

Rich's Construction Document Study Notes:

Insurance

- **Guide for Supplementary Conditions Document A511** – The insurance requirements in the AIA General Conditions are general insurance requirements. These provisions must always be supplemented in the Supplementary Conditions to establish specific project insurance requirements and limits of coverage.
- **Subrogation** is a procedure by which an insurance company, after it pays a loss to its insured, can attempt to recover this amount from some other party who may have actually caused the loss.
- **Certificated of Insurance** is a memorandum that outlines the types and limits of the insurance coverages carried by the contractor for the project.

Errors and Omissions

A type of professional liability insurance. It is intended for the protection of the architect or other professional from liability arising from the negligence or failure to meet the standards of care expected from a professional.

Loss of Use

It protects the owner from financial loss due to delays in construction resulting from repairs, replacing damaged property, fire, or other hazards.

Workers Compensations

Covers the liability of the employer, architect, or contractor to the employees for injury or sickness as a result of their employment.

Property

Purchased by the owner, equal in amount to the total value of the project, it covers damages and loss of the work on and off site as well as in transit. Also called Builder's Risk Insurance.

Professional Liability

Covers the liability of the insured professional, architect, contractor or the owner, for claims due to damages caused by errors, omissions, or negligence.

Personal Injury

Covers libel, slander, false arrest, and defamation of character.

Products and Completed Operations

Purchased by the contractor, it covers their liability for damages caused by installed goods after the construction phase and transfer of title.

Automobile Liability

Covers claims for damages arising out of the use of an owned, non-owned, or hired automobile.

Contractual Liability

Covers liability assumed by contract.... This is primarily indemnification, wherein contractors agree to hold owners and architects harmless from damages arising out of specified events.

Specifications

- Specifications complement the drawings. They express in writing the requirements regarding quality, methods and tech of installation, and desired performance.
- CSI – Construction Specifications Institute.
- Each section is divided into three parts:
 - 1.) **General** – deals with the coverage or scope of the section. It describes related work, definitions, quality control, submittals, and guarantees / warranties.
 - 2.) **Materials** – Lists and describes the materials, products, and equipments to be used.
 - 3.) **Execution** – details the manner in which products and materials will be installed and work performed.
- The organization of the specifications into divisions, sections, and article, and the arrangement of the drawings shall not control the contractor in dividing the work among subcontractors or establishing the extent of work to be performed by any trade.

- The General Conditions contains contractual provisions that elaborate on elements of the AIA Owner-Contractor Agreement.
- By contrast, the material in Division One of the specifications describes the administrative rules and work-related provisions for the specific project.
- The specifications normally take precedence over the drawings if there is an inconsistency.

Closed Specification Also called Prescriptive, Base Bid, or Propriety Specification, where specific products or processes are stipulated without provision for substitution.

Propriety Specification This type of closed specification defines the use of a specific products or systems and does not allow the contractor to substitute alternatives. (Cont.) ... call for desired materials, product, systems, and equipment by their trade names and model numbers.

Open Specification Often used for public projects to ensure competitive bidding, it allows the contractor to substitute products of equal quality and performance if approved by the architect. (cont.) Open Specs name several (usually 3) acceptable material, products, or systems, and contractors may use any one of them.

Performance Specification A type of Open Specification that sets criteria and defines the results required of the assembly, component, or device being specified.

Cash Allowance Spec. Establishes a dollar amount allocated for each item in the specifications.

Descriptive Specification A specification which describes all product components, arrangements, assembly methods, properties, and other details and requirements.

Reference Standard Spec. A type of Performance Specification where items specified must meet certain requirement set by an accepted authority or test method such as, (UL) Underwriter's Laboratories, (ASTM) American Society for Testing and Material or (ANSI) American National Standards Institute.

Specifications:

- Div 01 General Requirements
- Div 02 Existing Conditions
- Div 03 Concrete
- Div 04 Masonry
- Div 05 Metals
- Div 06 Wood, Plastics, and Composites
- Div 07 Thermal and Moisture Protection
- Div 08 Openings
- Div 09 Finishes
- Div 10 Specialties
- Div 11 Equipment
- Div 12 Furnishes
- Div 13 Special Construction
- Div 14 Conveying Equipment
- Div 21 Fire Suppression
- Div 22 Plumbing
- Div 23 Heating, Ventilating, and Air Conditioning
- Div 25 Integrated Automation
- Div 26 Electrical
- Div 27 Communications
- Div 28 Electronic Safety and Security
- Div 31 Earthwork
- Div 32 Exterior Improvements
- Div 33 Utilities
- Div 34 Transportation
- Div 35 Waterway and Marine Construction

Questions:

1.) An architect is looking for the best assembly to solve an unconventional requirement presented by the owner, which specification type will benefit the architect most?

- A.) Cash Allowance Specifications
- B.) Closed Specifications
- C.) Reference Standard Specifications
- D.) Performance Specifications

(D) This type of open specification describes an end result desired by the architect and does not stipulate specific trades names of components or processes. This specification type allows the contractor the flexibility to find a system that best meets the needs of the owner. For example, if the owner requires a roof structure to be retractable, the contractor may propose or develop a variety of assemblies upon which the structure can operate.

2.) For which part of the Project Manual is the architect most directly responsible?

The specifications

3.) An architect may affect the contractor's construction schedule by establishing certain criteria within the specifications. What are some of these criteria?

- Establish deadlines for the ordering and delivery of the materials, submittals and testing.
- Specify all work to be accomplished according to the critical path method (CPM)
- Allot a specific amount of time to perform all work.
- Allow subcontractors to provide input.
- Update the construction schedule on a monthly basis.

4.) What type of Specifications are often required for public projects?

Open Propriety Specifications

4.) What is the role of the specifications?

They are a part of the contract documents and are legal documents contained in the project manual. They describe, in writing, the requirements and technical nature of material, systems, equipment, construction methods, and workmanship.

Days Required

Application for Payment

They are to be submitted at least **10 days** prior to the date established by the schedule of values.

Upon receipt, the architect has **7 days** to either, approve the contractor's request and issue this statement to the owner, or contact the owner and contractor with the reason for withholding approval.

Per A201 9.3.1

At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application of Payment for operations completed in accordance with the schedule of values.

Document G702 – Application and Certificate for Payment.

Document G703 – Cont. Sheet

Question:

1.) How much time does the architect have to process shop drawings submitted by the contractor?

With regard to submittals, the architect is expected to; review and approve, or take other action with "**reasonable promptness**", according to the AIA General Conditions. This allows sufficient time for architectural review without causing a delay in the progress of the project. The exact amount of time is not specified but 10 working days is common.

2.) According to the Contract Documents, contract time ends at the date of:

Substantial completion

3.) **In General, what is the minimum amount of time as architect should give contractors to prepare a bid?**

2 weeks

4.) During renovation of an old structure, bracing member not noted in the contract documents are discovered which will necessitate a major change in the plans. According to the AIA General Conditions, the contractor must request a change in the contract sum to cover the necessary additional work within

- a.) Ten days
- b.) Two weeks
- c.) **21 days** (see subpar. 4.3.2. of the AIA General Conditions)
- d.) a reasonable period.

Bonds

Bond An agreement under which one party (the surety or bonding company) guarantees to make good to another party (the obligee or owner) the debt, default, or failure to perform of a third party (the principal or contractor). Also called a surety bond.

Completion Bond A bond obtained by the contractor or owner, which guarantees that the project will be completed free of liens.

Performance Bond A type of surety obtained by the contractor. It is for the protection of the owner and is used to help ensure that the work will be completed in accordance with the contract documents.

Surety A written promise or bond by a person or entity who guarantees the performance of an obligation of another party. It can protect an owner's interest by ensuring that the contractor fulfills the requirements of the contract documents.

Bid Bond A surety in the form of a forfeiture bond that is required by public agencies and some private owners. It is submitted with a bid and guarantees that a bidder, if awarded a contract, will enter into the contract within a specific time, and in accordance with the requirements of the bidding documents. These bonds are usually made for 5 to 10 percent of the bid amount and are activated if the selected bidder refuses to sign the contract.

Labor and Material Payment Bond (A312) A bond acquired by the contractor in which the contractor and the contractor's surety guarantee to pay their subcontractors and to purchase materials for the construction in accordance with the contract documents.

Note: The purpose of the Labor and Material Payment Bond, is to protect the owner from claims made for unpaid contractor's bills after final payment has been made, and to, provide a means to discharge liens that are filed after the completion of the project.

ADA

ADA Document – Standards for Accessible Design

Section 4

- 4.2.1 Wheelchair Passage Width. The minimum clear width for a single wheelchair passage shall be 32" at a point and 36" continuously.
- 4.2.2 Width for Wheelchair Passing. The minimum width for two wheelchairs to pass is 60"
- 4.2.3 Wheelchair Turning Space. The space required for a wheelchair to make a 180-degree turn is a clear space of 60"
- 4.2.4.1 Size and Approach. The minimum clear floor or ground space required to accommodate a single, stationary wheelchair and occupant is 30" by 48"

- 4.3.7 Slope. An accessible route with a running slope greater than 1:20 is a ramp and shall comply with 4.8. Nowhere shall the cross slope of an accessible route exceed 1:50.
- 4.3.8 Changes in Levels. Changes in levels along an accessible route shall comply with 4.5.2. If an accessible route has changes in level greater than 1/2", then a curb ramp, ramp, elevator, or platform lift shall be provided.
- 4.3.11.1 Location and Construction (Areas of Rescue Assistance). An area of rescue assistance shall be one of the following:
 - 1.) A portion of a stairway landing with a smokeproof enclosure.
 - 2.) A portion of an exterior exit balcony located immediately adjacent to an exit stairway when the balcony complies with local requirements for exterior exit balconies.
 - 3.) A portion of a one-hour fire-resistive corridor located immediately adjacent to an exit enclosure.
 - 4.) A vestibule located immediately adjacent to an exit enclosure and constructed to the same fire-resistive standards as required for corridors and openings.
 - 5.) A portion of a stairway landing within an exit enclosure which is vented to the exterior and is separated from the interior of the building with not less than one-hour fire-resistive doors.
 - 6.) When approved by the appropriate local authority, an area or a room which is separated from other portions of the building by a smoke barrier.
 - 7.) An elevator lobby when the elevator shafts and adjacent lobbies are pressurized as required for smokeproof enclosures.
- 4.3.11.3 Stairway Widths. Each stairway adjacent to an area of rescue assistance shall have a minimum clear width of 48" between handrails.
- 4.4.2 Head Room. Walks, halls, corridors, passageways, aisles, or other circulation spaces shall have 80" minimum clear head room.
- 4.5.2. Changes in Level. Changes in level up to 1/4" may be vertical and without edge treatment. Changes in level between 1/4" and 1/2" shall be beveled with a slope no greater than 1:2. Changes in level greater than 1/2" shall be accomplished by means of a ramp that complies with 4.7 or 4.8
- 4.8 (Ramps) Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply with 4.8
- 4.8.2 Slope and Rise. The least possible slope shall be used for any ramp. The maximum slope of a ramp in new construction shall be 1:12. The maximum rise for any run shall be 30"
- 4.8.4 Landings. Ramps shall have level landings at bottom and top of each ramp and each ramp run. Landings shall have the following features:
 - 1.) The landing shall be at least as wide as the ramp run leading to it.
 - 2.) The landing length shall be a minimum of 60" clear
 - 3.) If ramps change direction at landings, the minimum landing size shall be 60" by 60"
 - 4.) If a doorway is located at a landing, then the area in front of the doorway shall comply with 4.13.6
- Handrails. If a ramp run has a rise greater than 6" or horizontal projection greater than 72", then it shall have handrails on both sides.
- 4.9.2 Treads and Risers (Stairs). Stair treads shall be no less than 11" wide, open risers are not permitted.
- 4.9.4 Handrails. Stairways shall have handrails at both sides of all stairs.
 - 1.) Handrails shall be continuous along both sides of stairs. The inside handrail on switchback or dogleg stairs shall always be continuous.
 - 2.) If handrails are not continuous, they shall extend at least 12" beyond the top riser and at least 12" plus the width of one tread beyond the bottom riser.
 - 3.) The clear space between handrails and wall shall be 1-1/2"
 - 4.) Top of handrail gripping surface shall be mounted between 34" and 38" above the stair nosing.
- 4.13.5 Clear Width (Doors). Doorways shall have a minimum clear opening of 32" with the door open 90 degrees, measured between the face of the door and the opposite stop.
(EXCEPTION) Doors not requiring full user passage, such as shallow closets, may have the clear opening reduced to 20".
- 4.13.7 Two Doors in Series. The minimum space between two hinged or pivoted doors in series shall be 48" plus the width of any door swinging into the space. Doors in series shall swing either in the same direction or away from the space between the doors.

Note: Design criteria for persons with disabilities include requirements for:

- 1.) Walks, ramps and stairs
 - 2.) Parking space size and location
 - 3.) Entries, doorways and hardware.
- The American with Disabilities Act Architectural Guidelines states that alternations to qualified historic building or facilities shall comply with the requirements of the applicable ADA sections – including elevators and accessible routes – unless it is determined that compliance with the requirements would threaten or destroy the historic significance of the building.

Terms:

Accessible – Describes a site, building, facility, or portion thereof that complies with the ADA guidelines.

Area of Rescue Assistance – An area, which has direct access to an exit, where people who are unable to use stairs may remain temporarily in safety to await further instruction or assistance during emergency evacuation.

Barrier-free Provisions – Regulations which provide for accessibility to buildings and sites for persons with disabilities.

Clear Floor Space – The minimum unobstructed floor or ground space required to accommodate a single, stationary wheelchair and occupant.

Curb Ramp – A short ramp cutting through a curb or built up to it.\

Egress, Mean of – A continuous and unobstructed way of exit travel from any point in a building or facility to a public way.

Question:

- 1.) Gratings are permitted in pedestrian circulation areas. However, the maximum size of an opening shall be no greater than ___ in one direction, and elongated openings must be oriented so that the long dimension is ___ to the dominate path of travel. Answer = $\frac{1}{2}$ " : *perpendicular*
- 2.) An architect is hired to renovate a building listed on the National Register of Historic Places. Is the building required to have an elevator complying with the ADA regulations? *Yes, unless compliance with the requirements would threaten or destroy the historic significance of the building.*

ANSI 117.1 – Accessible and Usable Buildings and Facilities

Chapter 3

- 304.3.1 Circular Space. The wheelchair turning space shall be not less than 60" diameter minimum.
- 305.3 The clear floor or ground space shall be 30" min. by 48" min.

Chapter 4

- Door front approach (pull side) clearance – 18" min. clear from door and 60" min. measured from face of wall. See Fig 404.2.4.1
- Door front approach (push side) clearance – 12" min. clear from door and 48" min. measured from face of wall. See Fig 404.2.4.1

Chapter 5

- 502.2 Vehicle Spaces. Car and van parking spaces shall be 96" width min. and shall have adjacent aisle complying with Section 502.3
- 502.3.1 Width. Access aisles servicing car parking spaces shall be 60" wide min. Access aisles serving van parking spaces shall be 96" wide min.
- 502.3.2 Length. Access aisles shall extend the full length of the parking spaces they serve.
- 503.3.1 Width (Passenger Loading Zones). Access aisles servicing vehicle pull-up spaces shall be 60" wide min.
- 503.3.2 Length (Passenger Loading Zones). Access aisles shall be 20' long min.
- 504.2 (Stairways) Treads and Risers. All steps on a flight of stairs shall have a uniform riser heights and uniform tread depth. Risers shall be 4" high min. and 7" max. Treads shall be 11" deep min, measured from riser to riser.

AIA Documents

A-Series	Various form of agreements between owner and a contractor.
B-Series	Various form of agreements between owner and architect.
C-Series	Various form of agreements between architect and other design professionals.
D-Series	Architect industry documents.
G-Series	Office admin documents.
A101	Standard Form of Agreement Between Owner and Contractor – Fixed Price
A111	Standard Form of Agreement Between Owner and Contractor (GMP)
A201	General Conditions of the Contract for Construction
A310	Bid Bond
A312	Performance Bond and Payment Bond
B141	Standard Form Agreement Between Owner and Architect
B727	Standard Form of Agreement Between Owner and Architect for Special Services
C141	Standard Form of Agreement between Architect and Consultant
G701	Change Order
G702	Application and Certificate for Payment
G704	Certificate of Substantial Completion
G706	Contractor's Affidavit of Release of Liens
G707	Consent of Surety of Final Payment
G711	Architect's Field Report
G714	Construction Change Directive

Document Notes:

A101 - Standard Form of Agreement Between Owner and Contractor – Fixed Price

Article 3

- The contract time shall be measured from the date of commencement.
- Liquidated damages are not a penalty to be inflicted on the Contractor, but must bear an actual and reasonably estimable relationship to the owner's loss if construction is not completed on time.
- If liquidated damages are to be assessed because delayed construction will result in actual loss to the Owner, the amount of damage due for each day lost should be entered in the Supplementary Conditions or the Agreement.

Article 5

- The last day upon which work may be included in an Application should normally be no less than 14 days prior to the payment due date, in consideration of the 7 days required for the architect's evaluation of the Application and issuance of a Certificate for Payment and the time subsequently accorded the Owner to make payment.
- 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.
- 5.2.1 Final payment
 - 5.2.1.1 The contractor has fully performed the Contract except for the Contractor's responsibility to correct work
 - 5.2.1.2 a final Certificate for Payments has been issued by the Architect
- 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's Final Certificate for payment.

A201 - General Conditions of the Contract for Construction

The Contract Documents, including A201, record the Contract for Construction between the Owner and the Contractor. The other Contract documents are:

Owner Contractor Agreement - A101

Supplementary Conditions

Drawings

Specifications

Modifications

Article 1

- 1.1.1 Unless specifically enumerated in the Agreement, the Contract Documents shall not include other documents such as bidding requirements.
- 1.1.5 The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work.
- 1.1.6 The Specification are that portion of the Contract Documents consisting of the written requirements for Material, equipment, systems, standards and workmanship for the Work, and performance of related services.
- 1.1.7 The Project Manual is a volume assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.

Article 2

- 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights.
- 2.2.2 Except for permits and fees, including those required under SubPar 3.7.1., which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structure or for permanent changes in existing facilities.
- 2.4.1 READ IT!!!!

Article 3

- 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or negotiations concluded.
- 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.
- Submittal which are not required by the Contract Documents may be returned by the Architect without action.

Article 4

- 4.3.2 Claims by either party must be initiated within 21 days after the occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.
- 4.3.3 Claims for Concealed or Unknown Conditions – 21 days
- Claims by either party in opposition to such determination must be made within 21 days after the Architect has given notice of the decision.

Article 8

- 8.2.2 the Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic's lien and other security interests.

Article 9

- 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect as itemized Application for Payment for the operations completed in accordance with the schedule of values.
- 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such

amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part.

- 9.7.1 If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or award by arbitration, then the Contractor may upon seven additional days' written notice to the Owner and Architect, stop work until payment of the amount owing has been received.
- 9.10.2 If a Subcontractor refuse to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after the payments made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

Article 11

- 11.1.3 policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner.

Article 14

- 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through not act or fault of the Contractor...
 - a.) court or public authority requires all work to be stopped
 - b.) an act of government
 - c.) because the Architect has not issued a Certificate of payment
 - d.) Owner has not furnished required documentation per 2.2.1
- 14.1.4 If the Work is stopped for a period of 60 consecutive days through not fault of the Contractor... the Contractor may, upon seven additional days' written notice terminate the contract.
- 14.2.1 the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor
- 14.2.3 When the Owner terminates the Contract for one of the reasons stated in 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

Note: According to the AIA General Conditions (A201) the cost or credit resulting from changes in the work may not be determined by **Lump Sum**.

B141 - Standard Form of Agreement Between Owner and Architect with Standard Form of Architect Services

Article 1

- 1.2.2.1 The Owner shall furnish to the Architect, with 15 days after receipt of a written request, information necessary and relevant for the Architect to evaluate, give notice of or enforce lien rights.
- 1.3.1.3 The Cost of Work does not include the compensation of the Architect and the Architect's consultants, the cost of the land, rights-of-ways and financing or other costs that are the responsibility of the Owner.
- 1.5 There are at least ten methods of computing compensation for architectural services. Four of these methods are time-based, reflecting in different ways the time spent by the Architect on the project:
 - 1.) **Multiple of Direct Salary Expense**, in which direct salaries if the designated personnel are multiplied by a factor representing benefits, overhead and profit.
 - 2.) **Multiple of Direct Personnel expense**, in which the salaries plus benefits of designated personnel are multiplied by a factor representing overhead and profit.
 - 3.) **Professional Fee Plus Expenses**, in which the salaries, benefits and overhead of designated personnel are the expense and the fee may be a multiplier, percentage or lump sum representing profit.
 - 4.) **Hourly Billing Rate**, in which salaries, benefits, overhead and profit are included in the rate for designated personnel.

Article 2

- 2.1 It is important to note that in the **B141-1997**, if a budget amount for the Cost of the Work has been identified in Article 1.1 and the lowest bid or negotiated proposal exceeds the Owner's adjusted budget for the Cost of Work, the Architect is obligated to modify the documents to comply with the Owner's budget at not cost to the Owner. However, the obligation to redesign at no cost to the Owner is the limit of the Architect's responsibility.
- Note: **B141/CMa-1992** In event that the Construction Manager's estimate or the lowest bona fide bid or negotiated proposal received by the Owner exceeds the Owner's budget for reasons other than those described in Par 3.3, the modification of the Contract Documents shall be the limit of the Architect's responsibility. The Architect shall be entitled to compensation in accordance with this agreement for all services performed whether or not the Construction Phase is commenced.
- 2.5 the Architect will provide either bidding or negotiation service, but not both.
- 2.6 The Architect's Contract Administration Services now are further divided into six subcategories:
 - 1.) General Administration
 - 2.) Evaluations of the Work
 - 3.) Certification of Payments to the Contractor
 - 4.) Submittals
 - 5.) Changes in the Work
 - 6.) Project Completion
- 2.7 This new Article provides for two meetings between the Architect and the Owner: one promptly after substantial completion to review the need for Facility Operation Services, and the second before the expiration of one year from the date of Substantial Complete to review the building's performance.

Project Manual

This volume contains all of the bidding documents and contract documents that can be easily bound into a book format. Other oversize information such as full size drawings should be included by reference. It may consist of:

- Title Sheet
- Table of Contents
- Bid Form
- Instruction to Bidders
- Proposed Owner-Contractor Agreement
- General conditions and Supplementary Conditions
- Sample AIA Documents
- List of Drawings
- Signature Sheet
- Index to Specifications
- Specifications, standard divisions

Questions:

1.) In a typical project manual, what comprises the contract forms?

- The Owner-Contractor Agreement
- A Performance Bond
- A Payment Bond
- A Certificate of Insurance

The project manual prepared by the architect for the project, including the technical specifications.

Construction Documents

consist of:

Project Manual

Bidding Documents

Contract Modifications

as well as:

- Bidding Requirements
- Contract Forms
- Contract Conditions
- Specifications
- Drawings
- Addendum

Contract Documents

consist of:

- The Owner-Contractor Agreement
- General & Supplementary Conditions of the Contract
- Specifications (CSI Format)
- The Working Drawings
- Addenda
- Modifications

Contract Terms

Division One – The General Requirements Division of the specifications which establishes the administrative and procedural duties of the contractor, architect,, and owner during construction.

General Contract – The agreements between the owner and the contractor for the construction of a project.

General Conditions – The part of the contract documents which states the rights, responsibilities, and relationships of the parties involved, usually by means of standard documents published by the A.I.A. (cont...) A duty is established in the General Conditions. (cont...) The General Conditions extends rights and responsibilities from owner to contractor to subcontractor and creates the context for all contractual relationships on a project.

Supplementary General Conditions – These are additional conditions, included in the project manual, that are used to modify the General Conditions of the Contract for Construction. This is done to accommodate any specific legal, climatic, or site conditions of the particular project. (cont...) The purpose of the supplementary conditions is to modify the general conditions of the contract because of unusual or special circumstances or accommodate the specific project requirements.

Special Conditions – Additional requirements to the Supplementary General Conditions of the Contract for Construction. These requirements are usually requested by government or local building agencies. Part of the contract documents, other than the general and supplementary conditions, describing unique conditions of a project. Special conditions are used when supplementary conditions must be further extended.

General Requirements – defines the specific procedures that a contractor must follow with regard to that obligation. (cont...) a means for discharging that duty (see General Conditions) is defined in the General Requirements.

Single Prime Contract – A contract for building construction under which one prime contractor is responsible for the entire project, in contrast to having separate contracts.

Separate Prime Contract – One of several owner-contractor agreements for a project, each of which provides for constructing a major portion of the work (general construction, electrical, mechanical, etc.) by a different contract.

Cost Plus Fee Contract – An agreement under which the contractor, or the architect, is reimbursed for his or

her cost, and, in addition, is paid a fee for his or her services.

Basic Services (architect) – the architectural services normally required for a building project, usually consisting of schematic design, bidding or negotiation, and construction contract administration.

Sustainability

- Sustainable designs should have four goals:
 - 1.) Designs that use less
 - 2.) Designs that recycle components
 - 3.) Designs that have components that are easily recyclable
 - 4.) Designs that have components that are fully biodegradable.

LEED (Leadership in Energy and Environmental Design) – sponsored by the U.S. Green building Council.

The goal of LEED and similar environmental design standards is to introduce new sustainable approaches and technologies to the construction industry. LEED is a voluntary environmental rating system that is organized into six categories:

1. Sustainable Sites
2. Water Efficiency
3. Energy & Atmosphere
4. Material & Resources
5. Indoor Air Quality
6. Innovation & Design Practice

Miscellaneous

- **Quality Assurance** requires that in designing, documenting, and constructing a building, the proper resources and scrutiny are applied to each part of the process in order to prevent errors before they are made, or at least to correct errors early, before they are compounded.
- **Total Quality Management (TQM)** was developed to incorporate quality control and quality assurance, but also included all aspects of service to achieve the goal of customer satisfaction.
- **Electrolysis**, also known as galvanic action, occurs when two reactive materials, such as aluminum and steel, come into contact with each other, which may lead to corrosion.
- Reactive materials should be separated by mastic, building paper, or other material, to prevent water from creating a galvanic connection between materials.
- **Expansion joints** allow masonry to move independently of a structural steel or concrete frame, while **control joints** relieve forces that may build up within individual masonry elements.
- **Sound Transmission Class (STC)** is the method of rating acoustic efficiency of various wall and floor systems in isolating airborne sound transmission. STC Ratings are not appropriate in considering the effect of impact noise on floor assemblies caused by foot traffic or machinery. For that purpose **Impact Isolation Class (IIC)**, also referred to as Impact Noise Rating, is used.
- Impact noise of a material is rated by Impact Isolation Class (IIC). Amplification and reverberation are functions of the absorptive characteristic of a material rated by a Noise Reduction Coefficient (NRC)
- Lightweight porous materials are effective for sound absorption, while heavy, impervious material are effective for sound isolation.
- **Shop drawings** show precisely how a contractor intend to install a specific item of equipment or material.
- **Product data** are standard information sheets that define and describe the physical and operational characteristics of items of equipment.
- **Samples** may show the proposed color, texture, or finish of materials.
- **Contract time** may start on the date of signing the owner-contractor agreement.
- **Contract time ends** when construction work is substantially complete.
- **Warranty periods** begin upon substantial completion.
- It is essential for an owner to obtain the surety's written consent before any portion of the retainage is released to the contractor. (**G707A – Consent of Surety to Reduction in or Partial Release of Retainage**)

- A **Change Order (G701)** is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect, stating their agreement upon all of the following:
 - 1.) Change in the Work
 - 2.) The amount of the adjust, if any, in the Contract Sum; and
 - 3.) The extend of the adjustment, if any, in the Contract Time.
- In the absence is total agreement on the terms of a change order, a **Construction Change Directive** is used. Signed by the Owner and Architect, the Contractor is obligated to perform the work described in it. If the contractor is in agreement with the change in the contract amount and / or time, he or she must sign it before performing the work. Once signed, it becomes a **Contract Modification**. If he or she is not in agreement, the contractor does not have to sign the construction change directive. However, he or she is still obligated under the terms of the contract to perform the work.
- The General Conditions require the contractor to submit an affidavit that he or she has paid all payrolls, bills for materials and equipmemtn, and other indebtedness for which the owner and his or her property might be held liable under lien laws or otherwise. AIA Document **G706 – Contractor’s Affidavit of Payment of Debts and Claims**, and document **G706A Contractor’s Affidavit of Release of Liens**.
- The AIA General Conditions cover **payments for stored material** in Subparagraph 9.3.2: *Unless otherwise provide in the Contract Documents, payments shall be made on account of material and equipment delivered and suitable stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payments may be similarly made for materials and equipment suitable stored off the site at a location agreed upon in writing.*
- Retainage is the process by which the owner withholds money form the contractor as a protection against the contractor’s potential failure to complete the work according to contract requirements.
- A Proposal Request notifies the contractor of an anticipated change and requests a proposal from the contractor stating the cost and / or time impact of the change.
- The **Architect’s Supplemental Instructions** would be used, if there is **no change** in the cost or time, if an architect wants to save time by outlining an anticipated change in a construction detail.
- A project Representation is selected, employed, and directed by the Architect.
- A clerk of the works is generally employed by the Owner.
- The primary purpose of **building code fire safety regulations** is to provide for life safety and to enable occupants to safely evacuate a building.
- Vertical loads on building may be cause by winds, differential settlement, expansive soils, and frost action. Winds create vertical loads on a building by exerting uplift forces on the roof. Differential settlement caused by non-uniform soil conditions can exert an upward force on the foundation. Expansive soils and frost action also exert upward pressure on foundations.
- A full size mock-up of a material or system is appropriately specified when;
 - 1.) the material or system is to be used repetitively in the project.
 - 2.) the installation will be the first use of an untested material of system.
 - 3.) the project is to serve as a prototype.
- If a change in the work results in an increase in the construction sum, the following methods may be used to determine the amount of the increase:
 - 1.) Lump sum
 - 2.) Unit prices
 - 3.) Cost plus a fee
- Subparagraph 11.3.1 of the AIA General Conditions requires the **Owner**, not the **Contractor** to purchase property insurance (builder’s risk). This provides a broader coverage that named-perils.
- The owner is responsible for identifying the presence of hazardous material.
- **Cluster zoning** results in permanent community open space.
- In cluster zoning, a developer is permitted to reduce the minimum lot size below that required for conventional zoning, so long as the total number of dwellings in the subdivision remains the same, and if the land gained thereby is preserved as permanent community open space.
- A **PUD** (Planned Unit Development) is similar to cluster development, but is larger in scale and may include commercial and industrial development, as well as housing. Since PUD utilizes the cluster zoning concept, it generally does not require a zoning variance.
- **Quality Assurance** describes a process where proper resources and scrutiny be applied to the design, documentation, and construction of a building on order to prevent errors before they are made.
- The architect is required to secure from the contractor an affidavit stating that all payrolls, bills for material and equipment, and other indebtedness connected with the work for which the owner’s property might in any way be responsible have been paid or otherwise satisfied before the architect may issue a **final certificate for payment**.

- The purpose of this affidavit is to avoid any possibility of a lien for unpaid labor or material being placed on the owner's property.
- If an owner contracts directly with a structural engineer (or another professional), the owner becomes responsible for coordinating the work of the architect and engineer.
- The total cost of the project includes, in addition to the direct cost of construction, such items as professional fees, land costs, furnishings and equipment, financing costs, legal cost, and cost of inspection and tests. These costs, with the exception of those for land and furnishings and equipment, are usually around 20 percent of the cost of construction.
- Methods employed by architects for estimating the cost of construction include all of the following:
 - 1.) area and volume estimates
 - 2.) subsystem estimates
 - 3.) cost per unit
- **Quantity and cost method** include an item by item accounting of each product or material used and are typically outside the scope of architectural services.
- The traditional method of insuring quality by carefully checking documents before they are distributed to the owner or contractor is called **quality control**.
- The architect generally establishes the requirements for the construction schedule, while the contractor prepares the actual schedule showing how the work will be accomplished within the contract time.
- Bar charts show the starting and finishing dates of major phases of the work and can be clearly understood. However they do not indicate the relationship between activities or the dependence of one activity on the completion of another activity, and are therefore inferior to CPM schedules.
- In a **CPM diagram**, the total project time is determined by the path with the longest required time, known as the **critical path**.
- Which of the following drawings requires the GREATEST level of coordination between the architect and consultants?
 - 1.) Floor plans
 - 2.) Exterior elevations
 - 3.) **Reflected ceiling plan**
 - 4.) Wall sections and details
- A **reflected ceiling plan** contains information relating to architecture, HVAC devices, lighting fixtures, sprinkler heads, and fire protection equipment. Accordingly, it requires considerable coordination between the architect and virtually all engineering disciplines.
- Unit prices are stated in the bid.
- A unit price is an amount stated in the bid dollars per unit, where the quantity of a particular part of the work is unknown or may vary from that shown in the contract documents.
- Unit prices for added work are other different from those for deleted work.
- Unit prices are not the same as alternates; an alternate, or alternate bid, is a proposal by a bidder for an amount to be added to or subtracted from the base bid if the corresponding change in the work is accepted.
- During the production of working drawings for a project, the client has financial problems that preclude further payment to the architect on account of his or her architectural fee. Under the standard agreement between architect and owner, what recourse does the architect have? *The architect may terminate the agreement.*
- The principal reason that standard AIA documents should be used by architects in all contractual relationships is that the construction industry is accustomed to their use and acquainted with their provisions.
- Lien laws assure satisfactory payment to workmen and suppliers of all debts incurred on behalf of the project.
- The General Conditions stipulate that neither the final payment nor any portion of the retainage is to be paid until the contractor provides a release or waiver of liens to the owner. It is essential that the owner receive this protection against liens so that he is free to dispose of the property with no encumbrances to preclude a transfer of title.
- According to the AIA General Conditions, when acting on a submittal, an architect may take any of the following actions EXCEPT
 - 1.) approved
 - 2.) approved as noted
 - 3.) **returned without review**
 - 4.) not approved
- According to the AIA General Conditions Paragraph 4.2.7, when acting on a submittal, architects are obliged to promptly review and approve or take other appropriate action.

Miscellaneous Terms

Contingency – An amount of money set aside in a budget to cover unanticipated expenses.

Contract Documents – Working drawings, specifications, addenda, general conditions of the contract, supplementary conditions, and the owner-contractor agreement.

Contract Sum – The total amount payable by the owner to the contractor, as stated in the owner-contractor agreement, for performing the work under the contract.

Contract Time – The period of time within which the work must be completed, as established in the contract documents.

Cost Plus Fee Contract – An agreement under which the contractor, or the architect, is reimbursed for his or her cost and, in addition, is paid a fee for his or her services.

Date of Substantial Completion – The date, certified by the architect, when the construction is sufficiently completed, in accordance with the contract documents, so that the owner can occupy the project or specified area of the project for the intended use.

Direct Expense – Expense items directly incurred by or attributable to a specific project.

Direct Personnel Expense (DPE) – Salaries and wages attributable to a specific project, plus benefits such as employment taxes, insurance, sick leave, holidays, vacations, pensions, and similar contributions and benefits.

Division One – The General Requirements Division of the specification that establishes the administrative and procedural duties of the contractor, architect, and the owner during the construction.

Final Completion – The completion of all work in accordance with the terms and conditions of the contract document.

General Conditions – The part of the Contract documents that states the rights, responsibilities, and relationships of the parties involved, usually by means of a standard document published by the AIA.

Indirect Expense – Overhead expense, that is, expense indirectly incurred and not chargeable to a specific project.

Multiple of Direct Personnel Expense Agreements – An agreement providing for payment for professional services based upon the direct personnel expense multiplied by an agreed factor.

Project Budget – The sum established by the owner as available for the entire project, including the construction budget, land cost, equipment cost, financing cost, cost of professional services, and contingency allowances.

Project Manual – The manual prepared by the architect for a project, including that technical specifications, bidding instructions and forms, general conditions, supplementary conditions, special conditions, and other legal and administrative documents.

Special Conditions – Part of the contract documents, other than the general and supplementary conditions, describing unique conditions of the project.

Specifications – Part of the contract documents, comprising written descriptions of the material, construction systems, and workmanship.

Substantial Completion – As defined in the AIA General Conditions, completion of a project to the point where the owner can occupy all or designated portions of the work for the purpose for which it is intended.

Supplementary Conditions – Part of the contract documents, prepared by the architect, which may modify provisions of the general conditions of the contract.

Total Quality Management (TQM) – An approach to the delivery of goods or services in which quality is determined by customer satisfaction and conformance to requirements.

Volatile Organic Compounds (VOC) –

XCU – The exclusion from insurance coverage for liability arising out of the (X) explosion or blasting, (C) collapse of or structural damage to a building, and (U) underground damage caused by mechanical equipment.