

SECTION 08 CONSTRUCTION DOCUMENT PHASE

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Unless stated otherwise, the standards in this Facilities Design Manual (FDM) are directed to the Design Professional to incorporate into the Project.

*Changes to this Division since the last issuance are indicated with **yellow highlighted text**.*

Links to Support Documents, external webpages and other FDM sections are shown in underlined text.

08.01 GENERAL

A. REFERENCE ABBREVIATIONS

1. O-DP Sample Agreement Between Owner and Design Professional or executed Agreement

B. AGREEMENT BASIS

1. This phase of the Capital Planning Process is based on the sample Agreement for Architectural projects.
2. The Engineering project version requires slightly different services and deliverables.
3. This phase is normally not included in the sample Agreement for Special Services projects.
4. For a brief description of the sample Agreements for Architectural, Engineering and Special Services projects and their differences, see paragraphs under subsection 00.02 in FDM Part 1/[Sec 00 Introduction.pdf](#).

C. DESIGN PROFESSIONAL RESPONSIBILITIES

1. For responsibilities of the Design Professional, including those referenced under 08.01C, consult the sample Agreement for Architectural or Engineering projects at (<http://www.fpm.iastate.edu/planning/professionalconsultants/>) or, if the Project is active, the executed Agreement.
 - a. For general administrative responsibilities, see paragraphs under subsection 01.03 in FDM Part 1/[Sec 01 Working Relationships.pdf](#).
 - b. For general design phase responsibilities, see paragraphs under subsection 01.04 in FDM Part 1/[Sec 01 Working Relationships.pdf](#).
2. Prepare Construction Documents from the Design Development Documents approved by the Owner's Representative to facilitate competent bidding and construction of the Project.
 - a. Create DOC text files using the latest version of Microsoft Word or other 100% compatible software and convert to Adobe Portable Document Format (PDF) for publishing to the Owner's project web site.
 - b. Create DWG drawing files using the latest version of Autodesk AutoCAD, Architectural Desktop, Revit or other 100% compatible software and convert to Adobe PDF for publishing to the Owner's project web site.
 - c. Continue to follow recommendations of the current U. S. National CAD Standard and the current Project Resource Manual – CSI Manual of Practice
 - d. Complete Drawings and update other documents begun in Design Development Phase.
 - 1) Include the location of the following items on the Drawings.
 - a) Site limits
 - b) Gate(s)
 - c) Off-site storage area(s)
 - d) Haul route(s)
 - e) Fence-protected trees
 - f) Protected pedestrian routes
 - e. Where temporary structures are required to protect pedestrians from construction operations, include drawings and specifications for protective structures in the Construction Documents.
 - f. Complete Division 01-49 specifications applicable to the Project.
 - 1) Verify entire Division 01 content with the Owner's Representative.
3. Initiate meetings with university personnel at appropriate milestones in the development of the Drawings and Specifications through arrangements made by the Owner's Representative.
4. Complete the Building Automation System specification development process. **Consult with Owner's Representative and ISU Energy Management.**
5. Publish monthly progress review documents and interim documents in Adobe PDF to the Owner's project web site as needed or as requested by the Owner's Representative.

6. Communicate responses to review comments by the Owner using the Owner's Microsoft Excel template (see FDM Part 1/Support Docs/[Review Comments.xls](#)) published to the Design tab > Construction Documents > CD Review on the Owner's project web site.
 - a. In the XLS file(s), for each comment, enter a response in the yellow "Follow Up Comments" column that describes how the issue(s) will be addressed.
 - b. If there is not agreement by the Owner's Representative concerning how an issue will be addressed, work to attain a mutual resolution with the Owner's Representative.
 - 1) Record the revised follow up to the comment in the "Follow Up Comments" column.
 - c. Enter the follow up completion date in the yellow "Complete" column for each comment.
7. Provide to the Owner a letter that contains a list of all special inspections required for the Project.
8. Certify that no asbestos containing material (ACM), polychlorinated biphenyls (PCB) or other hazardous material identified by the Owner were specified for the Project by signing the No Hazardous Material Certification Form available from the Owner's Representative.
 - a. ACM is defined at http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9995 under 29CFR1910.1001(b) as material containing more than 1% asbestos.

D. OWNER RESPONSIBILITIES

1. For responsibilities of the Owner, consult the sample Agreement for Architectural or Engineering projects at <http://www.fpm.iastate.edu/planning/professionalconsultants/> or, if the Project is active, the executed Agreement.
 - a. For general administrative Owner responsibilities, see paragraphs under subsection 01.05 in FDM Part 1/[Sec 01 Working Relationships.pdf](#).
2. The Owner will pay for special inspection services required for the Project.
3. The Owner will assist the Design Professional to determine appropriate security access, lock functions and keyways before the Specifications are completed.

08.02 REQUIRED CONSTRUCTION DOCUMENTS FOR UNIVERSITY REVIEW

A. DRAWINGS

1. Complete Drawings begun during the Design Development Phase to completely describe the following.
 - a. Show location and generic identification of each material.
 - b. Show dimensions of construction and site-fabricated assemblies.
 - c. Show large scale details of material interfaces.
 - d. Show diagrams as needed to clarify building systems.
2. Ensure completed Drawings are clear, concise, correct and complete.
 - a. Coordinate Drawings to prevent gaps and duplication of information.
 - b. Ensure text is correctly spelled, reads with proper grammar and uses the same terms as used in the Specifications.
 - c. Ensure Drawings are readable when printed half size.
3. Coordinate Drawings to ensure all building systems are accurately sized and located to allowed sufficient space to function properly and be easily serviced by the Owner's maintenance personnel.
4. Schedule and provide design and operating parameters for each item of equipment, including the following.
 - a. Mechanical and plumbing
 - b. Building automation
 - c. Electrical
 - d. Life safety and security/access
 - e. Voice, data and audio/video
 - f. All fixed and movable

5. Incorporate requirements of the State Building Code Bureau Analysis and other regulations applicable to the Project into the Drawings.
 - a. Provide a code analysis sheet that includes plans that clearly show wall and partition fire ratings.
 - b. Provide a structural analysis sheet that includes plans that clearly show design dead and live floor loads.
6. Provide a cover sheet approved by the Owner's Representative for each drawing set that shows the following information.
 - a. The official title of the Project
 - b. Maps that identify the location of the Project
 - c. A legend that identifies abbreviations and symbols used in the Drawings
 - d. An index of Drawings that identifies the content of each sheet
 - e. Space for the Design Professional's and Professional Consultant's certification, seal, signature and registration number
7. Assist the Owner's Representative with coordinating the Division 00 Bidding and Contracting Documents with the Drawings to eliminate conflicting and redundant requirements.
8. If an NPDES Construction Permit is required, complete the final Pollution Prevention Plan
 - a. See FDM Part 1/Support Docs/[ISU SOP For Development Of NPDES Construction Permits.pdf](#) and example details in FDM Part 1/Support Docs/[ISU NPDES Details 1-13.pdf](#).
 - b. Midway through Construction Document Phase, submit the final Pollution Prevention Plan to the Owner's Representative for review.
 - c. Prepare a Notice of Intent Form and a Public Notice of Storm Water Discharge and submit both to the Owner's Representative.

B. SPECIFICATIONS

1. Complete the Specifications begun during the Design Development Phase to completely describe the following.
 - a. Product protection and site handling requirements
 - b. Physical, chemical and performance requirements of products
 - c. Product field-assembly and installation requirements
2. Ensure completed Specifications are clear, concise, correct and complete.
 - a. Coordinate Specifications to prevent gaps and duplication of information.
 - b. Ensure Specifications contain only Project-related information.
 - c. Ensure products are currently available and Specifications reference current standards.
 - d. Ensure text is correctly spelled and reads with proper grammar.
 - e. Use of streamlining and imperative mood sentence structure directed to the Contractor is recommended.
3. For referenced standards, clearly state what portions of the standards are applicable to the Project.
 - a. If abbreviations are used, provide a list that identifies the full name of the standard organization in Section 01 42 00 References or in Part 1 General within each section.
4. Except for specific products required by this Facilities Design Manual, write Specifications to be nonrestrictive as follows.
 - a. Show performance requirements that establish attributes of the desired product, such as type, function, dimension, appearance and quality.
 - b. Where possible, list products from at least 3 different manufacturers that meet the performance requirements.
 - c. Below the product list state "Approved Equivalent" and reference Section 01 25 00 Substitution Procedures.

5. Number pages within each respective section.
6. Obtain approval from the Owner's Representative before including other documents such as schedules and detail drawings.
7. Assist the Owner's Representative with coordinating Division 00 Bidding and Contracting Documents with the Specifications to eliminate conflicting and redundant requirements.
8. Where abatement procedures will not be completed before construction begins, include a description of how abatement procedures will be scheduled during the construction process.
9. Clearly specify requirements for the unloading, uncrating, installation, connection with utilities and clean-up of all fixed and movable equipment installed by the Contractor.
10. Specify special inspections required by IBC Section 1704 applicable to the Project.

C. TABULATION OF AREAS

1. Add columns to the Tabulation of Areas created during Schematic Design and Design Development with the following updated information based on Construction Documents.
 - a. Final room name and number for each space
 - b. Construction Document Net Assignable Square Feet (NASF) for each space and amount over or under programmed NASF
 - c. Gross Square Feet (GSF) per floor and total GSF for the Project
 - d. NASF-to-GSF ratio for the Project

D. STATEMENT OF PROBABLE CONSTRUCTION COST

1. Provide an updated Statement of Probable Construction Cost based on the Construction Documents.
 - a. Show current total amounts and amounts for contingency.
 - b. Provide a multiplier that shows anticipated inflation to reflect conditions at time of bid.
 - c. If the Owner employs an independent cost consultant, review and, if applicable, provide a written exception to any part of the report produced by the independent cost consultant.

E. OTHER DOCUMENTS

1. Project Design, AISB Program and Design Standards Exception Narratives
 - a. No changes to these narratives are expected; however, if there have been changes made since the completion of the Design Development Phase, update and clearly indicate deletions and additions to these Narratives.
2. Project Schedule
 - a. Provide an updated schedule based on Construction Documents that shows major milestones that meet Project phasing and completion requirements.
3. Leadership in Energy and Environmental Design (LEED) Analysis
 - a. Provide an updated analysis based on specific LEED requirements in the Construction Documents.

08.03 REVIEW AND APPROVAL PROCESS

A. MONTHLY PROGRESS REVIEWS

1. Publish Construction Documents each month to the Owner's project web site for the Owner's Representative to review to verify progress.
 - a. Payment to the Design Professional will be adjusted commensurate with the progress of the documents as determined by the Owner's Representative.
 - b. Respond to review comments from the Owner's Representative as described in paragraphs under 08.01C6.

B. UNIVERSITY REVIEW

1. Publish the Construction Documents (Drawings, Specifications and Additional Documents) in Adobe PDF to the Owner's project web site.
 - a. Add "Final Construction Documents" to cover sheets of documents.
2. If the published documents are considered by the Owner's Representative to be insufficiently complete for Owner review, revise and republish documents by a mutually agreed date and time at no additional cost to the Owner.
3. After acceptance by the Owner's Representative, coordinate with ISU Printing Services (515-294-4538) to create and submit the following Construction Documents to the Owner's Representative for distribution.
 - a. Drawings and Specifications as required in paragraphs under 08.02A & 08.02B respectively
 - 1) Quantity will be determined by the Owner's Representative.
 - 2) Provide the Owner's Representative with the number of sets required by the Design Professional and Professional Consultants.
4. The documents will be critically reviewed in detail by the following groups.
 - a. Planning Committee
 - b. Department representatives not on the Planning Committee
 - c. Department of Environmental Health and Safety
 - d. Facilities Planning and Management
 - e. Other administrative and academic personnel
5. During review, comments will be published in 1 or more Microsoft Excel (XLS) files to the Owner's project web site by the Owner's Representative.
 - a. Respond to comments using the process described in paragraphs under 08.01C6.

C. STATE BUILDING CODE BUREAU PLAN FINAL REVIEW

1. Concurrent with university review, submit required submittal forms and Construction Documents for final review by the Department of Public Safety, Division of State Fire Marshal, State Building Code Bureau.
 - a. Pay plan review fees and base inspection fees (reimbursed by the Owner) when submitting final Construction Documents for review.
 - b. If a preliminary review was done during the Design Development Phase and, in the judgment of the Commissioner, major code compliance issues have been resolved, the Building Commissioner may allow the issuance of completed Construction Documents for bidding prior to final review and approval.
2. If reviewed during this phase, publish the Bureau's comments and the design team's response to the Design tab > Code and Fire Marshal in Adobe PDF on the Owner's project web site.

D. UNIVERSITY APPROVAL

1. After all required documents have been received and review issues have been resolved to the satisfaction of the Owner's Representative, the Owner's Representative will provide written approval to proceed to the Bidding Phase.
2. After approval, publish updated Construction Documents in Adobe PDF to the Owner's project web site.
3. Submit to the Owner's Representative the approved Life Cycle Cost Analysis and Approval Letter, both in hard copy, and publish both in Adobe PDF to the Owner's project web site.

END OF SECTION 08 CONSTRUCTION DOCUMENTS PHASE