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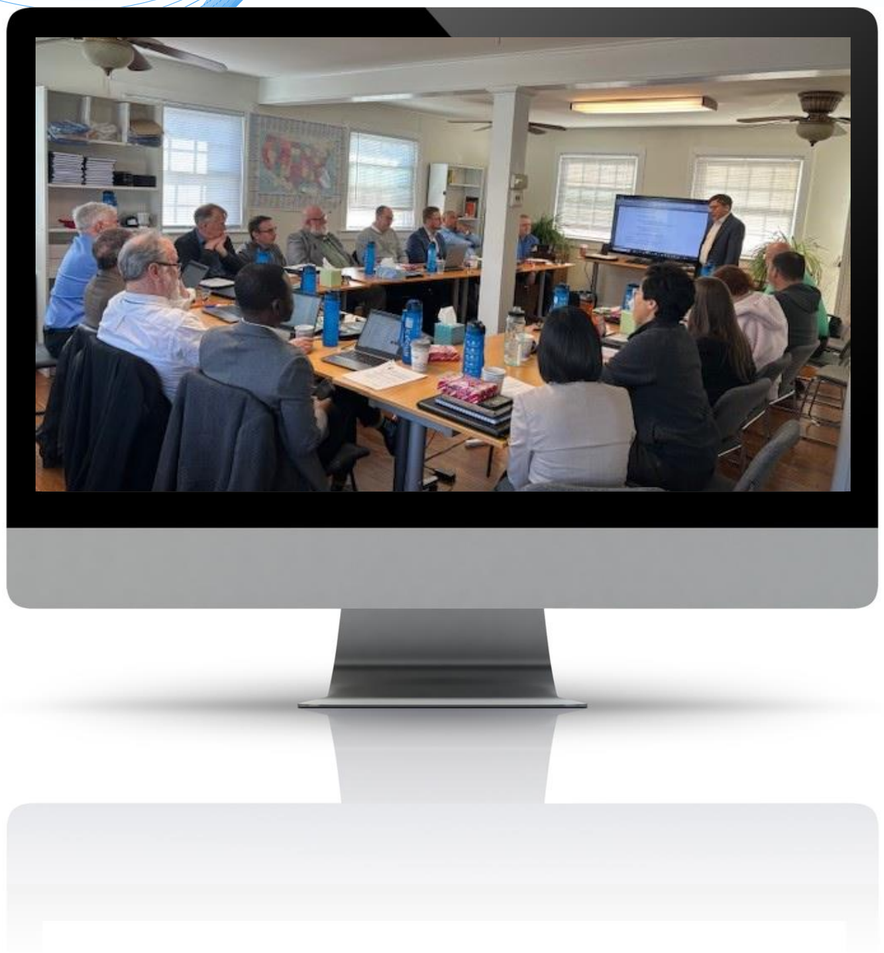
CONSTRUCTION SPECIFICATION WRITING STUDY SESSION

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.

INSTRUCTORS

Melody Fontenot, CCS®
Senior Specifier
Portland, OR

Chris Ricke, CCS®
Senior Specifier
Topeka, KS

Steve Gantner, CCS®
Senior Specifier, EVP
St. Louis, MO

David Stutzman, CCS®
Senior Specifier, President
Tuckahoe, NJ

CONTENT SUPPORT

Terumi Woods, CCS®
Specifier
San Francisco, CA

Hana Nguyenky, CCS®
Specifier
Charlottesville, VA

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KNOWLEDGE AREAS

Domains:

1	9/12	Planning, Development & Organization
4	9/19	Research
2	09/26	Coordination
6	10/03	Production, Part 1
6	10/10	Production, Part 2
3	10/24	Procurement
5	10/31	Analysis

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 Practic 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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Construction Specification Writing Session 1:

Planning, Development, and Organization

AIA LO1

Evaluate the scope of a project to identify anticipated specification sections needed to convey the design quality clearly. Well-coordinated contract documents are key to better project results, directly benefiting the end users.

AIA LO2

Coordinate between all disciplines and contract parties to reduce omissions, conflicts, and errors. Learn to manage the project specification production schedule and format for a complete project manual.

AIA LO3

Develop and maintain research files of assemblies, systems, products, and materials proposed for a project. This can serve as a record of due diligence, verifying the design meets the necessary guidelines for optimal health, safety and welfare of building occupants.

AIA LO4

Maintain and develop office master guide specifications, incorporating lessons learned to improve the quality of future project outcomes.

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DOMAIN 1:

PLANNING, DEVELOPMENT, AND ORGANIZATION

COMPETENCIES

1A Evaluate scope of project and identify anticipated specifications

1B Manage the specifications production schedule (e.g. format, timing)

1C Develop and maintain project files (a.k.a. project notebook) of systems, products, and materials proposed for Work on the Project

1D Maintain version control of specifications

1E Develop and maintain office master guide specifications

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CDT® and PDPG REFRESHER

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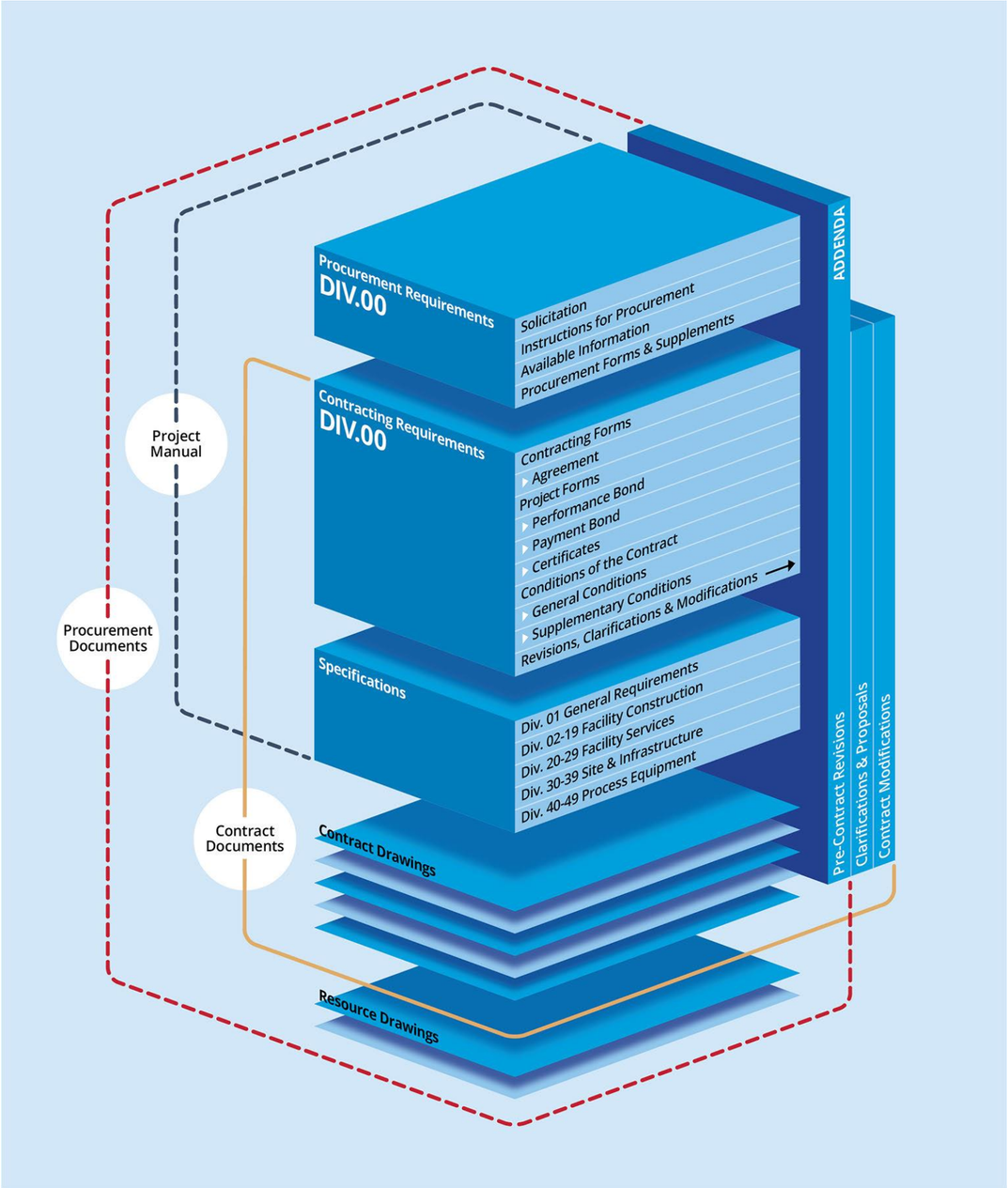
PLANNING, DEVELOPMENT, AND ORGANIZATION

- Get to know the project scope
- Ask questions
- Suggest alternatives
- Review proposed design solutions
- Determine spec method and format

Goal: Communicate the project requirements to those that **bid/propose, permit, and construct** the project.



PROJECT MANUAL

Understand the distinction between:

- Project Manual.
- Contract Documents.
- Procurement Requirements.

Tip: Blank version provided in the study workbook- fill it out!

PLANNING, DEVELOPMENT, AND ORGANIZATION
COMPETENCY 1A

LEARNING OBJECTIVES

LO1 Choose which form of specification is appropriate based on project requirements and complexity.

Evaluate scope of project and identify anticipated specifications.

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Types of Specifications

Review early design documents and meet with the Design Team to discuss project complexity and requirements that might dictate the specifying method to be used.

- Performance Specifications.
- Outline.
- Shortform.
- Full-length.

Work limited to the delivery of goods - no construction or installation involved:

- Purchasing Specifying.
- Purchasing Contracts.

Table of Specification Types

Type of Specification	DESIGN AND CONSTRUCTION DOCUMENT PHASES: Design Concept	Schematic Design	Design Development	Construction Documents
Narrative	✓	✓		
Preliminary Project Descriptions		✓		
Outline			✓[1]	
Sheet			✓[1]	✓[2]
Shortform			✓[1]	✓[3]
Full-Length			✓	✓

1 Any of these three types of specifications can be used for design development documentation based on the architect/engineers or specifiers preference, or based on the level of detail of the design development drawings.
2 For very small projects.
3 For small to medium sized projects.

Contract Types and Project Delivery Methods

The typical project delivery methods are as follows:

- Design-Bid-Build (D-B-B).
- Construction Manager at Risk (CMAR).
- Integrated Project Delivery (IPD).
- Design-Build (D-B).
- Owner-Build (O-B).

Type of contractual arrangement:

- Single-prime Contract.
- Multiple-prime Contract.

PLANNING, DEVELOPMENT, AND ORGANIZATION
COMPETENCY 1B

LEARNING OBJECTIVES

LO1 Coordinate the specification production schedule with key stakeholders.

Manage the spec production schedule (format, timing).

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Reviewing the Project Schedule

Include time to review comments received after each design submittal, from Owner/reviewing authority.

Section 01 32 00—Construction Progress Documentation:

- Gantt Method (Bar Chart).
- Critical Path Method (CPM).
- Identify long lead times (if possible).

Coordinating with Design Consultants:

- Aware of production schedule, including delivery dates for each spec release.

TIPS!

Be clear on format requirements in advance to avoid added work.

Request files in advance of deadline to allow time to compile.

Open files as soon as received to confirm format.

PLANNING, DEVELOPMENT, AND ORGANIZATION
COMPETENCY 1C

LEARNING OBJECTIVES

LO1 Identify methods for assembling and recording project information.

LO2 Develop a process for documenting questions, substitutions requests, and changes during the procurement phase.

**Develop and maintain project files –
systems, products, and materials proposed for Project.**

Reviewing Project Requirements

Review Project requirements for the Work covered in each Specification Section:

- Preliminary Project Descriptions (PPD).
- Outline Specifications.
- Drawings.
- Local Conditions.
- Governing Codes.

Producing a Project Manual

Preparing project manuals varies by firm-often includes the following tasks:

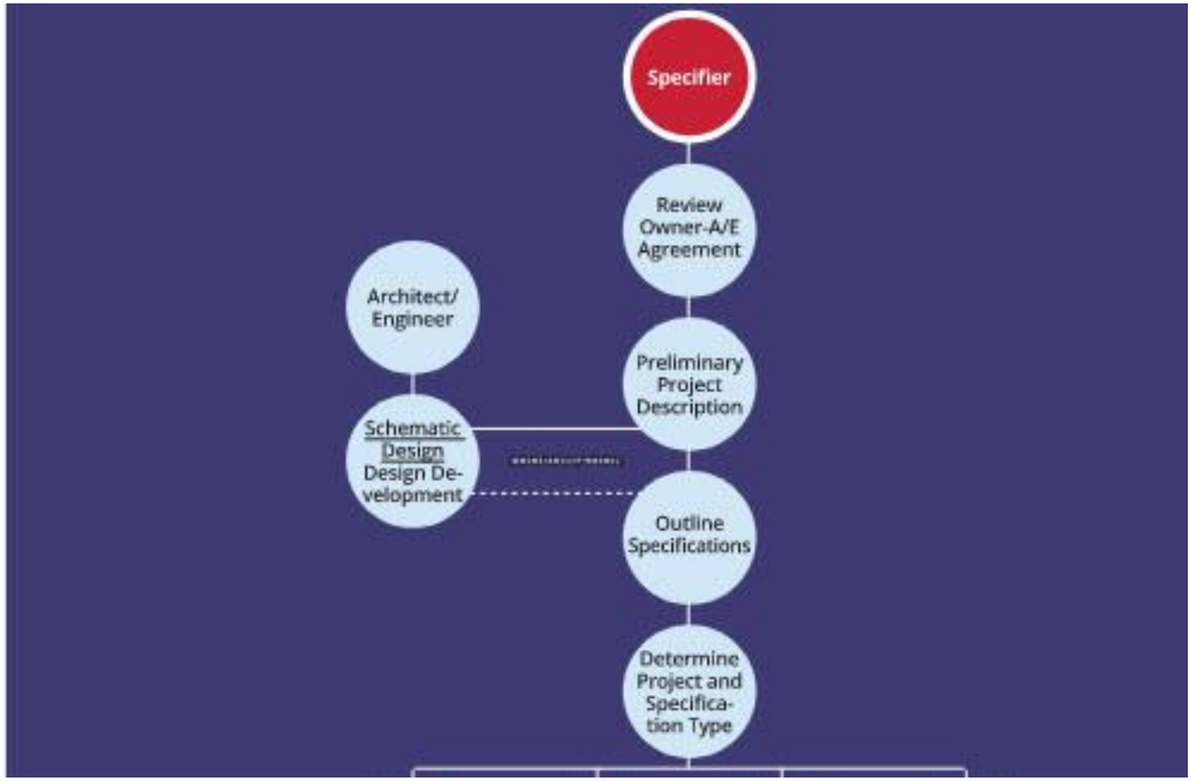
- Establish the format to be used for the specifications and coordinate with consultants
- Review the Owner-A/E Agreement
- Understand the type of construction contract, insurance and bond requirements
- Review the Owner-Contractor Agreement (if available)
- Review the General Conditions of the Contract for Construction (if available)
- Review supplementary conditions (if available)
- Prepare draft sections in Division 01—General Requirements
- Send the proposed Division 01 sections to Owner and consultants for review

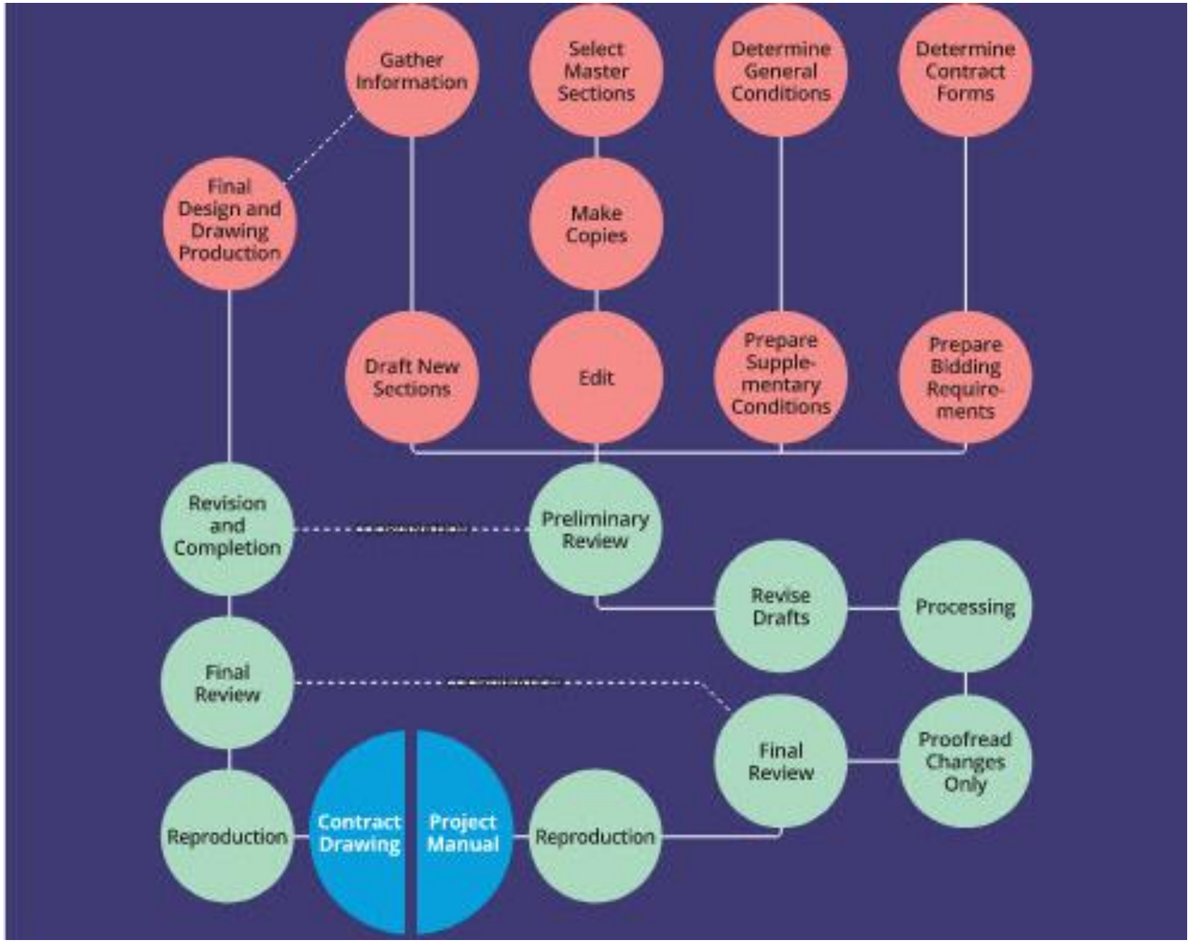
Producing a Project Manual

Preparing project manuals varies by firm-often includes the following tasks:

- Prepare drafts of technical specifications in Divisions 02 through 49.
- Make decisions about the quality of materials and equipment to be installed and the workmanship requirements.
- Review the drawings and specifications together to eliminate conflicts in terminology.
- Revise the specifications based on final review comments received and decisions made.
- Receive the final specifications prepared by consultants.
- Compile and reproduce the project manual for distribution.

Project Manual Development





CSPG REF: Figure 1.1

Assembling and Recording Information

There are no set rules for assembling and recording product installation and workmanship characteristics.
Common approaches include:

- Compiled project notes.
- Communication log of all emails from the Project A/E to the specifier.
- Project notebook of folders organized by MasterFormat® divisions.
- Checklists.

Tracking Questions, Substitutions, and Related Items During Procurement

The A/E has many organizational tools and processes for handling these necessary revisions, clarifications, and modifications.

- Email is the most widely used form of written communication.
- CSI® Form 7.0A “Communication Record” and CSI® Form 7.0B “Communication Log.”
- Firm specific forms.
- Online collaboration and project management applications.

Responses should be issued in written form, such as an addendum during the procurement phase.

PLANNING, DEVELOPMENT, AND ORGANIZATION

COMPETENCY 1D

LEARNING OBJECTIVES

LO1 Recognize common types of project manual modifications.

LO2 Interpret common revision identifiers in specifications.

LO3 Differentiate between the narrative and revised-page methods for issuing revisions.

Maintain version control of specifications.

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Project Manual Modifications

Modification types include the following:

- Addenda.
- Substitution Requests.
  - See Division 01 – General Requirements for processing of substitution requests.
  - See CSI® Form 1.5C “Substitution Request (During the Bidding/Negotiating Phase),” CSI® Form 13.1A “Substitution Request (After the Bidding/Negotiation Phase),” and CSI® Form 13.1B “Substitution Request Log.”
- Contract Modifications.
  - See Division 01 – General Requirements for contract modification procedures.
- Requests For Information (RFI).
  - See CSI® Form 13.2A “Request for Information.”

Project Manual Revisions

Common methods of documenting revisions are as follows:

- Revision Numbers.
- Delta Symbols.
- Clouds.
- ~~Strikethrough~~, **bold**, underline, or *italic* text (or a combination of these).

Methods of Issuing Revisions

There are two basic methods for preparing written changes to procurement and contract documents.

- Narrative Method.
  - Brevity, clarity, and cross-references.
- Revised-Page Method.

Managing Version Control

In projects utilizing the fast-track scheduling technique, multiple work packages will be issued.

- A work package is defined by CSI®'s document "Multiple Work Package Projects" as: "a group of specifications, drawings, and schedules prepared by the design team to describe a portion of the work for pricing, permitting, and construction."

Managing Version Control

There are two approaches described in the “Multiple Work Package Projects” document for managing partial sets of Contract Documents:

- Standalone Method:
  - Each work package issued is a complete and separate package from all other work packages.
- Cumulative Method:
  - Subsequent work packages include revised drawings and specifications by adding to the Drawings and Specifications issued in previous work packages.

PLANNING, DEVELOPMENT, AND ORGANIZATION

COMPETENCY 1E

LEARNING OBJECTIVES

LO1 List common guide specification sources.

LO2 Outline the basic process for preparing a master guide specification section.

LO3 Recognize common strategies for updating master guide specification sections.

Develop and maintain office master guide specifications.

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Master Guide Specifications

For any given specification section, there are two basic methods of preparing text:

- Write the text from scratch.
- Edit prewritten text.

When using prewritten text, sources to draw from are:

- Commercial master guide specification services.
- Office master guide specifications or text.
- Manufacturer-furnished specifications.
- Previous project specifications.

Comparison of Available Guide Specifications

SOURCE	PROS	CONS
Commercial master guide specifications	Regularly updated	Contains far more information than project requires, making extensive editing necessary
Office master guide specifications	Contains vetted office knowledge	Can often become outdated if not vigilantly maintained
Manufacturer-furnished specifications	Product manufacturer's information is reliable	Proprietary language requires editing for competitively bid projects
Previous project specifications	For identical projects can be a time-saver	Very few projects are identical. Can be more time-consuming to edit out nonapplicable content.

CSPG REF: Table 1.1

Master Guide Specification Terminology

- Master Specifications: Documents used as guides for preparing project specifications.
- Guide Specifications: Used by the US Department of Defense (DOD) and HUD to refer to their specifications.
- Master Guide Specifications: Combination of master and guide specifications - prepared specification sections intended to be edited and used as project specifications.
- Office Master Specifications: An A/E’s master specification from commercial master guide specifications.

Master Guide Specifications Cont.

A master guide specification ideally would include the types of items typically utilized for most projects.

- Instructional notes may be included and should provide direction, guidance, and notice of required decisions.
- Paragraphs and articles that do not apply in word-processor-based master guide specifications are deleted unless the “track changes” feature is on.
- In database master guide specifications, paragraphs are never permanently deleted.
  - They are instead unselected in order to exclude the content from a specification section.

Master Guide Specifications Cont.

A complete master guide specification system should include the following:

- Master guide specification sections.
- Provisions for coordination of drawings and specifications.
- Checklist for each specification section, identifying principal decisions needed for an individual project.
- List of frequently specified products and additional required information.
- Information and evaluation about products, materials, systems, codes, and standards, utilized or referenced in the master guide specification section.

Master Guide Specifications Cont.

Reasons for developing and using a master guide specification or purchasing a commercially available system include the following:

- Easier updating and maintenance of specification data.
- Improved efficiency in specifying.
- Expanded decision-making capability.
- Reduced delays in project development.
- Minimized repetitive work.
- Reduced errors and omissions.
- Reduced exposure to liability.
- Use of the owner's guide specifications.
- Standardized office policies and procedures.
- Improved office practices.
- Electronic technology to enhance production and improve efficiency.
- Building Information Modeling (BIM).

Strategies for Office Master Guide Specifications

Office master specification text can be developed in two ways:

- By compiling and editing sections from previous project specifications and industry association guide specifications.
- By utilizing commercially available master guide specifications, edited to suit office practice.

Office Master List

Prepare a master list of section numbers and titles needed and a scope statement for each section. A comprehensive list:

- Facilitates coordination.
- Avoids duplication.
- Helps prevent the omission of required sections.
- Used as a checklist for project specifications.

Goal: 80%.

- Sections for normal project.
- Products required.

Office Master List Cont.

Office Master List should designate the following:

- The number and title assigned to each section, with gaps in the numbering of Level 3 and Level 4 sections to allow the addition of other sections that may be needed for a specific project.
- A brief description of the work included in each section and related work specified in other sections.
- The current status of the development of each section.
- The date of the initial preparation and the date of the latest revision of each section.
- The name of the individual responsible for preparing and updating each section.
- The order of priority for the completion of incomplete or unedited sections.

The following illustrates an example of Level 2-4 titles and numbers that fall under 07 50 00 - Membrane Roofing:

07 51 00 **Built-Up Bituminous Roofing** (Level 2)
07 51 13 Built-Up Asphalt Roofing (Level 3)
07 51 13.13 Cold-Applied Built-Up Asphalt Roofing (Level 4)

Office Master List Cont.

Suggestions for the scope of master sections include the following:

- A single section may be written covering the entire scope of a division.
- Separate sections for Level 2 titles listed in MasterFormat® can divide the extent into more manageable pieces.
- If a Level 2 section is too **broad** for general use, several Level 3 sections may be written.
- It may be useful to prepare both a Level 2 section and corresponding Level 3 sections for the same scope in some instances.
- Level 3 sections permit a detailed subdivision of the specifications, making a considerably more modular system.
- Level 4 sections may be used for particular work results that require specialized or unique requirements that a Level 3 section cannot provide.

Standard Formats and Language

A master section template is the easiest way to promote consistency from section to section.

- Templates should follow CSI's SectionFormat® and PageFormat® and contain the standard articles, paragraphs, and statements used most often.

Master Section Template

SECTION [NUMBER]
[SECTION TITLE]

****

SECTION INCLUDES [_____]

EDIT ENTIRE MASTER TO SUIT PROJECT EQUIREMENTS: MODIFY AS NECESSARY. DELETE ITEMS WHICH ARE NOT APPLICABLE.

♣ SYMBOL IN LEFT MARGIN INDICATES ACTION IS REQUIRED: EDIT/SELECT/ADD/DELETE TO SUIT PROJECT REQUIREMENTS. INFORMATION BETWEEN BRACKETS [ ] WILL BE DELETED AUTOMATICALLY UNLESS SPECIFIC INDICATION IS MADE TO RETAIN INFORMATION.

****

PART 1 - GENERAL

1.01 SUMMARY

♣ A. Section Includes: [_____]

****

EDIT PARAGRAPH BELOW TO SUIT PROJECT REQUIREMENTS: ADD SECTIONS AS APPLICABLE.

****

B. Related requirements:

♣ 1. Section [_____] - [_____]

♣ 2. Section [_____] - [_____]

****

RETAIN ARTICLE BELOW IF APPLICABLE.

****

♣ **[1.02 PRICE AND PAYMENT PROCEDURES**

1. Allowances: refer to Section 01 21 00 for allowances involving Work of this Section.]

****

ITEMS LISTED UNDER FOLLOWING ARTICLE HAVE BEEN USED WITHIN OTHER PORTIONS OF THIS SECTION. IF PARAGRAPHS CONTAINING THESE REFERENCES ARE DELETED IN PROCESS OF EDITING, DELETE ITEMS HERE ACCORDINGLY.

CSPG Fig. 1.2

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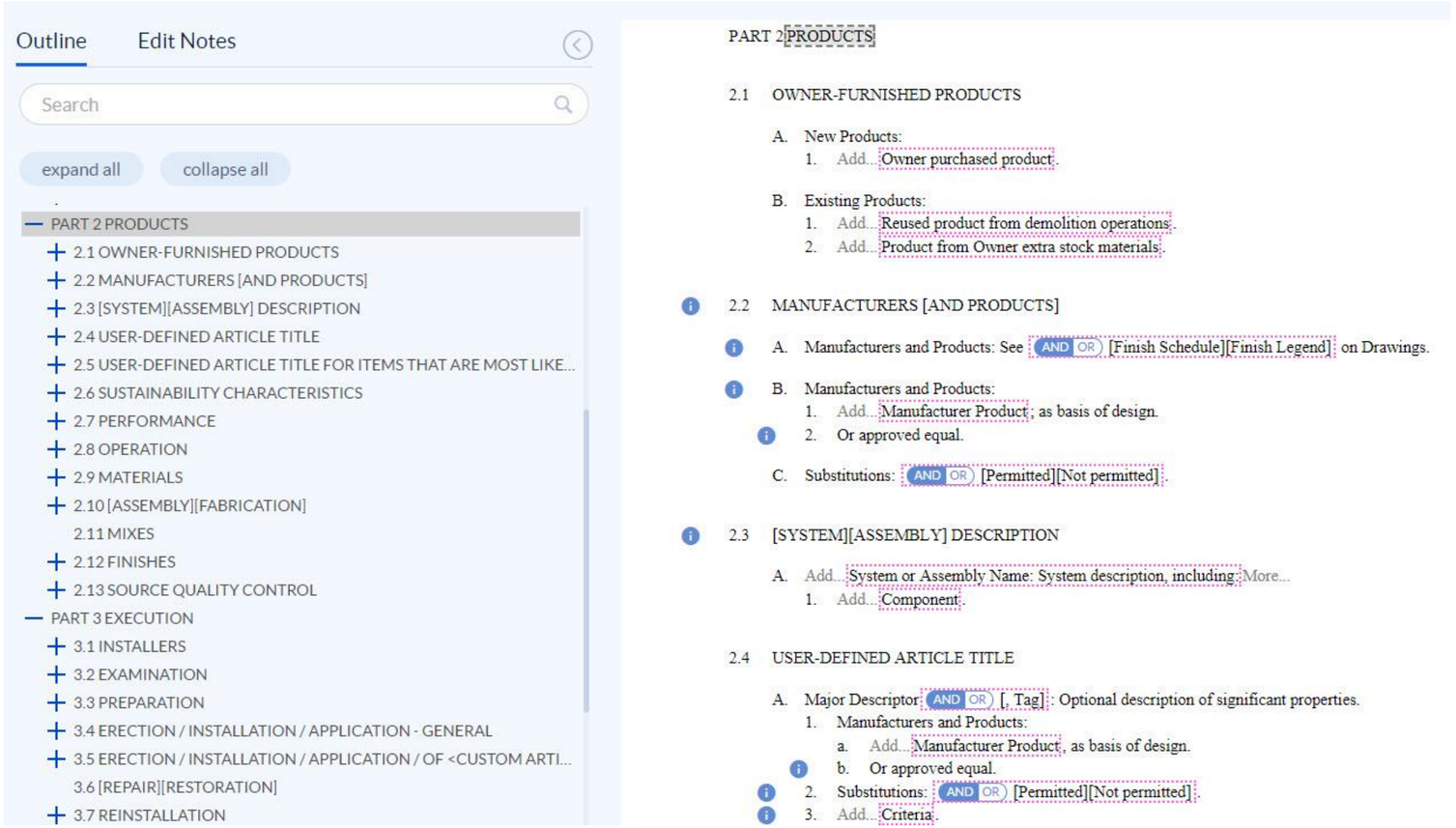
Master Section Template

Extremely broad, SectionFormat plus standardized format for often repeated text.



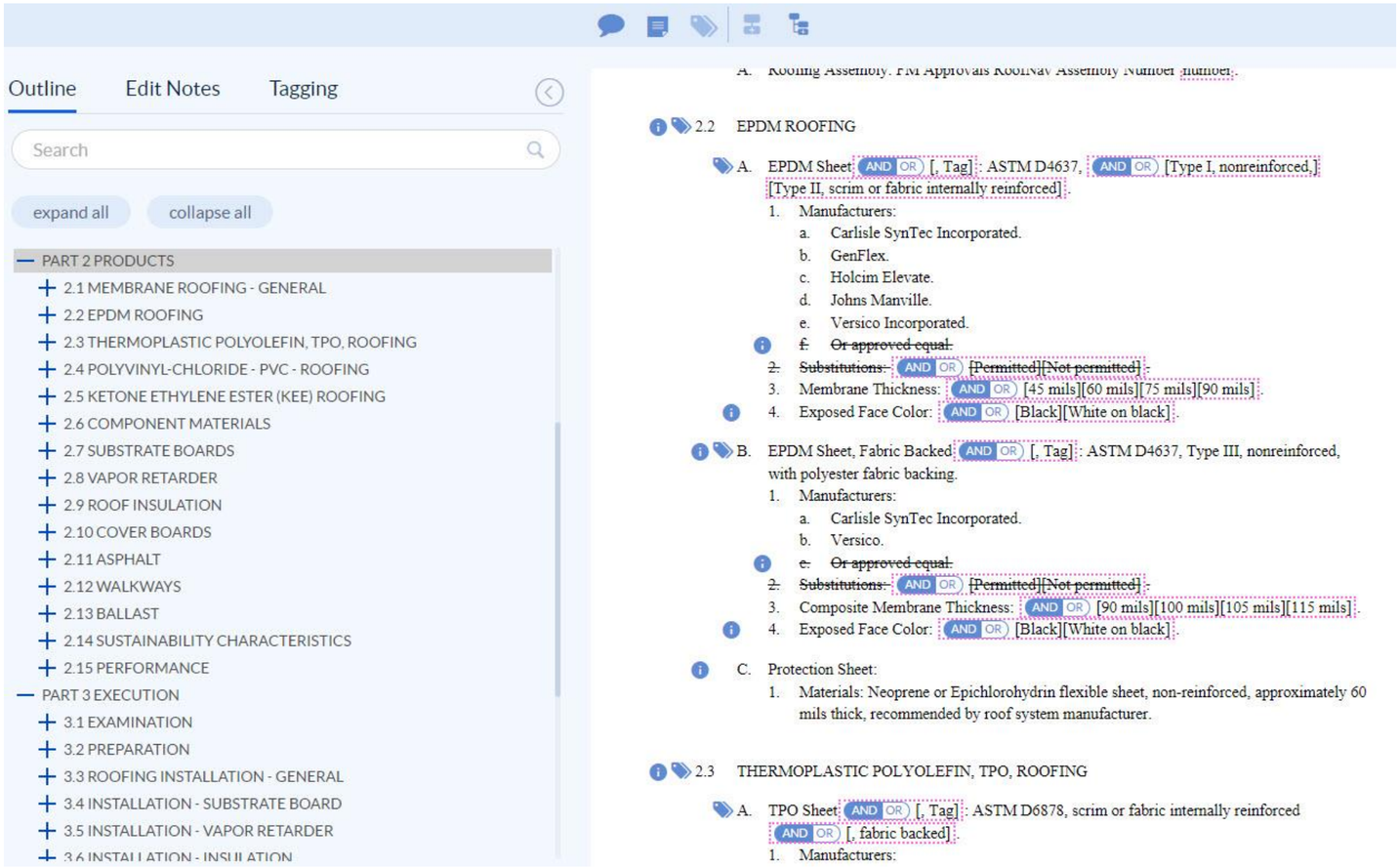
Preparing Master Guide Specification Sections

The basic steps in preparing a master guide specification sections:

1. Assemble and review resource material from available sources.
2. Determine the specification information necessary for the section.
3. Confirm the information designated for the individual section is appropriate and manageable.
4. Place information in the section per the three-part SectionFormat®.
5. Ensure each article in the three-part SectionFormat® is restricted to a single topic.
6. Arrange choices so decisions can be made logically with no time wasted in editing.
7. Determine the method of handling and identifying optional requirements for each choice.
8. Physically arrange the presentation of the specification text according to CSI's PageFormat®.
9. Include notes and instructions to assist the persons editing the section.

Commercial Master Guide Spec Section 075000

Started from the section template, content specific to membrane roofing, all options.



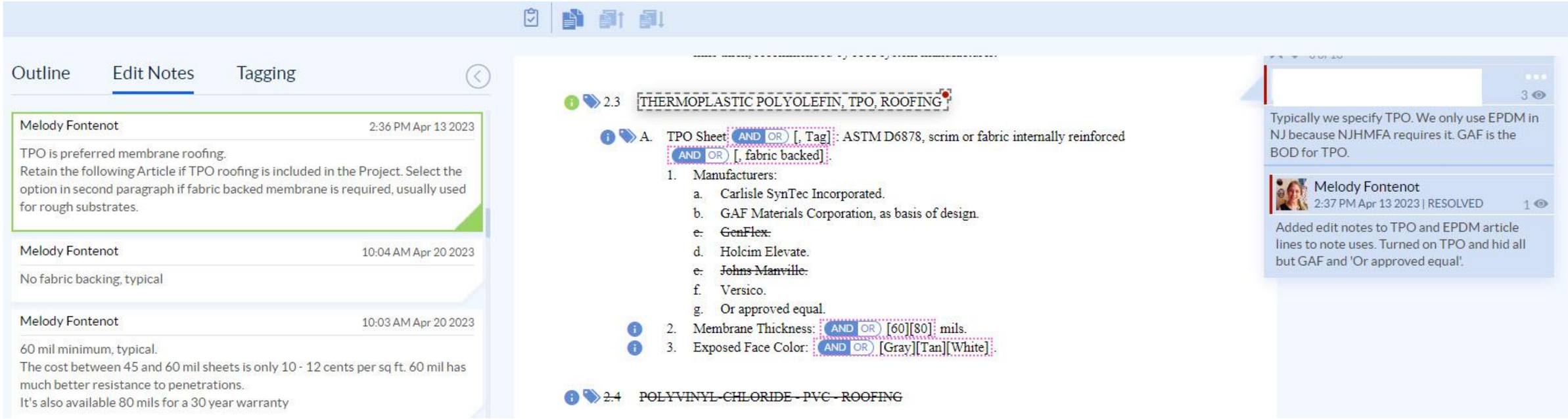
Preparing Master Guide Specification Sections

Edit notes are used to:

- Provide a brief overview of the content.
- Bring options to the attention of the A/E.
- Identify needed selections and options.
- Provide supplementary information to aid in decision-making. This could include commentary on reference standards and options within those standards.
- Point out coordination and cross-reference requirements.
- Match the wording and terminology used on the drawings.

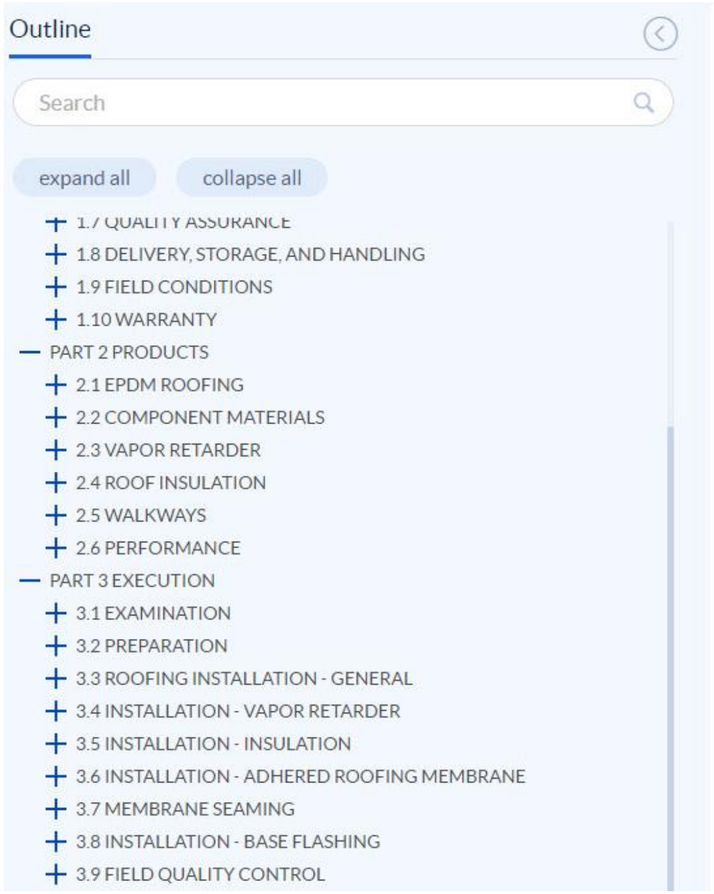
Office Master Guide Spec Section 075000

Started from commercial master section, edited to meet firm standards and product selections.



Project 1 in New Jersey Section 075000

Started from the office master section, edited content specific to project.



PART 2 PRODUCTS

2.1 EPDM ROOFING

A. EPDM Sheet: ASTM D4637, Type II, scrim or fabric internally reinforced.
   1. Manufacturers:
      a.
      b.
      c.
      d.
      e.
   2. Membrane Thickness: 60 mils.
   3. Exposed Face Color: White.

2.2 COMPONENT MATERIALS

A. General: Provide components of roofing system recommended by manufacturer for a complete system.
   1. Component materials are all compatible with each other and adjacent materials.

B. Adhesive: Manufacturer standardbonding adhesive.

C. Seams: Butyl splicing adhesive, single component, and cleaner or Butyl splicing tape, minimum 3 inches wide with release film, and rubber polymer primer.

D. Flexible Flashing: Same material as roofing membrane, manufacturer recommended thickness.

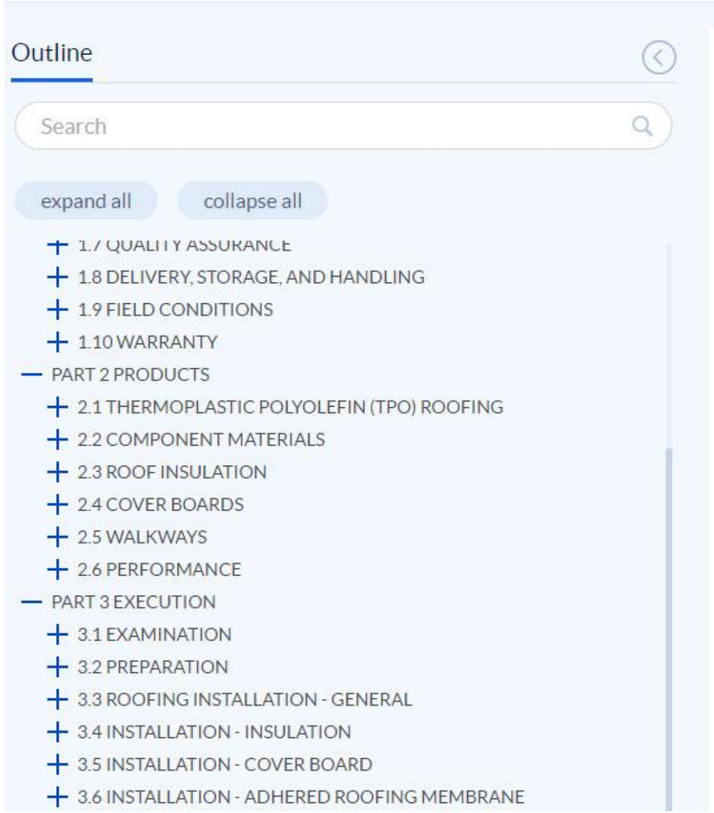
E. Lap Joint Sealant: Manufacturer standard, color to match membrane.

F. Butyl Mastic: Manufacturer standard water stop mastic.

G. Termination Bars: Manufacturer standard aluminun, pre-drilled for included anchors.

Project 2 in Texas Section 075000

Started from the office master section, edited content specific to project.



PART 2 PRODUCTS

2.1 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

A. TPO Sheet: ASTM D6878, scrim or fabric internally reinforced, fabric backed.
   1. Manufacturers:
      a. as basis of design.
      b. Or approved equal.
   2. Membrane Thickness: 60 mils.
   3. Exposed Face Color: White.

2.2 COMPONENT MATERIALS

A. General: Provide components of roofing system recommended by manufacturer for a complete system.
   1. Component materials are all compatible with each other and adjacent materials.

B. Adhesive: Manufacturer standardbonding adhesive.

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G. Termination Bars: Manufacturer standard aluminun, pre-drilled for included anchors.

Commercially Available Master Guide Specifications

Commercially available master guide specifications based on US products and standards include the following:

- American Institute of Architects (AIA) MasterSpec via Deltek Specpoint.
- RIB (formerly BSD) SpecLink.
- Conspectus Cloud.
- Deltek SpecText.

Updating Office Master Guide Specifications

The process of updating master guide specifications should include the following:

- Revising text that has caused problems on a previous project.
- Changing text and designations to reflect current referenced standards.
- Reviewing choices that have been adopted as permanent.
- Reviewing the continuing appropriateness of proprietary, descriptive, and performance-specifying methods and changing to other methods if necessary.
- Adding new sections.
- Inserting additional options and choices in specification clauses.
- Eliminating typographical and other errors.
- Updating terminology to be consistent with the CSI formats and office practice.

Shortform Master Guide Specifications

Shortform specs may be created by one of the following methods:

- Commercially available.
- From a traditional full-length master guide specification.
- Expanding a project description.
- Editing an existing specification.
- Developing a section from industry reference standards.
- Writing a section from scratch.

Additional Considerations

Considerations for integrating master guide specifications into the design practice:

- Software: Word processing, spreadsheets, databases, computer-aided design (CAD), building information modeling (BIM), and cloud-based technology.
  - Edit notes, track changes, reporting, links to external data, link to BIM, publishing options, security features
- File locations: Stored electronically in a cloud-based system or on an office server.
- Final Review: Review the project specifications by comparing the project section text to the master section text.

RECAP: PLANNING, DEVELOPMENT, AND ORGANIZATION

COMPETENCIES

1A Evaluate scope of project and identify anticipated specifications.

1B Manage the specifications production schedule (e.g. format, timing).

1C Develop and maintain project files (a.k.a. project notebook) of systems, products, and materials proposed for Work on the Project.

1D Maintain version control of specifications.

1E Develop and maintain office master guide specifications.

Question 1

Which spec format is appropriate for limited scope projects that may need less-detailed descriptions?

A. Full-length.
B. Performance.
C. Outline.
D. Shortform.

Question 2

The project schedule should include ample time to review comments received after _____.

A. each design submittal.
B. design development.
C. Permit submission.
D. procurement.

Question 3

Which type of revision method shows changes described in writing using brevity, clarity, and cross-references?

A. Revised page method.
B. Narrative method.

Question 4

When are addenda typically issued?

A. During construction.
B. After bids are received.
C. Before the opening of bids.

Question 5

Which spec format is appropriate for limited scope projects that may need less-detailed descriptions?

A. Full-length.
B. Shortform.
C. Outline.
D. Performance.

QUESTIONS?

CONTACT US

Melody Fontenot, CCS®

609.628.2390

mfontenot@conspectusinc.com

https://www.conspectusinc.com/

Questions about CEs and recordings:

tmontone@conspectusinc.com

THANKYOU