

Two Books from the Field

Nearly two decades of Gulf airport and infrastructure delivery — distilled into a complete construction project management method and a full-lifecycle guide to the aerodrome.

Construction Projects Management

A Realistic, Field-Tested Strategy for Delivering Construction Projects — structured on the PMBOK® Guide, Seventh Edition, and international standards

The Aerodrome

Design, Construction, Maintenance and Operation for Landside, Terminal and Airside Facilities — ICAO · EASA · FAA, side by side

Engr. Emmanuel C. Sandoval

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THE AUTHOR

Engr. Emmanuel C. Sandoval

Emmanuel C. Sandoval is a civil engineer with nearly two decades of continuous, on-site delivery experience in the Gulf region’s most demanding construction environments — international airports, major roads and infrastructure, and waterfront public realm. His career has deliberately crossed every seat at the construction table: contractor, supervision engineer, quality authority, maintainer, and aerodrome operator’s works authority.

He began with Midmac Contracting on the New Doha International Airport programme (2007–2008), building landside roads, tunnels and underpasses. Nine years with Parsons at Abu Dhabi International Airport followed (2008–2017) as Senior Project Engineer on major airside and landside packages: more than 25 million cubic metres of earthworks, over 8,000 large-diameter piles, aprons in pavement-quality concrete, taxiways in polymer-modified asphalt, tunnels, bridges, and airport utilities from jet-fuel lines to substations.

As Senior Quality Engineer with Arcadis on the Yas South development (2017–2019) he owned the project quality regime end to end — materials, method statements, ITPs, NCRs, field testing, as-builts and O&M — against ISO and Abu Dhabi municipal standards. He returned to the airfield as Airfield & Civils Maintenance Engineer (2019–2022), and since 2022 has served as **Senior Officer — Airside Works Approvals at Abu Dhabi Airports**, reviewing every project that touches the airside of the GCAA-certificated aerodrome for regulatory compliance, works safety and quality, and operational impact.



Civil Engineer · Construction & Aviation Practitioner

19+	25M m³	8,000+	5
YEARS IN GULF CONSTRUCTION	EARTHWORKS DELIVERED	LARGE-DIAMETER PILES	SEATS AT THE TABLE

“Standards first, records always, and the workforce at the centre. Build the right thing, safely, on time, and at the agreed price — and write it all down.”

Both books are written from that record: method extracted from projects that were actually built — and from the regulatory desks that approved them.

Construction Projects Management

A Realistic, Field-Tested Strategy for Delivering Construction Projects — structured on the PMBOK® Guide Seventh Edition, ISO 21502, FIDIC contract practice, and the ISO 9001 / 45001 / 14001 management-system standards. First Edition, 2026 · 163 pages.

WHAT IT IS

Most project management books are written from the office; this one is written from the site. It takes the latest international project management standard — the PMBOK® Guide's twelve Principles and eight Performance Domains — and translates every element into construction reality: contract documents and bills of quantities, method statements and inspection plans, extension-of-time claims and the daily discipline of a live site.

THREE CONVICTIONS RUN THROUGH EVERY CHAPTER

- **The contract governs.** Every technical decision follows one hierarchy: Contract Documents → local authority standards → international standards (BS, ASTM, ISO) → recognised best practice.
- **Realism beats optimism.** Honest baselines, quantity-derived programmes, quantified risk, leading indicators that buy time, and change managed the day it happens.
- **Experience, interrogated honestly, is the best textbook.** Every chapter closes with a “From the Field” box drawn from the author's own project record — extracting transferable method, not war stories.

WHAT MAKES IT DIFFERENT

- A complete bridge between the PMBOK® framework and construction's native instruments — FIDIC machinery, BOQ and remeasurement, ITPs and NCRs, Last Planner and takt production, delay analysis under the SCL Protocol.
- A dedicated chapter on **construction in live airport environments** — the works-approval lifecycle, FOD and safeguarding controls, possession-based scheduling — rarely treated in any PM text.
- Working appendices: templates and checklists, a 90-day implementation plan for new project managers, self-assessment questions for every chapter, and a career-to-curriculum map.

Inside the Book

Part	Coverage
I — Foundations (Ch 1–4)	Why construction projects really fail; the twelve PMBOK® principles translated to the site; delivery systems and forms of contract (FIDIC, NEC); the document hierarchy that settles every technical argument.
II — The Eight Performance Domains (Ch 5–12)	Stakeholders · Team · Development Approach & Life Cycle · Planning · Project Work · Delivery · Measurement · Uncertainty — each explained, then applied to construction with tools and numbers.
III — Construction Execution Strategy (Ch 13–21)	Cost and the BOQ; CPM, lookaheads and Lean production; quality (ISO 9001); health & safety (ISO 45001); environment (ISO 14001); variations, claims and disputes; digital construction (BIM / ISO 19650); commissioning and closeout; live-airport construction.
Conclusion + Appendices A–F	The integrated playbook and ten habits; templates, glossary, references, career map, 90-day plan, self-assessment, subject index.

SAMPLE FIELD LESSONS

Planning from quantities: at 8,000 piles, a programme is not drawn — it is computed. Rigs, rates, concrete logistics and the testing tail set the duration; the bar chart merely reports it.

Measuring honestly: a million cubic metres placed but untested is inventory, not progress. Rules of credit must say so, or the S-curve celebrates work that may yet be re-rolled.

Buying certainty: geophysical investigation (MASW, ERT) costing a fraction of one percent of the works retired ground risks whose expected cost was measured in whole percents.

Scheduling by possession: when the closure window cannot move, the work is designed to fit the window — reinstatement planned first, abort point pre-agreed.

“Every crisis was met by a mechanism built before the crisis. Realistic strategy is paying small, certain costs early — in investigation, protocols, options, and records — to avoid large, uncertain ones later.”

Who it is for: practising construction project managers, site engineers stepping up to management, quantity surveyors and planners who want the whole picture, and owners’ representatives who must hold all of it to account.

The Aerodrome: Design, Construction, Maintenance and Operation

For Landside, Terminal and Airside Facilities. First Edition, 2026 · 210 pages · 21 chapters · 10 working appendices.

WHAT IT IS

An aerodrome must move aircraft weighing hundreds of tonnes within metres of buildings, vehicles and people; process millions of passengers through a building that is simultaneously a transport interchange, a security boundary and an international border; and do it continuously, in all weather, for decades — while being rebuilt in place. No single discipline owns it. This book was written for all of them.

THE PREMISE

The four phases of the aerodrome life cycle — design, construction, maintenance and operation — cannot be understood in isolation, and the three physical domains — landside, terminal and airside — cannot be managed in isolation either. A runway is designed well only when the designer understands how it will be inspected, repaired and overlaid under live traffic. The book follows the life cycle end to end and treats all three domains together in every phase.

THE TECHNICAL SPINE

The international regulatory framework presented **side by side**: ICAO Annex 14 and its design and operations manuals; the European implementation through Regulation (EU) No 139/2014 and EASA CS-ADR-DSN; and the United States system of 14 CFR Part 139 and the FAA AC 150 series. The three systems agree far more than they differ — but the differences matter in practice, and the book keeps the reader fluent in all three, with a full standards cross-reference in Appendix A.

“The reader should always know which document governs, which number applies, and which discipline keeps the operation safe while the concrete cures.”

Inside the Book

Part	Coverage
I — Foundations (Ch 1-2)	The international regulatory framework; aerodrome classification and reference systems.
II — Design (Ch 3-9)	Runways; taxiways and aprons; obstacle limitation surfaces and safeguarding; visual aids — markings, signs and lighting; electrical systems and secondary power; passenger terminals; landside.
III — Construction (Ch 10-11)	Aerodrome pavement design and construction; construction works on operational aerodromes.
IV — Maintenance (Ch 12-13)	Airside maintenance; terminal and landside maintenance.
V — Operation (Ch 14-17)	Airside operations; rescue and firefighting and emergency planning; certification, safety management and compliance; terminal and landside operations.
VI — Special Topics (Ch 18-21)	Master planning and development; environmental management and sustainability; the digital aerodrome; air cargo facilities and operations.
Appendices A-J	ICAO-EASA-FAA cross-reference; acronyms; bibliography; operational checklists; glossary; worked examples; study guide with review questions per chapter; case studies; quick-reference data tables; subject finder.

HOW PRACTITIONERS USE IT

- **Front to back** as a complete education in the aerodrome life cycle.
- **By domain** — dedicated reading paths for the landside, terminal and airside professional.
- **As a reference** — checklists, worked examples, data tables and the study guide serve audits, works seasons, design freezes and professional development; teams use chapter-plus-questions as standing agendas for technical briefings.

Who it is for: aerodrome engineers and operations officers, works and maintenance teams, safety and compliance professionals, consultants and contractors entering aviation work, and students preparing for aerodrome careers.

One Career, Two Books

The two volumes are complementary halves of a single professional record. **Construction Projects Management** is the *how*: the management method that delivers any constructed asset — baseline, production, measurement, change, closeout — proven on airport-scale works. **The Aerodrome** is the *what*: the most demanding asset class the author knows, treated across its whole life, under the international standards that govern it.

They meet in the middle deliberately: the management book closes with a chapter on constructing inside live airports; the aerodrome book carries full chapters on pavement construction and on construction works on operational aerodromes. Read together, they cover the ground from a works permit on a live taxiway to the final account of a thirty-month programme.

CHOOSE YOUR STARTING POINT

If you are...	Start with
A construction PM, site engineer, QS or planner in any sector	Construction Projects Management
An aerodrome engineer, operations officer, or aviation-sector professional	The Aerodrome
A contractor or consultant entering airport work	Both — CPM Ch 21 first, then The Aerodrome Parts III–V
An owner's representative or programme director	CPM Parts I–II, then The Aerodrome Ch 16 and 18
A student or early-career engineer	Either — each includes study aids and self-assessment

SHARED DNA

- Internationally recognised standards as the spine — PMBOK® 7, ISO 21502, FIDIC, ISO 9001/45001/14001 in one; ICAO, EASA, FAA, GCAA practice in the other.
- The same governing hierarchy: contract and operator procedures first, local authority second, international standards third, best practice fourth.
- Field discipline over theory: records, protocols, checklists and honest measurement on every page.

Why These Books Exist

The distance between the textbook and the trench is where projects are won or lost. After nineteen years of closing that distance daily — on paving trains and piling databases, in NCR registers and works-approval committees — these two books are an attempt to hand the method on: to the site engineer stepping up, the PM inheriting a live project, the aerodrome officer keeping the operation safe while the concrete cures.

“The disciplines are the same in every seat; only the direction you face changes. A professional who practises them needs no translation when the seat changes.”

TEN HABITS THE BOOKS TEACH

- Read the contract personally before the first progress meeting.
- Walk the works daily; ask what finished, what is waited on, what runs out next.
- Hold the gates — especially the ones under pressure.
- Publish the procurement and information schedules and manage to them.
- Commit crews only to ready work; measure the promise-keeping.
- Instruct before executing; notify on time; record for strangers.
- Trend, don't file — drift announces failure early to anyone watching.
- Stop unsafe work personally, the first time, every time.
- Pay and certify honestly — the best crews follow the money's behaviour.
- End deliberately: evidence the hand-back, agree the account, carry the lessons forward.

THE BOOKS

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