

SCIP

**Specifications
Consultants in
Independent
Practice**

Specifications Consultants in Independent Practice White Paper

THE CONSTRUCTION SPECIFICATIONS PROCESS

A Value-Focused Overview

INTRODUCTION

On September 29, 2015, Specifications Consultants in Independent Practice (SCIP) convened a half-day workshop to identify and document the construction specifications preparation process. Participants focused on the specific steps, milestones, and activities typically required to provide specification services on construction projects and the critical activities, responsibilities, and interfaces with design teams for producing quality specifications for constructing facilities that meet the owners' objectives.

This white paper documents the work of those groups and subsequent interviews with participants to flesh out ideas and concepts. It's important to note that the aim of the September 29 workshop was not to define best practices, but to collaborate as teams to determine and describe what the standard process is.

Likewise, this white paper does not pretend to describe "how to" write specifications. That would require legions of experts and volumes of guidance. Rather, it documents the findings of the group and organizes them in a way that can be used to help others in the construction industry understand and appreciate the full value of the role independent specifications professionals play and the services they provide.

The white paper is organized into five parts.

- The Independent Specifier: A Value Proposition
- The Construction Documents: An Overview
- The Stakeholders: To Whom It May Concern
- The Inputs: Information Please
- The Process: Putting it All Together

The white paper also includes an appendix identifying and expressing appreciation to the participants

in the SCIP workshop and others who contributed to the development of this document.

THE INDEPENDENT SPECIFIER: A VALUE PROPOSITION

Along with other highly regarded construction industry professions — including architects, engineers, and the construction trades — independent specifiers have advanced over the years in their ability to make the world a better place to live, work, and play. To highlight the contributions that independent specifiers make to the success of complex projects, this white paper describes the general process by which they collaborate as essential partners in the construction industry and the value they add as a result of their extensive knowledge and expertise.

More than a project manual

Today's independent specifiers have at their command not only years of collective knowledge and experience in what is required to complete a successful project specification, they also have systemized, standardized, and computerized their processes to ensure accuracy, consistency, and reliability at every milestone. The result is an ever-increasing quality of the specifications and construction documentation in general and, by extension, higher quality construction outcomes.

But there's much more than the creation of a project manual in play here. Healthy skeptics at heart, independent specifiers come to the table with a "show-me-the-facts" approach. It's their objectivity, detail orientation, and technical knowledge combined with experience and expert judgment that create value.

That added value is more than a subjective assessment. Independent specifiers can demonstrate that

their value far exceeds the cost of the professional fees for their services. The result is a net gain to the owner, architect, and contractor and a better outcome for all stakeholders:

- Reduced liability and risk for all parties through clearer articulation and better coordination of contract documents
- Increased project efficiency and more cost-effective outcomes
- More clarity and understanding among stakeholders, which means fewer issues requiring resolution during construction and fewer changes and delays

Because independent specifiers are educated in the art and science of specifications writing, they bring a wealth of knowledge and expertise to every project. The diversity of their experience working on multiple projects broadens their knowledge of materials, resources, and other critical considerations.

Committed partners

As a profession, independent specifiers are committed to collaborating and partnering at every step of a project. Here are a just a few examples.

Design process

Early involvement by an independent specifier with the design team enables the specifier to represent and more effectively communicate the design professional's intent. Specifiers can also serve as expert resources, consultants, or mentors to less-senior design team members.

Product selection

The independent specifier's exposure to and experience with a wide range of products can result in improved product selection and more informed decision making. Specifiers can identify product options and provide appropriate recommendations. They can also raise red flags when project selections appear inadvisable. This product expertise enhances efficiency, economy, and quality of results.

Construction processes

Better documentation and coordination of documentation results in better construction-process

outcomes. Clear, concise, and consistent specifications can mean fewer disputes and disruptions during construction. The ability of specifiers to translate design intent and owner's project requirements into technical specifications ensures that everyone's needs are accurately communicated to the construction team and ultimately realized in the final construction outcome.

THE CONSTRUCTION DOCUMENTS: AN OVERVIEW

In general, construction projects require certain common types of documentation:

- Contract documents are the agreement between the owner and the contractor for the work to be performed.
- Procurement documents are provided to prospective general contractors for competitive bidding; often they are removed once the contract is awarded.
- Drawings are graphic, quantitative representation of the work to be completed.
- Specifications are written, qualitative descriptions of the work to be performed.
- Modifications are changes agreed to by all parties and entities after an agreement is executed.

Ensuring clear communications

Drawings and specifications complement each other and are of equivalent importance in communicating the owner's expectations and architect's intent to the contractor. Drawings show the intent; specifications tell the intent. Neither should duplicate nor conflict with the other.

Some aspects of a project, generally those that can be counted and measured, lend themselves more to graphic depictions, such as size, form, location, and interface between and arrangement of the various elements of a facility. Specifications, as defined by the American Institute of Architects, are "that portion of the contract documents consisting of the written requirements for materials, equipment, systems, standards, and workmanship for the work and performance of related services."¹

Specifications sections, where information on each product or work result is generally described, consist of the following information:

- Descriptions and procedures for allowances, unit prices, product alternatives, and options in the contract
- Referenced codes and standards
- Quality assurance of materials, fabrication, and installation
- List of acceptable manufacturers
- Applicable regulatory requirements, including codes and standards
- Type and quality of products
- Requirements for fabrication, erection, application, installation, and finishing
- Acceptable qualificative tolerance and deflection requirements

THE STAKEHOLDERS: TO WHOM IT MAY CONCERN

Everyone involved in a construction project has an interest in the construction documents and the construction specifications in particular. Some of those involved are more critical to the information input phase of the process, others more concerned with the “output” or the final construction documents. For example, owners and architects contribute “inputs” for the specifications development process. Both of those parties along with contractors are users or “consumers” of the final output, relying on it to define their contractual obligations to each other.

The SCIP Specifications Process Workshop participants identified the following as the key stakeholders.

Owner

A party to the construction contract, a key provider of inputs, and the ultimate customer and end-user of the complete set of construction documents. Owner’s representatives are included here as appropriate.

Architect, engineer, design professional

The individual or entity ultimately responsible

for the creation and execution of the construction documents and a primary user and beneficiary of specifications. Throughout this white paper, these three designations are used, sometimes interchangeably.

Independent specifications professional

A key player in communicating clearly the owner’s expectations and the design professional’s intent to those who will build the project. Responsible for ensuring complete, accurate, coordinated, systematic documentation of the complete project manual.²

Construction manager

When a project includes a construction manager, that party also becomes a primary user of the construction documents.

Contractors and subcontractors

First-line consumers of the construction documents to guide their participation and work from bidding through completion.

AHJ (authority having jurisdiction)

A primary source of critical information regarding legal standards, codes, and regulations relating to construction projects.

Commissioning authority

A key “customer” of the process requiring a complete set of construction documents to commission a project as appropriate.

Lenders/insurance carriers

As primary bearers of risk, these parties have a proprietary interest in the completeness and accuracy of the construction documents as risk management and mitigation resources.

Testing agencies

End-users of construction documentation for testing elements such as concrete strength, structural steel welds, fireproofing, and myriad construction issues that require such verification.

Specialty consultants

These participants provide information inputs across the full range of the project requirements from products, materials, and systems to compliance and risk management. Examples include

door hardware, acoustical recommendations, and food service equipment.

Product reps/manufacturers

These parties provide critical inputs into the specifications process and are also users of the output when providing products, materials, and systems in accordance with specifications.

THE INPUTS: INFORMATION PLEASE

Obviously, a great deal of information goes into a construction project. Collecting, compiling, analyzing, and recording this information is a collaborative process that requires a great deal of coordination among all involved.

The independent specifier plays a key role in collecting and applying the information appropriately. For certain types of information, the independent specifier takes primary responsibility for collecting, distributing, and using it. For other types of information, other entities are responsible for collecting and providing it. They may include the owner, the design professional, specialty consultants, product manufacturers, and many others.

Participants in the SCIP Specifications Process Workshop identified a comprehensive listing of the inputs that inform the writing of the specifications. The following overview describes how the information is used by the specifier, and how the specifier adds value to these inputs.

Please note that these descriptions and definitions are based on information gathered from workshop participants and in some cases augmented with information from other sources, most notably the book, *Construction Specifications Writing: Principles and Procedures, Sixth Edition*.³

Table of contents (TOC)

Development of the TOC, essentially the project roadmap, begins at the earliest stages of the specifications process with the creation of the preliminary TOC. This serves as a “best guess” as to the scope of what will be included in the final project manual and a baseline document that will be continuously refined, edited, and expanded as the project becomes more clearly defined.

The preliminary TOC may come from the design professional or, in some cases, from an owner experienced in similar construction projects. As the project evolves, the TOC becomes the definitive listing and organizing element of all the sections in the project manual.

Consultant TOC: Consultants, such as civil, structural, fire protection, plumbing, HVAC, electrical, water management experts, and others may also contribute to the project manual TOC. These contributions are usually not available at the very start of a project but are incorporated as early as possible to ascertain the full scope of the work.

Reports

A wide variety of reports are produced or collected throughout the development of the construction documents. These reports provide important information that can affect design, construction, or both.

While the design professional takes responsibility for ensuring that all necessary reports are made available, the content can come from many sources, including owners, outside specialists and experts, regulatory and testing agencies, and others. It can include, for example, an environment impact report, a soils report for anything requiring a foundation, hazardous materials report, acoustical recommendations, and many others.

Some of these reports belong in a project manual, some should be referenced only, and others are not mentioned at all. The specifier is a resource to advise the team on the appropriateness of including or excluding reports in the project manual information.

Product selection

Product selection usually originates with the design professional, and in early stages can be in the form of materials boards or planning documents that provide information about the overall appearance of the facility. The information can vary widely in terms of specificity. Sometimes it is provided only as a product, material, or systems preference; other times, it can be a specifically mandated or design basis material.

The specifier helps ensure that a systematic approach is used in product selection and that all decisions, including product options, are included in the construction specifications, or at least in the construction documents as a whole (drawings, schedules, etc.) The sooner product selection information is available, the more effectively the specifier can accomplish this documentation.

Early drafts of specifications augment product information with product descriptions and cut sheets collected from manufacturers' representatives, websites, and other sources. This expansion of the product description process is done in collaboration with the design professional. At times, the specifier may simply document what the architect wants. At other times, the specifier may make recommendations based on independent research, experience, and product presentations. The specifier adds more value when this type of cross-pollination occurs.

Checklists

A project checklist identifies the basic information required to prepare the construction documents, both for bidding and contractual purposes. It helps define what should appear in drawings and what should be included in specifications. The checklist tracks questions that need to be answered, decisions that have been made and those that have not, and additional information yet to be provided. Sometimes, a separate checklist for technical content (materials and systems) of the project is also used.

Existing documents

These are usually general documents that describe existing conditions of the site or an existing structure in the case of a renovation. For new construction, existing documentation most likely would be in the form of surveys that have been done in the past. For renovation projects, they could be original design drawings and specifications for the structure. Existing documents can provide valuable information about issues that may have to be addressed for the project, including jurisdictional codes and standards.

Drawings

The level of detail in drawings will increase incre-

mentally as the project progresses. Initially, drawings may be little more than schematic floor plans, exterior elevations, and small-scale cross sections with very few construction details to give the client an idea of how the finished project will look.

Although they are not always available at the earliest stages, drawings, electronic representations such as Revit models (BIM files), Sketchup renderings, and similar items should reflect the most current design. As drawings progress to incorporate large-scale details and specific material keynotes, the specifier expands the information from outline specifications to a complete and coordinated bid set for distribution to the project team.

Keynotes

Drawing keynotes add information to help identify the products that must be specified. The specifier can bring extra value at this point by ensuring that product lists, whether developed from the keynotes or other sources, remain consistent and accurate.

Design intent

The specifier must understand what the architect intends for the design. In a very real sense, the independent specifier is the first-line quality assurance reviewer. If, based on the available drawings, the design intent is unclear to the independent specifier, it most likely will be confusing to the contractor as well.

Some of the independent specifier's understanding of design intent comes from design drawings. Ideally, deeper understanding will be gleaned through direct communication — a meeting or phone call — with a senior design team member, such as the architect, the project manager, or one of the firm's principals. The specifier at this point will try to extract as much information as possible to establish a baseline for the architect's vision and intent for the project.

Independent specifiers take this opportunity to pose questions that often trigger deeper thought and conversation. Many times these exchanges bring to light the need to involve other experts, for example, in waterproofing, roofing, signage, interior hardware, and specialty equipment such as elevators.

Getting a firm grasp on design intent helps the specifier determine the scope of the specifications work. This is an area where the independent specifier's expertise and experience can contribute directly to the ultimate success of the project by helping to articulate quality expectations and design intent.

Owner's standards

Owner's standards usually relate closely to product selection and can range from general preferences to specific choices. They may also reflect brand standards required, for example, by the owners of major hotel or restaurant chains, universities, banks, or other large institutions. Some residential project owners also have well-defined standards, usually product selections consistent with other projects.

Basis of design

Basis of design indicates to the general contractor and subcontractors precisely which manufacturer and product the drawings and specifications are based on.

Program

The program narrative describes the solution to the owner's needs through design. Ideally, it should be available before design begins. The program informs specifiers about the activities that will take place in the building, for example, an arts center with a theater for performances, administrative offices for management, rehearsal spaces for artists, food service area for patrons, and dramatic public areas to welcome and delight audiences.

The program can provide insight into the finishes, materials, and systems that will be required. If design drawings are available, they can serve to communicate the program, or the program may also exist only as a descriptive narrative.

Location

Location can imply the physical, geographic, and climatic conditions of the building site. This type of information is generally provided by the design professional, but specifiers may also conduct independent research.

Location can also relate to the jurisdictional location of the project. Jurisdictional considerations

take many forms, including codes and standards relating to zoning, construction, accessibility, air pollution, waste management, labor laws, sourcing of materials, and myriad other requirements.

Codes and code review

Codes and code review encompass wide-ranging issues from construction methodologies to systems performance to jurisdictional requirements and vary dramatically by project complexity. Arguably, specifiers need to know as much or more about codes than design professionals. Codes and standards establish a base level of regulatory acceptability for projects. They do not necessarily define the level of quality or performance that the owner or design professional requires.

Budget

Owners establish project budgets. Estimates are prepared by the design professional, contractor, or others familiar with materials, labor, and construction practices. While specifiers do not actively participate in developing a construction project budget, they have a distinct interest in its implications for the overall quality and complexity of the project, as these will guide specifiers in their work. On occasion, independent specifiers may be asked to comment on specific material or system costs, especially where such a cost could have a major impact on the project budget.

Funding source

The owner, whether public or private, is the source of this type of information. Funding source may imply a certain set of jurisdictional requirements, especially if the funding is from a public (i.e., tax dollar) source, and other concerns that directly or tangentially impact the specifications process. Funding always comes with strings attached.

Contracts

As an input for the specifications process, the architect's contract with the owner defines the scope of the architect's services. The description of the architect's role and administrative responsibilities — and the owner's expectations — are expanded in Division 01 of the specifications, which is covered in more detail in the process discussion later in this document.

The contract could also refer to a set of construction documents that goes out for public bid. In this case, Division 00 will be broader and even more detailed, which requires greater involvement from the specifier to spell out more precisely what the architect is contractually obligated to do during the course of construction, the appropriate procedures to be followed, and how funds are to be applied properly.

- *General Conditions of the Contract:* Essentially, these establish legal responsibilities and relationships among the parties, primarily the owner, the contractor, subcontractors, and entities such as the architect/engineer, legal and insurance counsel, marketing, and others.
- *Supplementary Conditions of the Contract:* These provisions take the form of deletions, additions, and substituted contract language as distinguished from substitutions that occur during the course of bidding and construction and are specific to the project.

Submittals

These consist of information provided by the contractor to the design professional for approval of equipment, materials, and other items before they are fabricated and delivered to the project. Submittals can be presented in various formats, such as shop drawings, product data, material samples, test reports, and manufacturer and installer qualifications. They are required primarily for the architect and engineer to verify that the contractor understands the correct products and finishes to be installed on the project, and they provide essential information for the construction process.

Value engineering

Ideally, the goal of value engineering should be to help the owner improve efficiency and decrease operating costs. Typically today, value engineering is less about adding value and more about finding less expensive materials or methods with less labor to meet a budget or just to lower the cost.

This can significantly impact the work of the specifier at any point in the process. For example, the result of such costing exercises may require completely redesigning portions of the project and

rewriting specifications to describe the replacement systems. At times, the specifier can bring insight into whether value engineering initiatives are within the standards and criteria established by the owner.

THE PROCESS: PUTTING IT ALL TOGETHER

In the SCIP Specifications Process Workshop, participants formed working groups to address various phases of the process and their components. The five process working groups were:

- Scoping and Discovery
- Draft Specifications
- Review
- Checking and Revision
- Final Construction Set

Each group identified stakeholders, inputs, process, and outputs at specific phases of project design and the preparation of construction documents. As would be expected, certain stakeholders were common throughout all phases, and some were more relevant to specific phases. Those stakeholders have already been identified earlier, and their involvement is documented in both the section on inputs and this section on process phases.

As the groups presented their findings, it became apparent that while the specifier's work progresses from essentially voluminous masters, commercial specifications systems, or manufacturer guide specifications to a complete and specific set of construction specifications, the process is not linear. In the words of one participant, it is an "iterative loop," especially as more information becomes available, and the requirements become defined in more detail.

Therefore, the process described below should be viewed as the general progression of specifier activities and not a prescribed sequence of discrete events. The specifications from start to finish are a living document that grows and changes. It is the specifier's job to organize, systematize, standardize, and document that evolution to its final form.

Process Phase: Scoping and Discovery

During this phase of the process, the specifier gains a general understanding of the dimensions of the project at hand and begins the ongoing process of information gathering and documentation. Inputs at this point come in varying degrees of specificity and often require the specifier to interpret and intuit, based on knowledge and experience, what the project will require for successful completion.

As a result of scoping and discovery, the project team, and the specifier in particular, will have a preliminary table of contents for the written documentation, a checklist documenting information that needs to be acquired, a great many unanswered questions, and a roadmap for continuing the specifications process.

Kickoff meeting

Absolutely key to the success and effectiveness of any project, the kickoff meeting is the cornerstone of developing collaborative relationships and productive communications channels and processes. Face-to-face is always desirable, but circumstances may dictate having a virtual kickoff meeting.

Some of the most important outcomes of the kickoff meeting:

- Clarifying the design intent (not always possible from the drawings alone, especially if they are more “presentation” oriented)
- Discovering the technical challenges of the project
- Establishing partnerships among key players
- Scheduling delivery of documents for each phase
- Developing and reviewing the project checklist

Developing and reviewing the project checklist

The project checklist, defined earlier, is developed by the specifier and usually organized according to the Construction Specifications Institute (CSI) MasterFormat division and specification section numbers. The specifier is also one of the primary

users of checklists, which are created early in the process and continuously revised as the project becomes more clearly defined.

For greatest efficiency and effectiveness, reviewing the checklist is best done in discussion with other team members to clarify roles and responsibilities, including the degree of involvement of the owner, to agree on procedures and to weed out extraneous items. Conversations can occur after the kickoff meeting and may include, for example, the owner’s representative, lead interior designer, envelope team, structural and mechanical engineers, and others.

Developing the table of contents

The table of contents (TOC) for the project manual is more than just a list of section numbers and titles. It is the ultimate roadmap for the project, and its development should begin at the very earliest stages. The TOC is a living document that evolves and expands or contracts as the project becomes more clearly defined. It can serve as the initial access point for anyone seeking specific information about a project and ultimately will guide the final quality review to ensure that all required information has been collected and documented appropriately.

Process Phase: Draft Specifications

As a result of scoping and discovery, the independent specifier can prepare a draft of the specifications. Extensive information remains to be gathered and incorporated, but the information already gathered provides a solid foundation for the contract documents. Based on this, the independent specifier can determine what questions remain to be answered and what information is misleading or unclear and can track these to ensure the information is clarified, procured, and incorporated. Likewise, the architect may also track unresolved questions in a project issues log.

The scoping and discovery phase has also unearthed a great deal of detailed data that will carry forward into the editing process. It’s important to recognize that information gathered as this early phase is subject to revision and reconsideration throughout the design process.

Continuous information collection

While there's sometimes a burst of information at the time of the kickoff meeting and during scoping and discovery, information collection continues throughout the specifications process. Ideally, the specifiers, design team, and other specialty consultants partner in collecting and sharing additional information gained through their independent activities and research. This is where independent specifiers can provide added value in the form of insight acquired through experience, especially in:

- *Product research:* The specifier's role in product research can vary depending on the degree to which the design professional engages or expects the specifier to provide this service. At times, it is simply incumbent on the specifier to conduct product research to confirm the product is appropriate, meets code, and is compatible with other interfacing products.
- *Advanced research:* As project drawings become more detailed, additional research may be needed. This advanced research can cut across virtually all aspects of the project, including site, design, construction, or jurisdictional issues.

Coordination with other disciplines

Just as the kickoff meeting in the scoping and discovery phase can set a tone of collaboration, the specifier will continue to develop and sustain productive working relationships with other stakeholders. This requires clear and effective communication, ideally with all the relevant disciplines communicating with each other. Typically, the architect will take responsibility for making sure that all work is coordinated.

Development of Division 01: General Requirements

The general requirements portion of the specifications consists of sections listed under Division 01 of CSI MasterFormat and presents procedures and requirements that apply to all sections in all other divisions.

The specifier usually has responsibility for developing Division 01, but not always. On some projects the owner or contractor/construction manager writes Division 01, and the specifier may

have no input. For more information on this, please refer to MasterFormat documentation.

Division 01 should not be considered boilerplate. It is key to giving the design professional control to ensure that the project is executed as intended, and that all references to it from other sections will be coordinated. As explained earlier in the discussion on inputs, Division 01 reflects the architect's contract with the owner and clearly describes and expands upon the architect's role and administrative responsibilities — and the owner's expectations.

For large, complex projects, Division 01 may need the owner's/construction manager's review (and possibly review by legal counsel) to verify that the architect will accomplish everything the owner expects and to verify the owner can comply with their requirements. Division 01 protects all parties and entities, ensuring that expectations and contractual obligations are fully understood and agreed to by the contracting parties.

Writing the specifications

This white paper in no way is intended as a “how-to” guide for writing specifications. Rather, it offers an overview of a highly complex, detailed process. Volumes have already been written on the subject and entire courses of study devoted to it. Therefore, this discussion on preparing the specifier's ultimate deliverable only summarizes what takes place during the process.

Organizing data and determining the system to use for organization

A successful project depends on clear communication among all parties and easy access to commonly needed information. This has led to the development of standardized systems for organizing construction information. CSI publications MasterFormat and UniFormat (as well as others, including PPDFormat, SectionFormat/PageFormat, and OmniClass) provide the structure for organizing and providing expedient access to information by all parties at every stage, from concept to completion.

At the schematic phase of the process, specifiers begin to organize the information that must be

included in their final specifications. At this early point, there is a choice about which of the systems of organization to use. The Construction Specifications Institute recommends two main ways to organize the specifications, one of which is to outline the sections by product, the other by system/assembly.

- *Products*: MasterFormat is the master list of titles and numbers for documents and sections used to organize data about construction requirements, products, and activities by “work results.” By standardizing such information, MasterFormat facilitates communication among design professionals, specifiers, contractors, and suppliers helping them meet building owners’ requirements, timelines, and budgets.
- *Systems/Assemblies*: UniFormat is often seen in performance specifications and preliminary project descriptions (PPDs). Its most notable use is as a format for estimators to present cost estimates during the schematic design phase. UniFormat breaks a facility into elements consisting of systems and assemblies that perform a predominating function, such as substructure, shell, interiors, and services without defining the technical solutions to provide these functions. This allows the facility to be priced at the elemental level, design alternatives to be better evaluated, and facility performance to be established at the system level as the project design is being refined.

Determining the method for writing specifications

There are four methods for writing the specifications. In most cases, some or all of these methods may be used on a project. Here are very general descriptions of those four methods.

- *Reference*: Here the properties and basic quality level of materials, products, systems, and parts to be used are referenced to established standards for compliance.
- *Performance*: This method describes the conditions (e.g., seismic, wind, thermal, and so on) under which the materials, products, systems, and parts must perform to a pre-established, verifiable level.

- *Descriptive*: All materials, products, systems, and parts are described specifically and in detail, but without using product or trade names.
- *Prescriptive or Proprietary*: This method is highly specific and most restrictive and includes brand names and manufacturers of materials, products, systems, and parts to be used.

Establishing common terminology

Clear, effective communication throughout the development of the construction documentation and the construction phases of a project depends on consistent use of common terminology, including references to products, materials, systems, processes, and virtually every other element. The specifications professional can serve as the central force in defining proper terminology and ensuring that all parties and entities use it consistently in all applications both visual and written. Common terminology consistently used from the start of the project can prevent costly misunderstandings, delays, and dissatisfaction in later stages where time literally means money.

Process Phase: Reviewing and Revising

For purposes of the SCIP Specifications Process Workshop, two groups addressed this process phase: one group worked on “review” and another on “checking and revision.” The reports from these two working groups strongly suggested that these activities — review, checking, and revision — form that “iterative loop” mentioned earlier, and that to separate them into sequential steps would not provide the clearest understanding of what happens during these phases. Therefore, this white paper has consolidated the work of those two groups into a single discussion titled simply Reviewing and Revising.

Review meetings

After the initial meetings and preparation of the draft specifications, the specifications should be developed to as much as 85 percent or more complete. However, it is important to note that review can and usually does happen at every contracted submittal stage and at the discretion of the archi-

tect/engineer, and that it may involve all stakeholders depending on the stage of the project.

For large, complex projects, review meetings may be staggered for efficiency to ensure that only those responsible for the aspects under review are in attendance. Deciding who should attend, however, must take into account the fact that disciplines do overlap, and that multidisciplinary review often results in more comprehensive understanding. As a key member of the team, the specifier brings to the review process an expansive knowledge base, a distinctive point of view, and informed opinions based on experience. Involvement in review is key to the specifier's ability to deliver high-quality work.

Review meetings may be general in nature or extremely focused “page-turn” reviews where details are very closely scrutinized. Often this is dictated by the complexity of the project and the phase of development.

Revising

During revisions, the independent specifier plays a key role in creating the next iteration of the construction documents, incorporating comments, revisions, and decisions made during sequential reviews. Although each project evolves at its own pace, the SCIP workshop participants identified the following as action steps that may be required of specifiers and others during the revision processes:

- Confirming the implementation of notes from previous reviews and revisions
- Reviewing meeting notes and preparing action items for the next submittal and review
- Redlining markups that incorporate new comments and revisions/implementation
- Revising the project scope and defining any scope revisions to show the “improvement”
- Collecting, reviewing, and helping to determine the relevancy/value of all comments
- Responding as needed to review comments in writing and ensuring follow-through on action items

- Identifying unknowns and missing information
- Making and checking revisions and developing updated documents
- Ensuring the specifier's ongoing internal QA review

Process Phase: The Final Construction Set

The deliverable at this phase of the process is the project manual — one component of the entire set of construction documents — in paper and electronic formats. The specifier plays a key role in this process phase not only as the developer of a significant portion of the content, but also in assisting in the compilation and coordination of components provided by other parties. Most often, the presentation is standardized according to the MasterFormat as shown below.

Introductory information (Division 00)

- Cover
- Certifications or Seals Page
- Table of Contents

Procurement documents (Division 00, if applicable)

- Bid Solicitations/Invitation to Bid
- Instructions to Bidders
- Information Available to Bidders
- Bid Forms and Supplements

Contracting requirements (Division 00, if applicable)

- Agreement
- General Conditions of the Contract
- Supplementary Conditions of the Contract
- Bonds and Certificates

Specifications

- Division 01, General Requirements
- Divisions 02 through 49, Product Specifications (as applicable)

Process considerations

In their individual reports, participants in the SCIP Project Specifications Workshop provided additional insight into the compilation of the full set of construction documents. While this is not an exhaustive discussion of process considerations, it can help in understanding the role of the specifier in this final phase of the process.

- *Cover page:* Cover to the document identifying the project, issue date, and distribution phase; may be prepared by the specifier or the architect.
- *Seals page:* Depending on the jurisdiction, all licensed professionals who have had input must affix their official stamp or seal. Not all jurisdictions or all projects require this.
- *Bid/procurement documents:* These are required only for projects that are put out for competitive bid. They will not be needed in design/build projects or when a contract is negotiated.
- *General and supplementary conditions:* These are contractual elements provided by the owner. They are essential for the specifier in writing Division 01.
- *Final verification of all specifications sections:* The independent specifier can assist in consolidating specifications sections provided by others and verifying that everything is included in the TOC. They can also verify that sections are acceptably formatted, titled, and numbered.
- *Reports and supporting documents:* This includes wide-ranging information critical to completion of the project. They are not part of the contract documents, but may provide essential information that will be used to clarify issues that may arise during construction.
- *Project file archive:* This is a complete collection of all info gathered in the specifications development process in both electronic and hard-copy form. The archive is not part of the construction documentation per se, but can be a valuable reference if issues arise later in the project.
- *Final construction specifications:* Final documents are provided to the architect for printing and distribution to the design and construction team in hard-copy or electronic format as appropriate.

For more information, please visit the Specifications Consultants in Independent Practice website: www.scip.com

APPENDIX: WORKSHOP CONTRIBUTORS

SCIP wishes to acknowledge the following teams and individuals who were involved in the workshop that resulted in the development of this white paper. The names highlighted in bold provided additional insight through interviews, commentary, and review of earlier drafts. We also wish to thank John Carter, David Stutzman, John Raeber, David Lorenzini, and Gerard Sanchis for their peer review efforts. Additionally, we extend our appreciation to David Samuel, who served as facilitator for the workshop, and Max Russell, writer and editorial consultant for the white paper. The contributions and participation of all are greatly appreciated.

Team 1: Value Proposition

Observer: **John Raeber**

Team members: Jerry Orland, Lisa Goodin Robbins, Milton Cochran Sr., J. Gerard Capon, Leo Scott, Dave Metzger, Liz O'Sullivan, John Guill

Team 2: Scoping and Discovery

Observer: **David Stutzman**

Team members: Ed Avink, Erick Biller, Ron Geren, Dave Proudfit, Gary Beimers, Don Harris, Alan Itzkowitz, **Vivian Volz**, Julie Brown, Phil Baldwin

Team 3: Draft Specifications

Observer: **Linda Stansen**

Team members: Lynn Javoroski, Jeff Pilus, Andrea Stephan, Carl Grimm, Spenser Nelson, Margaret Chewing

Team 4: Review

Observer: **David Lorenzini**

Team members: Ann Baker, Barbara Larson, Rebecca Campbell, Richard Fost, **Bill Boehm**, Steve Falk (part time)

Team 5: Checking and Revision

Observer: **Rich Gonser**

Team members: Deb MacPherson, David Brown, Joe Anetrella, Neil Davidson, Wade Bevier, Jim Bethel

Team 6: Final Construction Set

Observer: **John Carter**

Team members: Rich Howard, Greg Markling, Faith Brown, Robin Snyder, Robert Swan, **Paul Simonsen**

ENDNOTES

¹ AIA Document A201TM-2007, the General Conditions of the Contract for Construction, American Institute of Architects

² Although specifications may be prepared by architects, engineers, design professionals, or a member of their staffs, this white paper addresses the role of an independent specifications professional.

³ Rosen, Harold J., Mark Kalin, Robert S. Weygant, and John R. Regener Jr., *Construction Specifications Writing: Principles and Procedures*, 6th Edition. Wiley, 2010.