Why Specifications?

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Specifications are one of the most powerful design tools available to design professionals and consultants in the construction industry. Yet specifications continue to be the least understood and most underutilized aspect of construction documents. Designers and consultants need to be more familiar with specifications. Specifications are only as enforceable as the level of information they contain. Designers and consultants that understand how to work with specifications are able to effectively protect their design intent.

Specifications and Design Intent

Designers and consultants spend a the majority of their time designing and graphically documenting their design intent. Designers use drawings, details, schedules, and other types of graphic documentation to capture and communicate the design intent, finishes, relationships, and the like. Architectural Hardware Consultants develop hardware groups, opening schedules, and highly detailed descriptions of hardware applications. Yet, time and time again, designers and consultants find that what they intended in the drawings is not what they get in the field. Why is that so often the case? Where does the communication break down or perhaps never happen? Consistent design input into the specification process will solve problems and protect design intent.

Designers and consultants are quality conscious and detail driven professionals. Immense amounts of design time and product research go into every project. How do designers communicate this intensity and product knowledge to the contractor? Drawings and notes are one way. Designers and consultants consider themselves specifiers, yet rarely use the power of specifications to communicate their design concepts. A well coordinated specification can minimize document conflicts substantially by making certain that specification information is directly related to information on the drawings.

Specifications can also limit omissions by using standardized information and formats, by providing a checklist of critical issues and information. In the critical submittal filled days following award of contract, specifications allow designers and consultants to stay in control of the review and approval process. Specifications are the key to successful implementation of the design intent because they clearly describe the standards, qualities, procedures, materials, fabrication, and installation required to execute the design indicated on the drawings.

Communicating Quality Expectations

Designers and consultants are quality-conscience professionals. Their primary goal for construction documents is to achieve the design intent by clearly communicating 3 dimensional design concept using 2 dimensional graphics. Drawings describe graphically the design intent but are typically limited to indicating quantities, location, layout, relationships, and dimensions. How do quality expectations get communicated? The basic problem with drawing notes and schedules is that they are limited to what's on that drawing page. It is often quite difficult to enforce even a general note on Sheet A2 with a plan on Sheet A11. No matter what is written, the subcontractor will say they didn't review that sheet because none of their work is on it or the contractor didn't send us that sheet.

Specifications, by definition, are documents that describe quality, appearance, and application for the entire scope of the project. Typically, specifications are not limited to building areas, configurations, or elements. If appropriately crafted, specifications can provide project wide descriptions, standards, applications, and quality control for every part, element, and assembly in the project.

The key difference between graphics and words is primarily interpretation. A graphic representation is just that, a representation, open to a wide range of interpretation and intent. Even if we provide the contractor with an exact scale model of the project, it is still a representation. Words, on the other hand,

can be clearly defined by industry standards, dictionaries, case law, and similar documents. Generally, the interpretation of a clearly written paragraph is less likely to be disputed than the interpretation of the intent of a graphic line drawing. A well integrated set of construction documents, with coordinated graphics and specifications provides the designer and consultant the ability for the design intent to be clearly understood and executed.

Understanding the Role of Specifications

Specifications are written documents that describe procedural requirements, quality control, products and materials, fabrication, and installation. By using consistent format, language, and organization, specifications provide a repeatable way of presenting and retrieving project information. If designers and consultants understand how information is formatted and located in the specifications, they gain a powerful coordination tool to minimize omissions and conflicts that usually diminish project quality and negatively impact the design intent.

Specifications are brief, descriptive protocols for correctly obtaining, coordinating, testing, fabricating, and installing building materials, components, assemblies, and systems. A properly documented set of specifications, well coordinated with the drawings, provides the contractor with a guide book that clearly explains the sights and features of the design road map shown on the drawings. It is usually easiest to find the way on a map if there a clear written descriptions of landmarks, features, and resources to be found along the way. Specifications provide the thousand words worth to describe the project's picture.

However, it is important to understand that specifications are not scope of work documents, bills of materials, or detailed fabrication or installation instructions. While some project scope is addressed in the individual specification sections, it is not good practice to document project scope in the specifications or to organize the work of the project by specification section. One of the reasons work items often are overlooked or not properly bid is because contractor's have the mistaken notion that specifications somehow describe or control project scope. Project scope is solely determined by the contract documents that consist of drawings and specifications. Under current AIA and EJCDC general conditions drawings and specifications are complementary and do not take precedence over each other in conflicts.

Division 1 - General Requirements

One of the most powerful aspects of specifications are the procedural and quality control requirements contained in Division 1 - General Requirements. The more designers and consultants understand about Division 1 requirements and how they can impact a project and skew the design intent. It is not necessary to be expert on these issues just have a clear working understanding and specifically how to use them to protect the design intent of the project.

Division 1 includes requirements for procedures such as submittals, substitutions, quality control, warranties, temporary facilities, and project closeout. Each of these procedures can dramatically affect how project materials are procured, fabricated, and installed. Especially with submittals and substitutions, it is critical that designers and consultants understand how bidders and contractors can affect the selection of materials and their use in a project. A little procedural knowledge can go a long way towards helping protect a project's design intent.

Key Specifications Principles

The Construction Specifications Institute Manual of Practice (MOP) addresses a critical specification principle that is contained in the statement, "Say it once say it right". Many conflicts between drawings and specifications come from the problem of describing materials or assemblies on the drawings and in the specifications. Others come from the classic drawing statement, "See Specs", and there is nothing in the specifications. Also, when there are multiple references in the documents and then it changes, there always seems to be one reference that is over looked. If the overwhelming desire to repeat

Language is another key element to producing successful specifications. A key CSI principle, called the 4 Cs, suggests that words and concepts used in specifications should be Clear, Correct, Complete, and Concise. Also, using appropriate and understandable vocabulary is important to clear interpretation. Avoiding the use of legal language, overly technical descriptions, and obscure industry terms is highly recommended.

Specifications written in a streamlined, imperative type language style accomplish two important tasks. One ,an imperative style reduces the number of words down to the essentials, using only the words necessary to communicate the concept without embellishment or hyperbole. For example, the statement, "The Contractor shall paint all the doors in the project fully, completely, without holidays, voids, streaks, or blemish", is better restated in the imperative mood, "Paint doors".

Since contracts, and therefore, specifications are only addressed to the contractor, it is not necessary to mention refer to the contractor. The old fashion specification language, "The contractor shall do something", is poor practice. The preferred sentence would be, "Do something." Subcontractors should never be addressed in the specifications since they have no contractual standing. Terms such as installer, applicator, and the like are more appropriate and have no contractual connotations.

To streamline specifications, words like "all" and "the" should not be used. Generally, they are superfluous and add nothing to the intent or clarity of a statement. There is no difference of intent between the statements "paint all the doors" and "paint doors" when used in context of the project scope. If the quality control article is appropriately written there is no need to use words like "completely" or "fully". It is not to difficult to accept the notion that a half painted door would not be acceptable under any conditions. Anyone working with specifications must strive to overcome the basic human drive that says if 2 words will cover it, ten words must be 5 times better.

The power and effectiveness of specifications is words. Using the most appropriate words, minimizing the number of words, and eliminating words that connote emotion or negative response is critical to developing an enforceable specification.

Checklist of Critical Elements

When reviewing a project specification, designers and consultants need to look at specific parts and elements of the specification to ensure that the necessary procedures, quality controls, and material descriptions are addressed and coordinated with Division 1 requirements.

Part 1 - General

In the first part of the specification is it important ascertain if critical quality control procedures have been addressed and appropriately cross-referenced back to Division 1 requirements.

1. Submittals:
   - ☐ See before you buy
   - ☐ Ensure what is specified is what gets installed
   - ☐ Verify that the design intent is understood by the contractor
   - ☐ Real samples to verify color, texture, and pattern

2. Quality Assurance:
   - ☐ Manufacturer qualifications: Not necessary if Part 2 is proprietary
   - ☐ Installer qualifications: Must be enforceable to control quality
   - ☐ Mock ups: Extremely powerful and relatively inexpensive quality control procedure.

3. Substitutions
   - ☐ Correct procedures help minimize substitutions and resulting quality problems
   - ☐ Specify standard procedures that keeps designer in charge
   - ☐ Substitution Request Form (01631)

4. Project Closeout
   - ☐ Material care data and directions
   - ☐ Owner demonstrations and training
   - ☐ Extra materials

Part 2 - Products

This is the most important part of a specification. Do the extra work, list and describe your design intent in terms of manufacturer, product, and fabrication. The more direct information presented here, the easier it is to enforce the design intent. Not more in terms of words, but more in terms of clear, detailed information.

1. Use Part 2 to Ensure Consistent Quality of Materials and Fabrication
2. Specify Use and Application, Not Features and Benefits
3. Multiple Product Specifications Are Critical to Accomplishing the Design Concept.
   - ☐ Apples for apples specifications are very difficult to substitute. It is extra work, but specifying 3 acceptable carpet designs and colors (even though you really only want a specific one) will allow you to stay in charge of the final design.
   - ☐ Single design specifications that allow manufacturers to "copy" the preferred manufacturer can be illegal and will not result in the original design concept.
   - ☐ Extra work in the specifications can eliminate substitutions and the resultant quality issues during construction.
   - ☐ Remember, it takes much less fee to do the extra research and design than it does to fight a losing battle with contractors and suppliers.
   - ☐ Lack of information and conflicts always go to the contractor.

Part 3 - Execution

This is the part where results are key. It is not necessary to write pages of installation instructions. Reference industry standards or manufacturer recommendations. Don't forget field quality control and testing if appropriate.

1. Specify Results:
   - ☐ Indicate clearly how something is to be installed
   - ☐ Reference manufacturers installation instructions or industry standards
   - ☐ Otherwise, it will be installed to the lowest acceptable industry standard or least cost local work rule.
2. Field Quality Control
   - ☐ Laboratory Testing
   - ☐ Performance Testing

Make the investment in learning to work with specifications. Invest the insignificant extra time to clearly document design intent in the project specifications. Work closely with the project specifier. The resulting coordination and communication will not only benefit the design team but also the owner and ultimate users of the project.

Remember, "SPECIFICATIONS ARE ABOUT RESULTS, NOT ABOUT PRODUCTS".