

What Constitutes a Successful Flooring Project?

A lot of people have asked us the question, "How can I be sure I am getting a good floor installation? One that lasts, looks good for a long time without staining and is not affected by chemicals." The quality of flooring installations appears to be a universal problem. Many industries experience an annual repair-or-replace cycle in order to maintain functional flooring systems. You can escape this cycle and purchase a "good" installation but it requires a commitment and focus on the part of a knowledgeable team. It requires an understanding of the issues and some forethought of what the end users requirements are. It requires a different new attitude, which recognizes that flooring is not a commodity purchase.

Flooring encompasses a wide range of products and applications in a variety of industries. The end user is the key to understanding the needs of any industry and, more specifically, the performance expectations within a particular facility. If an installation meets expectations, it is successful. The difficulty is in determining those expectations.

The type and quality of the substrate to receive flooring is important to the material bond and long-term success of the installation. The substrate needs to be, among other things, clean, sound, dry and porous enough to allow for the formation of a mechanical bond.

Resinous flooring is manufactured in the field. Even sheet goods and tile, while being factory manufactured products, rely entirely on the quality of the installing contractor for success. Unlike the controlled conditions for factory manufactured commodities, field conditions change from project to project. There are no industry wide standards that can be used as guidelines or predictors of a quality project. Without industry standards the definition of "quality" can be ambiguous and subjective at best. The quality of most installations is primarily at the discretion of the successful bidder. Successful bidders are not necessarily successful contractors.

For reasons associated with liability, design professionals are reluctant to assume too much control over the installation procedures in their specifications. They generally rely on statements like "in accordance with manufacturers recommendations" to assure that the flooring contractor will comply with what might be referred to as GMP's in the field. With good reason, what design professionals try to avoid assuming the liability for flooring failures. General construction personnel responsible for the oversight of project installation are generally not knowledgeable in the specific requirements for flooring installation. For these and other reasons, it is difficult to insure meaningful quality control in the field yet, due to the lack of industry standards, effective quality control is key.

When quality control measures are addressed in specifications, they generally pertain to flooring components or the material source. Seldom do specifications address measurable field installation criteria as part of a quality control program. Consequently, many people have horror stories about a floor project that went badly. Even more people tell about floors in their facility that do not perform as expected. The accumulation of errors caused by commodity purchasing procedures, the lack of industry standards and poor field quality control procedures yield a consequence which I refer to as Inferior Flooring Syndrome. Everyone involved in the flooring decision affects the Inferior Flooring Syndrome.

There is a better way. The better way begins with an understanding of the factors that affect floor installations and the knowledge of which of those factors are important to the specific project. Such information will lead to a better understanding of how success for a particular project will ultimately be measured. First, the end user should tour their facility and make a list of the existing conditions that are acceptable and those that need to be improved, including supporting rationale. Attention should be given to how effectively the floor is sloped, chemical attack, staining, delaminated areas, cracking and areas receiving excessive wear. The resulting document can be used as a list of expectations for the new project, including a defensible justification for those expectations.

The second step is to develop a team to deliver those expectations. The team members will vary depending on the complexity of the project. The key is to have a team with a range of expertise to address not only direct flooring related issues but related issues such as concrete, drain placement, specification development and procurement guidelines.

Some important considerations are as follows:

- 1) Does the facility need drains and where?
- 2) What type of drain works best with the flooring system and what are the architectural details to accomplish a good seal?
- 3) Where should the drains be located, should the floor slope to the drains and at what slope rate?
- 4) Who is going to be responsible for installing the slope and how is it to be accomplished?
- 5) What are the best details for the flooring cove base and how are those to be accomplished?
- 6) What level of chemical resistance do you require and in what areas of the facility is it required?
- 7) How much skid resistance if any do you need?
- 8) Is thermal movement a concern?
- 9) What are the ventilation requirements for the flooring system during installation and can they be accomplished?
- 10) Who tests for moisture in the slab? Do not accept assumptions that moisture will not be a problem.
- 11) What kind of traffic would you expect and in what pattern do you expect it?
- 12) What is the weight of the rolling equipment?
- 13) How are you going to treat expansion joints and cracks and how do you design the flooring system to accommodate load transfer at the joints.
- 14) Are aesthetics important?
- 15) Will the flooring system survive your cleaning regime or do you need to change your protocol?
- 16) How long do you expect the flooring system to last?
- 17) How and when do you plan to check bid samples for chemical resistance?

If the project is either new construction or a major renovation the team should include the end user, the architect and a flooring contractor at the minimum. Armed with the list of expectations the end user can utilize the expertise of the flooring contractor to determine the best materials and flooring system to accomplish the task. Further the flooring contractor can address related issues such those listed above and recommend ways to successfully deal with your expectations.

The architect can assure that the design details are covered and that the specification properly expresses the expectations. If the General Contractor or Construction Manager have already been selected, they should also be a part of the team since they are responsible for implementation and compliance of the project. The team approach enhances shared ownership of the project by the addition of expertise from several areas. Our experience has proven this to be the best course.

Once the list has been developed and the team has determined the best way to accomplish the task the next step is to write a specification to protect the integrity of the process. This is where the architect and their spec writer are of immeasurable assistance. The specification should not only outline the system requirements according to your expectations but, more importantly, should also establish the field quality control and pertinent decision processes to insure a good installation. A good specification should include such things as chemical resistance testing prior to awarding the contract, core sampling, moisture testing and participation by the end user in selecting the contractor, based on the measurable criteria of quality and other controls. Failure to meet the stated criteria should have assigned and enforceable penalties. Conventional requirements such as references for similar jobs and manufacturer certification of the contractor, while helpful, are of limited use. Most contractors, regardless of their qualifications, can come up with three people who are satisfied with their work. Most manufacturers will certify a contractor as a customer but will not certify their quality.

A successful installation *begins with the design process and the list of expectations.* The assurance of a successful project lies with a *specification that clearly states those expectations and assures compliance.* The **ultimate step** lies within the commitment of the team to enforce compliance with the specification. I often wonder if anyone building a house would, knowing the construction specifications called for top quality 2" x6" stud walls, allow the builder to use inferior grade 2" x 2" studs. I suspect not, but the flooring equivalent of that scenario occurs daily. That occurrence is the primary reason for failed flooring projects (Inferior Flooring Syndrome). A properly planned project will also proceed smoothly with no surprises. In case you don't know, surprise is another word for change order. In addition to the irritation caused by change orders, they also cause delays and increase the cost of projects. No one wins when change orders are involved.

The final process that affects your level of expectations is called "value engineering". Value engineering is a process that occurs when costs exceed budget. If money is not available to provide the ideal level of desired quality, the search for an affordable and acceptable alternative is the logical consequence. The concept of value engineering is based on redesigning the expectations to be more affordable but still provide the critical aspects of the original design. During the value engineering phase the list of expectations becomes the reminder of what is and is not important and why.

If all people involved in a project understand the important issues and develop a method to assure the important issues are achieved, then success will be achieved.