

Consultants share concerns

Teamwork key to successful roofing project

By Michael Russo / RSI Editor-at-Large

Although most roof consultants point to improved relations with contractors, many feel that low-slope installers can do a better job following roof specifications and communicating. They also say that manufacturers need to improve their communications with the consultant and the building team.

According to RSI's 2008 State of the Industry Report, relations between contractors and roof consultants have improved dramatically over the years. More than 70 percent of consultants say the contractor-consultant relationship has gained strength over the last five years. Just as important, the majority of low-slope roofing contractors agree.

Still, 41 percent of consultants report at least one major problem when working with a roofing contractor in 2007. RSI received almost 200 written responses documenting issues with contractors and manufacturers. As a follow-up to their responses, RSI interviewed many of the officers and directors of the Institute of Roofing, Waterproofing, and Building Envelope Professionals (RCI) to get further insights.

Interestingly, most consultant complaints involve business

issues rather than roof installation problems. Contractors who do not follow specifications and contract documents are common in the industry, consultants say.

"The primary problem I have had with contractors are the lack of submittals and the substitution of materials without prior approval," registered roof consultant and architect Jeff Fuller, the project architect for Heffernan Holland Morgan in Pensacola, Fla., says. "Also, having the contractor keep a set of drawings on site to provide 'as-built' information is also a challenge. The final mark-ups I receive are usually pretty poor."

Andy Hoover, principal of The Best Consultant Inc., in Suwanee, Ga., and secretary of RCI's Georgia chapter, agrees: "We find some contractors will bid to the spec and then try to intentionally cut corners on it."

However, Hoover's concerns are not just limited to contractors.

"Our biggest problem with manufacturers is poor and misleading data about their products in both specification and application," Hoover says. "They are often vague or too

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The architect's perspective on roofing specs

By Stephanie Aurora Lewis / RSI Contributing Writer



A significant amount of project time is devoted to writing specification sections that are accurate and coordinated properly with the drawings, according to three Columbus, Ohio-area architects.

Each agrees that architects put a lot of thought into writing the specifications. At times, the writing and drawing coordination process is laborious when deliberating which solutions are ideal for a particular project size and type.

"We do a lot of research on various concepts of roofing. Sometimes, there is considerable debate on what is the best practice," Greg Lonergan, a senior design and project manager with Steed Hammond Paul Inc., says.

Most architects wish to improve the level of accuracy and usefulness of their specifications.

"I think all specification writers agree that our goal is to reach a point where we will not leave out a material on the project," Larry Caldwell, a senior associate and director of technical services with Karlsberger, says.

Architects rely heavily upon the contractor's input during the bidding phase. "In fact, we really want to see specification errors disappear during the bidding process," Caldwell says. Ultimately, excellent verbal and



"The installer plays a very important role in the construction process."
— Larry F. Caldwell, senior associate and director of technical services, Karlsberger

written communications between the architect, the contractor, and the manufacturer are essential tools for any project, Caldwell says. All parties of the construction team benefit if the owner is pleased because their work was efficient and profitable and because they can market their services with confidence.

Specifications computer software programs prevent pitfalls within the construction documents. "Most firms use MasterSpec or some other specification system as a base and then alter it from there, so there should not be a dramatic amount of errors," Lonergan says. "The biggest errors come into play by typos or reusing a specification that was tailored to another project, although most of

those errors are pointed out by the contractors during the bidding process and corrected by addendum."

Increasingly, firms are working within the Building Information Modeling (BIM) environment, in which two-dimensional drawings and three-dimensional images of the building are linked together with the specifications. Ideally, newer software programs, such as e-Specs, will further protect the project from snares related to mishaps in the construction documents.

Contractor feedback

A large portion of each specification section includes the requirements for submittals and shop drawings.

"During the submittal process, we are looking for some feedback and perhaps even a pat on the back," Kurt Beres, a project manager with Meacham and Apel Architects, says.

Detailed requests for shop drawings may appear nettlesome and overbearing, but the nature behind their request is rather positive. The architect is inviting the contractor into a discussion about selected materials and construction methodology. "If the contractor has a point, or a better way of doing the work, the specification will very likely be altered by addendum," Lonergan says.

Beres managed a project in a hurricane zone in Virginia in which he had to work hard to get calculations on the membrane design back from the manufacturers and installers.

"My concern was that the seams in the TPO (thermoplastic polyolefin) roof we designed may not have been sufficient to withstand a hurricane," Beres says. In the end, he received calculations from the manufacturer to confirm that the design he originated was sufficient. For a complete approval of the roofing design,

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specific to limit their accountability. There is also little recognition that details may need to be different, and they should defer to the on site consultant's drawings."

Although roof consultants often write the specifications, they generally do not review roofing contractors' bids.

"Often, the contractors' bids look like they never read past the beginning of the specification, and often they do not quote



"The biggest challenge I personally see is the rapid growth in 'green' roofing that includes all manner of issues too numerous to list." — David R. Hawn, RCI's first-vice president and president of Dedicated Roof and Hydro-Solutions LLC

with contractor non-compliance or product substitutions.

"Clear communication at all levels is important to project success," Hawn, the first-vice president of RCI, says. "What I attempt to do is make the project less complicated without removing the detail. If this is properly done (for submittals, change orders, specs, etc.), there are no problems. Unfortunately, consultants are called upon too late and to solve problems that have already occurred, so that can become frustrating."

Hawn recalls one job-in-progress that lacked a "scope of work" and a specification.



"I have to admit that BUR is still our assembly of choice." — Brandon Hexham, RCI Region V director

Roof consultant Brandon Hexham, the vice president of Pinnacle Roofing Consultants Inc. in Richmond Hill, Ontario, Canada, says he is always open to changing a spec or detail if the contractor recommends it, and it improves the job.

"The main problem that we have with roofing contractors is communication," Hexham says. "Most of the time they don't tell us when they're working so that we can inspect the work in progress, or they quit for the day and don't notify us. So we wind up wasting manpower on job sites and countless time on the telephone trying to track down roofers."

what the specification calls for, except for the products used,"

Ted Michelsen, president of Michelsen Technologies in Lakewood, Colo., and vice president of RCI's Denver Chapter, says.

Registered roof consultant David Hawn, the president of Dedicated Roof and Hydro-Solutions in Centreville, Va., deals mostly with pre-qualified roofing contractors or those he's had previous experience with. For this reason, he has few problems

"I had nothing to go on but local code and found at least five different manufacturers' materials present," Hawn says. "When I asked who the manufacturer of record was, the roofing contractors said, 'I am.'"

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SPRI responds to consultant concerns

A number of the roof consultants interviewed by *RSI* mentioned the American National Standards Institute (ANSI)/Single Ply Roofing Industry (SPRI) ES-1 standard as their most serious industry concern.

SPRI, the association representing sheet membrane and component suppliers to the commercial roofing industry, developed the standard to improve the performance of roof edge systems in high wind events. ANSI approved document helps determine the wind load forces imposed on various components of the roof edge assembly, and the test methods to verify that these systems can resist these wind loads.

The standard went through the ANSI consensus standard process and after completion was submitted to the International Building Code (IBC) for adoption.

One of the primary modes of roof damage identified by the Roof Industry Committee on Weather Issues (RICOWI) during post-hurricane roof inspections was the failure of the roof edge system and subsequent peeling of the roof membrane under high winds. In addition, a study of 145 Factory Mutual (FM) Global insurance losses with built-up roofing systems showed that 59 percent were lost because of roof perimeter failures.

"The biggest technical issue on my mind is ANSI/SPRI ES-1," Tom Gernetzke of Facility Engineering Inc. in Madison Wis., says. "I appreciate and understand the reasoning behind ES-1 and recent code inclusions. However, this limits available systems and negatively impacts excellent roofing and sheet metal contractors I have enjoyed working with.

"In my opinion," Gernetzke adds, "if code requires the test, code should also require third-party quality assurance. ES-1 tested systems can be installed as poorly as shop-fabricated systems."

SPRI agrees that simply having an ES-1 tested system does not assure that the roof edge will be installed in the manner in which it was tested.

"Onsite verification should be completed on this section of the roofing system, just as should be done to verify that all elements of the building that must meet prescriptive test requirements are installed as tested," SPRI Technical Director Mike Ennis says.

Karl Schaack of Price Consulting in Houston also had questions on the ES-1 standard.

"I have concerns on recent code changes involving ES-1 and exactly what are the 'real' options," he says. "Can we rely on NRCA (National Roofing Contractors Association)-approved details or individual contractor testing?"

The fact is that code requires that the edge metal system meet the requirements of ANSI/SPRI ES-1.

"Any manufacturer of edge metal systems can have its profiles tested to meet the building code requirements," Ennis says. "It is not limited to specific manufacturers or systems."

According to SPRI, both suppliers of pre-manufactured edge systems and sheet metal contractors have tested their systems in conformance with ES-1, thus meeting the requirements of the code.

In addition, NRCA and the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) have funded testing of various edge metal system profiles. Both organizations offer this data, under specific conditions, to manufacturers of these systems to meet building code requirements.

Ennis recommends that roof consultants contact these organizations to determine how these specific programs work. **RSI**

Don't blame the roofer

Most RCI consultants are quick to admit that not all roofing problems are the contractor's fault.

"We've all seen drawings lacking sufficient detail and very unclear specifications," Pete Monterose of McDonald and Monterose in New Hartford, N.Y., and a Region I director for RCI, says. "You can't blame the roofer if he's stuck interpreting them and doing what he thinks is best. The contractor often doesn't know the history of the building and the pre-existing problems. That's the architect's responsibility."

Almost every consultant interviewed by *RSI* referred to the importance of a "team concept" and working toward one common goal — building owner satisfaction.

"I know some contractors in Chicago who will mark up the job 10 percent when they have to work with certain consult-



"My advice is to bid it the way it was specified." — Pete Monterose, RCI Region I director

ants," registered roof consultant and architect Tom Hutchinson, the principal of Hutchinson Design Group, says. "These consultants will yell at the contractor in front of the owner. That's a horrible way to work."

Like other experienced consultants, Hutchinson, who is past president of RCI, realizes that the contractor is an integral part of a successful roofing project.

"We're all in this together, and we want the contractor to make money," Hutchinson says. "The worst-case scenario is when a roofer loses his butt and quality suffers."

Full-service consultants like Hutchinson will typically analyze and confirm the roofing problems, prepare drawings and specs, put the job out for bid, and oversee the process. When the building owner approves a bid, the consultant will write out an American Institute of Architects (AIA) contract for the job and observe the installation.

"The twist on this is that a lot of consultants don't draw," Hutchinson says. "They will just reference NRCA (National Roofing Contractors Association) or manufacturers' details and do the full-time observation. But they'll charge the owner for a full-service job, when it's really not."



Registered roof consultant Tom Hutchinson on the relationship between consultants and contractors: "We're all in this together, and we want the contractor to make money. The worst-case scenario is when a roofer loses his butt and quality suffers." (Photograph by Carlos Vergara)

RCI leads the way

James Birdsong, RCI's executive vice president and CEO, agrees with *RSI*'s statistics showing a big improvement in contractor-consultant relations.

"I appreciate that you have attributed this to RCI," Birdsong said, in response to a question, "but we have to remember that the contractors have played a role, too."

Since its founding in 1983, RCI's membership has swelled to 2,500, and some registered roof consultants were previously roofing contractors. In fact, Birdsong sees contractor participation as an excellent potential source for RCI's growth.



"The relationships between building owners, contractors, and consultants continue to evolve today."
— James Birdsong, RCI executive vice president and CEO

A small number of roofing contractors who have taken the RCI tests continue to work in the trades.

"I am sure the certification was helpful to these contractors in understanding the role of the roof consultant," Birdsong says.

In the mid-1980s, *RSI*'s surveys showed that up to 75 percent of contractors had problems with consultants.

However, Birdsong has seen the relationship evolve.

"The consultant was a new player then," Birdsong says, "and there were many adjustments in the relationships between building owners, contractors, and those early consultants. These relationships continue to evolve today."

The relationships between consultants and manufacturers are also strained at times, because the contractor is the supplier's customer, not the consultant.

"Some manufacturers call to get the spec without even knowing what roofing materials are being called for," Monterose says. "Then, they don't do their homework before trying to submit changes."

Monterose also finds that some manufacturers' sales reps either don't know enough about their products or don't communicate well.

"They (reps) are quick to tell us of a new product but fail to mention when one is discontinued, which can cause problems for us," he says.

Some of the consultants interviewed by *RSI* also report either a lack of training on the part of roofing crews, or the failure of any

workers to speak English.

When writing a spec, Hutchinson requires that at least one person on the roof representing the contractor speak English. "I don't care if it's someone's daughter," he says. "We do it for safety reasons."

In Canada, Hexham, who is 29, doesn't see many young faces when working with contractors' crews. "The younger ones are usually laborers," he says, "but I can't say that the 'average' crew lacks skills or training."

In the United States, Monterose feels that manufacturers and trade unions are responsible for training, although associations like NRCA and others have done an admirable job.

Unlike contractors, who tend to favor thermoplastic polyolefin (TPO) single plies, most consultants prefer multi-ply built-up roofing (BUR) and modified bitumen systems, according to *RSI*'s survey.

Monterose has yet to spec a TPO, primarily because the institutional clients he serves have had good experiences with four-ply BUR.

"We push no particular system overall but look at each building, geographic location, and owner situation as unique," Hoover says. "TPO is far from a universal answer but is used in many applications today."

Gernetzke's view on roof system performance says a lot about his respect for the professional roofing contractor: "A good material installed well will always outperform an excellent material installed poorly." **RSI**



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the submittals and shop drawings all need to reach the architect as a means to double-check the project.

Pre-installation meetings are also an important part of the follow-up between the architect and the contractors.

"Very recently, a roofing contractor had not invited the manufacturer's representative to the pre-installation meeting. The contractor proceeded with the work. When forced to get the manufacturer's representative on the project, it turned out the roofing company was not approved by the

roofing manufacturer. As a result, 20 percent of the roof had to be both repaired and replaced," Lonergan says.

Green challenge

Green roofing technologies, such as mounting photovoltaics, adding multiple skylights, and installing a

vegetative roof, present unique and challenging obstacles. A roof garden is one of the most difficult roofing technology feats to accomplish.

"The installer plays a very important role in the construction process. They must carefully follow both the specifications as well as the manufacturers' instructions. Furthermore, hundreds of thousands of dollars of equipment, such as that housed in the types of hospitals we design, would be damaged by the slightest roof leak," Caldwell says. In response to the green movement, Caldwell's office is in the process of revamping their specifications to meet the silver level in the Leadership in Energy and Environmental Design (LEED) program.

Through their specification writing, architects encourage an open forum with the contractors and manufacturers. Their hope is that the buildings will perform excellently and that the construction team works together well because a good reputation is vital for continued business.

"With regard to our specifications, we welcome phone calls with bits of feedback. It can save all of us huge headaches in the future," Caldwell says. **RSI**