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# Evolving Specifications

By David Stutzman, FCSI, CCS, AIA

What is needed for a successful tile installation? Accurate and complete information about the project requirements. Who provides the necessary information - the owner, the designer, the specifier, the contractor, the tile contractor? In practice, it is all of the above. Each project participant contributes expertise to help produce an appropriate result. The installation must be technically correct and meet the desired appearance, performance, and quality required by the specifications. Usually tile subcontractors must make do with whatever specifications they are handed including those that are obviously cobbled together at the end of the project. There is little opportunity for subcontractors to participate during the specifications development.

Owners conceive construction projects based on a business need and then develop the owner's project requirements (OPR) to define their needs. After some initial feasibility investigations, the owner will select the designer, and perhaps the contractor. Without knowing the owner's expectations, there is little hope those expectations will be met for both design and construction.

Drawings identify the relationships and quantitative aspects of the project—everything that can be counted and measured—requiring the tile contractor's estimating skill. Specifications include administrative procedures and the qualitative aspects of the project – product requirements, installation, location, and performance results – all of which require the tile contractor's installation care. Combining the contractor, subcontractor, and specifier's time, care, and skill will give owners a new confidence that the OPR will be met.

Traditional construction specifications are little help for subcontractors to understand what must be built. The specifications, following the Construction Specifications Institute's (CSI) SectionFormat<sup>®</sup> begin with **1.1 SUMMARY** followed by **A. Section Includes** and a list of products specified in the section: Ceramic tile, Porcelain tile, Mortar, Grout, Waterproofing.

The section may be specifying tile floor and wall finishes for a bathroom shower, outdoor terrace pavers, a kitchen countertop, or virtually anything. The product list is simply a list without any hint of how the products are used and where they may be installed. The design team, including the specifier has not imparted any knowledge of the project to the tile contractor to improve understanding of the project requirements.

When starting construction specifications such as this, the specifier needs detailed product selections. What tile, grout, and installation methods will be used? Often the design team is not ready to answer those questions before 50% Construction Documents phase. Yet the specification must be produced for a Guaranteed Maximum Price document issue during Design Development phase — well before final decisions are made.

Using an alternative approach, rather than traditional design approaches, can provide a solution to manage and record design decisions as they occur. Validate decisions against the OPR and obtain the owner's informed consent for important decisions affecting quality, performance, and cost.

Let's explore a project checklist as an aid for discussion and decision making. UNIFORMAT II<sup>®</sup> is an hierarchical organization arranged by building systems- generally from bottom, up and outside, in. Originally conceived by estimators, the format allows cost analysis of alternative systems during early design stages. It also helps to manage project costs, comparatively, to help manage design decisions to keep projects within the owner's budget. UNIFORMAT II includes seven basic building elements. Tile systems are included in Element

B (SHELL) for exterior building applications, Element C (INTERIORS) for interior finishes, and Element G (SITE) for site improvements.

At the start of the project, designers are normally able to confirm with certainty that a building will have interior wall, floor, and ceiling finishes. They may not know what those finishes will be, but these finishes will exist. Because UNIFORMAT II is hierarchical, designers can easily make high level choices about the project, even before design begins.

UNIFORMAT II as a Checklist		
Level 1	Level 2	Level 3
<input checked="" type="checkbox"/> C Interiors	<input checked="" type="checkbox"/> C30 Interior Finishes	<input checked="" type="checkbox"/> C3010 Wall Finishes <input checked="" type="checkbox"/> C3020 Floor Finishes <input checked="" type="checkbox"/> C3030 Ceiling Finishes

After the basic elements are decided, attention can turn to establishing performance and design criteria that will guide the ultimate system and material selections. Not all of these must be answered at the same time. Identify the most critical first, those that affect quality and cost of the installation and those that are necessary to analyze one system compared to another so the optimal solution may be selected.

Performance Criteria	Design Criteria
Slip Resistance: 0.42 DCOF, minimum	Mockup: In situ, temporary
Water Resistance: No leaks, 2" water, minimum	Tile Format: Large, standard, mosaic
Stain Resistance: No effect from foods	Pattern: 1/2, 1/3 running, stack, custom
Substrate Level: 1/8 inch in 10 ft maximum	Joint Size: 1/2, 3/8, 3/16 inch
	Transitions: Stone thresholds, metal edging

Apply the checklist and the criteria to describe the project requirements in a structured, organized way. Use the Level 4 titles to think about what the project may include. Revise and create new titles when necessary to suit the particular project conditions to extend the checklist to Level 4.

UNIFORMAT II as a Checklist	
Level 3	Level 4
<input checked="" type="checkbox"/> C3020 Floor Finishes	<input checked="" type="checkbox"/> Tile, terrazzo, wood, and resilient flooring <input type="checkbox"/> Other flooring and floor finishes

Write a simple, single-sentence description of each Level 4 element to indicate WHAT principal product is required, HOW the product is installed, and WHERE generally the product is installed. Think about what the contractor's estimator needs to engage subcontractors and to begin pricing the project.

**C30** INTERIOR FINISHES  
**C3010** WALL FINISHES  
**C3020** FLOOR FINISHES  
 C3020.1 TILE SHOWER FLOORS  
 Description

Ceramic tile thin set on waterproof manufactured sloped shower base installed on plywood subfloor.

CSI publishes *PPDFormat* that explains and gives examples of the organization and the method of documenting project information. The system is progressive, following the same order as the design and the building information model (BIM). In fact, the project description can follow the same plan as the BIM execution plan for developing the project element description details. Say what you know when you know it.

As the design progresses and decisions are made, record the detail of each decision. Identify the components (principal products) that make up each building system and the MasterFormat construction specification section where each component will be specified. Connecting UNIFORMAT II to MasterFormat minimizes information gaps by ensuring each system and product is accounted for in both organizational systems.

C3020.21	TILE SHOWER FLOORS	
	Description	Ceramic tile thin set on waterproof manufactured sloped shower base installed on plywood subfloor.
	Performance Criteria	
	Slip Resistance	0.42 DCOF, minimum
	Design Criteria	
	Pattern	Custom, hand set
	Components	
093000	Ceramic Tile	Mosaic format
093000	Grout	High performance polymer modified portland cement
093000	Bonding Mortar	Polymer modified portland cement
079200	Joint Sealant	Polyurethane

**Improving Construction Specifications:**

Commercial master specifications systems has become a method of editing. This approach marginalizes thinking and professional judgement required to craft accurate project specifications. It often results in specifications that have extraneous or irrelevant requirements because the purpose for the specification is not fully defined when the specification is started. Therefore, the tendency will be, when in doubt, to retain text just in case it may be needed.

Consider what the general contractor and the tile contractor may know about the project if the specification began with text coming directly from the UNIFORMAT II description. The work results are the project element descriptions. The principal products are the system components. With this approach, the contractors will have an instant understanding of what must be built and what products are required and there is immediate improvement in clarity of the specification.

Now, the specifier has a roadmap for writing the specification. The work results (what must be built) are clearly defined and will guide the specification content development. New content will be required if the product list does not include manufactured shower bases. The general contractor can more easily parse the total work to the appropriate trade contractors. The work results become line items for developing the contractor’s overall estimate and schedule.

The tile contractor has a mental picture of what is required before diving into the specifications and drawings. He is armed with information about the context and the expected results to improve his understanding of the project requirements.

**Evolving Specifications:**

Take the existing systems, combine them in a single platform and invite the entire team including the owner, designer, contractor, and tile installer to participate in project documentation throughout the process. It’s a new approach - Evolving Specifications. It’s transparent, allowing all stakeholders to participate. It’s a methodology to leverage the power of existing systems to describe construction projects differently to enable better understanding, to manage design decisions, and to improve outcomes for owners.

Employ the approach beginning at conceptualization and extending through commissioning, operations, and maintenance. Write project descriptions to record owner’s project

requirements, performance and design criteria, system descriptions using UNIFORMAT II. Connect the descriptions to MasterFormat construction specifications required to build the project. Name the combined set of documents as the specifications as defined by the construction contract to ensure no information gaps exist for the contractor and installers.

**The Improvements** obtained from this approach is the owner obtains a complete reliable record of the design and construction via a transparent process that includes valuable information that is not available from construction specifications, alone. It enables the owners to: monitor design progress and design decisions as they occur to ensure they are timely and in an appropriate order, avoiding last minute design changes; make informed decisions about system selections and the value of design alternatives; validate the design against recorded owner project requirements to ensure expectations will be met.

The design team obtains active assistance from the owner and contractor teams throughout the design process to aid in making design decisions. They can; gain proactive cost analysis during early design phases for systems evaluations; receive constructability and schedule impact analysis to guide design decisions; rely on design decisions confirmed before documenting the design; complete the construction documents accurately, the first time, minimizing missed coordination and need for addenda.

The contractor team is involved in the project earlier, at a point where input can be valuable without being disruptive. They can: pose questions and proactively resolve issues as design progresses, boosting confidence in the documents and eliminating RFIs during construction; advise on alternative system costs, constructability, and schedule to account for local labor and material availability; offer alternative solutions to solve design problems to minimize construction risks

### **The Solution Exists:**

Conspectus developed the Evolving Specifications approach and created ConspectusCloud the new web-based specifications writing system to effectively implement the approach. We rely on existing systems - without disruption to existing industry processes. We put these systems together in a new way that eliminates information gaps by utilizing UNIFORMAT II to document the project requirements, continuously, throughout the entire design and construction process. And, finally we plug MasterFormat construction specifications in when it is time to get something built. All stakeholders can watch the specification documents develop and actively participate by offering comments, and with the right permissions even making edits.

### **Conspectus Project Approach**

Read more about the Conspectus Approach at <https://www.conspectusinc.com/>.  
Contact the author at [dstutzman@conspectusinc.com](mailto:dstutzman@conspectusinc.com)

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[i] "SectionFormat Structure," in SectionFormat™ / PageFormat™ The Recommended Format for Construction Specifications Sections (The Construction Specifications Institute Construction Specifications Canada, 2008) This format prescribes the standard arrangement known as the 3-Part format using Part 1 – General, Part 2 – Products, and Part 3 – Execution. The format also includes standard article titles within each part for a consistent order of information within each specification.

[ii] Standard Classification for Building Elements and Related Sitework—UNIFORMAT II (ASTM International, ASTM E1557, 2009 Reapproved 2015). The original UNIFORMAT was developed jointly by the General Services Administration (GSA) and the American Institute of Architects (AIA) in 1972 for estimating and design cost analysis. UNIFORMAT II was first published in 1993 and enhanced the original, especially for the mechanical, electrical, plumbing, and fire protection elements. See <http://www.uniformat.com> for document background and application discussion.

See <http://www.masterformat.com>. CSI membership or a recent purchase of MasterFormat is required for access.

***David Stutzman has over 40 years of experience in the AEC industry. He founded Conspectus, Inc. in 1992 and has been providing industry-leading specs world-wide since then.***