Schematic Design
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 Schematic Design 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 Schematic Design. The starting point is the contract; refer to AIA B101-2007 for general requirements and to the specifics of the project agreement whether executed or still in negotiation. The General Objectives are intended to be clear, concise and shared with the entire project team including the client. The architect and greater design team needs to be aware of how a client intends to utilize Schematic Design documents. Schematic Design Documents may be part of approval processes such as zoning, local planning commission or other regulatory body. SD 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. A client may be using the documents to confirm programming, issues of building performance, design concerns, addressing project construction costs, project scheduling, project logistics and other issues.

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 Schematic Design 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 that perhaps this Checklist exceeds the scope of work defined in AIA B101-2007. One example is that the **Performance Criteria** section suggests that, within the Schematic Design Documents, the design team provide performance criteria for the principal systems of the project; these can be narratives. One of the **Design / Architecture** action items suggests that some representative portion of a plan be "*graphically correct and coordinated with structural and MEP*." This task item is primarily 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 Schematic Design 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 schematic design phase commences that are consistent with the **General Objectives** of the phase and consistent with the specific **Phase Tasks** established for the phase. This portion of the checklist should 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 are designed to be easily manageable by controlling the length; this checklist is seven 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
- 14.02.03 Design Development 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.

Peer Review & Contributing Commentary

This checklist was reviewed with members of the Chicago Practice Management Knowledge Community and specific comments were provided by Randall Kurzman, AIA, Michael Schwindenhammer, AIA, and Robert Abell, AIA.

RESOURCES

More Best Practices

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

14.02.03 Design Development 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.

Feedback

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Keywords

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

Name of Project

Schematic Design

Quality Management Phase Checklist

Project Number:
Prepared By:

Date:
Updated:

Action		Notes
General Objectives of Phase		
☐	Drawings and other documents indicating the scale and relationships of Project components in conformance with program	
☐	Building areas and volumnes demarcated	
☐	Project images / renderings clearly depicting design intent	
☐	Representative plan element(s) graphically complete	
☐	Structural grid and representative exterior modules fixed	
☐	Small scale building elevations graphically complete for typical areas	
☐	Representative wall section graphically developed at a larger scale	
☐	Structural and MEP/FP systems defined	
☐	Project performance criteria established	
☐	Schematic Design estimate of the cost of the work	

Phase Task Checklist

	MANAGEMENT / QUALITY MANAGEMENT / SCHEDULES	
☐	Update project area and use summaries.	
☐	Maintain binder and check set of all work prepared during this phase.	
☐	Conduct brief weekly team meeting with the team.	
☐	Obtain authorization to proceed with Schematic Design Phase.	
☐	Confirm Owner's budget.	
☐	Finalize Owner/Architect agreement if not already done.	
☐	Finalize selection of consultants.	
☐	Draft Consultant agreements. Review Owner /Consultant agreements.	
☐	Confirm compliance with insurance requirements for the project including General Liability, Automobile Liability, Workers' Compensation and Professional Liability B101-2007 - 2.5	
☐	Establish and review the role of project team members.	
☐	Establish communication protocol between team members; who, methods of communication, project meetings and minutes, filing structure, etc. B101-2007 3.1.1	
☐	Prepare a preliminary evaluation to the Owner and discuss alternative approaches to the Owner's intended project delivery method B101-2007 3.2.2	

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Action		Notes
☐	Develop mock-up set and drawing index for the anticipated Construction Documents drawings. As much as possilbe the drawing scale and a reasonable block-out of referenced details should be provided. Submit for Peer Review.	
☐	Confirm/update project data and relation to Owner/Architect agreement.	
☐	Monitor design firm's fees and manpower versus actual progress.	
☐	Monitor design team's billings	
☐	Prepare or update the project schedule; review with Owner. B101-2007 - 3.1.3 & B101-2007 - 3.2.2	
☐	Confirm peer review schedule for this phase.	
☐	Submit Schematic Design package for Peer Review. B101-2007 - 3.2.7	
☐	Prepare approval letter for Schematic Design phase completion. B101-2007 - 3.2.7	
☐	Modify the checklist for the next phase per the project's particular needs.	

PROGRAM / CONSTRUCTION COSTS / REGULATORY REQUIREMENTS

☐	Review program / prepare preliminary evaluation of program / program requirements agreed upon with the Owner. B101-2007- 3.2.1 / 3.2.2 / 3.2.4	
☐	Determine and obtain data on any Owner special building equipment and fixtures; distribute to design team	
☐	Prepare a preliminary evaluation of Owner's budget for the Cost of the Work B101-2007- 3.2.2	
☐	Submit an estimate of the Cost of the Work. B101-2007- 3.2.6	
☐	Determine applicable zoning, codes and other regulations applicable to the Architect's services. B101-2007- 3.1.5 & 3.2.1	
☐	Prepare or update zoning analysis. Follow up as necessary with governing authorities. B101-2007- 3.1.5 / 3.2.1	
☐	Prepare preliminary building code review; as complete as possible. Follow up as necessary with governing authorities. B101-2007- 3.1.5 / 3.2.1	
☐	Review project drawings for compliance with accessibility codes and regulations. Prepare the Accessibility Plan. B101-2007 - 3.1.5 / 3.2.1	
☐	Draft a schedule for code reviews and submissions with the appropriate agencies and assist the Owner in connection with filing documents required for the approval of governmental authorities. B101-2007 - 3.1.6	

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Action		Notes
	PERFORMANCE CRITERIA	
☐	Reach an understanding with the Owner regarding the performance requirements of the project B101-2007 - B3.2.3	
☐	Define Structural Design Criteria	
☐	Define MEP/FP Performance Criteria	
☐	Define Building envelope performance Criteria	
☐	Define Acoustical performance Criteria	
☐	Define Building system durability / maintainability performance Criteria	
☐	Define Sustainability performance Criteria	
	CIVIL / SITE DESIGN	
☐	Contact entities providing utility services to the project. B101-2007 - 3.1.5	
☐	Develop Schematic site plan B101-2007 - 3.2.5	
☐	Prepare drawings and outline specification showing technical site engineering and storm water detention.	
☐	Identify Site features with focus on hardscape.	
☐	Prepare Preliminary site grading.	
☐	Start preliminary coordination with MEP/FP consultant	
☐	**Verify site utilities** and Prepare Underground utilities plan	
☐	Verify that survey and existing conditions information provided by the Owner is sufficient and/or determine what additional information is required (ie additional or new surveys).	
☐	Address the design requirements for site access (tenant, loading, fire, etc.), site landscaping, sidewalks and/or driveways and site utility areas.	
☐	Review site landscaping with local code officials. Site features and grading should be approximately shown.	
☐	Determine the need for and if required prepare a request for site soil borings. Review with the Owner, Structural Engineer and Civil Engineer.	

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Action		Notes
	DESIGN / ARCHITECTURE	
☐	Discuss with the Owner alternative approaches to design and construction of the project B101-2007 - B3.2.3	
☐	Discuss with the Owner the feasibility of incorporating environmentally responsible design approaches B101-2007 - B3.2.3	
☐	Prepare a geometry plan for the building.	
☐	Prepare all major plan elements of the building for all floors, with approximate accommodations for structure and MEP. B101-2007 - 3.2.5	
☐	Develop Typical project functional components (i.e. a typical office plan, a residentail floor or a function component of a floor such as hotel room types. Components should be graphically correct and coordinated with structural and MEP. Representative dimensions shown and representative partitions tagged. Show schematic furniture layouts to confirm spatial and program requirments of unit types.	
☐	Develop typical project components and core elements including elevators, stairs and MEP risers, public toilet rooms. Components should be graphically correct and dimensioned. Minor or atypical elements should be reflected in the plans and building sections. Confirm that all circulation elements conform with building and accessibility codes as well as with market requirements.	
☐	Verify that all program requirements are incorporated in the plans including support areas such as staff break rooms / toilets, building storage areas, janitor closets, and trash rooms and recycling.	
☐	Develop Building elevations and note exterior materials. Indicate the extent of their use. Confirm alternatives with the Owner. B101-2007 - 3.2.5	
☐	Develop Building sections including typical foundation details. -Indicate floor to floor dimensions, ceiling heights, major structural elements and major MEP transfer or horizontal distribution zones. - B101-2007 - 3.2.5	
☐	Prepare Study models, perspective sketches, or digital modeling. B101-2007 - 3.2.5	
☐	Develop preliminary selections of major building systems with construction materials noted on the drawings or described in writing. B101-2007 - 3.2.5	
☐	Consider Environmentally responsible design alternatvies. B101-2007 - 3.2.5.1	
☐	Consider the value of alternative materials, building systems and equipment… B101-2007 - 3.2.5.2	
☐	Develop typical exterior wall sections, typical exterior details and typical exterior wall types with sufficent detail delineated in the drawings and adequately described in the Basis of Design Project Manual so that initial system pricing can be obtained.	
☐	Prepare general descrpition of atypical and high finish spaces such as lobbies, public corridors and amenities. Descibe in the form of narratives and/or freehand sketches.	
☐	Prepare general describe typical toilet room and kitchen in plan and interior room elevations.	

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Action		Notes
☐	Establish ceiling heights on a preliminary typical or representative reflected ceiling plan(s) as the basis to initiate project coordination. If possible layout a small representative portion to establish design intent.	
☐	Establish preliminary ceiling heights for all typical and principal spaces; indicate on the floor plans and building sections.	
☐	Prepare partition type sheet for typical floor only. All types of partitions should be accurately shown, noted, and dimensioned.	
☐	Prepare an Outline Specification with Project Description, general and regulatory requirements, preliminary building code, preliminary accessibility analysis, structural requirements, acoustical requirements, outline basic interior and exterior construction and materials, include preliminary elevator study, and include MEP outline specification.	
☐	Issue The Schematic Design Package for preliminary line item pricing to the Owner's Consultant.	

STRUCTURAL

☐	Determine Structural system.	
☐	Establish major grid lines, columns, shearwalls and other vertical elements. Determine dimensional requirements and size structural components.	
☐	Address Major slab openings on typical floor(s), size major beams and spandrel beams.	
☐	Address unique foundation conditions.	
☐	Prepare Slab loading diagrams.	
☐	Provide general descriptive information sufficient for Schematic pricing such as estimates of pounds of rebar per square foot, etc.	
☐	Review pertinent portions of the Outline Specifications.	

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Action		Notes
	MEP / FP	
☐	Develop design criteria including indoor and outdoor conditions, ventilation, air circulation, minimum exhaust, sound levels, system diversities and building envelope thermal characteristics.	
☐	Prepare outline specification including detailed system descriptions. For ductwork provide maximum air velocity criteria and duct insulation requirements.	
☐	Prepare preliminary fixture selections - general space requirements and types of plumbing fixtures, general criteria for light fixture types.	
☐	Prepare riser diagrams for all mechanical, fire protection and electrical systems including information on number of risers and general sizes.	
☐	Develop preliminary layout of major mechanical rooms.	
☐	Develop typical floor space requirements including electrical rooms, any mechanical rooms, major risers, chase requirements, etc., include weights of equipment, major horizontal and vertical penetrations.	
☐	DetermineTypical floor MEP & FP distribution systems and other mechanical, fire protection and electrical systems that can impact structural, architectural plans and reflected ceiling plans. Examples include:- HVAC supply duct loop (office buildings), criteria for typical fan coil units and horizontal ductwork (residential), sprinkler main routing.	
☐	Prepare Energy code analysis.	
☐	Coordinate Utility requirements.	

	OTHER CONSULTANTS	
☐	Coordination with Owner's consultants. B101-2007 3.1.2	
☐	For high-rise buildings: Prepare wind analysis-for building structure.	
☐	Prepare elevator study to determine configuration, number of cars, capacities and speeds of elevators.	
☐	Prepare preliminary acoustical report sufficient to establish typical wall types and to provide general guidelines in the Outline Specification.	
☐	Prepare concept scheme for building maintenance.	
☐	Prepare outline specification for security system.	
☐	Prepare landscape design drawing sufficient for zoning and/or other governing body approvals.	
☐	Establish LEED level if applicable.	

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Action		Notes
Deliverables for Phase		
	Drawings	
☐	In general drawings indicate the scale and relationship of Project components	
☐	All plans have spaces generally defined	
☐	Representative area plans generally graphically fixed	
☐	Full building elevations generally graphically fixed for typical areas	
☐	Representative wall sections drawn	
☐	Typical floor elevator and stair plans with preliminary sections	
☐	Representative area partition types defined	
☐	Preliminary civil and landscape drawings	
☐	Structural plans, foundation defined, columns sized and located, lateral design defined	
☐	MEP/FP systems defined, major mechanical spaces fixed in plans, representative plan area coordinated, initial riser diagrams	
	Outline Specifications	
☐	General statement of purpose of Schematic Design Package	
☐	Project description	
☐	Outline Specifications including general description of systems and finishes sufficient to met the **General Objectives of Phase**	
☐	Project performance criteria established	
☐	Attachments and additional information as project requires	