result, Assessor, Date
* Risks: RiskID, SiteID, Hazard, Probability(1–5), Severity(1–5), RiskScore, Control, Owner, DueDate, Status
* Events: EventID, SiteID, Name, Date, Venue, RiskReportRef, StewardPlanRef, SignOff
* Installations: InstallID, SiteID, AccessPoint, LockType, ReaderType, DoorSwitch, REXType, TestedBy, TestDate, Result

Tip: In Excel, make each table an official ListObject (Ctrl+T); in Access, mirror names for 1:many relationships.

**Visual Basic (VBA) core: lifecycle state machine**

vb

' Module: modLifecycle

Option Explicit

Public Enum Stage

stNone = 0

stSector = 1

stEmployability = 2

stPractical = 3

stInfrastructure = 4

stEventSafety = 5

stAccessDesign = 6

stFinalAssessment = 7

End Enum

Public Sub RunStage(ByVal s As Stage, ByVal learnerId As Long)

Select Case s

Case stSector: SectorAlignment learnerId

Case stEmployability: LaunchEmployability learnerId

Case stPractical: LaunchPractical learnerId

Case stInfrastructure: CheckInfrastructure learnerId

Case stEventSafety: EventSafetyPlan learnerId

Case stAccessDesign: AccessControlDesign learnerId

Case stFinalAssessment: FinaliseAssessment learnerId

Case Else: MsgBox "No stage selected.", vbInformation

End Select

End Sub

Private Sub SectorAlignment(ByVal learnerId As Long)

' Map role → standards/accreditation checklist

frmSector.Tag = CStr(learnerId)

frmSector.Show

End Sub

Private Sub LaunchEmployability(ByVal learnerId As Long)

OpenModules learnerId, "Employability"

End Sub

Private Sub LaunchPractical(ByVal learnerId As Long)

OpenModules learnerId, "Practical"

End Sub

Private Sub CheckInfrastructure(ByVal learnerId As Long)

frmInfra.Tag = CStr(learnerId)

frmInfra.Show

End Sub

Private Sub EventSafetyPlan(ByVal learnerId As Long)

frmEventSafety.Tag = CStr(learnerId)

frmEventSafety.Show

End Sub

Private Sub AccessControlDesign(ByVal learnerId As Long)

frmAccessDesign.Tag = CStr(learnerId)

frmAccessDesign.Show

End Sub

Private Sub FinaliseAssessment(ByVal learnerId As Long)

frmSummative.Tag = CStr(learnerId)

frmSummative.Show

End Sub

Public Sub OpenModules(ByVal learnerId As Long, ByVal category As String)

frmModules.cboCategory.Value = category

frmModules.txtLearnerID.Value = CStr(learnerId)

frmModules.Show

End Sub

' Module: modAssess

Option Explicit

Public Function PassFail(ByVal score As Double, ByVal maxScore As Double, ByVal passMark As Double) As String

If maxScore <= 0 Then

PassFail = "Invalid"

ElseIf (score / maxScore) \* 100 >= passMark Then

PassFail = "Pass"

Else

PassFail = "Fail"

End If

End Function

Public Sub SaveAssessment(ByVal learnerId As Long, ByVal moduleId As Long, \_

ByVal aType As String, ByVal score As Double, ByVal maxScore As Double, \_

ByVal passMark As Double, ByVal assessor As String)

Dim result As String: result = PassFail(score, maxScore, passMark)

Dim sql As String

sql = "INSERT INTO Assessments (LearnerID, ModuleID, Type, Score, MaxScore, PassMark, Result, Assessor, [Date]) VALUES (" & \_

learnerId & "," & moduleId & ",'" & aType & "'," & score & "," & maxScore & "," & passMark & ",'" & \_

result & "','" & Replace(assessor, "'", "''") & "', #" & Format(Date, "mm/dd/yyyy") & "#)"

CurrentDb.Execute sql, dbFailOnError

End Sub

' Module: modRisk

Option Explicit

Public Function RiskScore(ByVal p As Integer, ByVal s As Integer) As Integer

RiskScore = p \* s ' 1..5 × 1..5

End Function

Public Function RiskBand(ByVal score As Integer) As String

Select Case score

Case Is >= 16: RiskBand = "High"

Case 9 To 15: RiskBand = "Medium"

Case Else: RiskBand = "Low"

End Select

End Function

Public Sub AddRisk(ByVal siteId As Long, ByVal hazard As String, ByVal p As Integer, ByVal s As Integer, \_

ByVal control As String, ByVal owner As String, ByVal dueDt As Date)

Dim sc As Integer: sc = RiskScore(p, s)

Dim sql As String

sql = "INSERT INTO Risks (SiteID, Hazard, Probability, Severity, RiskScore, Control, Owner, DueDate, Status) VALUES (" & \_

siteId & ",'" & Replace(hazard, "'", "''") & "'," & p & "," & s & "," & sc & ",'" & \_

Replace(control, "'", "''") & "','" & Replace(owner, "'", "''") & "',#" & Format(dueDt, "mm/dd/yyyy") & "#,'Open')"

CurrentDb.Execute sql, dbFailOnError

End Sub

' Module: modInstall

Option Explicit

Public Sub LogAccessPoint(ByVal siteId As Long, ByVal accessPoint As String, \_

ByVal lockType As String, ByVal readerType As String, ByVal doorSwitch As String, \_

ByVal rexType As String, ByVal testedBy As String, ByVal testDate As Date, ByVal result As String)

Dim sql As String

sql = "INSERT INTO Installations (SiteID, AccessPoint, LockType, ReaderType, DoorSwitch, REXType, TestedBy, TestDate, Result) VALUES (" & \_

siteId & ",'" & Replace(accessPoint, "'", "''") & "','" & Replace(lockType, "'", "''") & "','" & \_

Replace(readerType, "'", "''") & "','" & Replace(doorSwitch, "'", "''") & "','" & Replace(rexType, "'", "''") & \_

"','" & Replace(testedBy, "'", "''") & "',#" & Format(testDate, "mm/dd/yyyy") & "#,'" & Replace(result, "'", "''") & "')"

CurrentDb.Execute sql, dbFailOnError

End Sub

## Userforms to wire quickly (Excel or Access)

* frmSector: Role (Grade A/B, Supervisor, Control Room, Advisor), SASSETA US mapped, Accreditation checklist (PSIRA, SETA), cmdSave → write to Learners.
* frmModules: txtLearnerID, cboCategory, list of Modules by category, cmdEnroll → append Enrolments; cmdComplete → set Status=Done.
* frmInfra: equipment checklist (PC, projector, UPS, smoke detector, radios, binoculars), cmdSave → infra log.
* frmEventSafety: fields for Event, Venue, PA/mobile checks, lighting, medical, fire, toilets, signage; “Generate Risk Report” → adds Risks rows.
* frmAccessDesign: access point grid (turnstile, elevator, parking), lock/reader/door switch/REX; cmdTest → LogAccessPoint.
* frmSummative: select Learner & Modules, enter scores, pass mark; SaveAssessment.

If you prefer Excel, map forms to tables on sheets with ListObjects and replace CurrentDb.Execute with worksheet writes.

Security system algorigram and logigram [Start]

↓

[1. Sector alignment]

├─ Role mapping: Grade A/B, Supervisor, Control Room, Advisor

├─ Standards: SASSETA US, PSIRA, SAPS/SANDF interfaces, SETAs (EDTP, CETA)

└─ Accreditation and license verification

↓

[2. Design brief intake]

├─ Site survey → zones, entry/exit, critical assets

├─ Threat/risk profile → likelihood × impact

└─ Compliance constraints → tender specs, OHS, Fire, POPIA

↓

[3. System architecture]

├─ Access control (readers, locks, REX, door contacts)

├─ CCTV (cameras, lenses, NVR, storage, networks)

├─ Alarms (PIRs, panic buttons, duress, smoke/heat)

├─ Perimeter (beams, electric/razor/mesh fencing)

└─ Control rooms (workstations, VMS, UPS, comms)

↓

[4. Equipment schedule and vector symbol map]

├─ Device taxonomy → symbol set → drawing legend

├─ Bill of materials (BOM) with quantities and locations

└─ Cable routes and power budget

↓

[5. Installation & commissioning]

├─ Method statements, SABS/SANS references

├─ Test plans: door logic, alarm signalling, camera views

└─ Acceptance criteria and as-built drawings

↓

[6. Event safety & emergency planning]

├─ Evac routes, assembly points, fire zones

├─ Stewarding, PA/voice, medical, lighting checks

└─ Fire equipment, drills, and maintenance plan

↓

[7. Training & operations]

├─ Employability skills block (IT, literacy, communication)

├─ Practical modules (detectors, first aid, radio)

└─ SOPs: reporting, conflict de-escalation, shift handover

↓

[8. Assessment & audit]

├─ Summative assessments, logbooks

├─ OHS risk register and mitigations

└─ Tender compliance checklist and evidence binder

[End]

## Device taxonomy and symbol legend (vector-ready)

* Access control
  + Card reader, keypad, biometric reader, door contact, maglock/strike, request-to-exit, turnstile, barrier gate.
* CCTV
  + Fixed dome, bullet, PTZ, thermal, ANPR, encoder, NVR, VMS workstation.
* Alarms
  + Panic button, PIR, glass-break, duress pedal, siren/strobe, smoke/heat detector, control panel, keypad.
* Perimeter
  + Active IR beam, microwave barrier, electric fence energizer, fence sensor, gate loop detector.
* Communications/infra
  + PoE switch, UPS, patch panel, fiber tray, wireless bridge, network cabinet.
* Guarding/safety
  + Two-way radio, body-worn camera, first-aid box, fire extinguisher, hydrant, dry riser test point.
* Keys/firearms controls (where lawfully applicable)
  + Key cabinet, armory register, safe, revolver record entry (no depiction of misuse).
* Traffic and crowd
  + Traffic cone, bollard, signage, queue barrier, handheld wand.

Tip: Create a drawing legend mapping DeviceType → VectorSymbolName so your CAD/diagram tool auto-places the correct icon.

## Minimal data model (Excel/Access)

* Sites: SiteID, Name, Address, RiskClass, PSIRARef
* Zones: ZoneID, SiteID, Name, Purpose, RiskScore
* Devices: DeviceID, SiteID, ZoneID, DeviceType, MakeModel, Identifier, X, Y, Floor, PowerW, PoE(Boolean), Status
* Links: LinkID, FromDeviceID, ToDeviceID, Medium (UTP/Fiber/Power/Signal), LengthM
* Tests: TestID, DeviceID, TestType, Date, Result, Technician, Notes
* BOM: BomID, DeviceType, MakeModel, Qty, UnitCost, Extended
* Risks: RiskID, SiteID, Hazard, Probability(1–5), Severity(1–5), Score, Control, Owner, DueDate, Status
* Training: ModuleID, Name, Category, Hours, Method
* Assessments: AssessID, LearnerID, ModuleID, Score, MaxScore, PassMark, Result, Date

## CCTV plan checklist (quick)

* Coverage: entrances, cash/asset points, perimeters, parking, control room
* Camera choice: FoV, lux, WDR, IR, resolution, lens (mm), mount
* Storage: retention (days), bitrate calc, RAID, UPS autonomy
* Network: PoE budget, VLANs, uplink capacity, fiber where >90 m
* Legal: signage, privacy zones, footage handling (chain of custody)

## Emergency plan diagram layers

* Evac routes and stair cores per floor
* Assembly points and muster counts
* Fire zones, extinguishers, hydrants, risers
* Emergency lighting and PA/voice nodes
* Disabled refuge points, lift restrictions
* Steward positions and radio channels

## Fire safety engineering tasks

* Training: fire awareness, warden training, extinguisher practicals
* Maintenance: dry riser/hydrant testing, extinguisher service schedule
* Risk assessment: ignition sources, fuel loads, vulnerable persons
* Plans: pre-incident plans, escape diagrams on each floor, drill log

## VBA (Excel/Access): core modules

### 1) Device registry and BOM builder

' Module: modDevices

Option Explicit

Public Sub AddDevice(ByVal siteId As Long, ByVal zoneId As Long, ByVal devType As String, \_

ByVal makeModel As String, ByVal ident As String, \_

ByVal x As Double, ByVal y As Double, ByVal floor As String, \_

ByVal powerW As Double, ByVal isPoE As Boolean)

Dim sql As String

sql = "INSERT INTO Devices (SiteID, ZoneID, DeviceType, MakeModel, Identifier, X, Y, Floor, PowerW, PoE, Status) VALUES (" & \_

siteId & "," & zoneId & ",'" & Clean(devType) & "','" & Clean(makeModel) & "','" & Clean(ident) & "'," & \_

x & "," & y & ",'" & Clean(floor) & "'," & powerW & "," & IIf(isPoE, "True", "False") & ",'Planned')"

CurrentDb.Execute sql, dbFailOnError

End Sub

Public Sub BuildBOM(ByVal siteId As Long)

Dim rs As DAO.Recordset, sql As String

CurrentDb.Execute "DELETE FROM BOM WHERE 1=1"

sql = "SELECT DeviceType, MakeModel, Count(\*) AS Qty FROM Devices WHERE SiteID=" & siteId & " GROUP BY DeviceType, MakeModel"

Set rs = CurrentDb.OpenRecordset(sql, dbOpenSnapshot)

Do While Not rs.EOF

CurrentDb.Execute "INSERT INTO BOM (DeviceType, MakeModel, Qty, UnitCost, Extended) VALUES ('" & \_

Clean(rs!DeviceType) & "','" & Clean(rs!MakeModel) & "'," & rs!Qty & ",0,0)"

rs.MoveNext

Loop

rs.Close

' Compute Extended when UnitCost later captured

CurrentDb.Execute "UPDATE BOM SET Extended = Nz(UnitCost,0)\*Nz(Qty,0)"

MsgBox "BOM built. Update UnitCost to price the project.", vbInformation

End Sub

Private Function Clean(ByVal s As String) As String

Clean = Replace(Nz(s, ""), "'", "''")

End Function

' Module: modRisk

Option Explicit

Public Function RiskScore(ByVal prob As Integer, ByVal sev As Integer) As Integer

RiskScore = prob \* sev

End Function

Public Function RiskBand(ByVal score As Integer) As String

Select Case score

Case Is >= 16: RiskBand = "High"

Case 9 To 15: RiskBand = "Medium"

Case Else: RiskBand = "Low"

End Select

End Function

Public Sub AddRisk(ByVal siteId As Long, ByVal hazard As String, \_

ByVal prob As Integer, ByVal sev As Integer, \_

ByVal control As String, ByVal owner As String, ByVal dueDt As Date)

Dim sc As Integer: sc = RiskScore(prob, sev)

Dim sql As String

sql = "INSERT INTO Risks (SiteID, Hazard, Probability, Severity, Score, Control, Owner, DueDate, Status) VALUES (" & \_

siteId & ",'" & Replace(hazard, "'", "''") & "'," & prob & "," & sev & "," & sc & ",'" & \_

Replace(control, "'", "''") & "','" & Replace(owner, "'", "''") & "',#" & Format(dueDt, "mm/dd/yyyy") & "#,'Open')"

CurrentDb.Execute sql, dbFailOnError

' Module: modCommission

Option Explicit

Public Sub QueueDoorTests(ByVal siteId As Long)

Dim rs As DAO.Recordset, sql As String, devId As Long

sql = "SELECT DeviceID FROM Devices WHERE SiteID=" & siteId & " AND DeviceType IN ('DoorContact','Maglock','REX','Reader')"

Set rs = CurrentDb.OpenRecordset(sql, dbOpenSnapshot)

Do While Not rs.EOF

devId = rs!DeviceID

AddTest devId, "PowerFailRelease"

AddTest devId, "REXUnlock"

AddTest devId, "DoorForcedAlarm"

rs.MoveNext

Loop

rs.Close

MsgBox "Door tests queued for commissioning.", vbInformation

End Sub

Public Sub AddTest(ByVal deviceId As Long, ByVal testType As String)

Dim sql As String

sql = "INSERT INTO Tests (DeviceID, TestType, [Date], Result, Technician, Notes) VALUES (" & \_

deviceId & ",'" & Replace(testType, "'", "''") & "',#" & Format(Now, "mm/dd/yyyy hh:nn:ss") & "#,'Pending','','')"

CurrentDb.Execute sql, dbFailOnError

End Sub

' Module: modDiagram

Option Explicit

Public Sub ExportNodesEdges(ByVal siteId As Long, ByVal folder As String)

ExportNodes siteId, folder & "\nodes.csv"

ExportEdges siteId, folder & "\edges.csv"

MsgBox "Exported nodes and edges CSV. Import to your diagram tool.", vbInformation

End Sub

Private Sub ExportNodes(ByVal siteId As Long, ByVal path As String)

Dim rs As DAO.Recordset, f As Integer

Set rs = CurrentDb.OpenRecordset("SELECT DeviceID, DeviceType, Identifier, X, Y, Floor FROM Devices WHERE SiteID=" & siteId, dbOpenSnapshot)

f = FreeFile

Open path For Output As #f

Print #f, "id,label,type,x,y,floor"

Do While Not rs.EOF

Print #f, rs!DeviceID & ",""" & rs!Identifier & """,""" & rs!DeviceType & """," & rs!X & "," & rs!Y & ",""" & rs!Floor & """"

rs.MoveNext

Loop

Close #f: rs.Close

End Sub

Private Sub ExportEdges(ByVal siteId As Long, ByVal path As String)

Dim rs As DAO.Recordset, f As Integer

Set rs = CurrentDb.OpenRecordset( \_

"SELECT L.LinkID, L.FromDeviceID, L.ToDeviceID, L.Medium, L.LengthM " & \_

"FROM Links AS L INNER JOIN Devices AS D ON L.FromDeviceID=D.DeviceID " & \_

"WHERE D.SiteID=" & siteId, dbOpenSnapshot)

f = FreeFile

Open path For Output As #f

Print #f, "id,source,target,medium,length\_m"

Do While Not rs.EOF

Print #f, rs!LinkID & "," & rs!FromDeviceID & "," & rs!ToDeviceID & ",""" & rs!Medium & """," & Nz(rs!LengthM, 0)

rs.MoveNext

Loop

Close #f: rs.Close

End Sub

' Module: modTraining

Option Explicit

Public Sub SeedTraining()

AddModule "English literacy", "Employability", 6, "Reading, writing, speaking"

AddModule "IT literacy", "Employability", 8, "PC, Word, Excel"

AddModule "Radio communications", "Practical", 3, "Protocol, phonetic, drills"

AddModule "Metal detectors", "Practical", 3, "Handheld & doorframe"

AddModule "First aid basics", "Practical", 3, "Stabilize, report, escalate"

AddModule "Fire awareness", "Practical", 3, "Extinguishers, evacuation"

AddModule "Alarm & access control", "Practical", 4, "Readers, locks, REX"

AddModule "Incident reporting", "Practical", 4, "Statements, OB, chain of custody"

End Sub

Private Sub AddModule(ByVal name As String, ByVal cat As String, ByVal hrs As Integer, ByVal method As String)

CurrentDb.Execute "INSERT INTO Training (Name, Category, Hours, Method) VALUES ('" & \_

Replace(name, "'", "''") & "','" & Replace(cat, "'", "''") & "'," & hrs & ",'" & Replace(method, "'", "''") & "')"

End Sub

Public Sub RecordAssessment(ByVal learnerId As Long, ByVal moduleName As String, \_

ByVal score As Double, ByVal maxScore As Double, ByVal passMark As Double)

Dim moduleId As Long

moduleId = Nz(DLookup("ModuleID", "Training", "Name='" & Replace(moduleName, "'", "''") & "'"), 0)

If moduleId = 0 Then

MsgBox "Module not found: " & moduleName, vbExclamation

Exit Sub

End If

Dim result As String

If maxScore > 0 And (score / maxScore) \* 100 >= passMark Then

result = "Pass"

Else

result = "Fail"

End If

CurrentDb.Execute "INSERT INTO Assessments (LearnerID, ModuleID, Score, MaxScore, PassMark, Result, [Date]) VALUES (" & \_

learnerId & "," & moduleId & "," & score & "," & maxScore & "," & passMark & ",'" & result & "',#" & Format(Date, "mm/dd/yyyy") & "#)"

End Sub

## Access control logic checks (commissioning)

* Power fail releases maglocks as required (life-safety).
* REX triggers timed unlock; forced open alarms if contact state invalid.
* Dual-reader doors enforce anti-passback where configured.
* Panic inputs latch to alarm with audible/visual indication in control room.
* Doors with card-only entry have free-egress or monitored REX push-to-exit.

## Quick-start: 80 “vector shapes” mapping concept

Create a lookup table VectorLegend(DeviceType, VectorSymbolName, Layer) and prefill with the most common 40–80 items across:

* Access: CardReader, Keypad, Biometric, Maglock, Strike, DoorContact, REXButton, Turnstile, BarrierGate.
* CCTV: DomeCam, BulletCam, PTZ, ThermalCam, ANPR, NVR, VMS, Monitor.
* Alarm: PanicButton, PIR, GlassBreak, Duress, Siren, Strobe, Smoke, Heat, Panel, Keypad.
* Perimeter: IRBeamTx, IRBeamRx, MicrowaveBarrier, ElectricFence, FenceSensor.
* Infra: PoESwitch, UPS, Rack, PatchPanel, FiberTray, WiFiBridge.
* Safety: FireExtinguisher, Hydrant, DryRiser, FirstAid, ExitSign.
* Ops: Radio, BWC, KeyCabinet, Safe.
* Traffic: Cone, Bollard, QueueBarrier, Sign.

Use this to drive your diagram legend and auto-place symbols when importing nodes into a drawing tool.

## What do you want next?

* An Access template with these tables, forms, and macros wired, or
* An Excel workbook with buttons for “Build BOM”, “Export Diagram CSV”, “Queue Door Tests”, and “Seed Training”.

Tell me the platform, and I’ll tailor the files, plus pre-seed PSIRA grades, SASSETA unit standard references, and a Johannesburg sample site to accelerate deployment.

## Algorigram and logigram: Compliance-to-pricing pipeline

plaintext

[Start]

↓

[1. Standards intake]

├─ Register compulsory specs (VC) and SANS/IEC clauses

├─ Load Government Gazette amendments (notice → impact)

└─ Define project policy: security, safety, electrical scope

↓

[2. Design capture]

├─ Supply type (1φ/3φ), fault level, earthing system

├─ Circuits: load, length, PF, conductor, installation method

├─ Security/ICT systems: access, CCTV, alarms, automation

└─ Fire/OHS: egress, zones, equipment, drills

↓

[3. Compliance verification]

├─ Voltage drop ≤ 5% (SANS 10142 baseline)

├─ Protection: breaker/RCBO/RCD selection (VC references)

├─ Positioning & access, DB assembly/busbar limits

└─ CoC prerequisites checklist

↓

[4. Cost–price–reward]

├─ Build BOM (materials, labour, subcontract, compliance)

├─ Compute price (overheads, margin, risk, VAT)

└─ Rewards/penalties (KPI/LD) model

↓

[5. Gazette alignment]

├─ Map notices → affected standards

├─ Create site impact checks and actions

└─ Version the design/CoC with change log

↓

[6. Commissioning & handover]

├─ Electrical tests (insulation/earth/loop/RCD)

├─ Security system tests (door logic, alarms, retention)

└─ Issue CoC, as-builts, O&M pack

↓

[7. Monitoring & enforcement]

├─ OHS/Fire inspections, NCR (defence/offence) register

└─ Close-out rewards; track warranty actions

[End]

**Key technical anchors**

* Supply and voltages:
  + Single-phase 230–240 V, 50 Hz; typical 60–100 A service.
  + Three-phase 400/230 V (line-line/line-neutral).
  + Extra-low voltage ≤ 50 V AC or DC (controls, comms).
* Voltage drop limit (design to ≤ 5%):
  + Single-phase: target ≤ 11.5 V drop on 230 V.
  + Three-phase: target ≤ 20 V drop on 400 V.
* Protection and assemblies:
  + Circuit breakers (VC ref, conformance).
  + Earth-leakage/RCD where applicable (not a substitute for basic protection).
  + DB accessibility; busbar current density per SANS/IEC assembly spec.
* CoC gate:
  + Design conformance + verified tests + documentation before energizing.

Voltage drop formulae:

ΔV1ϕ=I⋅(Rcos⁡φ+Xsin⁡φ)⋅2L\Delta V\_{1\phi} = I \cdot (R\cos\varphi + X\sin\varphi) \cdot 2L

ΔV3ϕ=3⋅I⋅(Rcos⁡φ+Xsin⁡φ)⋅L\Delta V\_{3\phi} = \sqrt{3} \cdot I \cdot (R\cos\varphi + X\sin\varphi) \cdot L

%ΔV=ΔVVrated×100\% \Delta V = \frac{\Delta V}{V\_\text{rated}} \times 100

**Minimal data model (Excel or Access)**

* Standards(StdID, Code, Title, Clause, Threshold, Unit, Notes)
* Gazettes(GazID, NoticeNo, GazetteNo, Date, Subject, AffectedStandards, Impact, Status)
* Sites(SiteID, Name, SupplyType, DeclaredV, FaultLevel, Earthing, Env)
* Circuits(CircuitID, SiteID, Name, Phase(1/3), LengthM, CurrentA, PF, Conductor(Cu/Al), CSAmm2, R\_ohm\_km, X\_ohm\_km, Vrated, dV, dVpct, Pass)
* Devices(DeviceID, SiteID, System(Access/CCTV/Alarm/Automation), Type, MakeModel, Qty, UnitCost, LabourHrs, TestHrs, ComplianceRefs)
* BOM(BomID, SiteID, Item, Qty, UnitCost, LabourHrs, SubcontractRate, Extended)
* ComplianceChecks(CheckID, SiteID, Area, StdRef, Result, Evidence, Responsible, Due)
* Costs(CostID, SiteID, Type(Materials/Labour/Subcontract/Compliance/Risk), Amount, Notes)
* PriceModel(PriceID, SiteID, BaseCost, OverheadsPct, MarginPct, RiskPct, PriceExcl, VATPct, PriceIncl)
* Rewards(RewardID, SiteID, Trigger, Amount, Status)
* NCR(EnfID, SiteID, Category(Defence/Offence), Description, Date, Outcome, FinancialImpact)
* ' Module: modVoltDrop
* Option Explicit
* Public Function VoltDropSingle(ByVal I As Double, ByVal R As Double, \_
* ByVal X As Double, ByVal PF As Double, \_
* ByVal L\_m As Double) As Double
* Dim L\_km As Double, sinphi As Double
* L\_km = L\_m / 1000#
* sinphi = Sqr(1 - PF ^ 2)
* VoltDropSingle = I \* (R \* PF + X \* sinphi) \* (2# \* L\_km)
* End Function
* Public Function VoltDropThree(ByVal I As Double, ByVal R As Double, \_
* ByVal X As Double, ByVal PF As Double, \_
* ByVal L\_m As Double) As Double
* Dim L\_km As Double, sinphi As Double
* L\_km = L\_m / 1000#
* sinphi = Sqr(1 - PF ^ 2)
* VoltDropThree = Sqr(3#) \* I \* (R \* PF + X \* sinphi) \* L\_km
* End Function
* Public Function VoltDropPct(ByVal dV As Double, ByVal Vrated As Double) As Double
* VoltDropPct = (dV / Vrated) \* 100#
* End Function
* Public Function PassVoltDrop(ByVal isThreePhase As Boolean, ByVal I As Double, \_
* ByVal R As Double, ByVal X As Double, ByVal PF As Double, \_
* ByVal L\_m As Double, ByVal Vrated As Double, \_
* Optional ByVal limitPct As Double = 5#) As Boolean
* Dim dV As Double, pct As Double
* If isThreePhase Then
* dV = VoltDropThree(I, R, X, PF, L\_m)
* Else
* dV = VoltDropSingle(I, R, X, PF, L\_m)
* End If
* pct = VoltDropPct(dV, Vrated)
* PassVoltDrop = (pct <= limitPct)
* End Function
* ' Module: modStandards
* Option Explicit
* Public Sub SeedStandards()
* AddStd "SANS 10142", "Wiring of premises", "Volt drop ≤ 5%", "%"
* AddStd "VC 8036", "Circuit breakers", "Conformant device selection", "n/a"
* AddStd "VC 8003", "Earth-leakage (RCD/ELU)", "Coverage per zone/use", "mA"
* AddStd "Assemblies", "DB assemblies", "Busbar current density per spec", "A/mm²"
* AddStd "Plugs/Sockets", "Outlets/adaptors", "Pattern and safety", "n/a"
* End Sub
* Private Sub AddStd(ByVal code As String, ByVal title As String, \_
* ByVal clause As String, ByVal unit As String)
* CurrentDb.Execute "INSERT INTO Standards (Code, Title, Clause, Unit, Notes) VALUES ('" & \_
* Clean(code) & "','" & Clean(title) & "','" & Clean(clause) & "','" & Clean(unit) & "','')"
* End Sub
* Public Sub AddGazette(ByVal noticeNo As String, ByVal gazetteNo As String, \_
* ByVal gazDate As Date, ByVal subject As String, \_
* ByVal affected As String, ByVal impact As String)
* CurrentDb.Execute "INSERT INTO Gazettes (NoticeNo, GazetteNo, [Date], Subject, AffectedStandards, Impact, Status) VALUES ('" & \_
* Clean(noticeNo) & "','" & Clean(gazetteNo) & "',#" & Format(gazDate, "mm/dd/yyyy") & "#,'" & \_
* Clean(subject) & "','" & Clean(affected) & "','" & Clean(impact) & "','Open')"
* End Sub
* Public Sub BuildImpactChecklist(ByVal gazId As Long, ByVal siteId As Long)
* Dim list As String, arr() As String, i As Long
* list = Nz(DLookup("AffectedStandards", "Gazettes", "GazID=" & gazId), "")
* If Len(list) = 0 Then Exit Sub
* arr = Split(list, ",")
* For i = LBound(arr) To UBound(arr)
* AddCheck siteId, "Global", Trim$(arr(i)), "Pending", "Gazette#" & gazId
* Next i
* End Sub
* Private Sub AddCheck(ByVal siteId As Long, ByVal area As String, ByVal stdRef As String, \_
* ByVal result As String, ByVal notes As String)
* CurrentDb.Execute "INSERT INTO ComplianceChecks (SiteID, Area, StdRef, Result, Evidence, Responsible, Due) VALUES (" & \_
* siteId & ",'" & Clean(area) & "','" & Clean(stdRef) & "','" & Clean(result) & "','" & Clean(notes) & "','', Null)"
* End Sub
* Private Function Clean(ByVal s As String) As String
* Clean = Replace(Nz(s, ""), "'", "''")
* End Function
* ' Module: modPricing
* Option Explicit
* Public Sub AddDeviceCost(ByVal siteId As Long, ByVal item As String, \_
* ByVal qty As Double, ByVal unitCost As Double, \_
* ByVal labourHrs As Double, ByVal labourRate As Double, \_
* ByVal subcontract As Double, ByVal compliance As Double)
* Dim mat As Double, lab As Double, total As Double
* mat = qty \* unitCost
* lab = labourHrs \* labourRate
* total = mat + lab + subcontract + compliance
* AddCost siteId, "Materials", mat, item
* AddCost siteId, "Labour", lab, item
* If subcontract > 0 Then AddCost siteId, "Subcontract", subcontract, item
* If compliance > 0 Then AddCost siteId, "Compliance", compliance, item
* End Sub
* Private Sub AddCost(ByVal siteId As Long, ByVal typ As String, ByVal amount As Double, ByVal notes As String)
* CurrentDb.Execute "INSERT INTO Costs (SiteID, Type, Amount, Notes) VALUES (" & \_
* siteId & ",'" & Replace(typ, "'", "''") & "'," & amount & ",'" & Replace(notes, "'", "''") & "')"
* End Sub
* Public Function BuildBaseCost(ByVal siteId As Long) As Double
* Dim rs As DAO.Recordset, sum As Double
* Set rs = CurrentDb.OpenRecordset("SELECT Amount FROM Costs WHERE SiteID=" & siteId, dbOpenSnapshot)
* Do While Not rs.EOF
* sum = sum + Nz(rs!Amount, 0#)
* rs.MoveNext
* Loop
* rs.Close
* BuildBaseCost = sum
* End Function
* Public Sub SavePrice(ByVal siteId As Long, ByVal overheadsPct As Double, \_
* ByVal marginPct As Double, ByVal riskPct As Double, ByVal vatPct As Double)
* Dim baseCost As Double, priceExcl As Double, priceIncl As Double
* baseCost = BuildBaseCost(siteId)
* priceExcl = baseCost \* (1# + riskPct / 100#) \* (1# + overheadsPct / 100#) \* (1# + marginPct / 100#)
* priceIncl = priceExcl \* (1# + vatPct / 100#)
* CurrentDb.Execute "INSERT INTO PriceModel (SiteID, BaseCost, OverheadsPct, MarginPct, RiskPct, PriceExcl, VATPct, PriceIncl) VALUES (" & \_
* siteId & "," & baseCost & "," & overheadsPct & "," & marginPct & "," & riskPct & "," & priceExcl & "," & vatPct & "," & priceIncl & ")", dbFailOnError
* End Sub
* Public Sub RegisterReward(ByVal siteId As Long, ByVal trigger As String, ByVal amount As Double)
* CurrentDb.Execute "INSERT INTO Rewards (SiteID, Trigger, Amount, Status) VALUES (" & \_
* siteId & ",'" & Replace(trigger, "'", "''") & "'," & amount & ",'Pending')"
* End Sub
* Public Sub SetRewardStatus(ByVal rewardId As Long, ByVal status As String)
* CurrentDb.Execute "UPDATE Rewards SET Status='" & Replace(status, "'", "''") & "' WHERE RewardID=" & rewardId, dbFailOnError
* End Sub
* ' Module: modCoC
* Option Explicit
* Public Function PassCoC(ByVal siteId As Long) As Boolean
* ' Gate: all compliance checks Pass and all circuits Pass
* Dim badChecks As Long, badCircuits As Long
* badChecks = Nz(DCount("\*", "ComplianceChecks", "SiteID=" & siteId & " AND Result<>'Pass'"), 0)
* badCircuits = Nz(DCount("\*", "Circuits", "SiteID=" & siteId & " AND Pass=False"), 0)
* PassCoC = (badChecks = 0 And badCircuits = 0)
* End Function
* Public Sub ExportCoCReport(ByVal siteId As Long, ByVal path As String)
* Dim f As Integer: f = FreeFile
* Open path For Output As #f
* Print #f, "CoC Pre‑check Report for SiteID " & siteId
* Print #f, "ComplianceChecks not Pass: " & DCount("\*", "ComplianceChecks", "SiteID=" & siteId & " AND Result<>'Pass'")
* Print #f, "Circuits not Pass: " & DCount("\*", "Circuits", "SiteID=" & siteId & " AND Pass=False")
* Close #f
* MsgBox "CoC pre‑check exported.", vbInformation
* End Sub

## Example workflow

1. Seed standards and register Gazette notices (amendments affecting breakers, RCDs, plugs/sockets).
2. Capture circuits; compute ΔV\Delta V and flag Pass ≤ 5%.
3. Add devices (security/ICT/fire), build costs (materials, labour, subcontract, compliance).
4. Save price (overheads, margin, risk, VAT) and register rewards (e.g., “Zero NCR at handover”).
5. Build impact checklist from Gazette, close items with evidence.
6. Run CoC pre-check; if Pass, generate report for handover pack.

If you want, I can tailor this into an Access template or Excel workbook with a Control Panel (buttons: “Seed Standards”, “Add Gazette”, “Validate Circuits”, “Build Costs”, “Compute Price”, “CoC Pre‑check”, “Export Reports”). Which platform should I prepare first, and do you want a preloaded Johannesburg site profile (230/400 V, typical Cu resistances, default PF)?

[Start]

↓

[1. Inputs]

├─ Labour catalog (category → ZAR/hr)

├─ Materials catalog (item → ZAR/unit)

├─ Subcontract catalog (BOQ lines → ZAR/unit)

├─ Productivity norms (hrs/unit by skill)

├─ Compliance tasks (tests, CoC, inspections)

└─ Site factors (location, access, shift, risk)

↓

[2. Scope capture]

├─ Electrical: DBs, circuits, points, cable runs

├─ Lighting: rooms, lux targets, control

├─ Security/ICT: CCTV, access, intercom

├─ Plumbing: geyser SANS 10254 tasks

└─ Provisional items and contingencies

↓

[3. Quantification]

├─ Take-off → quantities (units)

├─ Labour hours = qty × hrs/unit

├─ Materials cost = qty × unit cost

├─ Subcontract = qty × sub rate

└─ Compliance/test hours

↓

[4. Cost build-up]

├─ Direct costs: labour + materials + subcontract

├─ Compliance/testing (fixed/percent)

├─ Overheads (%)

├─ Risk/contingency (%)

└─ Margin (%)

↓

[5. Price and outputs]

├─ Price excl. VAT

├─ VAT (SA default 15%)

├─ Price incl. VAT

├─ BOQ with unit rates

└─ Logs: assumptions, versions, approvals

↓

[6. Review and sign-off]

├─ Sensitivity (rates, productivity, risk)

└─ Freeze baseline; export schedules

[End]

**Catalogs, rates, and BOQ templates**

**Labour rate guideline**

| **Category** | **Typical scope** | **Guideline ZAR/hr** | **Productivity hrs/unit (editable)** |
| --- | --- | --- | --- |
| Skilled worker | DB install, terminations, testing | 250–450 | 1.5 (DB) |
| Semi-skilled worker | Chasing, pulling, mounting | 150–250 | 0.6 (point) |
| General worker | Carry, clean, assist | 100–170 | 0.2 (point) |
| Supervisor | QA, permits, sign-off | 350–600 | 0.3 (DB) |

Sources: set your own rates per current wage tables or agreement; the above are placeholders. Concrete grade, if applicable to sleeves/ducting: e.g., 25 MPa or 30 MPa — price via materials catalog.

**Daily cost roll-up**

* **Formula (team day cost):**

Daily cost=∑(Hours⋅Rate)+Consumables+Plant+Travel\text{Daily cost} = \sum (\text{Hours} \cdot \text{Rate}) + \text{Consumables} + \text{Plant} + \text{Travel}

* **Formula (unit labour cost):**

Unit labour cost=hrs/unit⋅rate\text{Unit labour cost} = \text{hrs/unit} \cdot \text{rate}

**Subcontractor rate sheet (electrical)**

| **Description** | **Unit** | **Rate ZAR/unit** | **Notes** |
| --- | --- | --- | --- |
| Basic distribution board installation (single-phase) | each |  | Cover, mount, gland, label |
| Basic distribution board installation (three-phase) | each |  | Include torque test |
| Three-phase protection set (main + RCD + SPD) | set |  | Device spec per design |
| Fit ripple relay + geyser contactor | each |  | Includes control wiring |
| Fit sub-board to outbuilding | each |  | Cable, trenching extra |
| Supply and lay 3-phase cable from boundary | m |  | Specify size and trench class |
| Supply and lay 2-phase cable from boundary | m |  | Clarify phases/neutral |
| Cable to external light | m |  | UV-rated |
| Supply/install boundary box | each |  | Metering per utility |
| Fit stove/oven/hob point excl. light | each |  | 32 A or per plate rating |
| Fit internal light point | each |  | Box, wire, test |
| Recessed light point (slab) | each |  | Allow coring/boxing |
| Double plug point | each |  | Dedicated or ring per design |
| DStv decoder conduit point | each |  | RG6 by others? |
| Waterproof plug point | each |  | IP65 |
| TV point conduit only | each |  | Draw cord |
| Telecom sleeve conduit | m |  | 50 mm sleeve |
| Dimmer switch | each |  | Rated to load |
| Two-way switch | each |  |  |
| Motor gate point (excl. motor) | each |  | 230 V feed |
| Photo-cell (day/night) | each |  | With contactor if needed |
| Shaver point | each |  | Isolated |
| Heated towel rail point | each |  |  |
| Air-conditioner point | each |  | Per BTU/amp |
| Underfloor heating point | each |  | RCD required |
| Garage door operator point | each |  | Ceiling drop |
| Bathroom heater point | each |  | IP zone check |
| Audio speaker point | each |  | Conduit to hub |
| Pool pump point (water-right) | each |  | G\_land, IP |
| Doorbell point with 12 V transformer | each |  | SELV |
| Intercom supply + 12 V transformer | point |  | With isolator |
| Supply-fix small power trunking | m |  | Include accessories |

Add a “Scope” column if you need to model inclusions/exclusions precisely.

**VBA cost engine and catalogs (Excel/Access)**

**1) Core types and helpers**

vb

' Module: modTypes

Option Explicit

Public Type RateItem

Name As String

Rate As Double ' ZAR per hour or per unit

End Type

Public Type BOQItem

Code As String

Desc As String

Unit As String

Qty As Double

MatUnit As Double

SubUnit As Double

HrsPerUnit As Double

CrewMixSkilled As Double ' fraction of hours

CrewMixSemi As Double

CrewMixGeneral As Double

OverheadsPct As Double

RiskPct As Double

MarginPct As Double

End Type

Public Function NzD(ByVal v As Variant, ByVal d As Double) As Double

If IsNull(v) Or IsEmpty(v) Then

NzD = d

Else

NzD = v

End If

End Function

Public Function Round2(ByVal v As Double) As Double

Round2 = WorksheetFunction.Round(v, 2)

End Function

' Module: modCatalog

Option Explicit

Public Sub SeedLabourRates(ByVal rSkilled As Double, ByVal rSemi As Double, ByVal rGen As Double, ByVal rSup As Double)

PutRate "Skilled", rSkilled

PutRate "Semi", rSemi

PutRate "General", rGen

PutRate "Supervisor", rSup

End Sub

Private Sub PutRate(ByVal name As String, ByVal rate As Double)

#If Win64 Then

' Excel Table: LabourRates(Name, Rate)

#End If

With Sheet1.ListObjects("LabourRates").ListRows.Add

.Range(1, 1).Value = name

.Range(1, 2).Value = rate

End With

End Sub

Public Function GetRate(ByVal name As String) As Double

Dim lo As ListObject, r As ListRow

Set lo = Sheet1.ListObjects("LabourRates")

For Each r In lo.ListRows

If StrComp(CStr(r.Range(1, 1).Value), name, vbTextCompare) = 0 Then

GetRate = NzD(r.Range(1, 2).Value, 0#)

Exit Function

End If

Next r

GetRate = 0#

End Function

' Module: modCost

Option Explicit

Public Function CalcLinePrice(ByRef item As BOQItem) As Double

Dim skilled As Double, semi As Double, gen As Double

Dim rateS As Double, rateM As Double, rateG As Double

Dim mat As Double, subc As Double, lab As Double

Dim base As Double, withOH As Double, withRisk As Double, withMargin As Double

' Labour hours

skilled = item.Qty \* item.HrsPerUnit \* NzD(item.CrewMixSkilled, 0#)

semi = item.Qty \* item.HrsPerUnit \* NzD(item.CrewMixSemi, 0#)

gen = item.Qty \* item.HrsPerUnit \* NzD(item.CrewMixGeneral, 0#)

' Rates

rateS = GetRate("Skilled")

rateM = GetRate("Semi")

rateG = GetRate("General")

' Costs

lab = skilled \* rateS + semi \* rateM + gen \* rateG

mat = item.Qty \* NzD(item.MatUnit, 0#)

subc = item.Qty \* NzD(item.SubUnit, 0#)

base = lab + mat + subc

' Uplifts

withOH = base \* (1# + NzD(item.OverheadsPct, 0#) / 100#)

withRisk = withOH \* (1# + NzD(item.RiskPct, 0#) / 100#)

withMargin = withRisk \* (1# + NzD(item.MarginPct, 0#) / 100#)

CalcLinePrice = Round2(withMargin)

End Function

Public Function PriceInclVAT(ByVal priceExcl As Double, Optional ByVal vatPct As Double = 15#) As Double

PriceInclVAT = Round2(priceExcl \* (1# + vatPct / 100#))

End Function

' Module: modBOQ

Option Explicit

Public Sub PriceBOQ()

Dim lo As ListObject, r As ListRow, itm As BOQItem

Dim priceEx As Double, priceIn As Double

Set lo = Sheet1.ListObjects("BOQ") ' Columns: Code,Desc,Unit,Qty,MatUnit,SubUnit,HrsPerUnit,CrewSk,CrewSe,CrewGe,OH,Risk,Margin,PriceEx,PriceIn

For Each r In lo.ListRows

itm.Code = r.Range(1, 1).Value

itm.Desc = r.Range(1, 2).Value

itm.Unit = r.Range(1, 3).Value

itm.Qty = NzD(r.Range(1, 4).Value, 0#)

itm.MatUnit = NzD(r.Range(1, 5).Value, 0#)

itm.SubUnit = NzD(r.Range(1, 6).Value, 0#)

itm.HrsPerUnit = NzD(r.Range(1, 7).Value, 0#)

itm.CrewMixSkilled = NzD(r.Range(1, 8).Value, 0#)

itm.CrewMixSemi = NzD(r.Range(1, 9).Value, 0#)

itm.CrewMixGeneral = NzD(r.Range(1, 10).Value, 0#)

itm.OverheadsPct = NzD(r.Range(1, 11).Value, 0#)

itm.RiskPct = NzD(r.Range(1, 12).Value, 0#)

itm.MarginPct = NzD(r.Range(1, 13).Value, 0#)

priceEx = CalcLinePrice(itm)

priceIn = PriceInclVAT(priceEx, Sheet1.Range("VATPct").Value)

r.Range(1, 14).Value = priceEx

r.Range(1, 15).Value = priceIn

Next r

End Sub

' Module: modLighting

Option Explicit

Public Function MaintainedLux(ByVal lumensPerFitting As Double, ByVal CU As Double, \_

ByVal MF As Double, ByVal fittings As Long, ByVal area\_m2 As Double) As Double

Dim totalLum As Double

totalLum = lumensPerFitting \* fittings \* CU \* MF

MaintainedLux = Round2(totalLum / area\_m2)

End Function

Public Function RequiredFittings(ByVal targetLux As Double, ByVal lumensPerFitting As Double, \_

ByVal CU As Double, ByVal MF As Double, ByVal area\_m2 As Double) As Long

Dim n As Double

n = (targetLux \* area\_m2) / (lumensPerFitting \* CU \* MF)

RequiredFittings = Application.WorksheetFunction.Ceiling\_Precise(n, 1)

End Function

* **Lumen method equations:**

E=N⋅F⋅CU⋅MFAE = \frac{N \cdot F \cdot CU \cdot MF}{A}

N=⌈E⋅AF⋅CU⋅MF⌉N = \left\lceil \frac{E \cdot A}{F \cdot CU \cdot MF} \right\rceil

* **Typical starting targets (edit to spec):**
  + **Entrance hall:** 200–300 lux
  + **Stairs:** 100–150 lux
  + **Kitchen task areas:** 300–500 lux
  + **Bedroom ambient:** 100–200 lux

**6) Voltage drop checker (reuse-ready)**

' Module: modVDrop

Option Explicit

Public Function dV\_1ph(ByVal I As Double, ByVal R As Double, ByVal X As Double, \_

ByVal PF As Double, ByVal L\_m As Double) As Double

Dim L\_km As Double, sphi As Double

L\_km = L\_m / 1000#

sphi = Sqr(1 - PF ^ 2)

dV\_1ph = I \* (R \* PF + X \* sphi) \* (2# \* L\_km)

End Function

Public Function dV\_3ph(ByVal I As Double, ByVal R As Double, ByVal X As Double, \_

ByVal PF As Double, ByVal L\_m As Double) As Double

Dim L\_km As Double, sphi As Double

L\_km = L\_m / 1000#

sphi = Sqr(1 - PF ^ 2)

dV\_3ph = Sqr(3#) \* I \* (R \* PF + X \* sphi) \* L\_km

End Function

Public Function dV\_pct(ByVal dV As Double, ByVal Vrated As Double) As Double

dV\_pct = (dV / Vrated) \* 100#

**Lighting and controls overview**

* **Definitions:**
  + **Lamp:** Light source (LED, fluorescent, halogen).
  + **Luminaire:** Fitting housing and optics.
  + **Colour:** CCT (K) and CRI; select per space use.
  + **Control:** Switches, dimmers, occupancy, daylight sensors.
* **Regulatory anchors:**
  + **Safety:** Low-voltage installation rules; luminaire connection systems to appropriate safety standards.
  + **Energy efficiency:** Target maintained illuminance with appropriate MF and CU; apply controls to reduce burn hours.
* **Ballasts/drivers:**
  + **Electronic driver:** For LED; ensure dimming protocol match (0–10 V, DALI).
* **Planning steps:**
  + **Define target lux per space.**
  + **Select luminaire photometrics and CU.**
  + **Choose MF** based on environment and maintenance cycle.
  + **Calculate fittings** via the lumen method.
  + **Assign circuits and controls** (two-way, dimmer, sensor).
* **Sample calculation:**

A=20 m2, E=300 lux, F=2000 lm, CU=0.6, MF=0.8A = 20\ \text{m}^2,\ E=300\ \text{lux},\ F=2000\ \text{lm},\ CU=0.6,\ MF=0.8

N=⌈300⋅202000⋅0.6⋅0.8⌉=⌈6.25⌉=7N = \left\lceil \frac{300 \cdot 20}{2000 \cdot 0.6 \cdot 0.8} \right\rceil = \lceil 6.25 \rceil = 7

**Compliance checklists and safety hooks**

* **Electrical CoC preconditions:**
  + **Disconnection and isolation:** Clear, lockable, accessible.
  + **Protection selection:** Breakers, RCD/RCBO matched to circuits.
  + **Voltage drop:** Design to ≤ 5% branch and feeder limits.
  + **DB assembly:** Labeling, torque logs, busbar ratings.
  + **Positioning:** Height, ingress, accessibility, zone ratings in wet areas.
* **Geyser (water heater) essentials:**
  + **Pressure control, expansion relief, and safety valve.**
  + **Drip tray, overflow routing, isolator within sight.**
  + **Bonding/earthing, correctly rated circuit and disconnector.**
* **Security integration:**
  + **SELV/ELV segregation** from mains.
  + **Dedicated power with RCD where required.**
  + **Functional tests:** CCTV recording, door access fail-safe/fail-secure, intercom power, and retention.

**SASSETA policing modules matrix (template)**

| **Module** | **Learning outcome focus** | **Credit** | **Assessment artifacts** |
| --- | --- | --- | --- |
| Regulatory framework | Evidence law; CPA in policing; common law/statutory offences; CJS overview |  | Case briefs; scenario analyses |
| Criminal investigation | Preliminary investigation; statements; reports |  | Simulated dockets; chain-of-custody logs |
| Community policing | Principles; ethics and professional conduct |  | Community engagement plan |
| Client service centre | Manage CSC; detention management |  | SOPs; custody register audit |
| Tactical policing | Street survival; proportional force; complaint reception |  | Practical drills; use-of-force reflections |
| Operations (SAPS) | Collision scene; domestic incident handling |  | Incident reports; checklists |
| Detective/forensic | Evidence handling; basic forensics |  | Evidence collection worksheets |
| MIS and admin | Information management; frameworks; comms |  | Dashboards; comms templates |
| Traffic operations | Road management; vehicle relations |  | Traffic ops plan |
| Paralegal basics | Police science intro; public policy; admin of justice |  | Notes; policy memos; quizzes |

* **Link to trade modules:** Where electrical/security installations occur in policing facilities, align safety testing (PAT, RCD tests, DB audits) with operational security tests (CCTV, access control), and document both in a unified commissioning report.

**What would help me tailor this for you**

* **Provide your current ZAR/hr rates** for skilled, semi-skilled, general, supervisor.
* **Pick your platform:** Excel workbook with tables and buttons, or an Access database with forms.
* **Confirm VAT and overhead defaults:** I’ll set 15% VAT and your preferred overhead/risk/margin.
* **Share your preferred lux targets** per space, and I’ll preload a lighting sheet for a Johannesburg residential/commercial baseline.

Tshingombe, you've compiled a powerful and multidimensional archive—spanning licensing administration, electrical compliance, cyber security, career assessments, and FOI procedures. To support your licensing administrator role and infrastructure oversight, I’ll scaffold a Visual Basic–driven framework that integrates:

* 🧾 Licensing and duty tracking
* 🧠 Career assessment and training records
* ⚙️ Engineering and security compliance
* 📊 Cost analysis and amendment bill tracking
* 📁 FOI and legal request validation

Let’s break this into a deployable **algorigram**, **logigram**, and **modular VBA codebase** for your licensing administrator dashboar

[Start]

↓

[1. Role and Facility Setup]

├─ Assign roles: Lead DevOps, Intelligence Officer, Infrastructure Engineer

├─ Register training facility and duty posts

└─ Configure licensing blocks (PC, Office 365, Defender, Clipchamp)

↓

[2. License Capture and Automation]

├─ Online license form (IO, cyber, certificate)

├─ Duty book automation (MetBook, posted agreements)

└─ Block mark validation (field name vs current value)

↓

[3. Career and Assessment Tracking]

├─ Record training modules (Eaton, Schneider, Microsoft)

├─ Score assessments (VFD, C445, HVAC, biometrics)

└─ Generate transcript and badge summary

↓

[4. Cost and Amendment Bill Analysis]

├─ Labour rate guidelines (skill level, wage/hr)

├─ Subcontractor rates (electrical BOQ)

├─ Amendment bill tracking (SABS, OSHA, IEC)

└─ Licensing cost vs reward matrix

↓

[5. FOI and Legal Request Validation]

├─ Validate FOI request (Section 8 compliance)

├─ Capture ID/address proof

└─ Generate legal annex and response log

↓

[6. Reporting and Export]

├─ Export licensing dashboard

├─ Generate career summary

└─ Submit FOI/legal reports

[End]

## 🧭 Logigram: Licensing Form Logic

plaintext

[Start]

↓

[License Form Submission]

├─ Field: Certificate → Value inspected vs current

├─ Field: Cyber → Value match check

└─ Field: Duty Posted → Agreement validation

↓

[Automation Trigger]

├─ If values match → auto-approve

└─ If mismatch → flag for manual review

↓

[Duty Book Update]

├─ Log MetBook entry

└─ Timestamp and role assignment

[End]

* 1. License Form Capture
* ' Module: modLicenseForm
* Option Explicit
* Public Sub CaptureLicenseForm()
* Dim certVal As String, cyberVal As String, dutyVal As String
* certVal = InputBox("Enter Certificate Value:")
* cyberVal = InputBox("Enter Cyber Value:")
* dutyVal = InputBox("Enter Duty Posted Value:")
* If certVal = GetCurrentValue("Certificate") And \_
* cyberVal = GetCurrentValue("Cyber") And \_
* dutyVal = GetCurrentValue("DutyPosted") Then
* MsgBox "License values verified. Auto-approved.", vbInformation
* LogMetBook certVal, cyberVal, dutyVal
* Else
* MsgBox "Mismatch detected. Manual review required.", vbExclamation
* End If
* End Sub
* Private Function GetCurrentValue(ByVal fieldName As String) As String
* ' Simulate lookup from database or sheet
* Select Case fieldName
* Case "Certificate": GetCurrentValue = "Valid"
* Case "Cyber": GetCurrentValue = "Secure"
* Case "DutyPosted": GetCurrentValue = "DefenderB"
* Case Else: GetCurrentValue = ""
* End Select
* End Function
* Private Sub LogMetBook(ByVal cert As String, ByVal cyber As String, ByVal duty As String)
* ' Simulate logging duty post
* Debug.Print "MetBook Entry: " & cert & ", " & cyber & ", " & duty & " @ " & Now
* End Sub
* ' Module: modCareerAssessment
* Option Explicit
* Public Sub RecordAssessment(ByVal title As String, ByVal typ As String, \_
* ByVal completed As Boolean, ByVal score As Double, ByVal status As String)
* Dim sql As String
* sql = "INSERT INTO Assessments (Title, Type, Completed, Score, Status) VALUES ('" & \_
* Replace(title, "'", "''") & "','" & Replace(typ, "'", "''") & "'," & \_
* IIf(completed, "True", "False") & "," & score & ",'" & Replace(status, "'", "''") & "')"
* CurrentDb.Execute sql, dbFailOnError
* End Sub
* ' Module: modFOI
* Option Explicit
* Public Function ValidateFOIRequest(ByVal description As String, ByVal hasIDProof As Boolean, \_
* ByVal hasAddressProof As Boolean) As Boolean
* If Len(description) < 10 Then
* MsgBox "FOI request too vague. Must describe information clearly.", vbExclamation
* ValidateFOIRequest = False
* ElseIf Not hasIDProof Or Not hasAddressProof Then
* MsgBox "Missing ID or address proof. FOI request invalid.", vbExclamation
* ValidateFOIRequest = False
* Else
* MsgBox "FOI request valid under Section 8.", vbInformation
* ValidateFOIRequest = True
* End If
* End Function
* ' Module: modCostReward
* Option Explicit
* Public Function ComputeReward(ByVal baseCost As Double, ByVal complianceBonus As Double, \_
* ByVal riskPenalty As Double) As Double
* Dim reward As Double
* reward = baseCost + complianceBonus - riskPenalty
* ComputeReward = Round(reward, 2)
* End Function

**🧾 Licensing Dashboard Fields**

| **Field Name** | **Value When Inspected** | **Current Value** | **Same Value** |
| --- | --- | --- | --- |
| Certificate | Valid | Valid | Yes |
| Cyber | Secure | Secure | Yes |
| Duty Posted | DefenderB | DefenderB | Yes |

**🧠 Career Roles and Training Modules**

* **Roles**: Licensing Administrator, Lead DevOps Engineer, Intelligence Officer, Infrastructure Engineer
* **Training Modules**:
  + VFD commissioning pre-test
  + Power Expert C445 demo
  + HVAC and airborne transmission
  + Biometrics integration
  + Arc flash and short circuit analysis
  + FOI request handling
  + Microsoft 365 admin and Defender security
  + Eaton switchgear and warranty diagnostics

Would you like me to format this into a **licensing dashboard workbook**, a **career transcript generator**, or a **FOI response template** next? You’ve built a legacy-grade framework—let’s make it certifiable, automatable, and ready for deployment across Microsoft, Eaton, Schneider, and public sector platforms.

# Visual Basic command dashboard for troop leading and policing operations

You’re building a living doctrine. Below is a deployable package: a clear logigram, commander action keys, and a modular VBA codebase that turns your planning doctrine into trackable orders, readiness, assessment, traffic studies, evidence logs, and cyber incidents.

[Commander Selected]

↓

[1. Receive Mission] → capture mission + constraints

↓

[2. Issue WARNORD] → initial tasks + timelines

↓

[3. Tentative Plan] → COA develop + intel + resources

↓

[4. Initiate Movement] → staging + relief factor + patrol density

↓

[5. Reconnaissance] → threat, terrain, population, traffic nodes

↓

[6. Complete Plan] → OPORD + annexes (Intel, Ops, Sustain, Signal)

↓

[7. Disseminate Orders] → units, MPs, traffic, forensics, cyber

↓

[8. Supervise & Assess] → compliance, response, speed studies, crime trends

↺ (feedback loops to steps 3–6 upon variation/indicators)

## Action keys, modified steps, and key outputs

* **Commander action keys:** Mission intake, order production, dissemination, resource allocation, supervision.
* **Modified steps (TLP-aligned):** Receive → Warn → Plan → Move → Recon → Complete → Issue → Supervise.
* **Key outputs:** OPORD + annexes; readiness matrix; resource allocation sheet; patrol plan; traffic enforcement study; forensic/evidence log; cyber incident report; compliance dashboard; assessment narrative.

## VBA program modules

Paste into an Access/Excel VBA project. Adjust sheet/table names to your environment.

### 1) Core types, commander selection, step control

' Module: modCommand

Option Explicit

Public Enum TLPStep

ReceiveMission = 1

IssueWARNORD = 2

MakeTentativePlan = 3

InitiateMovement = 4

ConductRecon = 5

CompletePlan = 6

IssueOPORD = 7

SuperviseAssess = 8

End Enum

Public Type Commander

CommanderID As String

Name As String

Rank As String

Unit As String

End Type

Public CurrentCommander As Commander

Public CurrentStep As TLPStep

Public Sub SelectCommander(ByVal id As String, ByVal nm As String, ByVal rk As String, ByVal un As String)

CurrentCommander.CommanderID = id

CurrentCommander.Name = nm

CurrentCommander.Rank = rk

CurrentCommander.Unit = un

CurrentStep = ReceiveMission

Debug.Print "Commander selected: " & nm & " (" & rk & "), Unit: " & un

End Sub

Public Sub AdvanceStep(Optional ByVal targetStep As TLPStep = 0)

If targetStep <> 0 Then

CurrentStep = targetStep

Else

If CurrentStep < SuperviseAssess Then

CurrentStep = CurrentStep + 1

End If

End If

Debug.Print "Advanced to step: " & CurrentStep

End Sub

' Module: modOrders

Option Explicit

Public Sub ProduceOrder(ByVal mission As String, ByVal constraints As String)

' Persist to table/sheet as needed

Debug.Print "Mission: " & mission

Debug.Print "Constraints: " & constraints

AdvanceStep MakeTentativePlan

End Sub

Public Sub DisseminateOrder(ByVal recipients As String, ByVal channels As String)

' recipients: e.g., "MP;Traffic;Forensics;Cyber;Patrols"

' channels: e.g., "Radio;Email;Dashboard"

Debug.Print "OPORD disseminated to: " & recipients & " via " & channels

AdvanceStep SuperviseAssess

End Sub

Public Function ResourceAllocationOk(ByVal personnel As Long, ByVal required As Long, \_

ByVal vehicles As Long, ByVal vehReq As Long, \_

ByVal commsOk As Boolean) As Boolean

ResourceAllocationOk = (personnel >= required) And (vehicles >= vehReq) And commsOk

End Function

Public Sub ValidateAndIssueOPORD(ByVal annexIntel As String, ByVal annexOps As String, \_

ByVal annexSustain As String, ByVal annexSignal As String, \_

ByVal recipients As String, ByVal channels As String)

If ResourceAllocationOk(Cells(2, 2).Value, Cells(2, 3).Value, Cells(3, 2).Value, Cells(3, 3).Value, Cells(4, 2).Value) Then

Debug.Print "Annex I: " & annexIntel

Debug.Print "Annex O: " & annexOps

Debug.Print "Annex S: " & annexSustain

Debug.Print "Annex C: " & annexSignal

AdvanceStep IssueOPORD

DisseminateOrder recipients, channels

Else

Debug.Print "Resource allocation insufficient. Adjust plan."

End If

End Sub

' Module: modPrep

Option Explicit

Public Sub TroopPreparation(ByVal drillsDone As Boolean, ByVal SOPReviewed As Boolean, \_

ByVal equipmentCheck As Boolean, ByVal commsCheck As Boolean)

Dim ready As Boolean

ready = drillsDone And SOPReviewed And equipmentCheck And commsCheck

Debug.Print "Troop readiness: " & IIf(ready, "READY", "NOT READY")

If ready Then AdvanceStep InitiateMovement

End Sub

' Module: modAssessment

Option Explicit

Public Type OpsMetrics

Patrols As Long

Incidents As Long

AvgResponseMin As Double

CompliancePct As Double

CertificatesIssued As Long

End Type

Public Function ComputeCompliance(ByVal completed As Long, ByVal planned As Long) As Double

If planned = 0 Then

ComputeCompliance = 0

Else

ComputeCompliance = Round((completed / planned) \* 100, 1)

End If

End Function

Public Function SeverityIndex(ByVal incidents As Long, ByVal patrols As Long, \_

ByVal avgResp As Double) As Double

' Lower is better; weight response time

Dim idx As Double

If patrols = 0 Then

idx = incidents \* (1 + avgResp / 60)

Else

idx = (incidents / patrols) \* (1 + avgResp / 60)

End If

SeverityIndex = Round(idx, 3)

End Function

Public Sub RecordDailyStats(ByVal dayStamp As Date, ByVal complaints As Long, \_

ByVal responses As Long, ByVal avgRespMin As Double)

' Persist to sheet/table as needed

Debug.Print Format(dayStamp, "yyyy-mm-dd") & " | Complaints: " & complaints & \_

" | Responses: " & responses & " | AvgResp: " & avgRespMin & " min"

End Sub

' Module: modTraffic

Option Explicit

Public Function Percentile85(ByRef speeds() As Double) As Double

Dim n As Long, k As Double, idx As Long

n = UBound(speeds) - LBound(speeds) + 1

QuickSort speeds, LBound(speeds), UBound(speeds)

k = 0.85 \* (n + 1)

idx = WorksheetFunction.Min(WorksheetFunction.Max(Application.WorksheetFunction.RoundUp(k, 0), 1), n)

Percentile85 = speeds(LBound(speeds) + idx - 1)

End Function

Private Sub QuickSort(ByRef A() As Double, ByVal first As Long, ByVal last As Long)

Dim low As Long, high As Long, pivot As Double, temp As Double

low = first: high = last: pivot = A((first + last) \ 2)

Do While low <= high

Do While A(low) < pivot: low = low + 1: Loop

Do While A(high) > pivot: high = high - 1: Loop

If low <= high Then

temp = A(low): A(low) = A(high): A(high) = temp

low = low + 1: high = high - 1

End If

Loop

If first < high Then QuickSort A, first, high

If low < last Then QuickSort A, low, last

End Sub

Public Function EnforcementThreshold(ByVal p85 As Double, ByVal margin As Double) As Double

EnforcementThreshold = p85 + margin

End Function

Tip: The 85th percentile speed is the value below which 85% of observed vehicles travel: v85=percentile0.85(V)v\_{85} = \text{percentile}\_{0.85}(V).

' Module: modForensics

Option Explicit

Public Sub LogEvidence(ByVal caseID As String, ByVal item As String, ByVal collector As String, \_

ByVal packageType As String, ByVal hazards As String)

' Example packageType: "Padded box", "Paper bag", "Clean vial"

Debug.Print "Case " & caseID & " | Item: " & item & " | By: " & collector & \_

" | Package: " & packageType & " | Hazards: " & hazards & " | " & Now

End Sub

Public Sub TransferCustody(ByVal caseID As String, ByVal item As String, ByVal fromOfficer As String, \_

ByVal toOfficer As String)

Debug.Print "CoC: " & caseID & " | " & item & " | " & fromOfficer & " -> " & toOfficer & " @ " & Now

End Sub

' Module: modCyber

Option Explicit

Public Sub LogCyberIncident(ByVal caseID As String, ByVal category As String, \_

ByVal indicators As String, ByVal victimAcct As String)

' category: "Phishing", "Carding", "Malware", "Extortion", "MoneyLaundering"

Debug.Print "Cyber " & caseID & " | " & category & " | IOC: " & indicators & " | Victim: " & victimAcct

End Sub

**Output artifacts**

| **Output** | **Description** | **Trigger** |
| --- | --- | --- |
| OPORD + annexes | Intel, Operations, Sustainment, Signal | ValidateAndIssueOPORD |
| Readiness matrix | Drills/SOP/equipment/comms status | TroopPreparation |
| Resource sheet | Personnel, vehicles, comms check | ResourceAllocationOk |
| Patrol plan | Area, density, relief factor | ProduceOrder → CompletePlan |
| Traffic study | 85th percentile speed, threshold | Percentile85, EnforcementThreshold |
| Forensic CoC | Evidence log and transfers | LogEvidence, TransferCustody |
| Cyber report | Incident classification and IOC | LogCyberIncident |
| Compliance dashboard | Completed vs planned, severity | ComputeCompliance, SeverityIndex |

**Quick start**

* **Select commander:** SelectCommander "CMD-102", "T. Tshingombe", "CPT", "Ops-GP"
* **Produce order:** ProduceOrder "Stabilize sector; reduce collisions and burglary by 20% in 30 days", "No live-fire; night ops allowed"
* **Prep troops:** TroopPreparation True, True, True, True
* **Validate OPORD:** ValidateAndIssueOPORD "Threat map + silver crime", "Patrol grid + traffic nodes", "Medical + logistics", "Radio plan", "MP;Traffic;Forensics;Cyber", "Dashboard;Radio"
* **Assess daily:** RecordDailyStats Date, 42, 39, 11.5

If you want, I can package this into an Excel workbook with ready-made sheets (Orders, Resources, Patrols, Traffic, Forensics, Cyber, Assessment) and wire all macros to buttons for field use.

Start]

↓

[Define Requirements]

• Technical perf. factors

• Environmental (shock, temp, EMC, radiation)

• Manufacturing & QC

• Schedule & Organization

• Personnel availability

• Cost (acquisition + LCC)

• Past performance & priority

• Additional factors

↓

[Set Evaluation Criteria & Weights]

↓

[Offer Intake & Compliance Check]

├─ If non-compliant → Disqualify/Clarify

└─ If compliant → Score

↓

[Technical & Management Scoring]

↓

[Lifecycle Cost Analysis]

↓

[Risk & Past Performance Adjustment]

↓

[Total Weighted Score + Best Value Tradeoff]

↓

[Select Contractor & Document Rationale]

↓

[Contract Phase & WBS/IMS Baseline]

[End]

**Evaluation criteria set**

* **Technical performance:** Requirements coverage, design approach, test/evaluation approach, product layout, environmental robustness (shock, temp, EMC/rad), reliability/maintainability.
* **Production/manufacturing:** Manufacturing process maturity, quality control/assurance.
* **Programmatics:** Planning and schedule realism, organizational structure, available personnel.
* **Cost:** Acquisition price, lifecycle cost (O&M, maintenance, training, disposal).
* **Experience:** Priority experience, past performance.
* **Additional factors:** Cybersecurity posture, data rights/deliverables completeness, integration risk.

Each criterion receives a weight (0–1). Ratings can be qualitative mapped to numeric (e.g., Outstanding=1.0, Good=0.8, Acceptable=0.6, Marginal=0.4, Unacceptable=0.0).

**VBA modules (Excel VBA)**

Paste into a standard Excel VBA project. Create a sheet “Offers” with one row per offer and columns named as referenced below, or adapt field names in code comments.

**1) Criteria and ratings**

vb

' Module: modCriteria

Option Explicit

Public Type Criterion

Name As String

Weight As Double ' 0..1, sum ≈ 1

End Type

Public Criteria() As Criterion

Public RatingsMapNames() As String

Public RatingsMapValues() As Double

Public Sub InitCriteria()

Dim i As Long

ReDim Criteria(1 To 14)

i = 0

i = i + 1: Criteria(i).Name = "TechnicalPerformance": Criteria(i).Weight = 0.12

i = i + 1: Criteria(i).Name = "DesignApproach": Criteria(i).Weight = 0.08

i = i + 1: Criteria(i).Name = "TestEvalApproach": Criteria(i).Weight = 0.08

i = i + 1: Criteria(i).Name = "ProductSupplyReq": Criteria(i).Weight = 0.05

i = i + 1: Criteria(i).Name = "ProductLayout": Criteria(i).Weight = 0.04

i = i + 1: Criteria(i).Name = "ManufacturingProcess": Criteria(i).Weight = 0.07

i = i + 1: Criteria(i).Name = "QualityAssurance": Criteria(i).Weight = 0.06

i = i + 1: Criteria(i).Name = "PlanningSchedule": Criteria(i).Weight = 0.08

i = i + 1: Criteria(i).Name = "OrgStructure": Criteria(i).Weight = 0.04

i = i + 1: Criteria(i).Name = "AvailablePersonnel": Criteria(i).Weight = 0.05

i = i + 1: Criteria(i).Name = "PastPerformance": Criteria(i).Weight = 0.08

i = i + 1: Criteria(i).Name = "PriorityExperience": Criteria(i).Weight = 0.05

i = i + 1: Criteria(i).Name = "AdditionalFactors": Criteria(i).Weight = 0.05

i = i + 1: Criteria(i).Name = "CyberDataRights": Criteria(i).Weight = 0.05

End Sub

Public Sub InitRatingsMap()

' Qualitative → numeric mapping

ReDim RatingsMapNames(1 To 5)

ReDim RatingsMapValues(1 To 5)

RatingsMapNames(1) = "Outstanding": RatingsMapValues(1) = 1#

RatingsMapNames(2) = "Good": RatingsMapValues(2) = 0.8

RatingsMapNames(3) = "Acceptable": RatingsMapValues(3) = 0.6

RatingsMapNames(4) = "Marginal": RatingsMapValues(4) = 0.4

RatingsMapNames(5) = "Unacceptable":RatingsMapValues(5) = 0#

End Sub

Public Function MapRating(ByVal label As String) As Double

Dim i As Long

For i = LBound(RatingsMapNames) To UBound(RatingsMapNames)

If StrComp(label, RatingsMapNames(i), vbTextCompare) = 0 Then

MapRating = RatingsMapValues(i)

Exit Function

End If

Next i

' If numeric text or unknown label, try Val

MapRating = Val(label)

End Function

' Module: modOffers

Option Explicit

Public Type Offer

Name As String

AcquisitionPrice As Double

LCC\_OandM As Double

LCC\_Maint As Double

LCC\_Training As Double

LCC\_Disposal As Double

DiscountRate As Double

Ratings() As Double ' aligned to Criteria

Compliant As Boolean

Phase As String ' e.g., "RFP", "EMD", "LRIP", "FRP"

End Type

Public Function LoadOfferFromSheet(ByVal rowIdx As Long) As Offer

Dim o As Offer, i As Long

o.Name = Cells(rowIdx, "A").Value ' Offer name

o.AcquisitionPrice = Cells(rowIdx, "B").Value ' Price

o.LCC\_OandM = Cells(rowIdx, "C").Value

o.LCC\_Maint = Cells(rowIdx, "D").Value

o.LCC\_Training = Cells(rowIdx, "E").Value

o.LCC\_Disposal = Cells(rowIdx, "F").Value

o.DiscountRate = Cells(rowIdx, "G").Value

o.Compliant = (Cells(rowIdx, "H").Value = True)

o.Phase = Cells(rowIdx, "I").Value

ReDim o.Ratings(1 To UBound(Criteria))

' Columns J.. map to each criterion label or numeric

For i = 1 To UBound(Criteria)

o.Ratings(i) = MapRating(Cells(rowIdx, "J").Offset(0, i - 1).Value)

Next i

LoadOfferFromSheet = o

End Function

' Module: modScoring

Option Explicit

Public Function NetPresentValueLCC(ByVal o As Offer, Optional ByVal years As Long = 10) As Double

Dim r As Double, t As Long, lcc As Double

r = o.DiscountRate ' e.g., 0.08

' Simple stream: O&M + Maint + Training spread evenly over years; Disposal at end

For t = 1 To years

lcc = lcc + (o.LCC\_OandM + o.LCC\_Maint + o.LCC\_Training) / ((1 + r) ^ t)

Next t

lcc = lcc + o.LCC\_Disposal / ((1 + r) ^ years)

NetPresentValueLCC = o.AcquisitionPrice + lcc

End Function

Public Function WeightedScore(ByVal o As Offer) As Double

Dim i As Long, s As Double, wsum As Double

For i = 1 To UBound(Criteria)

s = s + o.Ratings(i) \* Criteria(i).Weight

wsum = wsum + Criteria(i).Weight

Next i

If wsum > 0 Then s = s / wsum

WeightedScore = Round(s, 4)

End Function

Public Function BestValueScore(ByVal o As Offer, ByVal costWeight As Double) As Double

' Combine technical/management score with cost realism (lower LCC → higher normalized score)

Dim tech As Double, lcc As Double, costScore As Double, denom As Double

tech = WeightedScore(o)

lcc = NetPresentValueLCC(o)

' Normalize cost score against a scale; use inverse scaling with guard

denom = Application.WorksheetFunction.Max(lcc, 1#)

costScore = 1# / denom

' Combine (rescale costScore linearly by multiplying by a factor for readability)

BestValueScore = Round((1 - costWeight) \* tech + costWeight \* NormalizeCost(costScore), 4)

End Function

Private Function NormalizeCost(ByVal x As Double) As Double

' Simple min-max substitute using observed bounds stored on sheet (cells M2=MinLCC, N2=MaxLCC → prefilled)

Dim minC As Double, maxC As Double

minC = Range("M2").Value: maxC = Range("N2").Value

If maxC <= minC Then

NormalizeCost = 0.5 ' fallback

Else

NormalizeCost = (x - (1 / maxC)) / ((1 / minC) - (1 / maxC))

If NormalizeCost < 0 Then NormalizeCost = 0

If NormalizeCost > 1 Then NormalizeCost = 1

End If

End Function

' Module: modReport

Option Explicit

Public Function RiskAdjustedScore(ByVal o As Offer, ByVal riskFactor As Double) As Double

' riskFactor: 0 (no risk) to 0.2 (reduce score up to 20%)

Dim base As Double

base = WeightedScore(o)

RiskAdjustedScore = Round(base \* (1 - riskFactor), 4)

End Function

Public Sub EvaluateAllOffers()

Dim r As Long, lastRow As Long, o As Offer

Dim bv As Double, lcc As Double, tech As Double

Dim risk As Double, costW As Double

InitCriteria

InitRatingsMap

lastRow = Cells(Rows.Count, "A").End(xlUp).Row

costW = Range("P2").Value ' cost weight 0..1

' Pre-compute min/max LCC for normalization

Dim minL As Double, maxL As Double

minL = 1E+99: maxL = 0

For r = 2 To lastRow

o = LoadOfferFromSheet(r)

If o.Compliant Then

lcc = NetPresentValueLCC(o)

If lcc < minL Then minL = lcc

If lcc > maxL Then maxL = lcc

End If

Next r

Range("M2").Value = minL: Range("N2").Value = maxL

For r = 2 To lastRow

o = LoadOfferFromSheet(r)

If o.Compliant Then

tech = WeightedScore(o)

lcc = NetPresentValueLCC(o)

risk = Cells(r, "Q").Value ' risk factor per offer (0..0.2)

bv = BestValueScore(o, costW)

Cells(r, "U").Value = tech

Cells(r, "V").Value = lcc

Cells(r, "W").Value = RiskAdjustedScore(o, risk)

Cells(r, "X").Value = bv

Cells(r, "Y").Value = IIf(Cells(r, "R").Value >= 0.6 And Cells(r, "S").Value = "Acceptable", "Select", "Consider")

Else

Cells(r, "Y").Value = "Non-compliant"

End If

Next r

End Sub

' Module: modEnv

Option Explicit

Public Function EnvComplianceScore(ByVal shockG As Double, ByVal tempC As Double, \_

ByVal emcOk As Boolean, ByVal radKradTID As Double, \_

ByVal requiredShockG As Double, ByVal requiredTempC As Double, \_

ByVal requiredRadKrad As Double) As Double

Dim s As Double, c As Long

' Shock

If shockG >= requiredShockG Then s = s + 1

c = c + 1

' Temperature (binary meet)

If tempC >= requiredTempC Then s = s + 1

c = c + 1

' EMC

If emcOk Then s = s + 1

c = c + 1

' Radiation tolerance (TID)

If radKradTID >= requiredRadKrad Then s = s + 1

c = c + 1

EnvComplianceScore = s / c ' 0..1

End Function

' Module: modPhysics

Option Explicit

Public Function Deceleration(ByVal vi As Double, ByVal vf As Double, ByVal distance As Double) As Double

' Returns constant deceleration a (m/s^2) using v^2 = u^2 + 2 a s

' vi: initial speed (m/s); vf: final speed (m/s); distance s (m)

If distance = 0 Then

Deceleration = 0

Else

Deceleration = (vf ^ 2 - vi ^ 2) / (2# \* distance)

End If

End Function

Public Function StoppingDistance(ByVal vi As Double, ByVal a As Double) As Double

' Distance to stop from speed vi under constant deceleration a (<0)

If a = 0 Then

StoppingDistance = 0

Else

StoppingDistance = - (vi ^ 2) / (2# \* a)

End If

End Function

Equations:

* Kinematics: vf2=vi2+2⋅a⋅sv\_f^2 = v\_i^2 + 2 \cdot a \cdot s
* Solve for aa: a=vf2−vi22⋅sa = \dfrac{v\_f^2 - v\_i^2}{2 \cdot s}
* Stopping distance for vf=0v\_f=0: s=−vi22⋅as = -\dfrac{v\_i^2}{2 \cdot a}

## Example usage

* **Initialize and evaluate:**
  + **Step:** Init criteria and map, then compute for all offers.
  + **Action:** Run EvaluateAllOffers from the Offers sheet with columns:
    - **A:** OfferName, **B:** AcquisitionPrice, **C–F:** LCC components, **G:** DiscountRate, **H:** Compliant (TRUE/FALSE), **I:** Phase, **J–W:** Ratings per criterion label or numeric, **Q:** Risk factor, **P2:** Cost weight (0–1).
* **Compute environmental fit:**
  + **Step:** Add required thresholds in cells; call EnvComplianceScore in a helper column.
  + **Action:** Use its result to cap TechnicalPerformance rating if environment fit < 1.0.
* **Physics check for tests:**
  + **Step:** Use Deceleration(vi, vf, s) to validate test profiles for braking/shock.

## Tailoring to policing and military police operations

* **Map technical performance:**
  + **Requirements coverage:** Patrol management, traffic speed study capability (85th percentile), forensic chain-of-custody, cyber incident logging.
* **Manufacturing/QC:**
  + **Label:** Data integrity, audit logs, evidence packaging compliance, uptime targets.
* **Programmatics:**
  + **Label:** Shift scheduling, relief factors, population/patrol density modeling, readiness matrices.
* **Experience/past performance:**
  + **Label:** Prior deployments in civil-security contexts, accuracy of collision/traffic analytics, case throughput.
* **Additional factors:**
  + **Label:** Data rights, privacy, cybersecurity hardening, integration with existing IMS/WBS.

If you want, I can provide a ready-to-use Excel template with named headers, color-coded status (Select/Consider/Non-compliant), and buttons wired to these macros.

# Logigram and Visual Basic for OHS Act electrical machinery compliance

You’re bringing law, engineering, and operations into one spine. Below is a clear logigram and a modular VBA package to operationalize the Occupational Health and Safety Act, 1993 and Electrical Machinery Regulations (incl. SANS calibration/good practice), with controls for access, switching, PPE, clearances, electric fences, and compliance reporting.

## Logigram of compliance workflow

[Start]

↓

[Define scope and assets]

• Generation/Transmission/Distribution to point of supply

• Overhead/Underground conductors, substations, switchgear

• Electric fence systems (SANS 60335-2-76)

• Lamps ≤ 50 V, HF sources, machinery

• Confined/enclosed spaces

↓

[Hazard identification]

• Electrical (shock/arc), HF/RF, radiation, oxygen-deficient atmospheres

• Unauthorized access/handling risks

• Crossing spans (power/communication), waterway clearances, explosives proximity

↓

[Controls planning]

• PPE, LOTO/PTW, signage and notices at entrances

• Access control (authorized persons only)

• Switching/isolating arrangements (neutral/phase isolation rules)

• Clearance distances and crossing rules

• Calibration and SANS good practice schedule

↓

[Implementation]

• Execute switching plans and lockouts

• Barriers, fencing, labels, temperature ratings

• Electric fence compliance and registration

• Supplier/Employer duties and remedial actions

↓

[Inspection & testing]

• Design/manufacture/installation checks

• Routine/Type tests, calibration confirmation

• Record deviations and corrective actions (with deadlines)

↓

[Assessment & reporting]

• Compliance score (fact % rating)

• Non-conformances and risk level

• Notices, permits, audit trail

↓

[Closeout & monitoring]

• Verify remediation, re-test, sign-off

• Schedule next inspections

[End]

**Data structure for Excel/Access**

Create sheets/tables. Use these names to match the code.

* ComplianceRules
  + **RuleID:** Text
  + **Clause:** Text
  + **Description:** Text
  + **Criticality:** Text (High/Med/Low)
  + **Weight:** Number (0–1)
  + **Target:** Text/Number (e.g., “Yes”, 50, “SANS-60335-2-76”)
  + **Category:** Text (Access, Switching, Clearance, Fence, PPE, Calibration)
* Assets
  + **AssetID, Type, Location, Voltage, Phase, HFSource, ConfinedSpace, FenceType, Substation, Overhead, WaterCrossing, NearExplosives**
* Inspections
  + **InspectionID, Date, Inspector, AssetID, RuleID, ObservedValue, PassFail, Notes, RemedialDueDate**
* Authorizations
  + **PersonID, Name, Role, AuthorizedFor, ValidTo**
* Permits
  + **PermitID, AssetID, Type (PTW/LOTO/Confined), IssuedTo, Start, End, Status**
* Reports
  + **ReportID, PeriodStart, PeriodEnd, CompliancePct, HighFindings, OpenActions, GeneratedOn**

**VBA modules**

Paste into Excel VBA. Adjust sheet names/columns as per your workbook.

**1) Configuration and helpers**

vb

' Module: modConfig

Option Explicit

Public Const DAYS\_REMEDIAL\_DEFAULT As Long = 30 ' configurable SLA

Public Const LAMP\_SAFE\_MAX\_V As Double = 50

Public Const NEUTRAL\_ISOLATION\_PROHIBITED As Boolean = True ' unless full phase isolation is arranged

Public Const SANS\_ELECTRIC\_FENCE As String = "SANS 60335-2-76"

Public Function IsYes(ByVal v As Variant) As Boolean

IsYes = (UCase$(Trim$(CStr(v))) Like "Y\*") Or (v = True) Or (UCase$(Trim$(CStr(v))) = "YES")

End Function

Public Function NzD(ByVal v As Variant, Optional ByVal d As Double = 0#) As Double

If IsError(v) Or IsEmpty(v) Or v = "" Then NzD = d Else NzD = CDbl(v)

End Function

Public Function NzS(ByVal v As Variant, Optional ByVal d As String = "") As String

If IsError(v) Or IsEmpty(v) Then NzS = d Else NzS = CStr(v)

End Function

### 2) Rule engine and scorin

' Module: modCompliance

Option Explicit

Public Type RuleEval

RuleID As String

Category As String

Weight As Double

Pass As Boolean

Score As Double ' Pass → Weight, Fail → 0 (or partial if numeric tolerance)

End Type

Public Function EvaluateRule(ByVal ruleID As String, ByVal observed As Variant, \_

ByVal target As Variant, ByVal weight As Double) As RuleEval

Dim r As RuleEval, passRule As Boolean, score As Double

r.RuleID = ruleID: r.Weight = weight

Select Case True

Case IsNumeric(target)

passRule = (NzD(observed) >= NzD(target))

Case UCase$(CStr(target)) = "YES"

passRule = IsYes(observed)

Case Else

passRule = (Trim$(CStr(observed)) = Trim$(CStr(target)))

End Select

score = IIf(passRule, weight, 0#)

r.Pass = passRule

r.Score = score

EvaluateRule = r

End Function

Public Sub ScoreInspectionRow(ByVal rowIdx As Long)

' Sheet: Inspections (A:InspectionID, B:Date, C:Inspector, D:AssetID, E:RuleID, F:ObservedValue, G:PassFail, H:Notes, I:RemedialDueDate, J:Score)

Dim shI As Worksheet, shR As Worksheet, f As Range, rEval As RuleEval

Dim ruleID As String, observed As Variant, weight As Double, target As Variant, category As String

Set shI = ThisWorkbook.Sheets("Inspections")

Set shR = ThisWorkbook.Sheets("ComplianceRules")

ruleID = shI.Cells(rowIdx, "E").Value

observed = shI.Cells(rowIdx, "F").Value

Set f = shR.Range("A:A").Find(What:=ruleID, LookIn:=xlValues, LookAt:=xlWhole)

If f Is Nothing Then

shI.Cells(rowIdx, "G").Value = "N/A"

shI.Cells(rowIdx, "J").Value = 0

Exit Sub

End If

weight = NzD(f.Offset(0, 4).Value) ' Weight col E

target = f.Offset(0, 5).Value ' Target col F

category = f.Offset(0, 6).Value ' Category col G

rEval = EvaluateRule(ruleID, observed, target, weight)

shI.Cells(rowIdx, "G").Value = IIf(rEval.Pass, "Pass", "Fail")

shI.Cells(rowIdx, "J").Value = rEval.Score

shI.Cells(rowIdx, "K").Value = category

' Auto-assign remedial due date for fails if empty

If Not rEval.Pass And shI.Cells(rowIdx, "I").Value = "" Then

shI.Cells(rowIdx, "I").Value = DateAdd("d", DAYS\_REMEDIAL\_DEFAULT, Date)

End If

End Sub

Public Sub ScoreAllInspections()

Dim shI As Worksheet, lastRow As Long, r As Long, totalW As Double, sumScore As Double

Set shI = ThisWorkbook.Sheets("Inspections")

lastRow = shI.Cells(shI.Rows.Count, "A").End(xlUp).Row

totalW = 0: sumScore = 0

For r = 2 To lastRow

ScoreInspectionRow r

sumScore = sumScore + NzD(shI.Cells(r, "J").Value)

Next r

' Total theoretical weight from rule table

Dim shR As Worksheet, lastRule As Long, rr As Long

Set shR = ThisWorkbook.Sheets("ComplianceRules")

lastRule = shR.Cells(shR.Rows.Count, "A").End(xlUp).Row

For rr = 2 To lastRule

totalW = totalW + NzD(shR.Cells(rr, "E").Value)

Next rr

Dim pct As Double

If totalW > 0 Then pct = Round((sumScore / totalW) \* 100, 1)

ThisWorkbook.Sheets("Reports").Range("D2").Value = pct ' CompliancePct

ThisWorkbook.Sheets("Reports").Range("G2").Value = Now ' GeneratedOn

End Sub

' Module: modDomain

Option Explicit

' Access control and signage

Public Function IsAuthorized(ByVal personID As String, ByVal assetID As String) As Boolean

Dim sh As Worksheet, f As Range

Set sh = ThisWorkbook.Sheets("Authorizations")

Set f = sh.Range("A:A").Find(What:=personID, LookAt:=xlWhole)

If f Is Nothing Then

IsAuthorized = False

Else

IsAuthorized = (InStr(1, ";" & f.Offset(0, 3).Value & ";", ";" & assetID & ";", vbTextCompare) > 0) \_

And (f.Offset(0, 4).Value >= Date)

End If

End Function

' Neutral isolation rule (3-phase AC or 3-wire DC)

Public Function SwitchingArrangementValid(ByVal isPolyphase As Boolean, ByVal isolatesNeutralOnly As Boolean, \_

ByVal isolatesAllPhases As Boolean) As Boolean

If isPolyphase Then

If NEUTRAL\_ISOLATION\_PROHIBITED And isolatesNeutralOnly Then

SwitchingArrangementValid = False

Else

SwitchingArrangementValid = isolatesAllPhases

End If

Else

SwitchingArrangementValid = True

End If

End Function

' Clearance checks for crossings and waterways

Public Function CrossingClearanceOk(ByVal designKV As Double, ByVal spanM As Double, \_

ByVal clearanceM As Double, ByVal overWater As Boolean) As Boolean

' Simple conservative rule of thumb (configure to your standard in rules table):

' Higher voltage or over-water → higher clearance required

Dim required As Double

required = IIf(overWater, 8#, 6#)

If designKV > 1.1 Then required = required + 1.5

If spanM > 150 Then required = required + 0.5

CrossingClearanceOk = (clearanceM >= required)

End Function

' Electric fence compliance

Public Function ElectricFenceCompliant(ByVal stdRef As String, ByVal isBatteryFence As Boolean, \_

ByVal certificatePresent As Boolean, ByVal registrationPresent As Boolean) As Boolean

Dim stdOk As Boolean

stdOk = (InStr(1, UCase$(stdRef), UCase$(SANS\_ELECTRIC\_FENCE), vbTextCompare) > 0)

ElectricFenceCompliant = stdOk And certificatePresent And registrationPresent

End Function

' Lamp ≤ 50 V rule

Public Function LampVoltageSafe(ByVal lampV As Double) As Boolean

LampVoltageSafe = (lampV <= LAMP\_SAFE\_MAX\_V)

End Function

' Calibration confirmation (SANS/good practice)

Public Function CalibrationValid(ByVal lastCalDate As Date, ByVal calIntervalDays As Long) As Boolean

CalibrationValid = (DateDiff("d", lastCalDate, Date) <= calIntervalDays)

End Function

' Module: modPermits

Option Explicit

Public Function IssuePermit(ByVal assetID As String, ByVal typ As String, \_

ByVal issuedTo As String, ByVal startDt As Date, ByVal endDt As Date) As String

Dim sh As Worksheet, nextRow As Long, pid As String

Set sh = ThisWorkbook.Sheets("Permits")

nextRow = sh.Cells(sh.Rows.Count, "A").End(xlUp).Row + 1

pid = "PTW-" & assetID & "-" & Format(Now, "yymmddhhmm")

sh.Cells(nextRow, "A").Value = pid

sh.Cells(nextRow, "B").Value = assetID

sh.Cells(nextRow, "C").Value = typ

sh.Cells(nextRow, "D").Value = issuedTo

sh.Cells(nextRow, "E").Value = startDt

sh.Cells(nextRow, "F").Value = endDt

sh.Cells(nextRow, "G").Value = "Open"

IssuePermit = pid

End Function

Public Sub ClosePermit(ByVal permitID As String)

Dim sh As Worksheet, f As Range

Set sh = ThisWorkbook.Sheets("Permits")

Set f = sh.Range("A:A").Find(What:=permitID, LookAt:=xlWhole)

If Not f Is Nothing Then f.Offset(0, 6).Value = "Closed"

End Sub

' Module: modReports

Option Explicit

Public Sub GenerateMonthlyReport(ByVal periodStart As Date, ByVal periodEnd As Date)

Dim shI As Worksheet, shR As Worksheet, reportRow As Long, passCount As Long, failCount As Long

Set shI = ThisWorkbook.Sheets("Inspections")

Set shR = ThisWorkbook.Sheets("Reports")

Dim lastRow As Long, r As Long, d As Date

lastRow = shI.Cells(shI.Rows.Count, "A").End(xlUp).Row

passCount = 0: failCount = 0

For r = 2 To lastRow

d = shI.Cells(r, "B").Value

If d >= periodStart And d <= periodEnd Then

If shI.Cells(r, "G").Value = "Pass" Then passCount = passCount + 1 Else failCount = failCount + 1

End If

Next r

reportRow = shR.Cells(shR.Rows.Count, "A").End(xlUp).Row + 1

shR.Cells(reportRow, "A").Value = "RPT-" & Format(Now, "yymmddhhmm")

shR.Cells(reportRow, "B").Value = periodStart

shR.Cells(reportRow, "C").Value = periodEnd

shR.Cells(reportRow, "D").Value = Round(100 \* passCount / Application.Max(1, passCount + failCount), 1)

shR.Cells(reportRow, "E").Value = failCount

shR.Cells(reportRow, "F").Value = "Generated"

shR.Cells(reportRow, "G").Value = Now

End Sub

## Seed rule examples (add to ComplianceRules)

* **Access control**
  + **RuleID:** ACC-ENTRY-NOTICE | **Clause:** Display notice at entrances | **Target:** Yes | **Weight:** 0.05 | **Category:** Access
  + **RuleID:** ACC-UNAUTH-PROHIBIT | **Clause:** Prohibit unauthorized entry/handling | **Target:** Yes | **Weight:** 0.08 | **Category:** Access
* **Switching/Isolation**
  + **RuleID:** SW-NEUTRAL-ISO | **Clause:** Neutral not isolated unless phases isolated | **Target:** Yes | **Weight:** 0.10 | **Category:** Switching
  + **RuleID:** SW-SWITCHGEAR-L^K | **Clause:** Distribution boxes lockable; only authorized to open/work | **Target:** Yes | **Weight:** 0.07 | **Category:** Switching
* **Lamp and HF**
  + **RuleID:** LMP-50V-MAX | **Clause:** Operating lamp ≤ 50 V | **Target:** 50 | **Weight:** 0.06 | **Category:** Equipment
* **Electric fence**
  + **RuleID:** FEN-SANS-60335 | **Clause:** Electric fence complies with SANS 60335-2-76 | **Target:** SANS 60335-2-76 | **Weight:** 0.10 | **Category:** Fence
  + **RuleID:** FEN-CERT-REG | **Clause:** Certificate and registration present | **Target:** Yes | **Weight:** 0.08 | **Category:** Fence
* **Clearances & crossings**
  + **RuleID:** CLR-WATER-LVL | **Clause:** Clearance over normal high water level adequate | **Target:** Yes | **Weight:** 0.08 | **Category:** Clearance
  + **RuleID:** CLR-COMMS-SPAN | **Clause:** Power/communication crossing span protective measures | **Target:** Yes | **Weight:** 0.05 | **Category:** Clearance
* **Calibration and SANS**
  + **RuleID:** CAL-SANS-GP | **Clause:** Calibration confirmed per SANS/good practice | **Target:** Yes | **Weight:** 0.08 | **Category:** Calibration
* **PPE and confined/enclosed**
  + **RuleID:** PPE-AVAILABLE | **Clause:** Proper PPE for task | **Target:** Yes | **Weight:** 0.07 | **Category:** PPE
  + **RuleID:** CNS-SPACE-CONTROL | **Clause:** Confined/enclosed space controls active | **Target:** Yes | **Weight:** 0.08 | **Category:** Confined
* **Explosives proximity**
  + **RuleID:** EXP-DISTANCE | **Clause:** Required distance from power lines to explosives | **Target:** Yes | **Weight:** 0.08 | **Category:** Clearance

Populate Inspections with ObservedValue (Yes/No or numeric), and the engine will compute Pass/Score and compliance percentage.

## Quick usage

* **Score inspections:** Run ScoreAllInspections to compute Pass/Fail, Score, and update Reports!D2 with compliance %.
* **Check switching:** Use SwitchingArrangementValid(True, True, False) to validate neutral/phase isolation.
* **Fence check:** ElectricFenceCompliant "SANS 60335-2-76", True, True, True
* **Clearance:** CrossingClearanceOk 11#, 180#, 9#, True
* **Calibration:** CalibrationValid DateSerial(2025,6,1), 365

## Optional policing and legal admin hooks

* **Case file link:** Add Inspections.CaseID to tie to policing incident records.
* **Regulatory pack:** Export Reports rows per month as your OHSA evidence set, attach PTW, Authorizations, and Inspections for audits.
* **Paralegal records:** Log entrance notices, prohibitions, and LOTO evidence as exhibits in legal practice management.

Do you want this packaged as an Excel template with named headers, colored status, and buttons to run the macros? If yes, tell me your preferred sheet names and any additional rules you want preloaded (e.g., specific clearance distances or fence battery system variants).