

The demand for better, faster and efficient design has increased during the last decade. However, unlike most construction disciplines, design, in common with all creative processes, cannot be produced in a strictly linear manner. Nevertheless, it typically does move through logically designed decision points, or gateways.

The aim of design management is to provide the design team with the leadership, management systems, information, support and training to enable the achievement of their aims of quality, value for money and timeliness. Effective management enables the design team to integrate with procurement and construction to maximum advantage. The management process should be objective, relying on critical assessments of design progress and rigorous forecasts of project costs. It is also flexible, being tailored to the needs of each project and client.

Design planning is important as it:

- defines what, how, when and by whom work is done
- establishes an efficient timeline for all parties to follow
- identifies programme interfaces, interdependencies and resource clashes
- encourages individuals to deliver by certain dates
- provides a tool to measure progress and resource against
- enables the time impact of change to be measured

In order to successfully manage the design process, the following should be considered:

- Each workstream should be centred on one person based in the design team
- The design management team should work as part of the design team
- The design management team should achieve good working relationships
- Management should be proactive rather than reactive
- The process should be objective, relying on critical assessments of design process and rigorous forecasts of project cost
- The process should also be flexible rather than bureaucratic, being tailored to the needs of each project and client
- Processes and management services should facilitate the design team

Design management will commence with ensuring that all designers have a clear understanding of the brief and their scope and that all interfaces are clearly defined. An overall Design Manager will be appointed to oversee this crucial stage of the project.

During the initial stage of the project, the client's brief needs to be analysed in order to establish a work breakdown structure and to identify the deliverables required at each project stage, together with the information that will be required from other project team participants in order to achieve this. The key milestone dates are identified at this stage and subsequently agreed through liaison with the client and from this the required manpower and other resources can be identified and allocated to achieve these dates.

The overall budget or target cost will be agreed with the client and communicated to the designers and then incorporated into the design programme for monitoring as works progress. Any specialist services necessary should also be identified along with the requirement to involve specialist suppliers or contractors in relation to design development and build-ability issues.

Different forms of contract and types of project governance will often dictate the structure of and gateways for the design delivery (i.e. the use of a RIBA, GRIP, APM etc approach for project delivery). These gateways can only be passed through once specified deliverables have been approved and with the agreement of other contributory designers and the client. At each gateway, the design should also be tested against the project objectives of meeting business needs and to satisfy whole life cost/value engineering requirements.

The work activities, outputs and resources are documented in a design programme for the project, together with the formal technical and managerial reviews and checking to be undertaken to ensure the delivery of a co-ordinated solution to the client. Formal control mechanisms are put in place to ensure that designs are complete and on time.

In summary, the key principles of a design management role should include:

### *Design team planning*

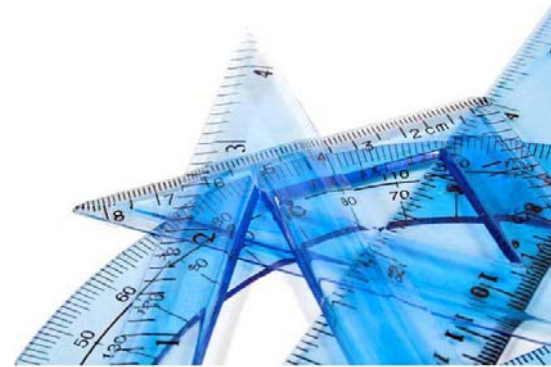
- Schedules of deliverables
- Milestones for approvals and decisions
- Detailed design programmes
- Forecasts of design resources

### *Organisation and control*

- Design team organisation
- Design team procedures
- Management information systems

### *Monitoring and reporting*

- Progress assessment
- Document control
- Forecast of completion dates
- Management reports
- Recovery plans



The project stages, the programme and the management controls to be implemented and documented should be set out and defined in the Project Execution Plan (PEP) which is the live document used as the management tool for delivery of the works. The purpose of the PEP is to capture the brief, the designers' roles, scopes and responsibilities, along with the initial master programme and the Level 1 design programme. Schedules of deliverables, design review dates and client's sign off gateways will also be established and often these are the basis for the structure of the delivery programme and the approach for delivery.

To ensure that the design is technically complete, each design deliverable (i.e. drawings, reports and specifications) should be identified and at regular intervals during the design progress each of the deliverables should be tracked against the programme and the 'state of completeness' identified and reported.

Regular design progress meetings should be held, with progress against the agreed design programme identified and feedback given from the client, where relevant. These need to vary in content, sometimes including all disciplines, thus allowing holistic co-ordination issues to be explored and resolved. At other times it may be more appropriate to have targeted sessions on key packages (e.g. cladding or services distribution).

Designers' progress needs to be quantitatively measured, rigorously checked and any slippage identified so that corrective action can be taken or additional resources mobilised. This may well provide a challenge to a design manager and thought will need to be given on whether this progress is measured against duration elapsed or physical completion of deliverables. This choice will depend on the structure or the terms of appointment of each design package.

Regular reports can then be prepared highlighting design progress, key issues and risks, client decisions pending and key actions for the next period.

Design management is a fundamental part of the role often undertaken by our Project Managers and, with many of our team originating from consultancy disciplines, we are well versed in this activity. Our principal services in this field are:

## Design planning

- Schedules of deliverables
- Monthly task lists—an alternative to deliverable schedules
- Milestones for approvals and decisions
- Programming—master and discipline hierarchy
- Detailed design programmes
- Forecasts of design resources

## Value management

- Critical review
- Testing and optimisation of design

## Organisation and control

- Design team organisation
- Design team procedures
- Managing information systems

## Monitoring and reporting

- Progress assessment
- Document control
- Forecasting completion dates
- Management reports
- Recovery plans

We use the following techniques in design management to successfully deliver projects:

- Programming—master and discipline hierarchy
- Deliverable schedules
- Monthly task lists—an alternative to deliverable schedules
- Value management—to optimise design
- Communication—using internet collaboration technology

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