

EPC / ETP PLANT PROJECT EXECUTION STRUCTURE

(Engineering, Procurement, Construction & Commissioning ERP Workflow)

This document defines a complete EPC / ETP Plant Project Execution Structure for Engineering, Procurement, Manufacturing, Construction, Erection, Commissioning, Billing, Progress Tracking, Vendor Coordination, and Payment Release Management.

1. EPC Project Master Execution Structure

ID	Order Item	Department	Process	Activity	Progress %
1207	DRAWING	Design & Engineering	REVISION	Code-II Review	35
1208	DRAWING	Design & Engineering	REVISION	Code-I Review	40
1209	DRAWING	Design & Engineering	REVISION	3D Model	10
1210	DRAWING	Design & Engineering	REVISION	Handover	5
1211	DRAWING	Design & Engineering	REVISION	As Built	5
1215	PUMPS	Procurement Supply	PROCUREMENT	Purchase	10
1216	PUMPS	Procurement Supply	PROCUREMENT	Receipt	5
1217	PUMPS	Procurement Supply	PROCUREMENT	Acceptance	5
1218	PUMPS	Procurement Supply	PROCUREMENT	Issued	50
1220	PUMPS	Procurement Supply	PROCUREMENT	Mechanical	5
1221	PUMPS	Procurement Supply	PROCUREMENT	Commissioning	2
1224	MOTORS	Mandatory Supply	BULK SUPPLY	Purchase	60
1225	MOTORS	Mandatory Supply	BULK SUPPLY	Receipt	30
1226	MOTORS	Mandatory Supply	BULK SUPPLY	Commissioning	5
1229	STRUCTURE	Construction/Civil	CONSTRUCTION	Work Done	90
1230	STRUCTURE	Construction/Civil	CONSTRUCTION	Mechanical	5
1231	STRUCTURE	Construction/Civil	CONSTRUCTION	Commissioning	2
1234	ABSORBER	Equipment Works	ERECTION	Erection	50
1235	ABSORBER	Equipment Works	ERECTION	Grouting	40
1236	ABSORBER	Equipment Works	ERECTION	Mechanical	5
1240	TANKS	Site Fabricated Tanks	MANUFACTURING	Erection	45
1241	TANKS	Site Fabricated Tanks	MANUFACTURING	Grouting	40
1242	TANKS	Site Fabricated Tanks	MANUFACTURING	HydroTesting	5
1247	PIPING	Piping Works	PIPE	Pre-Fabrication	40
1248	PIPING	Piping Works	PIPE	Erection	40
1249	PIPING	Piping Works	PIPE	HydroTesting	10
1254	WIRING	Electrical Works	ELEC	Erection	50
1255	WIRING	Electrical Works	ELEC	Testing	40

ID	Order Item	Department	Process	Activity	Progress %
1260	PLC	Instrumentation Works	INST	Erection	50
1261	PLC	Instrumentation Works	INST	Testing	40
1266	BERGER PAINT	Painting Works	PAINT	Primer	15
1267	BERGER PAINT	Painting Works	PAINT	Painting	75
1272	PLANT	Plant Commissioning	CM	Commissioning	100

2. EPC Project Lifecycle Workflow

Engineering Phase

Basic Engineering → Detailed Engineering → 3D Modelling → Drawing Approval → AFC Drawings

Procurement Phase

RFQ → Vendor Offer → Technical Evaluation → Purchase Order → Inspection → Dispatch

Manufacturing Phase

Fabrication → Assembly → NDT → Hydro Testing → Surface Treatment → Dispatch

Construction & Erection Phase

Civil Foundation → Structural Erection → Equipment Installation → Piping → Electrical → Instrumentation

Commissioning Phase

Dry Run → Testing → Trial Run → Performance Guarantee Test → Plant Handover

3. EPC Billing & Payment Release Structure

Stage	Release Condition	Payment %
Engineering Approval	Approved drawings submitted	10%
Material Procurement	PO issued and material procured	20%
Manufacturing Completion	Fabrication completed	20%
Dispatch	Material dispatched to site	15%
Erection Completion	Mechanical completion certified	15%
Commissioning	Plant commissioned successfully	10%
Final Handover	PG Test & final handover	10%

4. EPC ERP Module Mapping

ERP Module	Purpose
Engineering	Drawing & document control
Procurement	RFQ, vendor & PO management
Inventory	Material receipt & issue
Manufacturing	Fabrication progress tracking
Construction	Site execution monitoring
QA/QC	Inspection & test reports
Planning	Project scheduling & milestones
Finance	RA bills & payment release
CRM	Client coordination

5. AI-Based EPC ERP Automation

- Auto generation of RFQs and Purchase Orders
- AI-driven drawing revision tracking
- Automated vendor follow-up reminders
- Material dispatch tracking with logistics integration
- AI-based project delay prediction
- Auto generation of site execution tickets
- OCR-based inspection report scanning
- WhatsApp/email milestone alerts
- AI scheduling of commissioning activities
- Automated billing and payment approval workflow

6. Final EPC ERP Architecture

Client Side:

Inquiry → Proposal → Order → Engineering → Procurement → Construction → Commissioning → Handover

Internal ERP Side:

Sales → Design → Procurement → Manufacturing → Site Execution → QA/QC → Planning → Finance

AI Automation Side:

AI Emails → AI Tickets → AI Procurement → AI Planning → AI Escalation → AI Analytics