

## A Project Manager's role in design coordination



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In an ideal world every tradesman, designer and independent party to a construction project, would be able to complete their scope of works independently and without any reliance on anyone else. In the real world, this just isn't practical and efforts must be coordinated to ensure that a project is successfully completed.

The ultimate role of a Project Manager (PM) is to plan, manage and execute a project against the backdrop of achieving a client's vision and within their set time, cost and quality parameters. A project's design will illustrate (literally) how a project is meant to operate and function, and is the starting point for several other key project processes such as contract strategy, procurement route selection and contractor appointments.

It is difficult for any project to be designed by a single individual and for this reason, coordination of design is required. Coordination is the organisation of different elements of a complex body or activity so as to enable them to work together effectively. The PM's role revolves around this organisation. A complex system is only the product of several simple tasks and in terms of design, each of these simple tasks is allocated to the party best able to address the requirement in a cost efficient and timely manner.

The PM is in the best position to coordinate design as they have an overarching presence on all aspects of a project and should have a good grasp of the majority of the main design elements required in its execution (Sears, et al., 2008). Ultimately, the PM is responsible for the successful delivery of a project and coordinating design is paramount to this.

The volume of design that is carried out prior to the commencement of a project depends on the manner in which the project is procured and how it is contractually bound. Assuming that a project is traditionally procured, whereby the majority of the design is carried out before construction begins, then PM's main role will be in ensuring that the design option will deliver the project in line with any statutory, stakeholder and/or client requirements that have been set (CIOB, 2014). For example; on a project located within a built-up urban environment, design should be coordinated in such a way so as to minimise disturbance to local residents and/or business. This could involve producing design options that reduce impact on traffic etc.

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The PM also has a role in coordinating the design to promote buildability. Buildability involves reviewing the construction process from start to finish during the pre-construction stage to reduce the likelihood of errors, delays and cost overruns (IPENZ, 2013). By carrying out this review, the PM can identify parts of the design that need intercompany and/or interdepartmental coordination to ensure that the preferred design is not unnecessarily expensive and/or complicated. For example, the M&E systems of many buildings require large items of plant which, due to their size, cannot be installed once the structure itself is complete. In this scenario, the PM should ensure that the design of the M&E systems are coordinated with the design of the structural elements of the project to allow certain items to be installed as the project is advanced. An example of this would be ensuring that column spacing is sufficient enough to allow the plant to be craned in during the projects construction.

The PM plays a slightly different role in design coordination if a project is procured as a design and build (D&B). Projects procured in this way often start construction before a complete design is finalised. In this scenario, the PM may have to coordinate design around parts of the structure that have already been built, as opposed to coordinating theoretical designs that only exist on paper. For obvious reasons, this can add an additional layer of complexity for the PM as they are confined by what has already been built and the scope for change is much lower. The general approach which should be taken is to 'plan first, act later'. By planning ahead and coordinating the pivotal elements of the design, the PM can reduce the amount of unnecessary changes which will ultimately offer up both time and cost savings.

Essentially the PM's role with respect to design coordination at design stage is to coordinate between each of the parties to the design, in an effort to ensure that each party is pulling in the same direction and working in the most efficient and cost effective manner possible. It is all too common to have design inputs coming from a range of different geographical locations, professionalism levels and certain situations even in bilingual form. The PM acts as a coordinator whereby he allocates certain aspects of the design to the most appropriate party and reviews the outputs in terms of design as a whole, and not just as a single part of a system.

In summary, the successful delivery of a project can be directly correlated to its coordination. A large project cannot be completed by an individual. Where multiple organisations and individuals are involved with any facet of a project, they must be coordinated to ensure that their efforts are driving the project in the right direction and in the most efficient and cost effective way possible.



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