

PROJECT PLANNING, MONITORING AND CONTROL

MONITORING AND CONTROL PROCEDURES

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Stages	0	1	2	3	4	5	6	7
	Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out	In Use
	Identify client's Business Case and Strategic Brief and other core project requirements.	Develop Project Objectives , including Quality Objectives and Project Outcomes , Sustainability Aspirations , Project Budget , other parameters or constraints and develop Initial Project Brief . Undertake Feasibility Studies and review of Site Information .	Prepare Concept Design , including outline proposals for structural design, building services systems, outline specifications and preliminary Cost Information along with relevant Project Strategies in accordance with Design Programme . Agree alterations to brief and issue Final Project Brief .	Prepare Developed Design , including coordinated and updated proposals for structural design, building services systems, outline specifications, Cost Information and Project Strategies in accordance with Design Programme .	Prepare Technical Design in accordance with Design Responsibility Matrix and Project Strategies to include all architectural, structural and building services information, specialist subcontractor design and specifications, in accordance with Design Programme .	Offsite manufacturing and onsite Construction in accordance with Construction Programme and resolution of Design Queries from site as they arise.	Handover of building and conclusion of Building Contract .	Undertake In Use activities in accordance with Schedule of Services .
Initial considerations for assembling the project team.	Prepare Project Roles Table and Contractual Tree and continue assembling the project team.	The procurement strategy does not fundamentally alter the progression of the design or the level of detail prepared at a given stage. However, Information Exchanges will vary depending on the selected procurement route and Building Contract . A bespoke RIBA Plan of Work 2013 will set out the specific tendering and procurement activities that will occur at each stage in relation to the chosen procurement route.			Administration of Building Contract , including regular site inspections and review of progress.	Conclude administration of Building Contract .		
Establish Project Programme .	Review Project Programme .	Review Project Programme .	The procurement route may dictate the Project Programme and may result in certain stages overlapping or being undertaken concurrently. A bespoke RIBA Plan of Work 2013 will clarify the stage overlaps. The Project Programme will set out the specific stage dates and detailed programme durations.					
Pre-application discussions.	Pre-application discussions.	Planning applications are typically made using the Stage 3 output. A bespoke RIBA Plan of Work 2013 will identify when the planning application is to be made.						
Review Feedback from previous projects.	Prepare Handover Strategy and Risk Assessments . Agree Schedule of Services , Design Responsibility Matrix and Information Exchanges and prepare Project Execution Plan including Technology and Communication Strategies and consideration of Common Standards to be used.	Prepare Sustainability Strategy , Maintenance and Operational Strategy and review Handover Strategy and Risk Assessments . Undertake third party consultations as required and any Research and Development aspects. Review and update Project Execution Plan . Consider Construction Strategy , including offsite fabrication, and develop Health and Safety Strategy .	Review and update Sustainability, Maintenance and Operational and Handover Strategies and Risk Assessments . Undertake third party consultations as required and conclude Research and Development aspects. Review and update Project Execution Plan , including Change Control Procedures . Review and update Construction and Health and Safety Strategies .	Review and update Sustainability, Maintenance and Operational and Handover Strategies and Risk Assessments . Prepare and submit Building Regulations submission and any other third party submissions requiring consent. Review and update Project Execution Plan . Review Construction Strategy , including sequencing, and update Health and Safety Strategy .	Review and update Sustainability Strategy and implement Handover Strategy , including agreement of information required for commissioning, training, handover, asset management, future monitoring and maintenance and ongoing compilation of 'As-constructed' Information. Update Construction and Health and Safety Strategies .	Carry out activities listed in Handover Strategy including Feedback for use during the future life of the building or on future projects. Updating of Project Information as required.	Conclude activities in Handover Strategy including Post-occupancy Evaluation , review Performance , Project Outcomes and Research and Development . Updating of Project Information , as response to ongoing Feedback until the building's life.	
Sustainability Checkpoint – 0	Sustainability Checkpoint – 1	Sustainability Checkpoint – 2	Sustainability Checkpoint – 3	Sustainability Checkpoint – 4	Sustainability Checkpoint – 5	Sustainability Checkpoint – 6	Sustainability Checkpoint – 7	
Strategic Brief .	Initial Project Brief .	Concept Design including outline structural and building services design, associated Project Strategies , preliminary Cost Information and Final Project Brief .	Developed Design , including the coordinated architectural, structural and building services design and updated Cost Information .	Completed Technical Design of the project.	'As-constructed' Information.	Updated 'As-constructed' Information.	'As-constructed' Information updated in response to ongoing client Feedback and maintenance or operational developments.	
Not required.	Required.	Required.	Required.	Not required.	Not required.	Required.	As required.	



CONTROL

Setting up of standards, making regular comparisons of actual events with those standards and taking corrective action.

Three essential areas to control for construction projects:

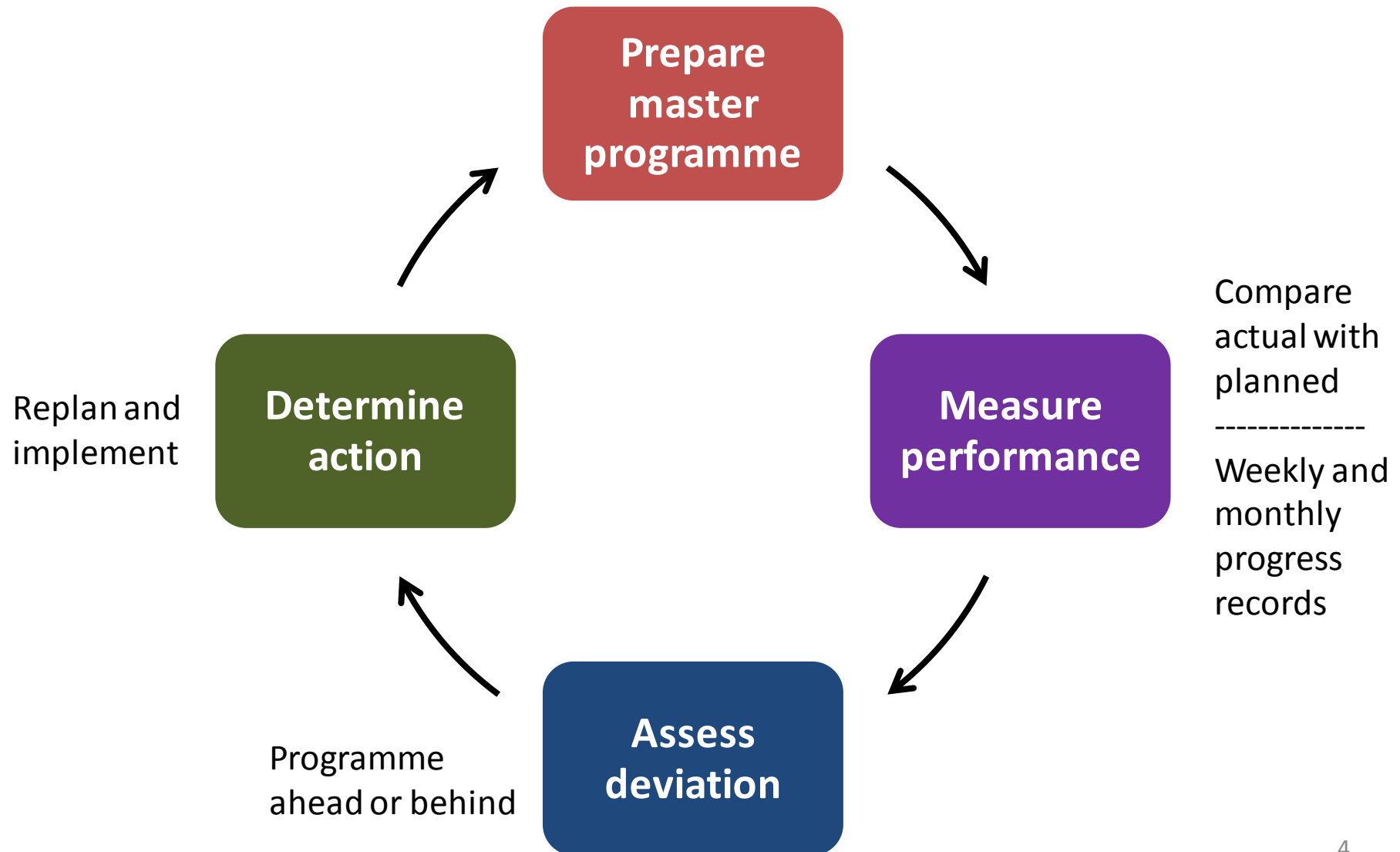
- Time
- Money
- Resources

Types of control:

- Visual inspection
- Reports
- Control by exception



CONTROL APPLIED TO CHECKING DEVIATION FROM PROGRAMME





CONTROL PROCESS

BUDGETS

“Quantification of resources needed to achieve a task by a set time, within which the task owners are required to work... a budget consists of a financial and/or quantitative statement, prepared and approved prior to a defined period, for the purpose of attaining a given objective for that period”

CIOB Code of Practice for Project Management

- **Set as early as possible**
- **Based on evidence**
- **Realistic**



CONTROL PROCESS

BUDGETS

Ways to establish a project budget:

- Assessment of projected income and expenses through the life of the project
- Comparison with similar projects
- Assessment of the funds available
- Pre-design analysis of requirements
- Analysis of preliminary design options



CONTROL PROCESS

BUDGETS

Set by the client. The client's total project budget may include:

- Construction cost (cost plan)
- Land or property acquisition
- Approvals fees
- Planning costs
- Financing costs
- Site investigations
- Fixtures, fittings and equipment
- The cost of decanting and relocating (staff movility)
- Contracts outside the main works
- Insurance
- Consultant fees
- Inflation
- Contingency
- VAT



CONTROL PROCESS

Cost plans

Related to the construction cost of the project

Prepared by cost consultants (often quantity surveyors)

They evolve through the life of the project, developing in detail and accuracy as more information becomes available

- **Initial cost appraisals:** studies of options prepared during the feasibility study stage. (They include client costs apart from construction)
- **Elemental cost plan:** prepared during the project brief stage and carried through to detailed design
- **Approximate quantities cost plan:** from the end of detailed design through to tender
- **Pre-tender estimate:** prepared alongside tender documentation
- **Tender pricing document:** strictly speaking this is not a priced document, but is part of the tender documentation issued to the contractor for pricing
- **Contract sum:** agreed with the contractor during the tender period and adjusted during the construction period
- **Contract sum analysis:** a break down of the contract sum prepared by the contractor on design and build projects
- **Final account:** agreed during the defects liability period



CONTROL PROCESS

BUDGETS

The cost plan:

- Defines what the money will be spent on and when
- Provides the basis for a cash flow plan
- allocates the budget to the main elements of the project to provide a basis for cost control
- Is the essential reference against which the project costs are managed

The aim of cost control is to produce the best possible building within the budget



CONTROL PROCESS

BUDGETS

Budgets can be presented by relating money/resources against time.

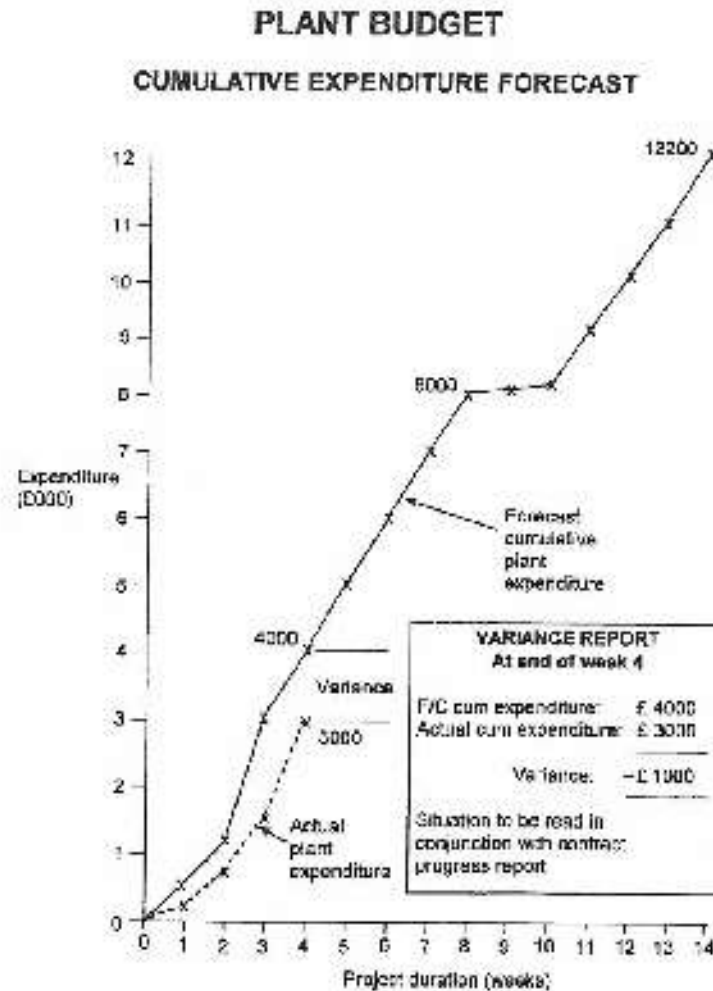
Forecast expenditure/resources can be compared to actual
Calculation of variance

Different budgets can be developed:

- Labour
- Plant
- Preliminaries

PLANT EXPENDITURE BUDGET																		
OPERATION	Plant allocated	Budget £	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Site clearance	P.Shovel 4 Lorries	2000	400	800	800													
Excavate foundations	Hyc. B/A. 2 Lorries	5000			1000	1000	1000	1000	1000									
Concrete foundations	Concrete pump	1000								1000								
Brickwork OPC	Mixer	200									100	100						
Ground floor slab	Concrete pump	1000											1000					
External walls	Scaffold mixer	4000												1000	1000	1000	1000	
1st fix	Crane	1000																1000
Weekly expenditure forecast			400	800	1800	1000	1000	1000	1000	1000	100	100	1000	1000	1000	1000	1000	1000
Cumulative expenditure forecast			400	1200	3000	4000	5000	6000	7000	8000	8100	8200	9200	10200	11200	12200	13200	14200

Expenditure plan



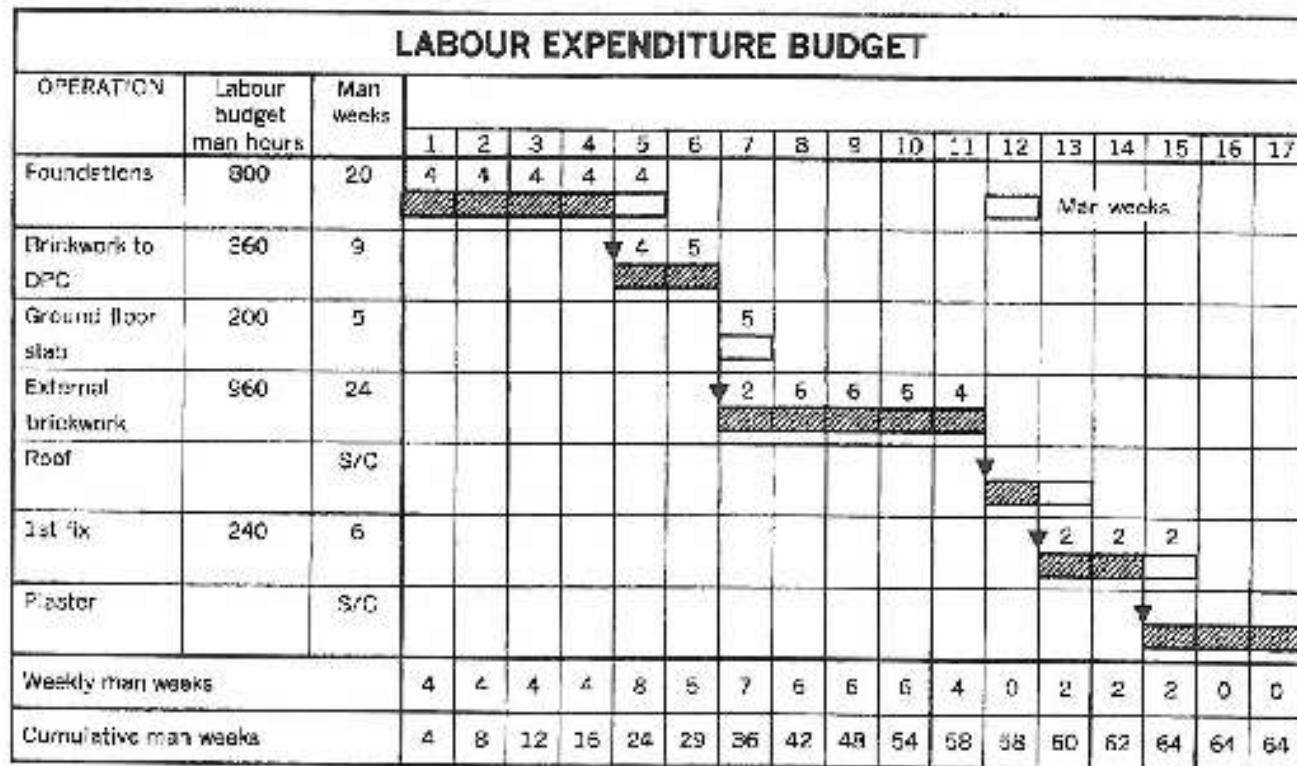
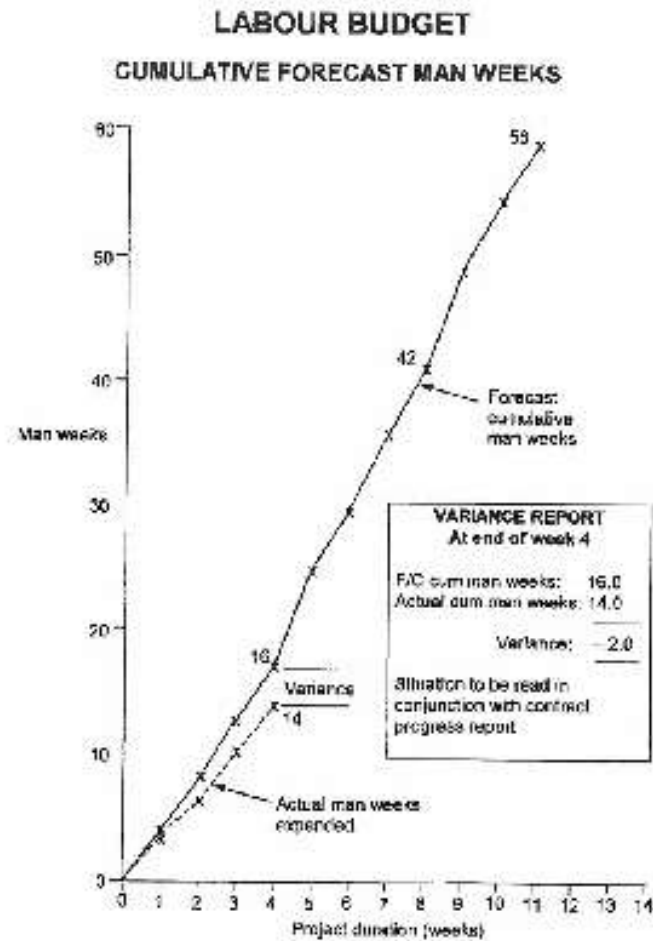


Figure 16.3





CONTROL PROCESS

SITE RECORDS

Necessary for:

- Establishing the basis of a claim for loss and expense
- Defending a counterclaim from a client
- Substantiating applications for extensions of time
- Claiming payment for extra work not included in the contract
- Reporting to progress meetings



CONTROL PROCESS

SITE RECORDS

Site manager is responsible for keeping, circulating and maintaining records

Construction supervisory staff should be responsible for:

- Maintain a daily site diary
- Recording time lost per day due to exceptional rain, cold or heat
- Keeping records of the contractor's own labour and his subcontractors
- Recording verbal instructions from the architect or his clerk of works
- Records of additional excavation works
- Records of the issue of drawings from the architect/engineer
- Records of materials received
- Daywork records



CONTROL PROCESS

SITE RECORDS

Site planning personnel should be responsible for:

- Updating short-term programmes each week or fortnight
- Recording progress each week
- Preparing records for the contract “as-built programme” as work on site progresses
- Recording the effect of programme delays on the final contract completion date



CONTROL PROCESS

SITE RECORDS

Site-based surveying staff are responsible for:

- Keeping records of all site measurements which relate to the final account
- Recording details and measurement of individual variations to contract (any delays and disruption)
- Pricing of site daywork sheets and obtaining the appropriate signatures
- Correlating instructions received from the architect with the confirmation of verbal instructions (CVIs) issued
- Undertaking the reconciliation of the bills of quantities items with quantities abstracted from the site working drawings



CONTROL PROCESS

MEETINGS

Purposes of meetings:

- To discuss problem areas and suggest alternative solutions
- To decide on appropriate action
- To request and distribute project information
- To review the current situation and reschedule as necessary
- To consider ideas for resolving bottlenecks
- To consider the opinion of other parties
- To develop a team approach to problem-solving



CONTROL PROCESS

MEETINGS

Meetings should be:

- Short
- Focused
- Have the right people

Establish the right balance between working and meeting

Have an agenda and minutes recorded and circulated

Monthly site meetings

Weekly progress meetings

Subcontract coordination meetings



CONTROL PROCESS

KEY PERFORMANCE INDICATORS

Measure overall performance on projects

Set standards at the start of a project

Monitor performance as the project progresses

Form a basis for improvement targets for future projects

KPIs for several aspects of project delivery:

- Client satisfaction
- Defects
- Safety
- Time and cost predictability
- Productivity
- profitability