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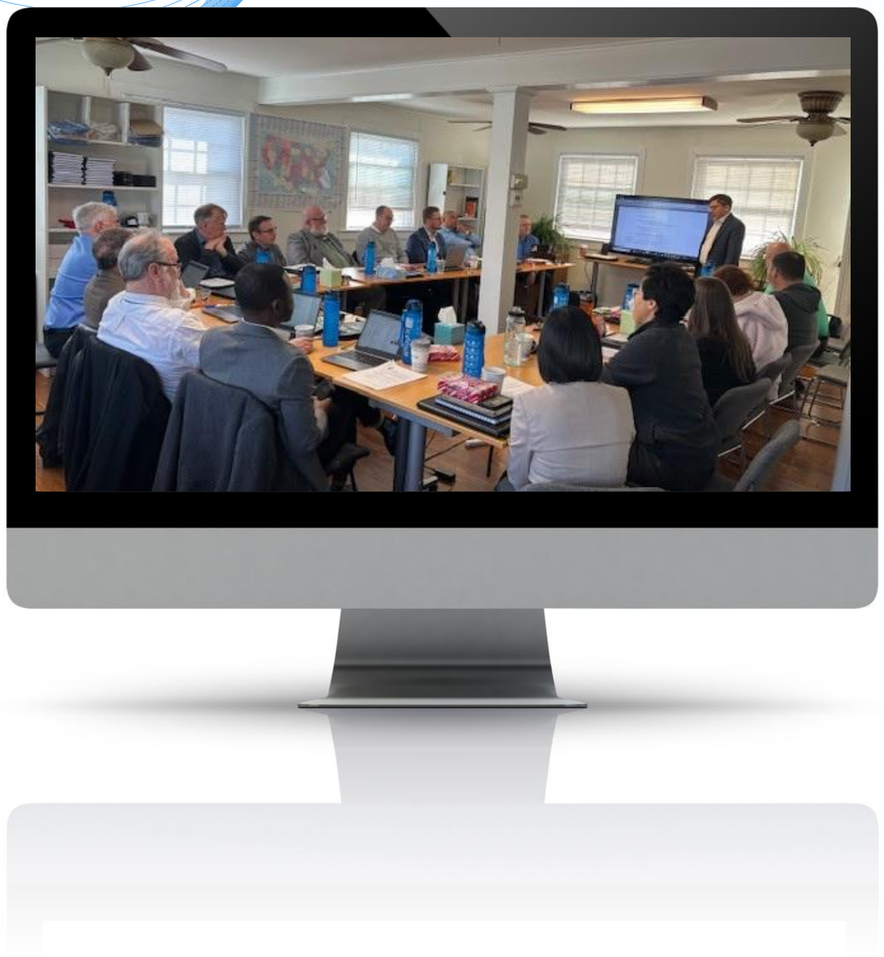
CONSTRUCTION SPECIFICATION WRITING STUDY SESSION

Presented by:

Conspectus, Inc.



WHO IS CONSPECTUS?

Conspectus, Inc. is a national specification consultancy, employing 16 specifiers, providing high quality, industry-leading specifications and related consulting services on thousands of projects for some of the most prestigious design and engineering firms, government agencies, and private entities domestically and internationally.

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CONSTRUCTION SPECIFICATION WRITING

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KNOWLEDGE AREAS

Domains:

1	~~9/11~~	~~Planning, Development & Organization~~
4	~~9/18~~	~~Research~~
2	~~09/25~~	~~Coordination~~
6	~~10/02~~	~~Production, Part 1~~
6	~~10/09~~	~~Production, Part 2~~
5	**10/23**	**Analysis and Evaluation**
3	10/30	Procurement

ITEMS TO NOTE

GENERAL FYI

- No CDT ® certification - highly advisable to **also read Project Delivery Practice Guide (PDPG).**
- Yes CDT ® certification - brush up on the PDPG.
- Exam is based on CSI® **Construction Specifications Practice Guide (CSPG)** content, and may not always reflect the real world; we will note items which may not align.
- Those who wrote the CSPG are not the same as the exam writers; study guides have divided the source material - **read the entire book.**
- We encourage interaction in the chat and will also provide time for Q&A at the end of each session.

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AIA continuing education Learning Units earned upon completion of this course will be reported to AIA CES for AIA members. Certificates of Completion for both AIA members and non-AIA members are available upon request.

Construction Specification Writing Session 6:

Analysis & Evaluation

AIA LO1

Analyze drawings for systems, assemblies, and materials. Evaluate proposed items to verify compliance with design intent, code, sustainability, and other project requirements.

AIA LO2

Evaluate products and systems for constructability and sequencing in project locale and verify proposed construction will meet warranty requirements. Review and incorporate results of value engineering decisions.

AIA LO3

Assess environmental conditions and interior uses for impact on materials, installation methods, maintenance, and life cycles.

AIA LO4

Obtain, evaluate, and review reference standards and information from technical and professional societies; verify appropriateness and necessary options to select.

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DOMAIN 5:
ANALYSIS & EVALUATION

COMPETENCIES

Per CSI Website:

5.1 Evaluate the acceptability of substitution request submittal.

5.2 Align the specifications to project delivery method and schedule.

5.3 Evaluate systems, assemblies, and materials being proposed for the project.

5.4 Verify that systems, assemblies, and materials meet project requirements.

5.5 Analyze drawings for systems, assemblies, materials, and potential constructability or quality issues.

5.6 Evaluate systems, assemblies, and materials for compliance with code and regulatory requirements.

5.7 Evaluate systems, assemblies, and materials for constructability and sequencing.

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DOMAIN 5:
ANALYSIS & EVALUATION

COMPETENCIES

Per CSI Website:

5.8 Evaluate and select products for compliance with design intent (e.g., value, quality, aesthetics).

5.9 Obtain and evaluate applicable standards and information from technical and trade organizations (e.g., ASTM, AWWA).

5.10 Verify that reference standards retained in project specifications are current and applicable to project.

5.11 Evaluate and incorporate results of value engineering decisions as applicable.

5.12 Verify proposed construction meets the manufacturer's warranty requirements.

5.13 Understand Basis of Design and evaluate salient requirements of Basis of Design products to allow for comparison of equivalent products.

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DOMAIN 5:
ANALYSIS & EVALUATION

COMPETENCIES

Per Study Workbook:

5A Align the specifications to project delivery method and schedule.

5B Evaluate systems, assemblies, and materials being proposed for the project.

5C Verify that systems, assemblies, and materials meet project requirements.

5D Analyze drawings for systems, assemblies, and materials.

5E Evaluate products for code requirements.

5F Assess interior climate conditions for impact on materials and methods (e.g., pool, sauna, clean room).

5G Assess environmental conditions for impact on materials and methods (e.g., weather, humidity, seismic).

5H Evaluate products and systems for constructability and sequencing in project locale.

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DOMAIN 5:
ANALYSIS & EVALUATION

COMPETENCIES

Per Study Workbook:

5I Evaluate and select products for compliance with design intent (e.g., cost, quality, aesthetics).

5J Obtain and evaluate standards and information from technical and professional societies.

5K Review reference standards for appropriateness (e.g., ASTM, AWWA).

5L Verify that necessary reference standards options have been selected.

5M Review and incorporate results of value engineering decisions.

5N Verify proposed construction meets the manufacturer's warranty requirements.

ANALYSIS & EVALUATION

“The specification details allow the specifier to evaluate and select products according to the project’s design intent. The specifier analyzes the products, especially for complex equipment and new technologies, to ensure they are appropriate for the project.”

-CSPG

ANALYSIS & EVALUATION

COMPETENCY 5A

LEARNING OBJECTIVES

LO1 Identify variations that occur in the construction documents based on the project delivery method being used.

Align the specifications to project delivery method and schedule.

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Variations for Design-Bid-Build

Document Variations for D-B-B method via procurement:

- Competitive bid.
- Competitive proposal - additional docs submitted compared to bid.
- Negotiation - during DD leading to GMP.
- Project Manual Variation: Arch is not sole decision maker.

Division 00 Variations from D-B-B:

- Proposal forms and docs instead of bid forms and docs.
- Separate MF titles for proposal process.
- AE may not prepare docs but should coordinate with Division 01.
- Monitor Conditions for changes as contract is negotiated.
- Review non-industry standard Conditions for impact on Division 01.

Division 01 & Tech Specs Variations from D-B-B:

- Bespoke agreements and conditions of contract will have an impact.
- Little to no impact on tech specs.

Variations for Construction Manager at Risk

Document Variations for CMAR:

- CM prepares procurement docs.
- AE not sole decision maker for project manual.
- AE has little involvement in Division 00 and already set before project manual.
- May include multiple work packages. Div 01 may be its own package.
- Tech section detail may be impacted by CM.
- Conformed docs may be required after all packages are issued.

Variations for Construction Management as Advisor/Agent

Document Variations for CMa as advisor or agent:

- CM will prepare procurement docs.
- AE not sole decision maker for project manual.
- Info flow is always through CM.
- Procurement may occur while design is still underway.
- Conditions will require mutual responsibility among all prime contractors.
- Involve CM in Division 01 prep and coordination for multiple contracts.
- Assign Div 01 responsibilities to specific contractors.
- All work packages may be combined into one set of specs.

Variations for Integrated Project Delivery

Document Variations for IPD:

- Agreements:
  - Tripartite agreement.
  - Multi-party agreement.
  - Single purpose agreement IFOA.
- Collaborative process. AE not sole decision maker.
- Little AE involvement in Division 00.
- Division 01 to accommodate multiple packages.

Variations for Design-Build

Document Variations for Design-Build:

- OPR and RFP by owner.
- Specs and drawings by builder, usually not contract docs.
- Builder prepares procurement docs for subcontract bid or negotiation.
- Division 01 assign contract responsibilities.
- Tech section detail may be impacted by delivery method.

Variations for Owner-Build

Document Variations for Owner-Build:

- Use any delivery method.
- Project manual is similar to other methods.
- Division 00 can vary substantially.
- Coordinate Div 01 with agreement and conditions.

ANALYSIS & EVALUATION

COMPETENCY 5B

LEARNING OBJECTIVES

LO1 Summarize the primary goal of evaluating systems, assemblies, and materials.

LO2 Identify the primary project components against which systems, assemblies, and materials are evaluated.

Evaluate systems, assemblies, and materials being proposed for the project.

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Evaluation Goals

Besides the design intent, the proposed systems are evaluated against:

- Code Requirements.
- Climate Conditions.
- Constructability.
- Reference Standards.
- Quality.
- Cost.

Evaluating Primary Project Components

Systems, assemblies, and materials are evaluated with the following project components:

- Compliance with project requirements and design intent.
- Consistency with project drawings.
- Compliance with code requirements.
- Compatibility with desired constructability and construction sequence.

ANALYSIS & EVALUATION

COMPETENCY 5C

LEARNING OBJECTIVES

LO1 Summarize the typical series of activities required for thorough evaluation of systems, assemblies, and materials.

LO2 Evaluate product performance attributes.

LO3 Confirm selected products satisfy the project requirements.

Verify that systems, assemblies, and materials meet project requirements.

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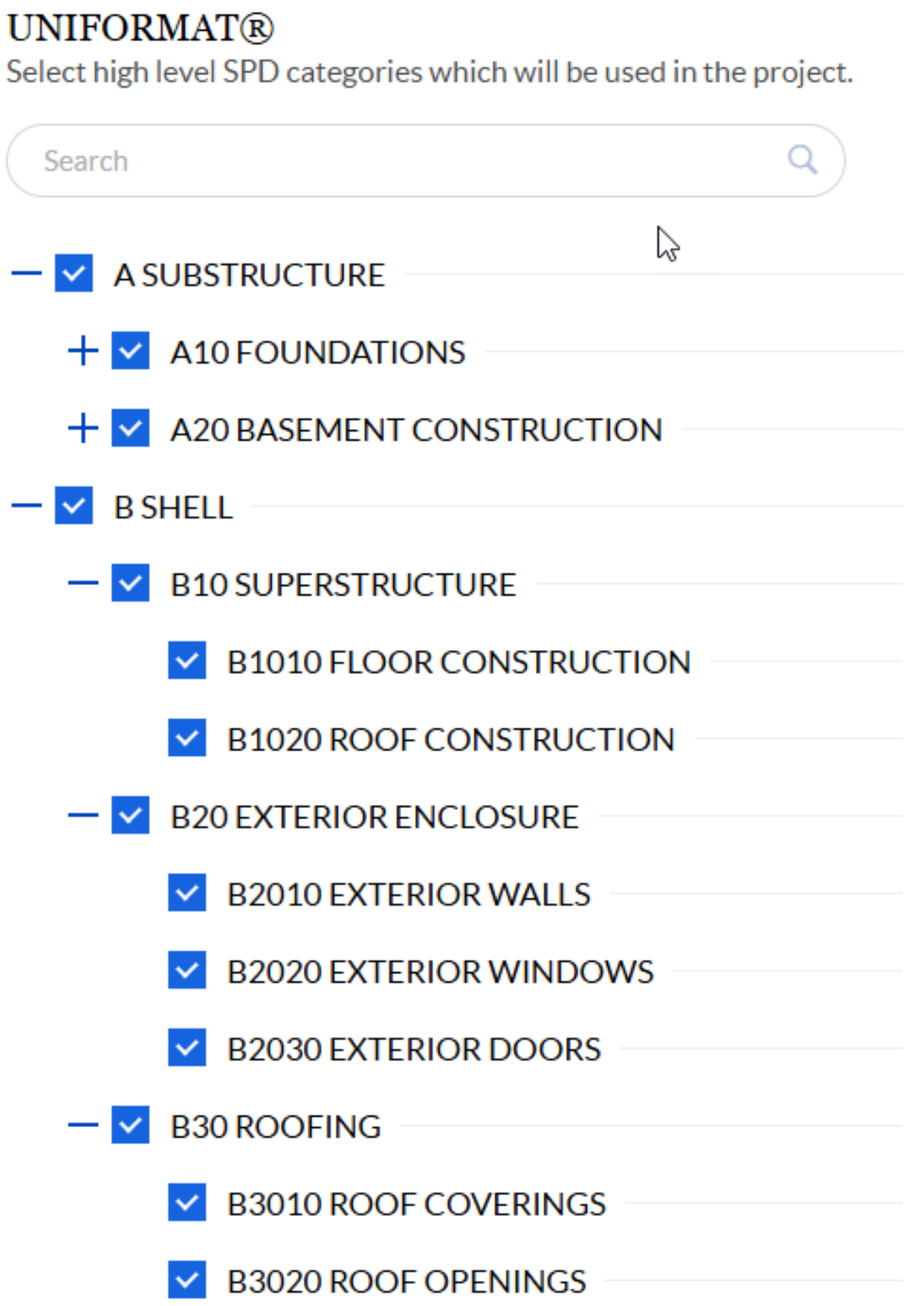
Evaluation Activities

- Evaluate major systems first.
- Then evaluate system components.
- Confirm products meet project requirements and design intent.



Think Checklist
Is it part of the project?

When should each system be decided?

What do you know about each system?

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Product Performance Attributes

- Check products for code compliance.
- Evaluate product data for performance compliance.
- Identify reference standards to specify performance.
- Evaluate performance with quality and budget.

Confirm Products Meets Project Requirements

- Start early – continuous and progressive throughout design
- Confirm products meet owner project requirements
- Identify attributes are required to meet design intent
- Evaluate product appropriateness
- Develop specifications AFTER confirming compliance

ANALYSIS & EVALUATION

COMPETENCY 5D

LEARNING OBJECTIVES

LO1 Review project drawings for information regarding systems, assemblies, and materials.

LO2 Coordinate product information between the drawings and the specifications.

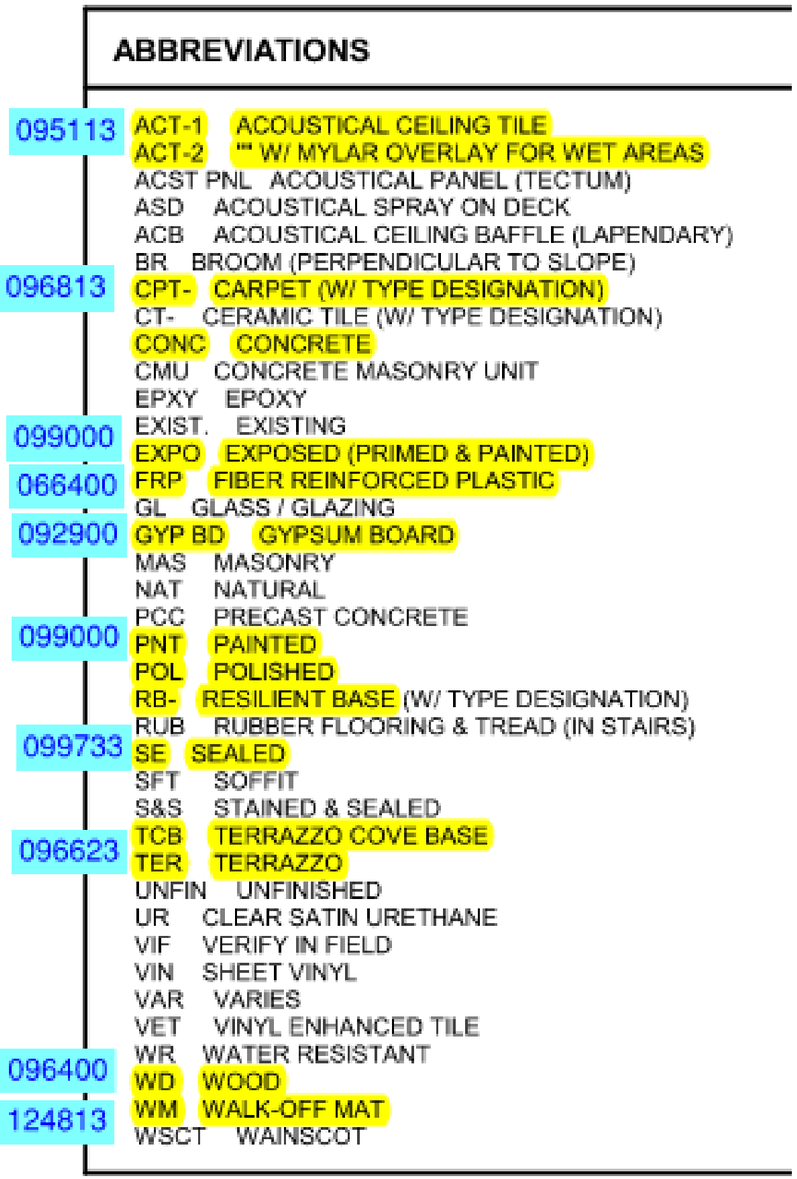
Analyze drawings for systems, assemblies, and materials.

Project Drawings

- Confirm systems and assemblies and materials are specified.
- Use generic notes on drawings - minimize change impact.
- Use generic material Type tags to label multiple types of same material.
- Do not use proprietary names on drawings.
- Do not define scope per trade or contractor.
- Show extent of alternates, phasing, limits or work.
- Possibly show scope for separate contracts.

Coordinate Product Information

- Coordinate installation methods and accessories.
- Coordinate terminology.
- Avoid generic reference to spec or see spec.



ABBREVIATIONS

095113 ACT-1 ACOUSTICAL CEILING TILE
ACT-2 "" W/ MYLAR OVERLAY FOR WET AREAS
ACST PNL ACOUSTICAL PANEL (TECTUM)
ASD ACOUSTICAL SPRAY ON DECK
ACB ACOUSTICAL CEILING BAFFLE (LAPENDARY)
BR BROOM (PERPENDICULAR TO SLOPE)
096813 CPT- CARPET (W/ TYPE DESIGNATION)
CT- CERAMIC TILE (W/ TYPE DESIGNATION)
CONC CONCRETE
CMU CONCRETE MASONRY UNIT
EPXY EPOXY
099000 EXIST. EXISTING
EXPO EXPOSED (PRIMED & PAINTED)
066400 FRP FIBER REINFORCED PLASTIC
GL GLASS / GLAZING
092900 GYP BD GYPSUM BOARD
MAS MASONRY
NAT NATURAL
PCC PRECAST CONCRETE
099000 PNT PAINTED
POL POLISHED
RB- RESILIENT BASE (W/ TYPE DESIGNATION)
RUB RUBBER FLOORING & TREAD (IN STAIRS)
099733 SE SEALED
SFT SOFFIT
S&S STAINED & SEALED
096623 TCB TERRAZZO COVE BASE
TER TERRAZZO
UNFIN UNFINISHED
UR CLEAR SATIN URETHANE
VIF VERIFY IN FIELD
VIN SHEET VINYL
VAR VARIES
VET VINYL ENHANCED TILE
WR WATER RESISTANT
096400 WD WOOD
124813 WM WALK-OFF MAT
WSCT WAINSCOT

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Spec Checklist

SECTION	SECTION TITLE	AUTHOR	DD DRAFT YYYY-MM-	DD FINAL YYYY-MM-	SECTION WORK RESULTS	BOD MANUFACTURER/PRODUCT	COMMENTS
					partition bullnose outside corners A&T1		
096400	WOOD FLOORING	Conspectus	Drafted		Added 2020-10-02 bamboo plywood flooring at tiered seating with wood furring 2/A602 Solid bamboo treads and risers and edging at tiered seating		2020-10-02 Confirm manufacturer and product will be scheduled on drawings 2020-10-02 is bamboo flat grain or edge grain? 2020-10-02 Is wood furring acting as sleepers to support finish floor above concrete. Must furring be preservative treated for direct contact with concrete? 2020-10-02 Is the furring space ventilated or filled with non combustible material such as perlite? 2020-10-02 Is a vapor retarder required over the concrete substrate to protect the wood flooring?

SECTION 084500

TRANSLUCENT WALL AND ROOF ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

A. Work Results:
   1. Translucent canopies at exterior corridors.
   2. Translucent windows at gym.

B. Principal Products:

ANALYSIS & EVALUATION

COMPETENCY 5E

LEARNING OBJECTIVES

LO1 Identify common codes that govern construction projects.

LO2 Analyze products for compliance with applicable codes.

Evaluate products for code requirements.

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Common Codes

Regulatory requirements influence product selection by introducing codes and standards that have a direct influence on product selection.

- Eliminate products that create unreasonably hazardous or dangerous conditions.

Product Code Compliance

The Owner and A/E rely on compliance with code requirements to ensure a product is suitable for the project.

- Important to know:
  - Which aspects of the product are covered in the code compliance evaluation.
  - Which standard is referenced in the specifications.

ANALYSIS & EVALUATION

COMPETENCY 5F

LEARNING OBJECTIVES

LO1 Identify common components to evaluate when assessing interior conditions.

LO2 Evaluate material durability within the project's interior conditions.

Assess interior climate conditions for impact on materials and methods (e.g., pool, sauna, clean room).

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Common Interior Evaluations

Components to evaluate when selecting products for interior conditions:

- Quality of the building air.
- Heating.
- Ventilation.
- Lighting.
- Noise.

Material Durability

A/Es should evaluate material durability within the project's interior conditions.

- Prevent materials and products from needing to be replaced too often and becoming costly maintenance items.
- Products could deteriorate and reduce the useful life of the building.
- Products should improve a building's energy efficiency by efficiently reducing the energy needed for heating, lighting, and equipment operation.

ANALYSIS & EVALUATION

COMPETENCY 5G

LEARNING OBJECTIVES

LO1 Identify common components to evaluate when assessing exterior conditions.

LO2 Evaluate material suitability for the project site based on exterior conditions.

Assess environmental conditions for impact on materials and methods (e.g., weather, humidity, seismic).

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Common Exterior Evaluations

Evaluate the impacts of the environmental conditions on the products.

- Frequent wet weather events or intense storms.
- Milder climate with high humidity fluctuations.
- High groundwater levels.
- Proximity to water bodies.
- Risk of storm surges.

Material Suitability

Take local environmental conditions into consideration to maintain reliable operation.

- Be compatible with specific regional and local cultural and aesthetic conditions.

ANALYSIS & EVALUATION

COMPETENCY 5H

LEARNING OBJECTIVES

LO1 Recommend product or design modifications based on results from a constructability review.

LO2 Determine whether a product will meet the construction sequence requirements.

Evaluate products and systems for constructability and sequencing in project locale.

Constructability Review

The constructability evaluation must develop a set of dates and milestones for input to the sequence evaluation.

- Utilize the overall project schedule and a list of major equipment.

Construction Sequence Requirements

Product procurement dates and supplier delivery requirements must be evaluated to confirm that the proposed construction sequence requirements are met.

- A/E should also evaluate system commissioning and start-up requirements.
- A/E establishes that the overall project schedule will integrate commissioning and start-up sequencing with design and construction sequencing.

ANALYSIS & EVALUATION
COMPETENCY 5I

LEARNING OBJECTIVES

LO1 Compare product data to determine compliance with project cost, quality, and aesthetic requirements.

Evaluate and select products for compliance with design intent (e.g., cost, quality, aesthetics).

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Product Data Compliance

The product evaluation begins during the schematic design phase.

- Owner sets the requirements that influence product selection decisions.
- A/E evaluates products for compliance with the owner's project requirements.
  - Multi-phased evaluations throughout the design phase.
  - Detailed product information is collected and reviewed.
- A/E develops the specifications and drawings for the selected products.

ANALYSIS & EVALUATION

COMPETENCY 5J

LEARNING OBJECTIVES

LO1 Identify common types of reference standards published by technical and professional societies.

LO2 Incorporate reference standards into specifications.

Obtain and evaluate standards and information from technical and professional societies.

Common Reference Standards

Reference standards include the following types:

- Basic material.
- Product.
- Design.
- Workmanship.
- Test method.
- Codes.
- Installation.
- Performance.
- Life safety.

Incorporating Reference Standards

Reference standards are incorporated into the specifications by referring to a number, title, or other designation.

Some liabilities:

- Inadequate reference standards coexist with stringent ones.
- Can create duplication and contradiction within the contract documents.
- Contain embedded options.
- Standards generally refer to minimum requirements.
- Might contain undesired requirements.
- Various AHJs may enforce different editions of the same standard.

ANALYSIS & EVALUATION

COMPETENCY 5K

LEARNING OBJECTIVES

LO1 Determine whether to define exceptions to reference standards or write original requirements into the specifications when the project requirements are incompatible with a standard.

Review reference standards for appropriateness (e.g., ASTM, AWWA).

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Know the Standard

Project requirements must be compatible with the reference standard.

- Standards should be free of duplications and contradictions.
- A/E needs to identify the duplications and ensure the specifications modify the references to eliminate contradictions.
- Do not rely on the statement where there is “a conflict or discrepancy between a reference standard and the specifications or another referenced standard, the more stringent requirements shall apply.”

ANALYSIS & EVALUATION

COMPETENCY 5L

LEARNING OBJECTIVES

LO1 Choose appropriate properties for reference standards that contain embedded options.

Verify that necessary reference standards options have been selected.

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Embedded Options

Embedded options constitute choices that must be identified and modified to prevent discrepancies.

- A/E should evaluate each choice.
- If not specified, the selection is forfeited to the contractor.

ANALYSIS & EVALUATION

COMPETENCY 5M

LEARNING OBJECTIVES

LO1 Outline common considerations of the value analysis process.

LO2 Determine whether value analysis evaluation criteria or decisions need to be adjusted.

Review and incorporate results of value engineering decisions.

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Common Considerations

Value analysis identifies areas of potential cost savings and benefits for the consideration and evaluation by the project team.

- Project information considerations:
  - Quality.
  - Performance.
  - Budget.
  - Schedule of the products.

Determine Adjustments

Factors that vary with each project:

- Budget requirements and maintenance costs.
- Product review time.
- Product delivery time and availability.

ANALYSIS & EVALUATION

COMPETENCY 5N

LEARNING OBJECTIVES

LO1 Define the two basic types of warranties used in construction projects.

LO2 Summarize the purpose of construction warranties.

LO3 Identify common exclusions and limitations of warranties.

LO4 Compare manufacturer warranties to select appropriate products or systems.

Verify proposed construction meets the manufacturer's warranty requirements.

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Basic Types of Warranties

Two basic types of warranties used in construction projects:

- Construction warranties or guaranties, which cover products and workmanship.
- Warranties that cover products only.

Purpose of Construction Warranties

Construction warranties are usually required for the following reasons:

- Protect the owner against faults, defects, or failures.
- Provide a remedy to the owner for non-conformance.
- Give the owner recourse against additional parties.
- Extend the manufacturer's responsibility beyond the end of the correction period.
- Allow a remedy beyond the normal statute of limitations.

Common Exclusions and Limitations

Consider the following exclusions and limitations:

- Language making warranty the exclusive remedy.
- Clauses limiting scope of coverage to materials only.
- Clauses limiting assignability of warranty.
- Requirement stating that owner must sign warranty document.
- Warranties containing a deductible.
- Clauses limiting the time the owner has to take legal action.
- Requirement allowing warrantor to recover legal costs.
- Unfair dispute resolution procedures.
- Clauses that exclude installation of replacement product.

Manufacturer Warranties

Many manufacturers' warranties take away consumer protections customarily included in the Uniform Commercial Code, including implied warranty of merchantability or fitness for a particular purpose.

- May restrict repairs of failures only up to the original installation cost, not replacement costs.
- Little benefit if nothing is covered.
- Compare the clauses and conditions of several warranties and identify those that could cause problems if the need to file a claim arises.
- Examine a manufacturer's ability and willingness to honor its warranties.
- Company business experience.
- Sometimes the warranty provider is a broker, not the manufacturer.

DOMAIN 5:
ANALYSIS & EVALUATION

COMPETENCIES

5.1 Evaluate the acceptability of substitution request submittal.

5.2 Align the specifications to project delivery method and schedule.

5.3 Evaluate systems, assemblies, and materials being proposed for the project.

5.4 Verify that systems, assemblies, and materials meet project requirements.

5.5 Analyze drawings for systems, assemblies, materials, and potential constructability or quality issues.

5.6 Evaluate systems, assemblies, and materials for compliance with code and regulatory requirements.

5.7 Evaluate systems, assemblies, and materials for constructability and sequencing.

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DOMAIN 5:
ANALYSIS & EVALUATION

COMPETENCIES

5.8 Evaluate and select products for compliance with design intent (e.g., value, quality, aesthetics).

5.9 Obtain and evaluate applicable standards and information from technical and trade organizations (e.g., ASTM, AWWA).

5.10 Verify that reference standards retained in project specifications are current and applicable to project.

5.11 Evaluate and incorporate results of value engineering decisions as applicable.

5.12 Verify proposed construction meets the manufacturer's warranty requirements.

5.13 Understand Basis of Design and evaluate salient requirements of Basis of Design products to allow for comparison of equivalent products.

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QUESTIONS?

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THANKYOU