

Managing the Design Interface

Design Coordination & Integration

Charles Nelson AIA LFRAIA

There are more than 50 distinct building design specialties. Many medium-to-large projects have two dozen or more separate design-stage consultants and sub-consultants. Some of the more common of these are indicated in the diagram on the next page.

For many reasons, the coordination and integration of the output of these large teams is often grossly inadequate. Typical consequences are project confusion, disputes, communication breakdown, delay, design and construction cost increase, compromised quality and overall diminution of intrinsic project value.

Design coordination and integration, to be successful, requires a high degree of fairly detailed understanding about how the various design processes work, and what coordination is required to ensure integration of the final documentation package.

Few project management firms have this capability, because the background experience of their key personnel is typically not in one of the architectural or engineering disciplines. While they may profess to have these skills, the most common result is that the project manager acts as a “postbox”, sending communications back and forth between the consultant team, exhorting them to do the necessary coordination between them.

When project progress starts to disintegrate, the failure – and indeed, inability – of the various design consultants to do this coordination adequately is often the main cause, or one of several interlocking causes.

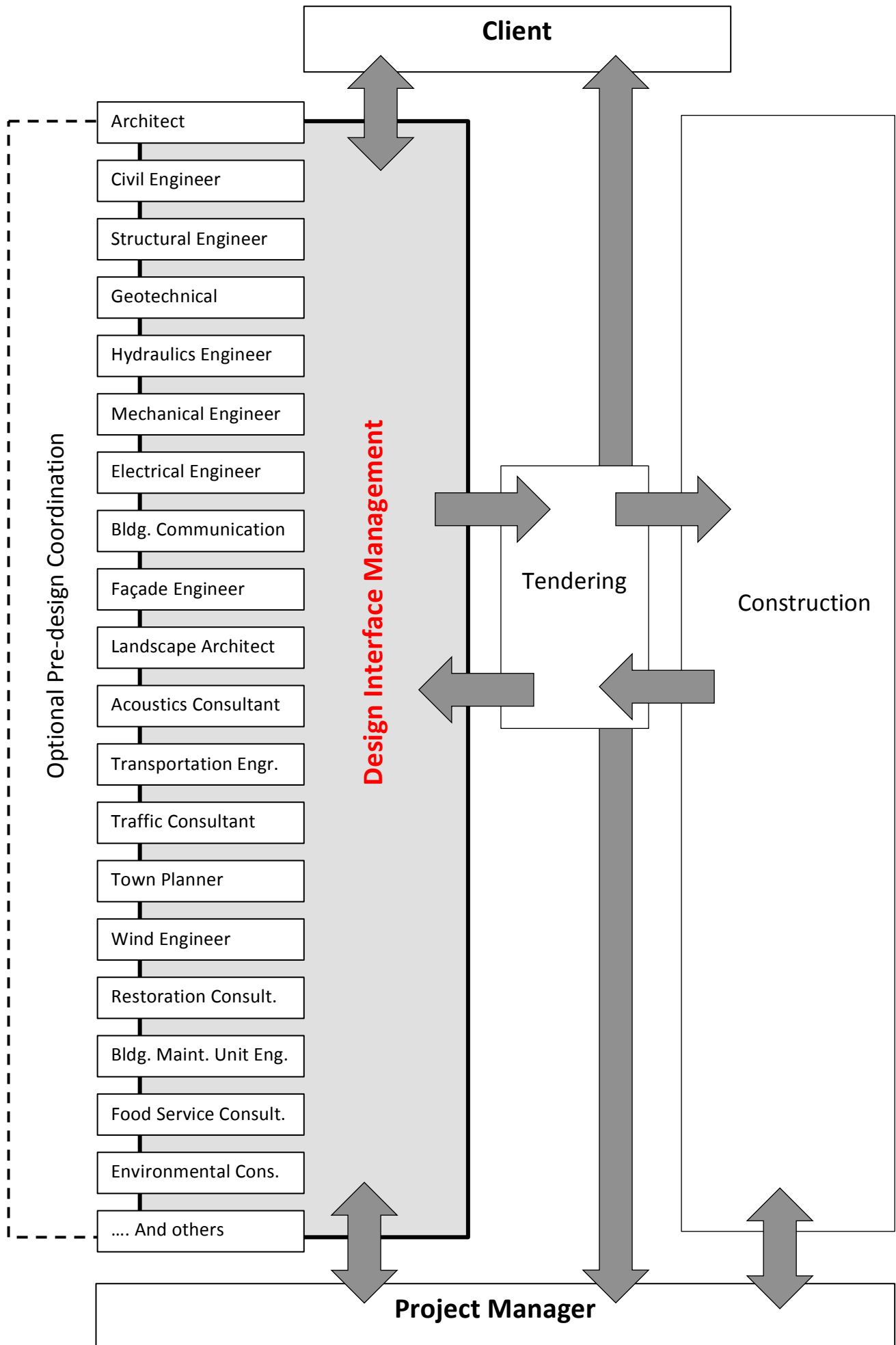
A way to understand the design coordination and integration role is that it provides the “glue” that connects all of the various design disciplines together, welding them into a whole for purposes of producing construction contract documents that are as free of discrepancies, gaps and overlaps as possible.

The net results of this critical support are:

- optimum delivery time
- minimisation of rework and cost of rework
- tighter tendering results
- lower cost growth during construction
- reduced RFIs during construction
- reduced errors during construction
- less arguments, more harmonious relationships throughout

The diagram on the next page illustrates vital interface that the role of the Design Coordination & Integration Consultant provides for conventional Design-Bid-Build project structures. A modified version can be used for other structures, such as Design-Bid-Document-Build, Novated contracts, etc.

Note that optional pre-design services can be included, or not, as desired. These services will, however, get the project off to a faster start, with much greater clarity of the roles for all team members.



The Design Interface Management Role

Design Coordination & Integration Role	Pre-design (Optional)	Design	Document	Tender (Bid)	Construct	Completion
Set up team-wide QM standards	✓					
Assist in developing project risk plan	✓					
Stakeholder management	✓	✓				
Set up detailed Scope of Work programs for each discipline, using the TeamWork tools	✓	✓				
Establish & monitor CAD standards & drawing conventions	✓	✓	✓			
Implement coordination verification procedures	✓	✓				
Establish specification standards		✓	✓			
Establish/monitor clash detection procedures		✓	✓			
Identify, track & resolve areas of potential coordination issues		✓	✓			
Track all decisions and information required of Owner and others outside team		✓	✓			
Verify compliance with authority requirements		✓	✓			
Review all change requests for impact on other disciplines; prepare overall impact evaluation		✓	✓	✓	✓	
Maintain records of all design changes		✓	✓	✓	✓	
Check/ review claims for design variations		✓	✓	✓	✓	
Check coordination of drawing notes and specs for all disciplines		✓	✓			
Negotiate best outcomes for coordination issues		✓	✓	✓	✓	
Review Builder exceptions & exclusions in tenders; advise PM and Client					✓	
Prepare master list of all submissions required from Builder & track compliance				✓	✓	✓

Notes

1. Scope items in blue text utilise tools in the **iProjects** proprietary Design Management suite (www.iprojects.net.au).
2. Detailed responsibility matrices will vary from project to project, depending on the needs of the client, the project and conditions of the project manager's contract.
3. In novated contracts, the design coordination & interface consultant would continue to be paid by and report to the client, effectively becoming the client's representative on the novated team – to ensure that design intent was not compromised in the development of the final documentation.
4. "Design" includes concept design and design development.

Role of the Project Manager

Providing a design coordination and integration service does not adversely impact the traditional project management role in any way – in fact, it supports and assists the project manager to bring projects in on time and on budget.

Services the project manager would provide under this scenario might vary from project to project, but generally would include:

Project Manager Role	Predesign	Design	Document	Tender (Bid)	Construct	Completion
Determine design disciplines required	✓					
Appoint consultants as client's agent	✓					
Set project schedules	✓					
Develop project cost plan	✓					
Develop project risk plan	✓					
Develop long lead time item schedule; arrange pre-ordering with client	✓	✓				
Monitor & update schedules		✓	✓	✓	✓	✓
Monitor & update cost plan		✓	✓	✓	✓	✓
Monitor & update risk plan		✓	✓	✓	✓	✓
Review & approve design variations		✓	✓	✓	✓	
Manage tender process & let contracts				✓	✓	
Review & approve construction claims/variations					✓	✓
Manage project communications	✓	✓	✓	✓	✓	✓