

Design Development Quality Management Phase Checklist

Project Phase Checklist Series

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SUMMARY

The attached checklist is offered to AIA members as an aid to quality management. It is intended to assist project teams in meeting their Design Development obligations. This checklist is organized in three primary parts: General Objectives of Phase, Phase Task Checklist, and Deliverables for Phase. The Phase Task Checklist is further organized by subgroup tasks. In developing a checklist for general applicability it is necessary to decide upon some frame of reference; this checklist assumes a medium to larger commercial project. This checklist could be trimmed for smaller projects, expanded for large projects and revised to be applicable to particular building types or specific projects. It is, in effect, a general template.

GENERAL OBJECTIVES OF PHASE

It is critical that project teams establish **General Objectives** for Design Development. The starting point should be the contract; refer to the specific project agreement as well as AIA B100 series documents. The General Objectives are intended to be clear, concise and shared with the entire project team including the client. Design Development documents are for the most part an interim development phase of the Construction Documents but are also an end in itself. The architect and greater design team needs to be aware of how a client intends to utilize Design Development documents. Design Development documents may be part of approval processes such as foundation building permit or full building permit. Design Development documents are also submitted for owner approval which could extend to parties other than those generally representing the owner in routine communication, such as a board of directors, lending institutions and others. For clients, the documents clearly illustrate the buildings systems and materials and generally how they coordinate. Design Development drawings generally are the basis of an estimate of the Cost of the Work which would generally be a trade breakdown estimate. Design Development documents are also a significant milestone toward the completion of Construction Documents.

PHASE TASK CHECKLIST

The body of the checklist is a more extensive tabulation of specific tasks organized under the following headings:

- Management / Quality Management / Schedules
- Program / Construction Costs / Regulatory Requirements
- Performance Criteria
- Civil / Site Design
- Design / Architecture
- Structural
- MEP / FP
- Other Consultants

These tasks are still somewhat general and focused primarily on tracking the completeness of or status of specific project related tasks. This checklist is not sufficient to address very specific or technical tasks associated with a project. This checklist is a tool primarily designed to assist the Project Manager or Project Architect and associated team members for a project.

There are action items within this checklist suggesting a development of Design Development that is consistent with AIA B101-2007 but greater specificity is also associated with many action items. There are also action items which suggest a fairly high standard of quality and completeness; and it ought to be noted perhaps that this Checklist exceeds the scope of work defined in AIA B101-2007. One example is that "the plans should be graphically complete except for minor coordination." Another is that "complete typical wall sections at 1/2" or 3/4" scale with notes and dimensions" and "representative larger scale partial details at 1 1/2" or 3" scale." These task items are more a function of a development of the documents in an efficient manner and to address issues of quality management. A firm or project team can easily modify the standards set within this template to be consistent with the firm's standard of practice and to address project specific requirements. These tasks are general and suggestive.

DELIVERABLES FOR PHASE

It is often the case that clients do not have a sufficiently clear idea of what the Design Development Documents shall be until they are delivered. Architects are often in a similar position not clearly knowing what they shall receive from their consultants until after they receive the documents. This is not an acceptable situation. To help avoid this, consider developing clearly stated deliverables after the Design Development Phase commences that are consistent with the **General Objectives** of the phase and consistent with the specific **Phase Tasks**. This portion of the checklist can also be shared with the owner and with the appropriate members of the design team so that the expectations are clearly articulated.

CONCLUSION

This particular Quality Management Phase Checklist is one in a series intended to address typical phases for medium to larger projects. The phase checklists include:

- Pre-Design Services / Site Analysis
- Schematic Design
- Design Development
- Construction Documents
- Bidding or Negotiation
- Construction Contract Administration
- Post Construction Administration

Each of these checklists is designed to be easily manageable by controlling the length; this checklist is six pages in length. This means that these particular checklists are not sufficient to serve as detailed technical task checklists addressing the various details of the documents.

REFERENCES

- 14.02.01 Pre-Design Services / Site Analysis Quality Management Phase Checklist
- 14.02.02 Schematic Design Phase Quality Management Phase Checklist
- 14.02.04 Construction Documents Phase Quality Management Phase Checklist
- 14.02.05 Bidding or Negotiation Phase Quality Management Phase Checklist
- 14.02.06 Construction Phase Quality Management Phase Checklist
- 14.02.07 Post Construction Administration Phase Quality Management Phase Checklist

About Our Contributor

Micheal J. Lough, AIA, is a principal of Integral Consulting, a Quality Management and Technical Services consulting practice. The practice focuses on Peer Reviews, exterior envelope services and other technical services designed to assist firms and project teams in improving the successful implementation and execution of architectural projects. Clients include architects, owners, development management companies and contractors.

RESOURCES

More Best Practices

The following AIA Best Practices provide additional information related to this topic:

- 14.02.02 Schematic Design Phase Quality Management Phase Checklist
- 13.02.01 Project Management Techniques

For More Information on This Topic

See “Project Controls” by Lowell Getz, CPA, and Frank A. Stasiowski, FAIA, *The Architect’s Handbook of Professional Practice*, 13th edition, chapter 14, p. 144. See also the 14th edition of the *Handbook*, which can be ordered from the AIA Bookstore by calling 800-242-3837 (option 4) or by sending an e-mail to bookstore@aia.org.



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Keywords

- Practice
- Business planning
- Quality control programs
- Quality management
- Checklists
- General Objectives
- Deliverables

Name of Project
Design Development
Quality Management Phase
Checklist

Project Number:
 Prepared By:

Date:
 Updated:

Action	Notes
General Objectives of Phase	
<input type="checkbox"/>	Drawings and other documents to fix and describe the size and character of the Project as to architectural, structural, mechanical and electrical systems, materials and such other elements as may be appropriate
<input type="checkbox"/>	Building areas and volumes fixed
<input type="checkbox"/>	Predominate production phase expanding upon representative work of Schematic Design
<input type="checkbox"/>	Foundation or Superstructure permit if called for in the agreement
<input type="checkbox"/>	Primary consultant coordination effort well underway
<input type="checkbox"/>	Specialty consultant coordination begun
<input type="checkbox"/>	Draft of Project Manual
<input type="checkbox"/>	Initial GMP pricing and/or select early bid package
<input type="checkbox"/>	Project performance criteria refined/confirmed

Phase Task Checklist

MANAGEMENT / QUALITY MANAGEMENT / SCHEDULES

<input type="checkbox"/>	Update project area / program / budget	
<input type="checkbox"/>	Maintain binder and check set of all work prepared during this phase.	
<input type="checkbox"/>	Conduct brief weekly team meeting with the team.	
<input type="checkbox"/>	Obtain authorization to proceed with Design Development Phase.	
<input type="checkbox"/>	Finalize Owner/Architect agreement if not already done.	
<input type="checkbox"/>	Primary consultant agreements completed	
<input type="checkbox"/>	Specialty proposals completed and target wrapping up agreements	
<input type="checkbox"/>	Review project schedule / manpower	
<input type="checkbox"/>	Confirm project delivery method	
<input type="checkbox"/>	Make necessary adjustments to mock-up set and drawing index for the anticipated Construction Documents drawings.	
<input type="checkbox"/>	Confirm/update project data and relation to Owner/Architect agreement (i.e. Owner's name, contact information, legal entity etc.).	
<input type="checkbox"/>	Monitor design firm's fees and manpower versus actual progress. Take corrective action if fee and/or schedule is slipping.	
<input type="checkbox"/>	Monitor design team's billings	
<input type="checkbox"/>	Confirm peer review schedule for this phase.	

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<input type="checkbox"/> Update the estimate of the Cost of the Work. B101-2007 - 3.3.2	
<input type="checkbox"/> Submit Design Development package to Owner and for Peer Review. B101-2007 - 3.3.3	
<input type="checkbox"/> Prepare approval letter for Design Development phase completion. B101-2007 - 3.3.3	
<input type="checkbox"/> Modify the checklist for the next phase per the project's particular needs.	

PROGRAM / CONSTRUCTION COSTS / REGULATORY REQUIREMENTS

<input type="checkbox"/> Review any adjustment in the Project requirements B101-2007- 3.1.1	
<input type="checkbox"/> Review any adjustment in the Project budget for the Cost of the Work B101-2007- 3.1.1	
<input type="checkbox"/> Update zoning analysis and make any necessary adjustments to the project.	
<input type="checkbox"/> Fully develop the code compliance sheets with fire resistive rated construction, occupancy classifications and exiting analysis. Finalize the accessibility compliance drawings.	
<input type="checkbox"/> Conduct any necessary meetings / contact with code / accessible governmental authorities. B101-2007 - 3.1.6	

PERFORMANCE CRITERIA

<input type="checkbox"/> Review and confirm with the Owner project performance requirements of the project	
<input type="checkbox"/> Update Structural Design Criteria	
<input type="checkbox"/> Update MEP/FP Performance Criteria	
<input type="checkbox"/> Update Building envelope performance Criteria	
<input type="checkbox"/> Update Acoustical performance Criteria	
<input type="checkbox"/> Update Building system durability / maintainability performance Criteria	
<input type="checkbox"/> Aesthetic performance, cultural performance, inspirational performance and/or other more intangible performance.	
<input type="checkbox"/> Update Sustainability performance Criteria and goals.	

CIVIL / SITE DESIGN

<input type="checkbox"/> Coordinate utility connections.	
<input type="checkbox"/> Final grades and drainage finalized.	

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Action	Notes
<input type="checkbox"/> Paving patterns, paving details and site lighting delineated.	
<input type="checkbox"/> All site elements are defined.	
<input type="checkbox"/> Site plan graphically fixed and site geometry fixed.	
<input type="checkbox"/> Landscape plans indicate planting and hardscape, plant schedule complete, irrigation scope determined.	
<input type="checkbox"/> Site detailing initiated.	

DESIGN / ARCHITECTURE

<input type="checkbox"/> Plans should generally be graphically complete except for minor coordination.	
<input type="checkbox"/> Exterior envelope modules and primary exterior dimension strings should be complete	
<input type="checkbox"/> Representative area interior dimensioning	
<input type="checkbox"/> Rooms labeled and numbered	
<input type="checkbox"/> partition types tagging generally represented	
<input type="checkbox"/> Doors tagged	
<input type="checkbox"/> Reflected ceiling plans for all typical and major areas of the project drawn with light fixtures and diffusers indicated.	
<input type="checkbox"/> Representative ceiling details drawn, focus on covering scope.	
<input type="checkbox"/> Structure and MEP/FP coordination well underway.	
<input type="checkbox"/> Exterior elevations are graphically complete.	
<input type="checkbox"/> All building sections are cut and structure is coordinated with the current structural drawings.	
<input type="checkbox"/> MEP/FP horizontal collection and distribution zones addressed in building sections where applicable	
<input type="checkbox"/> Complete typical wall sections at 1/2" or 3/4" scale with notes and dimensions	
<input type="checkbox"/> Representative larger scale partial details at 1 1/2" or 3" scale.	
<input type="checkbox"/> Foundation / basement sections complete	
<input type="checkbox"/> Draft of specification sections pertaining to exterior envelope including roofing, waterproofing, aluminum & glass systems and opaque wall systems	
<input type="checkbox"/> Vertical circulation elements, stairs, elevators and elevator cabs, are completely dimensioned and coordinated in plans and sections.	
<input type="checkbox"/> Draft of elevator and stair specifications	

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Action	Notes
<input type="checkbox"/> Block out unit kitchens/ bathrooms, laboratory or other such spaces with casework and built-in fixtures, equipment and appliances	
<input type="checkbox"/> Interior material selections are scheduled and/or specified.	
<input type="checkbox"/> Finish design of lobbies, amenities and other finish spaces is initiated	
<input type="checkbox"/> Draft of specifications for finish sections.	
<input type="checkbox"/> The majority of partition types are detailed (those in high finish areas may not be detailed).	
<input type="checkbox"/> Representative typical interior details drawn	
<input type="checkbox"/> Door schedules for typical areas complete with draft of specifications for doors, frames and hardware.	
<input type="checkbox"/> Typical door details are drawn.	
<input type="checkbox"/> Typical area room finish scheduled is complete	
<input type="checkbox"/> Interior finishes should be tabulated or specified citing as much specific manufacturer, model, type, color information as possible.	
<input type="checkbox"/> Updated outline specification or prepare draft specification for finishes and doors (if preparing draft specifications must include as much project specific information as possible)	

STRUCTURAL

<input type="checkbox"/> All column sizes and lateral design structural elements fixed and included in architectural drawings	
<input type="checkbox"/> All floor framing plan sheets drawn denoting slab thicknesses, any beams and showing major slab openings	
<input type="checkbox"/> Foundation design completed	
<input type="checkbox"/> Structural design complete with regard to wind loading and/or seismic	
<input type="checkbox"/> Framing diagrams for all miscellaneous framing assemblies	
<input type="checkbox"/> Structural / architectural / MEP coordination ongoing	
<input type="checkbox"/> Draft of specification sections	
<input type="checkbox"/> Scope of all miscellaneous structural items defined.	
<input type="checkbox"/> Slab depressions and balcony conditions addressed.	
<input type="checkbox"/> General CMU reinforcing design and loose lintels are shown.	
<input type="checkbox"/> Typical masonry design and/or other cladding interfaces reflected in typical details.	

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Action

Notes

MEP / FP

<input type="checkbox"/>	Design criteria including indoor and outdoor conditions, ventilation, air circulation, minimum exhaust, sound levels, system diversities and building envelope thermal characteristics reaffirmed in the documents.	
<input type="checkbox"/>	All riser diagrams are complete	
<input type="checkbox"/>	Typical floor(s) coordination is complete with all risers, chases and interstitial ceiling areas coordinated	
<input type="checkbox"/>	Major equipment rooms are laid out and final space requirements are confirmed	
<input type="checkbox"/>	Plans other than the typical floor are sufficiently developed giving a reasonable expectation that final coordination will not adversely impact the architectural layout, structural design, etc.	
<input type="checkbox"/>	Mechanical floor plans should be nearly graphically complete with double line ductwork.	
<input type="checkbox"/>	Plumbing floor plans should be nearly graphically complete showing horizontal collection and distribution piping.	
<input type="checkbox"/>	Coordinate mechanical, fire protection and plumbing risers with the floor plans.	
<input type="checkbox"/>	Coordinate horizontal distribution of major ductwork, plumbing piping, sprinkler mains, etc. with architectural reflected ceiling plans such that the ceiling heights can be confirmed. Locate diffusers, light fixtures and other principal devices.	
<input type="checkbox"/>	There should be enough coordination between the various MEP/FP disciplines to confirm interstitial spaces and large structural openings in slabs and shear walls.	
<input type="checkbox"/>	Equipment cuts that are exposed to view in public areas are finalized	
<input type="checkbox"/>	For projects where DD is a preliminary GMP issue, all equipment schedules are completed and a draft technical specification needs to be prepared	
<input type="checkbox"/>	Reaffirm Energy code analysis.	
<input type="checkbox"/>	Coordinate Utility requirements.	

OTHER CONSULTANTS

<input type="checkbox"/>	Continued coordination with Owner's consultants. B101-2007 3.1.2	
<input type="checkbox"/>	All miscellaneous consultant work sufficiently developed that could impact building design, performance and coordination	
<input type="checkbox"/>	Reports, drawings, specifications in line with project schedule requirements	
<input type="checkbox"/>	For high-rise buildings: Prepare wind analysis-for building structure.	
<input type="checkbox"/>	Elevator consultant reviews and confirms layouts, dimensions for hoistway, pits and machine rooms and prepares specification.	

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Action	Notes
<input type="checkbox"/> Curtain wall consultant reviews typical wall sections and details, prepares specification sections.	
<input type="checkbox"/> Acoustical consultant reviews development of drawings and prepares a written report covering MEP acoustical isolation, architectural partitions / floor details, etc. Prepares or contributes to acoustical isolation specifications.	
<input type="checkbox"/> Obtain report from parking consultant.	
<input type="checkbox"/> Definition of security systems and tele/data including preliminary specifications.	
<input type="checkbox"/> Building maintenance / window washing.	
<input type="checkbox"/> Laboratory, food service, pool, and other specialty consultants.	
<input type="checkbox"/> Finalize LEED or other sustainable requirements.	

Deliverables for Phase	
Drawings	
<input type="checkbox"/>	Civil plans, landscape plans and architectural site plans are generally complete
<input type="checkbox"/>	Plans generally complete
<input type="checkbox"/>	Reflected ceiling plans of typical areas drawn and coordinated
<input type="checkbox"/>	Partial elevations drawn with dimensions, notes and sections referenced
<input type="checkbox"/>	Typical wall sections drawn
<input type="checkbox"/>	Representative larger scale section details drawn
<input type="checkbox"/>	Majority of partition types drawn
<input type="checkbox"/>	Door and room finish schedules for typical areas complete
<input type="checkbox"/>	Structural plans generally complete; columns, beams, slabs, lateral design elements scheduled and detailed
<input type="checkbox"/>	MEP/FP plans generally complete, equipment scheduled, riser diagrams generally complete
<input type="checkbox"/>	Coordination is well underway
Project Manual	
<input type="checkbox"/>	General statement of purpose of Design Development Package
<input type="checkbox"/>	Outline Specification expanded or edited down as draft full sections are included
<input type="checkbox"/>	Draft of select full specification sections
<input type="checkbox"/>	GMP or early bid packages - the following sections may be required for preliminary bidding; 1) foundation system, 2) structure, 3) major building envelope systems, and 4) elevators.