The PM Field Guide: Phase by Phase

Steps, Checklists, and Forms for Every Phase of a Project

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The PM Field Guide: Phase by Phase

Free companion to Project and Program Management, Phase by Phase: A Plain-Speak Guide for Technical Projects and Programs.

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The filled form examples use two projects, Coyote Wash Peaker and Granite Creek Data Center. Both are fictional. Their names, numbers, and dates are made up for teaching and are not cost or schedule benchmarks.

This guide gives general project management guidance. It is not legal, contractual, safety, or engineering advice for any specific project. Bring in qualified legal, contracts, safety, and engineering professionals for those decisions.

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Forms, Field Guide, and corrections: trinfinityenterprises.com/books/project-management/forms

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How to Use This Guide

This guide is the short version of the book, written for the project manager (PM) in the field. The book explains why; this guide says what to do next. It's free, so print it, keep it in your bag or the site trailer, and hand copies to your team. It works on any technical project or program; the two example projects are a power plant and a data center.

Fill in My Project. The page after the PM role holds your own project's contacts, limits, and deadlines.

Size it to the job. A $2 million job doesn't need the paperwork of a $180 million plant. "Sizing It to the Job" shows what to keep.

Find your phase. Each phase has the same layout: what the phase is for, where it starts and ends, the gate question and who signs it, the steps in order, the phase gate checklist, the forms with when to use them, and the common mistakes with how to prevent them. Construct adds a Field Kit.

Run the rhythm. "Every Week, Every Month" covers the control work that runs through every phase.

Mind the people. The people quick cards cover stakeholders, communication, bad news, and escalation.

Use the forms. All 30 forms, blank and with filled examples, are in the download package at trinfinityenterprises.com/books/project-management/forms. The Forms Index at the back lists them and shows where this guide uses each one.

Working terms are defined in Field Terms, and acronyms are spelled out in the Acronym List, both at the back.

The Lifecycle on One Page

Every project in this guide moves through seven phases. Phases overlap on real jobs: long-lead equipment is often bought during design, and construction can start before design is finished. Think of each phase as a focus, not a locked door.

The seven phases

Phase	Gate	What it's for	Gate or review question	Usually signed by
Initiate	Gate 1	Decide whether the project is worth planning	Is this worth planning?	Sponsor
Plan	Gate 2	Build and approve the baseline	Is the baseline approved?	Sponsor, and steering committee or capital committee if required
Design	Gate 3	Produce drawings and specifications that can be built	Is the design ready to build?	Sponsor, on the recommendation of the owner's engineering manager or owner's engineer
Procure	Readiness review	Buy equipment and services, and follow them to delivery	Is the equipment on track to arrive when needed?	Project manager, reported to the sponsor, package by package
Construct	Readiness review	Build it safely and to the design	Is the system ready for commissioning?	Construction manager and commissioning lead, system by system
Commission and Start Up	Gate 4	Prove it works, and hand it over	Will the owner accept the facility?	Owner, operations, and sponsor
Close	Gate 5	Finish everything that's left	Is everything finished?	Sponsor

Monitoring and Controlling runs through every phase: the weekly and monthly checks, change control, and reporting.

Gates and readiness reviews. There's a gate at the end of Initiate, Plan, Design, Commission and Start Up, and Close, and a readiness review at the end of Procure and Construct. The forms number the five gates in order: Gate 1 Initiate, Gate 2 Plan, Gate 3 Design, Gate 4 Commission and Start Up, and Gate 5 Close. At each gate the PM prepares a short review: what the phase produced, what's still open, the updated forecast, and a recommendation. The PM doesn't sign it. Phase gates commit the next stage of money, so the sponsor, or a committee above the sponsor, decides: go, go with conditions, or stop or rework. The Design gate comes after the final design review. Readiness reviews are held package by package or system by system and signed lower down, by the PM or by the construction manager and commissioning lead. Releasing each design package for construction is a readiness review too.

The PM Role on One Page

The PM role at a glance

Question	Answer
What are you accountable for?	Delivering the project's goals within agreed scope, schedule, budget, and quality, safely
Who do you answer to?	The sponsor: on the owner's side, the executive who owns the business case; on the contractor's side, your own operations executive. A contractor PM also answers to the client under the contract
What do you own day to day?	The plan, the forecast, the risk register, the decision and change processes, and communication
What do you not own?	Design details (the engineers), field direction (the contractor's superintendent; an owner PM directs the contractor through its PM), accounting detail (project controls)
What do you spend your time on?	Looking ahead, connecting people, getting decisions made, and removing roadblocks
How do you know it's working?	No surprises for the sponsor, early warnings from the team, forecasts that change only for reasons you can explain, fast decisions

Project manager or program manager

Topic	Project manager	Program manager
Focus	This project's scope, schedule, and budget	The program's benefits across all projects
Schedule	Detailed schedule and critical path	Integrated master schedule and handoffs between projects
Budget	Project budget and contingency	All budgets, shared costs, and program reserve
Risk	Project risk register	Risks that cross projects
Team	Leads the project team	Leads the project managers
Success	Project delivered and accepted	Benefits delivered, sometimes years later

New to the job, or taking one over? See Your First 90 Days. Handed a program? See Running a Program.

My Project

Fill this page in when you take the job, and keep it current. Write in pencil.

Project: _____

Sponsor and phone: _____

Owner's representative and phone: _____

Approval limits (PM, sponsor, steering committee): _____

_____

Who can sign a change order: _____

Contract notice deadlines (changes, delays, claims): _____

_____

Liquidated damages milestones and dates: _____

_____

Emergency number and site address for responders: _____

Who reports serious injuries, for each employer: _____

Authority having jurisdiction and inspection notice periods: _____

_____

Utility contacts: _____

Pipeline and other outside parties: _____

Permits (number, key conditions, expiry): _____

_____

_____

Sizing It to the Job

Most jobs aren't $180 million plants. A $2 million substation upgrade or a $500,000 cooling retrofit still needs most phases, but not every form. If a phase doesn't apply, say so in the plan and move on. Some phases take a day instead of a year, and some forms shrink to a page or merge with others. What you can't skip is the thinking behind each phase.

Scaling the process to the job

Element	Small job (weeks to a few months)	Medium job (several months to a year)	Large job (a year or more)
Charter	One-page memo signed by the sponsor	Short charter (Form 1)	Full charter with business case
Plan	One to five pages, with a milestone list	Project management plan, 10 to 20 pages	Full plan, 20 to 40 pages, plus attachments
Schedule	Milestone list or simple bar chart	Logic-linked schedule (activities tied together, so a slip in one moves the ones after it), a few hundred activities	Fully logic-linked schedule with a critical path and long-lead tracking
Cost	Estimate with a single contingency line	Estimate by work breakdown structure (WBS) area, with risk-based contingency	Full estimate with basis, contingency by line, and management reserve (money held above the budget for surprises nobody predicted)
Risk	Top-10 list reviewed in the weekly meeting	Risk register reviewed monthly	Risk register with workshops and quantified exposure
Change control	PM and sponsor approve by email, logged	Change requests and a change log	Formal process with approval limits and a change board
Reporting	Weekly email	Monthly report	Monthly report plus executive dashboard
Phase gates	Combined: approval to start, and acceptance	Two or three gates	A gate at the end of Initiate, Plan, Design, Commission and Start Up, and Close, and a readiness review at the end of Procure and Construct

A useful test for any form or process: what would go wrong if we skipped it? If the honest answer is "nothing much," skip it, and say so in the plan. If the answer is "we might not find out about a problem until it's expensive," keep it, even in a short version.

Initiate

What it's for: Decide whether the project is worth planning, and get it authorized.

Starts and ends: Starts when a need is identified. Ends when the sponsor signs the charter and releases planning money.

Gate 1 question: Is this worth planning? **Usually signed by:** Sponsor.

What to do

1. Ask the sponsor, "What happens if we don't do this?" Write the answer down.
2. Turn the need into measurable success measures: dates, safety, cost, performance, acceptance.
3. Name one sponsor, and map who can approve, stop, or delay the project.
4. List the first stakeholders, and flag the ones who could stop it (Form 2).
5. Give cost and schedule as ranges, with the basis (for example, "about 5 percent design").
6. Run a fatal-flaw screen: site, permits, utility power, fuel and water, long-lead equipment, community.
7. Write every assumption as a question with an owner and a date.
8. Choose a delivery method and contract type. Pick by how fast you need to go, how well the scope is defined, how much design control the owner wants, and how much risk each side can carry (see the Contracts Quick Card).
9. Write the charter (three to five pages, Form 1) and get it signed.
10. Set up planning: name the core team, book sponsor review dates, and open five logs: the Stakeholder Register (Form 2), Risk Register (Form 7), Decision Log (Form 11), Issue and Action Log (Form 21), and Lessons Learned Register (Form 20).

Phase gate checklist

Don't move on until every box can be checked, or the sponsor has agreed in writing to the ones that can't. The matching sheet of the Phase Gate Go/No-Go Checklist (Form 28) has these questions, plus a few about the gate package itself (forecast, risks, decisions needed, open items, and lessons), what to look at for each one, and a place to record the decision. On a small job, use

the lines that answer "what would go wrong if we skipped it?" (Sizing It to the Job) and mark the rest not applicable.

☐ Business need is clear, and the sponsor can say what happens if the project isn't done.

☐ Goal and success measures are written and measurable.

☐ One sponsor is named, and decision-makers are identified.

☐ First stakeholder list is done, with the ones who could stop the project flagged.

☐ Scope is described at a high level, including what's out of scope.

☐ Cost and schedule are shown as ranges, with their basis.

☐ Fatal-flaw screen is complete: site, permits, utility power, fuel and water, long-lead equipment, community.

☐ Every assumption has an owner and a date to confirm it.

☐ Delivery approach is chosen.

☐ Long-lead equipment that drives the target date is identified, and early action is authorized if needed.

☐ Charter is signed, and planning money is released.

☐ People check: the sponsor owns the charter and hasn't just signed it.

Forms

#	Form	What it is for	When you use it
1	Project Charter	Authorizes the project; states the need, goal, scope, budget range, assumptions, and PM authority	Draft and sign at the end of Initiate; revise only through formal approval
2	Stakeholder Register	Lists stakeholders, their power and interest, and how to engage each one	Start in Initiate; update at the start of every phase
7	Risk Register	Lists risks and opportunities, scores them, and tracks responses	Open at the end of Initiate with the risks you already know; build it out at the first risk workshop in Plan
11	Decision Log	Records significant decisions, options, reasons, and who decided	Open at the end of Initiate; keep it current through the whole project
20	Lessons Learned Register	Records what happened, what it caused, and what to do next time	Open at the end of Initiate; add lessons as they happen
21	Issue and Action Log	Tracks open problems and actions with owners and dates	Open at the end of Initiate; review weekly from then on

Top mistakes to avoid

Mistake	What it looks like	How to prevent it
Starting work without a signed charter	The team starts design because "the money is coming"	Get the charter signed before work starts, even if it's a short version
Treating an early estimate as the budget	A screening number of $170 million from the resource plan becomes "the budget" in the board deck	State every early number as a range with its basis, in writing

Mistake	What it looks like	How to prevent it
Unchecked assumptions	The charter assumes a pipeline will be ready, and no one confirms it	List every assumption with a name and a date to confirm it
Vague success measures	The charter's goal is "a reliable plant"	Ask the sponsor what happens if the project isn't done, then write measures you can check: a date, a safety target, a cost, and test results
No line around the scope	The charter lists what's in but nothing that's out	Write the high-level scope in and out, and have the sponsor own that line
Skipping the utility or permit check	Nobody asks the utility when power can be delivered	Run a fatal-flaw screen with the utility and agencies before the charter is signed
Not screening lead times at the start	Transformer order waits for full project approval	Screen lead times in Initiate; fund a slot reservation early in planning if needed
Two sponsors and no tiebreaker	Two vice presidents both think they own the project	Name one sponsor in the charter; the other is a key stakeholder
Staying quiet about an unrealistic budget or date	The PM doubts the charter's date but lets it go to the sponsor unchallenged	Say so before the charter is signed, with your reasons and what it would take
Leaving Initiate with no plan for planning	The charter is signed, but no leads are named and no sponsor reviews are booked	Name the core team, write a one-page planning plan, open the logs, and book the sponsor's time

Plan

What it's for: Turn the charter into a baseline the sponsor approves, and set up the way the project will run.

Starts and ends: Starts when the charter is signed. Ends when the sponsor approves the scope, schedule, and cost baseline and the kickoff is held.

Gate 2 question: Is the baseline approved? **Usually signed by:** Sponsor, and steering committee or capital committee if required.

What to do

1. Build the work breakdown structure (WBS) around deliverables, with an owner for each work package (Form 4).
2. Build a logic-linked schedule; find the critical path; start the long-lead list on day one (Form 5).
3. Estimate by WBS line, write the basis of estimate, state the estimate class, and set contingency line by line from the risks (Form 6).
4. Agree management reserve and who controls it.
5. Build the organization chart and the RACI chart (who is Responsible, Accountable, Consulted, and Informed): one Accountable person per row (Form 3). Add a row for each gate with its approver as the A, and fill in the Contacts tab.
6. Hold the first risk workshop and build out the Risk Register (Form 7) you opened in Initiate.
7. Write the Communication Plan (Form 8) and the quality, health, safety, and environment (HSE), and commissioning plans. For commissioning, set at least the approach and the testing requirements that go into the specifications and purchase orders.
8. Set the procurement strategy, draft the Procurement Plan (Form 12), and place any orders that protect the schedule.
9. Set up change control (Forms 22 and 23) and written approval limits, and set up the project filing structure (Form 30 and the Filing Structure Quick Card).
10. Issue the Project Management Plan (Form 9), get the baseline signed, and hold the kickoff (Form 25, agenda below).

Form 25: Kickoff meeting agenda

1. Safety moment.
2. Why the project matters (sponsor).
3. Scope, including what is out of scope.
4. Milestone schedule and critical path.
5. Who does what: walk through the RACI.
6. How we'll communicate, decide, and handle changes.
7. Top risks and their owners.
8. Safety expectations.
9. The next 90 days.
10. Actions read back.

Phase gate checklist

Don't move on until every box can be checked, or the sponsor has agreed in writing to the ones that can't. Form 28 has the same questions on its matching sheet, plus a few about the gate package itself (forecast, risks, decisions needed, open items, and lessons), with a place to record the decision. On a small job, use the lines that answer "what would go wrong if we skipped it?" (Sizing It to the Job) and mark the rest not applicable.

☐ Charter assumptions and constraints reviewed and confirmed with the sponsor.

☐ Scope statement written, with an out-of-scope list the owner agrees with.

☐ WBS built to the work package level, with a WBS dictionary and one owner per work package.

☐ Milestone schedule with logic ties, critical path identified, and outside parties' dates included.

☐ Long-lead item list with order dates; orders placed or authorized for items on or near the critical path.

☐ Cost estimate with a written basis of estimate and estimate class stated.

☐ Contingency tied to the risk register; management reserve amount and control agreed with the sponsor.

☐ Organization chart and RACI complete, with one Accountable person per row and names, not departments.

☐ Risk register built in a workshop, with owners and responses for every high risk.

☐ Communication plan agreed with the owner.

☐ Quality and HSE plans in place, or the contractor's plans reviewed and accepted.

☐ Procurement strategy approved.

☐ Commissioning approach set, and testing requirements written into specifications and purchase orders.

☐ Project filing structure set up, with the folder index, naming rule, and document register in place, and access agreed.

☐ Change control process and approval limits agreed in writing.

☐ Baseline approved and signed by the sponsor.

☐ Project management plan issued.

☐ Kickoff meeting held, with minutes and actions logged.

☐ People check: everyone named on the RACI knows they're on it and what's expected.

Forms

#	Form	What it is for	When you use it
3	RACI Matrix and Contact List	Shows who does, owns, advises on, and is told about each deliverable and gate, plus the project contacts	Build in planning; update when people change
4	WBS and WBS Dictionary	Breaks the scope into work packages and describes each one	Build early in planning; it feeds every other form
5	Milestone and Long-Lead Schedule	Key dates plus equipment that takes months to make	Build in planning; update monthly, long-lead items weekly when float is short
6	Cost Estimate and Budget	Prices each work package, sets contingency, and builds the budget	Build in planning; re-estimate at each design stage
7	Risk Register	Lists risks and opportunities, scores them, and tracks responses	Open in Initiate; build out at the first risk workshop; review every month
8	Communication Plan	Says who gets what information, when, how, and from whom	Agree with the owner in planning; revisit at each phase
9	Project Management Plan	Pulls all the plans together in one document	Issue at the end of planning; revise through change control
12	Procurement Plan	Lists every package with its scope, buyer, contract type, selection method, and key dates	Draft in Plan; update as packages are awarded
25	Meeting Agenda and Minutes	Agenda, minutes, decisions, and actions, including a kickoff version	Kickoff agenda at the end of Plan; weekly meetings from then on
30	Project Filing Structure and Document Control Guide	Sets up the numbered folders, the naming rule, the document register, and the transmittal log	Set up in the first weeks of planning; check weekly; archive at Close

Top mistakes to avoid

Mistake	What it looks like	How to prevent it
Building a schedule with no logic ties	Activities have dates typed in but no predecessors; the transformer slips six weeks and nothing moves on the screen	Every activity has a predecessor and a successor; explain every forced date; run a schedule health check every month

Mistake	What it looks like	How to prevent it
Ordering long-lead equipment too late	Generator step-up (GSU) transformers are scheduled to be ordered after 60 percent design	Start the long-lead list on day one; confirm current lead times with vendors; reserve slots early if the sponsor agrees
Carrying a flat 10 percent contingency	Every line gets 10 percent because that's what the last job carried	Set contingency line by line from the risk register and how firm each number is
Two accountable people	Both the owner's engineering manager and the contractor's design manager are marked A for the design basis	One A per row; settle disagreements about the A in planning, not in month 10
Leaving operations out of planning	Operators first see the layout at 90 percent design and ask for a warehouse and a bigger control room	Invite operations to the WBS session, the risk workshop, and every design review
Leaving scope you depend on out of the WBS	The utility's interconnection work is left out because the utility does it, not the project	Put every piece of scope you pay for or depend on in the WBS, and put outside parties' dates in the schedule
Writing risks as one-word topics	The register says "transformer delivery" and "labor" with no cause or effect	Write each risk as cause, event, and effect; score it as a group and assign an owner before the workshop ends
Setting up change control after the first change	The first big change arrives before anyone has agreed who can approve it	Agree the process and the approval limits in writing during planning, while nobody's money is at stake
Baselining before the sponsor agrees	The PM loads the budget and starts reporting variances against numbers the sponsor never signed	Get the baseline approved in writing before reporting against it
Writing a plan too big to read	The project management plan runs 300 pages and repeats every procedure in full	Keep the plan to 20 to 40 pages; summarize and point to the forms for detail

Design

What it's for: Turn the owner's requirements into drawings and specifications that can be built, and keep the design on scope and budget.

Starts and ends: Starts when the baseline is approved and the designers are under contract. Ends when every package is issued for construction (IFC).

Gate 3 question: Is the design ready to build? **Usually signed by:** Sponsor, on the recommendation of the owner's engineering manager or owner's engineer.

What to do

1. Get the owner's requirements in writing, then the designer's design basis accepted by the owner in writing. On a lump-sum engineering, procurement, and construction (EPC) job, the owner reviews the contractor's design basis for conformance and issues "no objection," not "approval."
2. Put each package's design stages (30, 60, 90 percent, IFC) in the schedule.
3. Run reviews with operations, construction, safety, and the owner's engineers at each stage.
4. Log every comment (Form 10); close it only when the reviewer agrees.
5. Update the estimate at 30 and 60 percent at a minimum.
6. Set design freeze points and run later changes through change control.
7. Hire the commissioning agent, and get test connections and alarm points into the design.
8. Track permit conditions, long-lead specifications, and vendor data dates.
9. Keep an interface list between disciplines and vendors.
10. Record significant decisions in the Decision Log (Form 11).
11. Fast-track only work whose design is stable, and log the risk.

Phase gate checklist

Use this checklist for the Design gate, after the final design review, and don't pass the gate until every box can be checked or the sponsor has agreed in writing to the ones that can't. When design is released in packages, run the same questions as a readiness review before each package is released for construction (The Lifecycle on One Page). Form 28 has the same questions on its

matching sheet, plus a few about the gate package itself (forecast, risks, decisions needed, open items, and lessons), with a place to record the decision. On a small job, use the lines that answer "what would go wrong if we skipped it?" (Sizing It to the Job) and mark the rest not applicable.

☐ Owner's requirements written, and the design basis accepted by the owner in writing ("no objection" on a lump-sum EPC job).

☐ Design reviewed at each stage by operations, construction, safety, and the owner's engineers.

☐ Every review comment closed with the reviewer's agreement.

☐ Hazard reviews (such as a hazard and operability study, or HAZOP) complete where required, with actions closed or tracked.

☐ Permit conditions listed and reflected in the design.

☐ Certified vendor data received for equipment in the package.

☐ Interfaces between vendors agreed and documented.

☐ Estimate updated at 30 and 60 percent, and within budget or the variance approved.

☐ Design changes after the freeze points approved through change control.

☐ Significant decisions recorded in the decision log.

☐ Drawings and specifications issued for construction, stamped where required.

☐ People check: operations has seen and accepted the design for the systems they'll run.

Forms

#	Form	What it is for	When you use it
10	Design Review Comment Log	Tracks every review comment to a response and closure	At every design review; close all comments before the next stage
11	Decision Log	Records significant decisions, options, reasons, and who decided	Open at the end of Initiate; keep it current through the whole project; design is where it gets busy

Top mistakes to avoid

Mistake	What it looks like	How to prevent it
No written requirements or design basis	The owner's requirements live in emails and meeting notes	Put the owner's requirements in writing (in the contract on EPC and design-build jobs), and get the design basis accepted in writing before 30 percent
Leaving operators out	Operators first see the layout at 90 percent	Put operations in every design review from 30 percent on
Scope creep dressed up as design detail	Owners and designers add features at each review with no change request	Measure every change against the owner's requirements, set freeze points, and update the estimate at 30 and 60 percent
Comments never closed	Review comments get responses but no one checks them	Close every comment only when the reviewer agrees

Mistake	What it looks like	How to prevent it
Late vendor data	Foundations wait for certified drawings that are weeks late	Put vendor data dates in the schedule and track them weekly
Design still moving after equipment is ordered	Layout changes after the turbines and transformers are bought	Freeze the design that ordered equipment depends on
No interface list between vendors	The turbine vendor's control signal list is never checked against the plant control system	Require an interface document for every vendor connection and get it agreed early
Fast-tracking unstable design	Steel is ordered while roof equipment is still changing	Fast-track only work whose design is stable; log the risk
Value engineering that cuts the wrong things	Maintenance access and spare capacity get removed to hit a budget	Include operations in value engineering; look at lifecycle cost
"Approving" the contractor's design on a lump-sum job	The owner's engineering manager stamps the EPC contractor's design basis "approved"	Review for conformance and issue "no objection," so design responsibility stays with the contractor

Procure

What it's for: Buy the right equipment and services, on time, at a fair price, and follow every order to delivery.

Starts and ends: Starts with the first long-lead orders, often during Plan. Ends when the last item is delivered, accepted, and paid for, with vendor documents in hand.

Readiness review: Is the equipment on track to arrive when needed? **Usually signed by:** project manager, reported to the sponsor, package by package.

What to do

1. Break the buying into packages: scope, buyer, contract type, selection method, key dates (Form 12).
2. Work backward from each need-on-site date to set request for proposal (RFP) and award dates.
3. Confirm long-lead times with vendors; track short-float items weekly (Form 5).
4. Prequalify three to five bidders per package.
5. Issue complete RFPs, and answer questions in writing to all bidders.
6. Set criteria and weights before bids are opened; level bids to the same scope.
7. Score, recommend, and get the award approved, with reasons on record (Form 13).
8. Hold a kickoff with every major vendor and confirm it in writing.
9. Expedite critical orders with proof: production schedules, photos, factory visits, witnessed tests.
10. Track submittals (Form 14) and plan heavy-haul routes, receiving, and storage.

Readiness review checklist

Procure ends in readiness reviews, not a sponsor gate (The Lifecycle on One Page). Use this checklist for each major package, and again before construction starts, to confirm the equipment is on track. Form 28 has these questions on its matching sheet, plus three about the review package (the updated forecast, the decisions you need, and an owner for every open answer),

with a place to record the decision. On a small job, use the lines that answer "what would go wrong if we skipped it?" (Sizing It to the Job) and mark the rest not applicable.

☐ Procurement plan is current, with every package's buyer, contract type, and need date.

☐ Long-lead items are identified, with lead times confirmed by vendors, not assumed.

☐ Specifications for each package are firm enough to order.

☐ Bidders are prequalified, and the bid list has real competition.

☐ Evaluation criteria and weights were set before bids were opened.

☐ Every bid was leveled against the scope of supply before comparing prices.

☐ The award recommendation and the reasons for it are written down and approved.

☐ A post-award kickoff was held, and agreements were confirmed in writing.

☐ Critical orders have an expediting plan, with factory visits and witnessed tests where needed.

☐ The submittal log is current, and no critical submittal is past its review time.

☐ Shipping routes, permits, and site storage are planned for large equipment.

☐ Responsibility for owner-furnished equipment is clear in the contract.

☐ People check: operations has had a say in the equipment they'll maintain.

Forms

#	Form	What it is for	When you use it
12	Procurement Plan	Lists every package with its scope, buyer, contract type, selection method, and key dates	Draft in Plan; update as packages are awarded
13	Bid Evaluation Matrix	Scores bids against weighted criteria, with price scored by formula	For every competitive package; set the weights before the bids arrive
14	Submittal Log	Tracks every submittal from required date to final approval	From the first award through the end of construction

Top mistakes to avoid

Mistake	What it looks like	How to prevent it
Ordering before the specification is firm	Switchgear is ordered at 30 percent design, and the one-line diagram changes at 60 percent	Freeze the items that drive the vendor's design before you order; record the decision
Lowest bid with no scope check	The low bidder left out field service and spare parts	Level every bid against the scope of supply before comparing prices
Ignoring delivery when scoring bids	The cheapest generator arrives four months after it's needed	Weight delivery as a criterion and score it against the need date
Changing the scoring after bids are opened	Weights get adjusted once the prices are known	Set the criteria and weights before opening bids, and write down the reasons for every score
Taking the vendor's word on progress	"We're on schedule" every month until the ship date passes	Ask for production schedules, photos, and milestone proof; visit the factory
No one tracking vendor drawings	Submittals sit unreviewed, and vendors wait for approval to start manufacturing	Keep a submittal log, agree on review times, and review the log weekly

Mistake	What it looks like	How to prevent it
Skipping the post-award kickoff	Clarifications agreed during the bid never reach the contract manager	Hold a kickoff with every major vendor and confirm it in writing
Gaps around owner-furnished equipment	No one is named to receive the turbines, and the insurance starts only at the laydown yard	Write receiving, storage, insurance, and risk transfer into the contracts; insure from the factory gate
Ignoring the vendor's storage instructions	A transformer sits in the yard for months with no one checking its nitrogen or heaters	Read the storage requirements, assign someone to follow them, and keep the records
No plan for the last mile	A transformer arrives at a county road with a weight limit	Survey the route early and get permits before the equipment ships

Construct

What it's for: Build it safely, keep it moving, pay only for work that's done right, and write every problem down while it's small.

Starts and ends: Starts at mobilization. Ends at mechanical completion, system by system.

Readiness review: Is the system ready for commissioning? **Usually signed by:** construction manager and commissioning lead, system by system.

What to do

1. Mobilize with permits, a site-specific safety plan, stormwater controls, and an emergency plan in place.
2. Start every meeting with safety; walk the site; back stop-work authority.
3. Run a weekly three-week look-ahead and clear constraints before the work date (constraint check in the Field Kit).
4. Keep daily reports detailed enough to settle a dispute (daily report minimum in the Field Kit).
5. Get every request for information (RFI) answered in writing (Form 15); flag cost and schedule impacts. Keep the Submittal Log (Form 14) moving.
6. Respect hold points; close nonconformance reports (NCRs).
7. Measure progress by agreed rules; pay only for work in place (pay application walk-down in the Field Kit).
8. Send and answer delay and change notices on time.
9. Update the schedule and price recovery options when the critical path slips.
10. Start the Punch List (Form 16) area by area, and count it weekly by category and system.

Punch list categories

- **Category A:** must be closed before the system is energized or turned over, whether to commissioning or to operations, usually because of safety or function. Safety items can never be waived by anyone; they get fixed, or the system stays dead. A Category A item that isn't a

safety item can move forward only with a written workaround that the receiving team (commissioning or operations) accepts.

- **Category B:** can be finished after turnover, by an agreed date, if the team taking the system accepts it in writing.

Safety and security items are always Category A.

Readiness review checklist

Construct ends in readiness reviews, system by system, not a single sponsor gate (The Lifecycle on One Page). Use this checklist before you call each system or area ready for commissioning (mechanical completion). Form 28 has these questions on its matching sheet, plus three about the review package (the updated forecast, the decisions you need, and an owner for every open answer), with a place to record the decision. On a small job, use the lines that answer "what would go wrong if we skipped it?" (Sizing It to the Job) and mark the rest not applicable.

☐ Work is installed per the issued-for-construction drawings and approved changes.

☐ All hold point inspections are signed, and all nonconformance reports are closed or accepted.

☐ All required tests (pressure, insulation, grounding, and others) are done and documented.

☐ All RFIs affecting the system are answered and closed.

☐ Field changes are captured on redline drawings for the as-builts.

☐ Category A punch items are closed and verified; a non-safety item may instead have a written workaround the receiving team accepted.

☐ Category B punch items are listed, with owners and due dates.

☐ Vendor documentation for installed equipment is in hand.

☐ Local authority inspections required at this stage are passed.

☐ Delay and change notices are up to date, and no known claims are undocumented.

☐ Progress and payment are reconciled for the work in the system.

☐ Operations has walked the system and agreed to the punch list.

☐ People check: the crews, inspectors, and operators agree the system is ready, not just the schedule.

Forms

#	Form	What it is for	When you use it
15	RFI Log	Tracks every request for information to a written answer, with cost and schedule flags	From the first day of construction; review weekly
16	Punch List	Tracks small items to be fixed, by category, with owners and dates	Start as soon as areas or systems are finished; review weekly through closeout
14	Submittal Log (continued)	Tracks every submittal from required date to final approval	From the first award through the end of construction

Top mistakes to avoid

Mistake	What it looks like	How to prevent it
Paying for work not in place	The pay application claims 80 percent on cable pulling, but the trays are half empty	Agree on progress rules in advance; walk the work before approving payment
Skipping hold points	Concrete is poured before the rebar inspection to save a day	Treat hold points as fixed; schedule inspections in the look-ahead
RFIs answered by phone with no record	The designer tells the foreman to move a duct bank, and no one writes it down	Every answer that changes the work goes in writing, the same day
No look-ahead or constraint check	Crews show up to work that isn't ready	Run a weekly three-week look-ahead and clear constraints before the work date
Building by area right to the end	The plant is 95 percent built, and no system is ready to test	About two-thirds of the way through, track open work by system and review it weekly with the commissioning lead
Punch list left for the end	Hundreds of items come up at once in the last month	Punch area by area as work finishes; track the count weekly
Late delay notices	The contractor tells the owner about a delay three months after it happened	Know the notice deadlines in the contract and send notices promptly
Failed work fixed with no record	A weld fails its X-ray and is repaired with no nonconformance report	Write a nonconformance report for every failure, with the fix and who signed off
Weak daily reports	Reports say "worked on site" with no detail	Set a standard format for daily reports and check them weekly
Mobilizing before the site is ready	Grading starts before the stormwater controls are in and before existing conditions are surveyed and photographed	Check permits, controls, surveys, photos, and laydown space before the first crew starts

Construct Field Kit

Daily report minimum

Each day the contractor records the weather; manpower by trade; equipment on site; work done, by area; deliveries, inspections, and visitors; safety events, including near misses; problems; instructions given or received; and photos with the date and location. Read a week of daily reports every week. Would they stand up in a dispute?

Three-week look-ahead: constraint check

For each activity in the next three weeks, ask, "What could stop this from starting?" Give each open constraint an owner and a date before the work is due.

☐ Design is final, and the RFIs that touch the work are answered.

☐ Submittals for the work are approved.

☐ Materials and equipment are on site, or due with proof.

☐ Labor and construction equipment are booked.

☐ Permits and work permits are in hand.

☐ Access is clear, and the work before it is done.

☐ Inspections are booked, including the authority's notice period.

☐ A job hazard analysis is done for the task.

Hold points and nonconformance reports

A hold point is a step where work stops until an inspector signs off. Common ones: rebar before a concrete pour, buried pipe before backfill, grounding before it's covered, and welds before pressure testing. Local building inspectors and other authorities have hold points of their own. Find out early what they inspect and how much notice they need, and put those inspections in the look-ahead.

When work fails an inspection, write a nonconformance report (NCR) and work the loop: record the problem, where it is, and who found it; name an owner for the fix; decide the disposition

(rework, repair, or use as is with the engineer's written approval); fix it and inspect again; close the NCR only when the fix is verified and signed.

Pay application walk-down

Before you approve a pay application, check:

- ☐ Progress is measured by the rules agreed in advance, line by line against the schedule of values.
- ☐ Quantities are walked or verified in the field.
- ☐ Stored materials are allowed by the contract, and backed by invoices and insurance.
- ☐ Retention is calculated as the contract says.
- ☐ Lien waivers for the last payment are in hand where the contract or law calls for them.

High-risk work permits

High-risk work runs on permits under the contractor's or owner's procedures. Check that permits are in use for hot work, confined space entry, excavation, critical lifts, and lockout and tagout of energy sources, and read a few on every site walk. Before each task, crews go through a job hazard analysis (JHA): the steps, what could go wrong at each one, and the controls in place. The JHA is the hazard review for the task. Most crews then review it each day in a shorter pre-task plan, the crew briefing at the start of the shift. The two aren't the same thing, so check that both happen.

Once commissioning starts, the commissioning team's permit system takes over for energized and pressurized systems. After a system is turned over to commissioning, construction can't work on it without a permit from commissioning. The handoff between the two permit systems is a time of high risk. Make sure everyone knows which system is live.

Weekly meeting agenda (Form 25)

One hour, sent the day before. Run it in this order: (1) safety moment, and any incidents or near misses since last week; (2) action items from last week: done, late, or carried; (3) three-week look-ahead and critical path; (4) design, submittals, and RFIs holding up work; (5) utility and other outside parties; (6) cost and changes; (7) risks and issues: new, changed, closed; (8) decisions needed, and from whom; (9) new actions read back: what, who, by when.

Commission and Start Up

What it's for: Prove every system works, alone and together, and hand over a facility the owner can run.

Starts and ends: Starts when the first system reaches mechanical completion. Ends at owner acceptance (commercial operation for a power plant).

Gate 4 question: Will the owner accept the facility? **Usually signed by:** Owner, operations, and sponsor.

What to do

1. Confirm the commissioning plan exists. The approach was set in Plan and the commissioning agent hired in Design. If there's no plan yet, start it now.
2. Turn each system over from construction to commissioning with a signed System Turnover and Acceptance Certificate (Form 18) and a Punch List (Form 16). From then on, construction works on that system only under a permit from commissioning, because it may be live.
3. Work up the levels: factory tests, installation checks, startup, system tests, integrated test (Form 17 for each test).
4. Write procedures with numeric pass and fail criteria, and get them approved.
5. Log and fix every failure; retest before passing.
6. Book vendor technicians early; coordinate the utility, pipeline company, and fire marshal.
7. Train operators on what was built; put them in the control room during startup.
8. Deliver operation and maintenance (O&M) manuals, spare parts, and warranty records before turnover.
9. Turn each system over to operations with a signed System Turnover and Acceptance Certificate (Form 18). Close every Category A item before acceptance. Safety items can't be waived by anyone; a Category A item that isn't a safety item can move forward only with a written workaround accepted by the receiving team.
10. Reach substantial completion as the contract defines it; move insurance to the operating policy.

Phase gate checklist

Use this checklist before you sign substantial completion or commercial operation. Form 28 has these questions on its matching sheet, plus a few about the gate package itself (forecast, top risks, changes, decisions, open items, lessons, and whether the approver can read it in 15 minutes), with a place to record the decision. On a small job, use the lines that answer "what would go wrong if we skipped it?" (Sizing It to the Job) and mark the rest not applicable.

☐ Commissioning plan approved, with test procedures for every system.

☐ All equipment passed its factory tests, with records on file.

☐ Every system turned over from construction to commissioning with a signed package.

☐ Startup and functional tests passed for every system, with failures fixed and retested.

☐ Integrated systems test or performance tests passed against agreed criteria.

☐ On a power plant: reliability run and contract performance tests passed.

☐ On a power plant: emissions monitoring certified, or its certification tests scheduled inside the regulatory deadline; initial air compliance test done or scheduled.

☐ Utility, pipeline, and grid operator requirements met and documented.

☐ Every system turned over to operations with a signed acceptance certificate.

☐ Category A punch items closed and verified, including every safety item; any non-safety exception has a written workaround operations accepted.

☐ Remaining punch items have owners and dates.

☐ Operators trained, with records; O&M manuals and spare parts delivered.

☐ Permits and approvals needed to operate are in hand.

☐ Warranty start dates recorded for every system and piece of major equipment.

☐ Insurance moved from builder's risk to the operating policy.

☐ People check: operations says they're ready to run it, and means it.

Forms

#	Form	What it is for	When you use it
17	Commissioning Checklist	Records each test step, its acceptance criteria, the result, and the witnesses	For every functional test; prepare the procedure before the test
18	System Turnover and Acceptance Certificate	Records the system boundary, documents received, open items, and acceptance	At each turnover: construction to commissioning (mechanical completion), and commissioning to operations
16	Punch List (continued)	Tracks small items to be fixed, by category, with owners and dates	Start as soon as areas or systems are finished; review weekly through closeout

Top mistakes to avoid

Mistake	What it looks like	How to prevent it
Bringing the commissioning agent in too late	The agent is hired when construction is 80 percent done	Set the approach in planning and hire the agent during design
Operators trained the week of handover	Operators sit through slides while the plant is already running	Name trainees early, schedule training, and put operators in startup
Vendor technicians not booked	The turbine vendor's technician is on another job the week of first fire	Put vendor field service in the purchase order and confirm dates early
Skipping levels to save time	The integrated systems test starts before individual system tests are done	Don't start a level until the one before has passed and been signed
Air agency and grid steps left off the schedule	Continuous emissions monitoring system (CEMS) certification, the initial stack test, and the grid operator's testing aren't in the schedule	Put the air agency's and grid operator's steps in the schedule during planning, and confirm them early
Accepting systems with open safety items	A system is accepted with an alarm not working "to be fixed next week"	Close every safety item before acceptance, with no exceptions; any other Category A item needs a written workaround the receiving team accepts
Working on a turned-over system without a permit	A crew goes back into a turned-over system to fix a punch item without asking commissioning	Run one permit system; once a system is turned over, construction works on it only under a permit from commissioning
Vague system boundaries	No one owns the valve between two systems	Define each system's boundary on the turnover drawings
No acceptance criteria	Tests are passed because "it seemed to work"	Write numeric pass and fail criteria into every procedure
Design fixes that never reach the controls	An alarm fixed on the drawings at 60 percent fails its functional test because the programming was never updated	Track every design comment that touches controls through to the programming and the test procedure

Close

What it's for: Finish everything that's left, close the money and the contracts, and leave the owner records they can use.

Starts and ends: Starts at substantial completion or commercial operation. Ends at final completion.

Gate 5 question: Is everything finished? **Usually signed by:** Sponsor.

What to do

1. Work the Closeout Checklist (Form 19), and review what's left on the Punch List (Form 16) weekly until it's at zero.
2. Get every change order signed and every claim settled or formally routed.
3. Reduce retention at substantial completion only as the contract allows, keeping enough to cover the punch list; release the rest with final completion and final lien waivers in hand. On public work, where liens usually can't be filed against government property, the payment bond protects subcontractors instead; follow the agency's closeout rules.
4. Close every purchase order and contract.
5. Issue the final cost report, return unused contingency to the owner or sponsor, and report that the management reserve is no longer needed so it can be released.
6. Spot-check as-built drawings before accepting them.
7. Build the warranty list and hand it to operations.
8. Terminate construction permits and transfer operating permits.
9. Hold the final lessons session and finish the Lessons Learned Register (Form 20); give each recommendation an owner.
10. Release the team with feedback to their managers, and thank them.

Phase gate checklist

Don't call the project closed until every box can be checked, or the sponsor has agreed in writing to the ones that can't. Form 28 has these questions on its matching sheet, plus a few about the gate package itself (forecast, open risks handed over to operations, changes, decisions, open

items, lessons, and whether the approver can read it in 15 minutes), with a place to record the decision. On a small job, use the lines that answer "what would go wrong if we skipped it?" (Sizing It to the Job) and mark the rest not applicable.

☐ All punch items closed and verified.

☐ Final completion reached as the contract defines it.

☐ All change orders signed and all change requests decided.

☐ All claims and disputes settled or formally routed.

☐ Final payment made and retention released, with final lien waivers in hand (private work) or the bond and agency closeout requirements met (public work).

☐ All purchase orders and contracts closed.

☐ Final cost report issued, with variances explained; unused contingency returned, and the sponsor told the management reserve can be released.

☐ As-built drawings received, spot-checked, and accepted.

☐ O&M manuals, test records, and control system backups handed to operations.

☐ Warranty list with start and end dates handed to operations.

☐ Permits transferred or closed, including construction stormwater.

☐ Project records archived per the retention policy, with the filing structure made read-only and the document register matching 50 Issued.

☐ Lessons learned register finalized, with owners for every recommendation.

☐ Benefit measures handed to a named owner.

☐ People check: every team member has been released with feedback to their manager, and thanked.

Forms

#	Form	What it is for	When you use it
19	Closeout Checklist	Lists every technical, contract, financial, permit, records, and people item to close	Start before substantial completion; review weekly to final completion
20	Lessons Learned Register	Records what happened, what it caused, and what to do next time, with an owner for each	Keep it running from Initiate; hold a final session before the team breaks up
16	Punch List (continued)	Tracks small items to be fixed, by category, with owners and dates	Start as soon as areas or systems are finished; review weekly through closeout

Top mistakes to avoid

Mistake	What it looks like	How to prevent it
Team released before records are done	The project controls lead and document controller leave at commercial operation	Plan releases around closeout tasks, not milestones
Punch list stalls after handover	The remaining Category B items sit while the contractor moves its best people to other jobs	Review the list weekly with the contractor, plan access with operations, and verify every closure
Retention released too early	All retention is paid at substantial completion with 40 punch items open	Reduce retention at substantial completion only as the contract allows, hold back enough to cover the punch list, and release the rest at final completion with lien waivers in hand
Claims left to drift	A disputed change is "parked" for later	Settle or formally route every claim before final completion
No warranty list	Warranties expire unnoticed	Build a warranty list with start and end dates before the team leaves
Warranty clock started at delivery	The turbines arrive in month 15 with a warranty that runs from delivery, and commercial operation is month 28	Negotiate the warranty start in the purchase order, and keep the storage maintenance records
As-builts not checked	Drawings are accepted without comparing them to the facility	Spot-check as-builts against the field before accepting them
Lessons learned held once, at the end	One meeting, half the team gone, a report filed away	Collect lessons all along, assign owners, share the top five
Construction permits left open	The construction stormwater permit is never terminated after the site is stabilized	Put permit termination and transfer on the closeout checklist, each with a named owner
Benefits never handed over	Nobody is assigned to measure the promised benefit	Hand benefit measures to a named owner before closing

Every Week, Every Month

The control rhythm

How often	What you check	What it feeds
Daily	Safety events, field progress, problems that need an answer today	Daily huddle and daily report
Weekly	Look-ahead, critical and near-critical items, short-float long-lead items, open RFIs and submittals, issues and actions, punch count, a week of daily reports, the filing structure	Weekly meeting (Form 25); Issue and Action Log (Form 21)
Monthly	Schedule update, forecast, earned value, risk register, change log, stakeholders	Monthly Status Report (Form 24) and owner review; Change Log totals (Form 23)
Each phase	Gate or readiness review checklist, re-estimate, Lessons Learned Register (Form 20)	Gate decision, or readiness review in Procure and Construct

Forms that run every week

- **Issue and Action Log (Form 21):** every item has an owner, a due date, and a next step. Close stale items or escalate them.
- **Meeting Agenda and Minutes (Form 25):** run the weekly meeting on the standard agenda (Construct Field Kit).
- **Change Request and Change Log (Forms 22 and 23):** new changes logged and numbered; pending ones moving to a decision.
- **Submittal and RFI Logs (Forms 14 and 15):** anything past due gets a call.
- **Punch List (Form 16):** the count by category and system, plotted. If the line isn't falling, turnover will slip.
- **Milestone and Long-Lead Schedule (Form 5):** long-lead items with short float, checked against the need-on-site date.

Each month, the Risk Register (Form 7) gets its review and the Monthly Status Report (Form 24) goes to the sponsor, with the slide version (Form 29) if the sponsor wants a presentation.

Change control in six steps

1. Anyone raises a change request (Form 22).
2. Log and number it (Form 23).
3. Work out the impact on scope, cost, schedule, risk, safety, and operations.

4. The right person decides, under the written approval limits. A change that moves a contract milestone always goes to the top approval level.
5. If approved, update the baseline, budget, schedule, contracts, and risk register.
6. Tell everyone affected, in writing.

Earned value in six lines

- Planned value (PV): budget for the work that should be done by now.
- Earned value (EV): budget for the work actually done.
- Actual cost (AC): what the done work actually cost.
- Schedule performance index (SPI) = EV divided by PV. Below 1.0 means behind. SPI drifts back toward 1.0 near the end of a job whether or not you're late, so check the critical path, not SPI alone.
- Cost performance index (CPI) = EV divided by AC. Below 1.0 means over cost.
- Budget at completion (BAC): the estimate plus approved changes, without unused contingency. Quick estimate at completion (EAC) = BAC divided by CPI. It checks the area-by-area forecast, which is the number you report.

Monthly report checklist (Form 24)

☐ Schedule updated with actual progress, not typed-in dates.

☐ Critical path and near-critical paths reviewed, with any change explained.

☐ Estimate at completion built area by area, with variances explained.

☐ Earned value calculated, and progress measurement checked.

☐ Contingency used and remaining compared to the risks still ahead.

☐ Change log current, with every pending change heading to a decision.

☐ Risk register reviewed and updated.

☐ Issue and action log reviewed, with stale items closed or escalated.

☐ Status colors set against the agreed definitions.

☐ Decisions needed listed, with dates.

☐ People check: the team agrees the report tells the truth.

People Quick Cards

The power and interest grid

Group	Power and interest	How to treat them
Manage closely	High power, high interest	Involve in decisions; meet regularly; no surprises
Keep satisfied	High power, lower interest	Short, regular updates; bring in before big decisions
Keep informed	Lower power, high interest	Communicate often and honestly; listen
Monitor	Lower power, lower interest	Check in occasionally; watch for changes

Communication plan basics

For each regular communication, write down what it's for, who gets it, who owns it, how, and how often (Form 8). Add every contract notice with its deadline. Agree the plan with the owner.

Delivering bad news

1. **What happened,** in one or two sentences, with no spin.
2. **What it means** for schedule, cost, safety, or scope, as best you know today.
3. **What you don't know yet,** and when you will.
4. **What you're doing about it,** and what you need, if anything.

Call first, then follow up in writing the same day.

Escalation checklist

☐ I've tried to solve it at my level, and I can say what I tried.

☐ I know who has the authority to decide.

☐ I'm escalating early enough for the decision to help.

☐ I have two or three options, each with its cost and risk.

☐ I have a recommendation.

☐ I've told my counterpart I'm escalating.

☐ It's on one page, with the decision needed and the date.

Running a GSD session

GSD stands for Get Stuff Done. It's a 30-minute working session, once a week, with your team and suppliers. It isn't a status meeting.

- Work the open items live: open the drawing, call whoever isn't there, and let the decision owner decide before you hang up.
- Anything that doesn't close leaves with a name and a date, and comes back first next week.
- Tell suppliers and partners, "Please bother me." Their follow-up watches the schedule for both of you.

Stakeholder mapping session

One to two hours with the core team, plus operations and someone who has worked in the area.

1. List every person, group, and agency that could affect the project or be affected by it.
2. Combine duplicates, and split groups that want different things.
3. Score each one for power and interest, 1 to 5.
4. Place them on the grid, and talk about "manage closely" and "keep satisfied" first.
5. Give every stakeholder in those two groups a named owner before the session ends.
6. Agree who makes first contact with whom, and by when.

Write it into the Stakeholder Register (Form 2) the same day. Repeat a short version each phase.

Leading the team: quick checklist

☐ Every team member knows the project goal and their part in it.

☐ Roles and decision rights are written down (RACI) and settled with each home manager.

☐ Everyone knows which seat you're in, and direction to another company's people goes through their chain.

☐ New team members get a proper orientation.

☐ Actions have owners and dates, and get reviewed every week.

☐ Conflicts are named and dealt with, not ignored.

☐ Craft labor needs, and any labor agreement, are understood before the work sequence is set.

☐ Good work is recognized specifically, including to people's home managers.

☐ You and your team are taking time off.

Your First 90 Days

Whether you start a project fresh or take over one that's already moving, the first three months set the tone.

Days 1 to 30: listen and learn

☐ Met the sponsor one-on-one: what success looks like, what worries them, how they like updates.

☐ Wrote your one-sentence job description and asked the sponsor for theirs; compared them and settled the differences (Role Alignment Worksheet, Form 26).

☐ Met every key team member and asked: what's working, what isn't, what would you change?

☐ Read the charter, contract, baseline schedule, budget, risk register, and last three monthly reports.

☐ Listed every place those documents don't agree with each other.

☐ Walked the site or the design office.

☐ Introduced yourself to the outside parties who control your dates: utility, permitting agencies, key vendors.

Days 31 to 60: find the gaps and set the rhythm

☐ Sorted the problems into three piles: fix it yourself, needs the sponsor, watch it.

☐ Weekly meeting, monthly report, and logs running.

☐ Schedule logic and forecast checked; anything not believable raised now.

☐ Roles and decision rights settled; RACI (Form 3) current.

☐ Two or three early wins picked and under way.

Days 61 to 90: commit

☐ Honest forecast presented, with the top risks and decisions needed.

☐ Baseline confirmed, or reset through change control.

☐ Agreement with the sponsor on what they'll hear from you, and when.

Taking over a project in trouble? Move faster through the first two stages, but don't skip them.

Running a Program

A program is a group of related projects managed together to get benefits none of them would get alone. If you're coordinating shared utilities, permits, equipment, or crews across several projects, you're running a program, whatever your title says.

Signs you've been handed a program: several separate scopes that each deliver something usable on its own; pieces that depend on something shared, like a substation, a pipeline, or a permit; success measured by an outcome after construction; more time spent on conflicts between pieces than on any one piece; and leadership talking about "the program." If several are true (as a rule of thumb, three or more), run it as a program. A single plant with several contracts is still one project.

Setting up a program

The Program Setup Checklist (Form 27) has every step below as a checklist with owners and dates.

1. Write the benefits in measurable terms, and name who will measure them.
2. Set up governance: who decides what, and how often they meet.
3. Use one work breakdown structure (WBS) format across every project.
4. Build an integrated master schedule with each project's key milestones and handoffs.
5. Map shared dependencies, such as utilities, permits, and common equipment, and name an owner for each.
6. Keep a program risk register for risks that cross projects.
7. Agree who controls program reserve and how a project asks for it.
8. Give each project a capable project manager, and let them run it.

A simple governance structure

Body	Who sits on it	How often	What it decides
Steering committee	Sponsor (chair), finance, operations, and customer leads; program manager	Monthly or quarterly	Program scope, funding, priorities between projects, program reserve, major changes
Program management team	Program manager, project managers, controls, procurement, and HSE leads	Weekly	Shared resources, interfaces, program schedule, escalations from projects
Project teams	Project manager and project leads	Weekly	Everything inside the project's approved scope, budget, and authority
Technical design authority	Lead engineers for each discipline	As needed	Standard designs, and changes that affect more than one project

Two rules that make it work. Write down the approval limits at each level. Set an escalation clock: if the program team hasn't settled a conflict between projects within an agreed number of working days (five is a good default), it goes to the steering committee automatically.

Program checklist, every month

☐ Benefits register updated with measured results, not hopes.

☐ Integrated master schedule updated; handoffs between projects checked.

☐ Shared dependencies reviewed with their owners.

☐ Program risks reviewed; project risks that could spread are raised.

☐ Program reserve used and remaining reported to the steering committee.

☐ Lessons from one project shared with the others.

Contracts Quick Card

This card helps you spot a contract question when it's in front of you. It isn't legal advice. Bring in your contracts and legal staff when the stakes are high.

Contract types

Type	How it works	Watch out for
Lump sum (fixed price)	One price for a defined scope	Every scope change is a change order
Unit price	Fixed price per unit, paid on measured quantities	Quantities can grow; measure accurately
Cost-plus	Actual costs plus a fee	Little incentive to control cost; watch costs closely
Guaranteed maximum price (GMP)	Cost-plus with a cap	Only as good as the scope it was based on
Time and materials (T&M)	Hourly rates plus material markups	Open-ended; set a not-to-exceed limit

Delivery methods

- **Design-bid-build:** design first, then bid construction. More owner control, slower.
- **Design-build:** one firm designs and builds. Faster, less owner control of details.
- **Construction manager at risk (CMAR):** a builder advises during design, then builds, usually under a GMP.
- **Engineering, procurement, and construction (EPC):** one contractor delivers a working plant, often for a lump sum with performance guarantees. A common variation: the owner buys the long-lead equipment itself and the EPC contractor does everything else.

Choosing one. There's no best method in general. Pick by how fast you need to go, how well the scope is defined, how much control the owner wants over design, and how much risk each side can carry. Decide it in Initiate and confirm it in Plan.

Clauses to find on day one

Clause	Why the PM cares
Scope of work	Most disputes start here
Schedule and milestones	What counts as complete, and when
Liquidated damages	What lateness costs on defined milestones
Changes	Who can approve a change, and how it's priced
Notice	Written notice deadlines for changes, delays, and claims

Clause	Why the PM cares
Differing site conditions	Buried rock, contamination, or other conditions unlike the contract documents. Give prompt written notice, and before you disturb the condition if your contract requires it (the federal clause does; the American Institute of Architects' A201-2017 sets an outside limit of 14 days from first seeing it). Some EPC contracts put this risk on the contractor; check yours.
Payment and retention	What backup is required; when retention is reduced and released
Warranty	What's covered, for how long, from when
Performance guarantees	What the facility must prove, and the remedy if it falls short
Force majeure	Events beyond either side's control
Dispute resolution	The steps, from negotiation to arbitration or court
Substantial and final completion	What each requires and what each triggers

Insurance, indemnity, limitation of liability, and suspension and termination matter too. Read them with your contracts staff when the contract is signed.

Notice habits

☐ Every notice requirement is listed with its deadline and format, in the communication plan.

☐ Notices go out promptly, even before the full impact is known.

☐ Notices received get a written answer on time.

☐ Notices stay factual, not accusing.

☐ Everyone knows who can sign a change order, and who can't.

☐ Every change order settles time and money together.

☐ Daily reports, minutes, and correspondence are kept at the time, not reconstructed later.

☐ No one gives contractor directions in a meeting without thinking about whether it's a change.

Notice register

Keep one row for each notice clause in each major contract. Carry it in the Communication Plan (Form 8) or as its own sheet.

Clause	What triggers it	Deadline	Format and to whom	Owner
Changes	Any direction or event that may change cost or time	Days set in the contract	Written, to the named representative	PM
Delay	An event that will or may delay the work	Days set in the contract	Written, to the named representative	PM
Differing site conditions	Site conditions that differ materially from the contract documents	Promptly, and before the conditions are disturbed where the contract says so	Written, to the named representative	Construction manager
Claim	Intent to claim more time or money	Days set in the contract	Written, to the named representative	PM

Filing Structure Quick Card

Every document gets one home, and the team works only from 50 Issued. Set this up in the first weeks of Plan (book section 8.9, Form 30). Form 30's download includes an empty set of these folders.

Folder	What goes in it	Who files it
00 Index and Admin	Folder index, document register, transmittal log, access list, naming rule	Document controller
10 Project Management	Charter, plans, schedule, budget, risks, changes, decisions, reports, minutes, contracts, letters	PM team
20 Incoming	Documents from outside the team, saved as received with the date	Whoever receives it
30 Work in Progress	Your team's drafts	The author
40 Review	Documents out for comment, with their comment logs	Document controller
50 Issued	The one current, approved version of each document	Document controller only
60 Construction and Field	RFIs, daily reports, inspections, NCRs, permits, photos, punch list	Construction team
70 Commissioning and Turnover	Test records, turnover packages, acceptance certificates, O&M manuals, as-builts	Commissioning team
80 Archive	Every replaced version and closed record, read-only	Document controller only
90 Reference and Templates	Codes, owner standards, blank forms, lessons from past jobs	Document controller
95 External Transfer	The only folder outsiders see: packages going out on a transmittal, and files coming in	Document controller

Naming and revisions

- **File name:** Project code - Area - Type - Number - Revision - Title. Example: CW - E - DWG - 0101 - Rev 1 - Plant One-Line Diagram (project code CW, area E for electrical, type DWG for drawing).
- **Revisions:** letters (A, B, C) for drafts and review; numbers (0, 1, 2) for issued versions. Rev 0 is the first issue.
- **Dates in names:** year first (2026-03-14), so files sort in order.
- **Reissue:** the new revision goes into 50 and the old one moves to 80 the same day.

The rules

- Authors write in 30 and move a document to 40 when it's ready for comment.
- Only the document controller files into 50 and 80, after the approval or acceptance in the RACI is on record.
- Nobody edits a file in 20 or 50. To change an issued document, copy it to 30, give it the next revision, and review it again.
- Everything that leaves the team goes through 95 with a numbered transmittal, logged in 00.
- A decision made in email gets saved to the right folder or the Decision Log (Form 11).
- Keep folder and file names short, so every full file path stays below 249 characters.

Weekly five-minute check

☐ Nothing left in 95 External Transfer for more than a week.

☐ 50 Issued holds only one version of each document.

☐ Last week's decisions and letters filed, not sitting in inboxes.

☐ Document register matches 50 Issued.

Two logs in folder 00

- **Document register:** one line for each controlled document, with its number, title, current revision, status, date issued, and folder. It answers "is this the latest?" faster than any search.
- **Transmittal log:** one line for each package sent out through 95, with the transmittal number, date, who it went to, the documents and revisions, the purpose (for review, for information, or for construction), and whether receipt was confirmed.

Where each phase files

Phase	Where it goes
Initiate	10 (charter, registers, decision log); outside studies and agency letters in 20
Plan	10 (all plans and logs); approved baseline and plan in 50
Design	Packages from the designer in 20, review in 40, issued-for-construction set in 50, old revisions in 80; your own drafts in 30
Procure	Bids and vendor documents in 20; submittals in 40, accepted copies in 50; purchase orders and contracts in 10
Construct	60 for field records; signed change orders in 50 and logged in 10
Commission and Start Up	70; signed acceptance certificates also in 50
Close	As-builts to 70 and 50; closeout in 10; then archive the whole structure, read-only

Safety and Environment Quick Card

This card covers the PM's role in health, safety, and environment (HSE). It isn't a safety manual. Safety procedures and forms come from your contractor's safety program, your organization's HSE staff, and the regulations. Check current requirements with the Occupational Safety and Health Administration (OSHA) and your state.

The PM's safety job

- **Plan it in:** safety in the plan, schedule, and budget from the start.
- **Hire for it:** safety performance as a real criterion in contractor selection.
- **Show up for it:** start every meeting with safety; walk the site; talk to crews.
- **Back it up:** support stop-work authority, especially when the schedule is tight.
- **Learn from it:** treat near misses and incidents as lessons.

Site walk: what to check

☐ Crews have a job hazard analysis for the task in front of them.

☐ Permits are posted and current for hot work, confined space entry, excavation, critical lifts, and lockout and tagout.

☐ The four hazards behind many construction deaths are controlled: falls, caught-in or caught-between, struck-by, and electrocution. OSHA calls them the Focus Four.

☐ In hot weather: water, rest, and shade are there, and workers new to the heat are building up to it (acclimatization).

☐ Everyone knows which systems are live once commissioning starts.

☐ Stop-work authority is real: ask a crew whether they'd use it.

☐ Ask a foreman, "What was your last near miss?" If the answer is "We don't have any," near misses aren't being reported.

When something goes wrong

1. Take care of the people, and secure the scene.
2. Report it: inside the project right away, to the owner as the contract requires, and to OSHA when required. Under federal OSHA rules (Code of Federal Regulations, 29 CFR 1904.39), a

work-related fatality must be reported within 8 hours of learning of it, and an in-patient hospitalization, amputation, or loss of an eye within 24 hours of learning of it. States that run their own OSHA programs can be stricter. On a multi-employer site, each employer reports for its own workers. Agree who calls whom before mobilization, and post the numbers.

3. Preserve the facts.
4. Investigate to find causes, not someone to blame.
5. Fix it, log the actions with owners and dates, and share the lesson.

HSE outside construction

Phase	What the PM does
Initiate	Screen for environmental fatal flaws; list the major permits and their timelines
Plan	Put safety and permits in the plan, schedule, and budget; set safety criteria for contractor selection
Design	Include safety and operations in design reviews; design for safe access, maintenance, and emergency response
Procure	Score safety performance in bids; require vendor field staff to follow site rules
Commission and Start Up	Control energized and pressurized systems with permits; brief responders before first fire or energization
Close	Terminate construction permits; transfer operating permits; record HSE lessons

Permit conditions

For every permit, list each condition, who owns it, and when it's due. On power and data center work the usual ones are construction stormwater, air, and water permits, plus local noise limits. A construction stormwater permit is required when the work disturbs one acre or more, or is part of a larger common plan of development. It usually needs a stormwater pollution prevention plan (SWPPP), inspections, and a notice to close it out. Many violations happen because a condition buried in a long permit never reached the field.

Permit	Condition	Owner	Due or how often	Evidence
Construction stormwater	Inspect erosion and sediment controls as the permit requires	Site environmental lead	Per the permit	Signed inspection report

Gate Review on One Page

Use this outline, with the Phase Gate Go/No-Go Checklist (Form 28), for the short package you bring to the person who signs the gate (Gate 1 Initiate through Gate 5 Close). For a Procure or Construct readiness review, cut it to a page.

1. **The question.** The gate question for this phase, and your recommendation: go, go with conditions, or stop or rework.
2. **What the phase produced.** The key deliverables, and whether each is complete.
3. **The gate checklist.** Every item from this guide's checklist for the phase, marked done, open, or not applicable, with an owner and date for each open item.
4. **The forecast.** Updated cost and schedule forecast against the baseline, with the main reasons for any change.
5. **Risks and contingency.** The top five risks for the next phase (at Close, the open risks handed over to operations, with owners), and contingency used and remaining.
6. **Changes.** Approved and pending changes since the last gate.
7. **Decisions needed.** What you need the sponsor to decide, and by when.
8. **Lessons.** The two or three lessons from this phase worth carrying forward.

Keep it short enough for the sponsor to read in 15 minutes. Put the detail in attachments.

Artificial Intelligence (AI) on the Job

Do	Don't
Use only tools your organization has approved, for the data you're putting in	Paste confidential owner, client, or company data into an unapproved tool
Use AI for first drafts, summaries, reorganizing notes, and brainstorming	Use it to make decisions
Check every fact, number, name, date, and reference	Trust a confident answer without checking it
Get everyone's agreement before recording or transcribing a meeting	Assume one-party consent covers every state
Ask it to mark what it's unsure of	Use acceptance criteria or numbers it made up
Save prompts that work and share them	Forget that you own whatever you send

Some states require every party's consent to record. Check with legal.

Field Terms

These are the working terms this guide uses, in plain words. Acronyms are in the Acronym List.

Term	What it means
As-built drawings	Drawings updated to show what was actually built, including every field change
Baseline	The approved scope, schedule, and cost that performance is measured against. It changes only through change control
Basis of estimate	A record of where each number in an estimate came from, what it assumes, and when it was priced
Bid leveling	Adjusting bids so they cover the same scope before comparing prices
Budget at completion	The approved budget for the work (the estimate plus approved changes), not including unused contingency. Earned value is measured against it
Builder's risk insurance	Insurance that covers the work while it's being built
Category A punch item	Must be closed before the system is energized or turned over, whether to commissioning or to operations, usually because of safety or function. Safety and security items are always Category A, and safety items can't be waived by anyone. A Category A item that isn't a safety item can move forward only with a written workaround accepted by the receiving team
Category B punch item	Can be finished after turnover, by an agreed date, if the team taking the system accepts it in writing
Change order	A signed amendment to a contract that changes its scope, price, or time
Commercial operation	The date a power plant is formally declared available to sell power, after it has passed the tests and met the conditions set by its contracts and the grid operator
Commissioning agent	An independent specialist who plans and runs commissioning for the owner. Also called a commissioning authority
Constraint (field)	Anything that must be in place before work can start: drawings, materials, access, inspections, or permits
Contingency	Money in the cost baseline for risks you have identified and for the uncertainty in the estimate itself (known unknowns). The PM manages it under agreed rules
Cost baseline	The approved budget including contingency
Critical path	The longest chain of linked work from start to finish. Any delay on it delays the finish
Design basis	The designer's document showing how the design will meet the owner's requirements. On a lump-sum EPC job the contractor writes it, and the owner reviews it for conformance and issues "no objection," not "approval," so design responsibility stays with the contractor
Design freeze point	A point after which part of the design can't change without change control, for example no layout changes after 60 percent design
Differing site condition	A physical condition, such as buried rock or contamination, that is materially different from what the contract documents showed
Document register	One line for each controlled document: number, title, current revision, status, and date issued. It answers "is this the latest?"
Estimate class	How mature an estimate is. AACE International's Recommended Practices 18R-97 (process plants) and 56R-08 (building and general construction) set five classes, from Class 5 (screening, widest range) to Class 1 (detailed, narrowest range). Always say the class and the range
Expediting	Following an order to make sure the vendor is on track to deliver on time
Factory acceptance test	A test of equipment at the factory, before it ships, usually witnessed by the owner
Fast-tracking	Starting work before the work it depends on is finished, to save time
Final completion	Every item done, all documents delivered, and the contract's conditions met. Final payment and the rest of the retention follow
Float	How much an activity can slip without delaying the finish date (total float). Free float is how much it can slip before the next activity is delayed. Work with little float is near-critical
Hold point	A step where work must stop until an inspector signs off

Term	What it means
Integrated systems test	The test that proves all of a facility's systems work together, including under failure conditions
Job hazard analysis	A review of a task's steps, what could go wrong at each one, and the controls in place. Crews often review it each day in a shorter pre-task plan
Lien waiver	A written statement by a contractor or supplier giving up its right to place a lien on the property for the amount covered. A conditional waiver takes effect only when the payment clears; an unconditional waiver says the money has been received
Limited notice to proceed	A short contract issued to a vendor after the sponsor approves early funding, before the full project is funded. It typically reserves factory slots for a deposit, sets a cancellation schedule, and names a date to freeze the specification
Liquidated damages	A preset amount a contractor pays for each day (or week) it's late on a defined milestone
Lockout and tagout	Isolating energy sources and locking them off, with a tag naming who placed the lock, before anyone works on the equipment
Long-lead item	Equipment or material that takes months or years to design, build, and deliver
Look-ahead schedule	A short-term schedule, usually three weeks, showing exactly what work will happen and what it needs
Management reserve	Money outside the cost baseline for things nobody saw coming. The sponsor or owner controls it
Mechanical completion	The point at which a system is installed and ready for commissioning
Near miss	An event that could have hurt someone but didn't, often only by luck
Near-critical	Work with so little float that one bad month could make it critical. Decide what it means on your job, such as 20 working days of total float or less
Need-on-site date	The date equipment must be on site to hold the schedule. Work backward from it to set the order date
Nonconformance report	A record of work that failed an inspection, how it will be fixed, and who approved the fix
One-line diagram	A simplified drawing of the electrical system that shows each circuit as a single line
Owner-furnished equipment	Equipment the owner buys directly and hands to a contractor to install
Owner's requirements	The owner's written requirements the design must meet: capacity, reliability, codes, site conditions, and how the facility will be run and maintained. On an EPC job, the owner's technical specification
Project filing structure	The agreed numbered folders, plus the naming, revision, and access rules, that give every project document one home (Filing Structure Quick Card)
Punch list	The list of small items still to be fixed or finished before acceptance
Readiness review	A check inside a phase that releases one package or one system, signed below the sponsor (The Lifecycle on One Page). Procure and Construct end in readiness reviews, not gates
Retention	A portion of each payment held back until the work is complete. The contract says when it's reduced and released
Schedule of values	The breakdown of a contract price into line items used to bill progress
Stop-work authority	The right of anyone on site to stop work they believe is unsafe, without fear of punishment
Submittal	A document a vendor or contractor sends for review, such as shop drawings, product data, or test reports
Substantial completion	The point at which a facility can be used for its intended purpose, as the contract defines it
Transmittal	A numbered cover note sent with documents leaving the team, listing each document, its revision, why it's being sent, and the date
Turnover package	The documents handed over with a system when it moves from construction to commissioning, or from commissioning to operations
Work package	The lowest level of the WBS, where work is estimated, scheduled, and assigned

Forms Index

Download all of them, free, at trinfinityenterprises.com/books/project-management/forms. Each Excel form is one workbook with a How to Use tab plus blank and example tabs (some add tabs, and Form 28 has a sheet for each gate and readiness review). Word and PowerPoint forms come as blank and example files.

#	Form	Phase	Format	Used in this guide
1	Project Charter	Initiate	Word	Initiate (step 9)
2	Stakeholder Register	Initiate, kept current	Excel	Initiate (steps 4, 10); People cards
3	RACI Matrix and Contact List	Plan	Excel	Plan (step 5); Your First 90 Days
4	WBS and WBS Dictionary	Plan	Excel	Plan (step 1)
5	Milestone and Long-Lead Schedule	Plan	Excel	Plan (step 2); Procure (step 3); Every Week, Every Month
6	Cost Estimate and Budget	Plan	Excel	Plan (step 3)
7	Risk Register	Initiate, kept current	Excel	Initiate (step 10); Plan (step 6); Every Week, Every Month
8	Communication Plan	Plan	Excel	Plan (step 7); People cards; Contracts card
9	Project Management Plan	Plan	Word	Plan (step 10)
10	Design Review Comment Log	Design	Excel	Design (step 4)
11	Decision Log	All phases (from Initiate)	Excel	Initiate (step 10); Design (step 10)
12	Procurement Plan	Plan, Procure	Word	Plan (step 8); Procure (step 1)
13	Bid Evaluation Matrix	Procure	Excel	Procure (step 7)
14	Submittal Log	Procure, Construct	Excel	Procure (step 10); Construct (step 5); Every Week, Every Month
15	RFI Log	Construct	Excel	Construct (step 5); Every Week, Every Month
16	Punch List	Construct, Commission	Excel	Construct (step 10); Commission (step 2); Close (step 1); Every Week, Every Month
17	Commissioning Checklist	Commission	Excel	Commission (step 3)
18	System Turnover and Acceptance Certificate	Commission	Word	Commission (steps 2, 9)
19	Closeout Checklist	Close	Excel	Close (step 1)
20	Lessons Learned Register	All phases, closed out in Close	Excel	Initiate (step 10); Close (step 9)
21	Issue and Action Log	All phases	Excel	Initiate (step 10); Every Week, Every Month
22	Change Request	All phases	Word	Plan (step 9); Every Week, Every Month
23	Change Log	All phases	Excel	Plan (step 9); Every Week, Every Month
24	Monthly Status Report	All phases	Word	Every Week, Every Month
25	Meeting Agenda and Minutes	All phases	Word	Plan (step 10); Construct Field Kit; Every Week, Every Month
26	Role Alignment Worksheet	Initiate	Word	Your First 90 Days
27	Program Setup Checklist	Initiate, Plan	Excel	Running a Program
28	Phase Gate Go/No-Go Checklist	Every gate and readiness review	Excel	Every phase gate checklist; Gate Review on One Page
29	Monthly Status Report Deck	All phases	PowerPoint	Every Week, Every Month
30	Project Filing Structure and Document Control Guide	Plan, kept current to Close	Word	Plan (step 9); Filing Structure Quick Card; Close checklist

Acronym List

Acronym	Meaning
AACE	AACE International (originally the American Association of Cost Engineers)
AC	Actual cost
AI	Artificial intelligence
BAC	Budget at completion
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMAR	Construction manager at risk
CPI	Cost performance index
EAC	Estimate at completion
EPC	Engineering, procurement, and construction
EV	Earned value
GMP	Guaranteed maximum price
GSD	Get Stuff Done (a weekly working meeting)
GSU	Generator step-up (transformer)
HAZOP	Hazard and operability study
HSE	Health, safety, and environment
IFC	Issued for construction
JHA	Job hazard analysis
NCR	Nonconformance report
O&M	Operation and maintenance
OSHA	Occupational Safety and Health Administration
PM	Project manager or project management
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PV	Planned value
RACI	Responsible, Accountable, Consulted, Informed
RFI	Request for information
RFP	Request for proposal
SPI	Schedule performance index
SWPPP	Stormwater pollution prevention plan
T&M	Time and materials
WBS	Work breakdown structure

PMI terms

The Project Management Institute (PMI) groups project management work into five focus areas (formerly process groups) in the PMBOK Guide (A Guide to the Project Management Body of Knowledge), Eighth Edition: Initiating, Planning, Executing, Monitoring and Controlling, and Closing. Every phase can run through all five. Most of the work in Design, Procure, Construct, and Commission and Start Up falls in Executing, and Monitoring and Controlling runs through every phase.