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PROVIDING MEANING TO DRAWINGS

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Author: Conspectus, Inc.

Conspectus, Inc. is a respected leader in creating comprehensive design and construction documentation including specifications that help owners and their design and construction teams manage uncertainty and meet expectations. Our transparent approach increases value and reduces risk for all capital project stakeholders from conception through operation. This approach includes the following services: decision management, risk and quality advisory, comprehensive system and performance descriptions, assessment reporting, technical construction specifications, and innovation and thought leadership.



# INTRODUCTION

Purpose of the Round Table is to discuss the opportunities to improve communication between the specifier and other members of the AECO team, on projects from inception and throughout the process. The initial focus was mostly on the contractor, to investigate how their position specifically can drive success throughout the entire process. This particular round table included owners, contractors, project managers, CURT staff, and LEAN consultants.

Discovery goals were to understand:

- The knowledge base of written construction document formats
- Confidence level in written construction documentation
- Challenges and frustrations with the decision making process
- Ideas on how to improve the process
- Ideas on how to influence design
- Where members of the project team can drive improvement and success across the board

Initial round table took place on May 12, 2022, at the CURT Conference: Lean and Workforce Summits in Covington, KY. It was conducted by Conspectus, Inc. David Stutzman.

The program title emphasized contractors but welcomed owners too. Attendees were more owners and owner reps (6) than contractors (3). This may be due to the number of owners the CURT meeting attracted, or perhaps the owners are more interested keeping abreast with the industry. Pure speculation on our part. Half of those registered were contractors, but fewer contractors actually attended.

Company	Role
Procter & Gamble	Family Cost Engineer
Procter & Gamble	Global Construction Manager
PTAG	Managing Partner
Burns & McDonnell	Project Delivery Leader
Microsoft	Director of Project Governance
Microsoft	Director of Construction
United Group Services	CEO
CJ Hughes	Project Manager
IPI	Director of Estimating
Lean Coaching	Director of Capital Projects

The second round table took place on June 8, 2023, in San Francisco, CA. It was conducted by Conspectus, Inc. David Stutzman.

The program title, again, emphasized contractors but all project team members were welcome. Attendees included an owner's rep, government owner, contractor, industry association.

Company	Role
Capital Program Innovations	Principal
Kitchell	Project Director
County of Alameda, GSA Capital Programs	Senior Project Manager
DBIA, Design Build Institute of America	Director of VDC



# **DISCUSSIONS & DISCOVERIES**

### The Survey, Discovery, and Study

Round Table participants logged onto Menti to participate in an anonymous survey that lead the discussion and promoted thought exchange, dialog, etc. It is important to gain an understanding of the following:

- Goals for attending
- Base knowledge and usage of documentation formats
- Favored delivery method
- RFI reasons
- Description of specifications
- Use of specific documents
- Content of specifications
- Purpose, timeliness, contribution of specifications
- Progress Meeting
- Value in transparency vs. collaboration vs. reduction of RFIs vs eliminating VE

The questions in Menti were brought up one at a time. In live time they were answered. Participants watched the results appear as individuals provided anonymous feedback. The group discussed the responses before the next question was presented.

Through these discussions, discoveries were made.

### Round Table 2

The round table demographics had different members of the team, and were from different geographical locations, yet the results yielded were very similar. The information included in this round paper displays the initial findings from the round table in 2022. Comments from round table participants in June, 2023 are included following each discovery. A full detailed report of the second round able is available upon request.

### DISCOVERY 1: Why did you decide to attend this roundtable?

- Interested in conversation about where we can go with construction.
- Interact with thought leaders
- Engage in open discussions about the industry and gain diverse perspectives.
- Interest (as Owner) in seeing perspective of Contractors
- An Opportunity to hear from Industry Peers
- I want different perspectives on what owners do wrong. Particularly at the outset of projects.
- Intrigued by the title of this meeting. I'm curious as to what the contracting community is doing or planning to do to mitigate labor risks.
- What trends are emerging or fading?
- To gain more knowledge on how to improve our industry in aspects such as leading young professionals and how to foster relationships between client/contractors.
- Want to hear the thoughts of other industry leaders.
- How do we as owners work better with our contract partners to develop high performance teams?

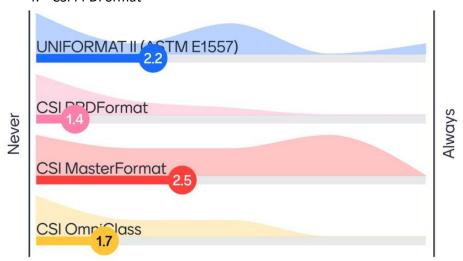
#### Round table 2

- As an advocate of DB delivery and other alternative methods, I am very interested in collaboration and transparency.
- Always looking to learn and gain different perspectives.
- Desire to learn best practices.
- To benefit county projects.

The consensus seemed to be a curiosity to learn more about the construction industry from peers and different perspectives, especially relating to improvement.

### DISCOVERY 2: What formats do you use? Scale 1 - 5

- 1. CSI MasterFormat
- 2. UNIFORMAT II (ASTM E1557)
- 3. CSI OmniClass
- 4. CSI PPDFormat



Results found owners in favor of MasterFormat for the ease of use on the majority of the projects.

Contractors favor UNIFORMAT because they have seen it in estimating, and touched on potential connection with BIM.

A discussion on Preliminary Project Descriptions (PPD) and System Performance Descriptions (SPD) about what each format is and how they are used provided insight to the audience, as not all participants understood the differences. Stutzman provided information about each of the formats and examples of how the formats work. Stutzman also described how OmniClass incorporates adaptations of UniFormat and MasterFormat. Notice there were more attendees that said none of these formats were used. All show the greatest peak at a 1 value for never. This is a bit surprising, especially for MasterFormat. However they may know MasterFormat as the CSI format only and not by the "official" name. Or it may be that the participants are working mostly in the industrial sector where CSI formats may be less prevalent.

PPDs facilitate better understanding of a project in early stages of development by the owner, cost estimators, and design team, and assist in implementing BIM by helping design teams make earlier decisions about some aspects of their projects and document those decisions as they are made. PPDFormat coordinates with UniFormat, MasterFormat, and CSI's other standards and provides guidance for authoring and organizing PPD content.<sup>1</sup>

### Round Table 2:

UNIFORMAT II (ASTM E1557) showed highest use of format at 4.5 out of 5 CSI MasterFormat 4 out of 5.
UNIFORMAT is used for the following reasons:

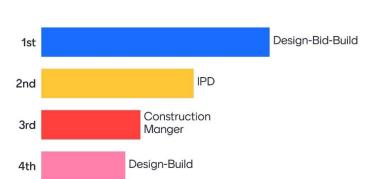
- Conceptual estimating
- Continuous estimating through construction
- It is big picture and show systems and assemblies.
- It includes soft costs. Takeoff and rigid estimating can get frustrating.
- VDC and models are related directly to UNIFORMAT

Owners rep, while working with a contractor, has used Uniformat as a tool to refer back to, to find out where and why decisions were made with the management team.

DISCOVERY 3: Rank project delivery methods you use on a scale of 1 - 5, Most common first.

- 1. Design-Bid-Build
- 2. IPD
- 3. Construction Manager
- 4. Design-Build

# Rank project delivery methods you use



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Mentimete

Procurement processes rely on three bids and a buy to ensure competition in bidding. This approach is used for contractor and trade partner selections.

Integrated project delivery (IPD) methods are used. Integrated form of agreement (IFOA) is not normally used. IPD is preferred as a means to implement Lean Principles and to take advantage of early trade partner involvement to help improve design documentation.

There is an interest in value-based contractor selection and in establishing long-term relationships between owners and contractors. Because contracting is on a project-by-project basis, the current delivery methods do not seem to support such an approach.

The group was interested in learning if there is an intent to move away from Design-Bid-Build (D-B-B) to gain greater value for the owner.

Could the influence of the focus of the CURT Procurement and Contracting white paper push the familiarity of the D-B-B process as the primary method in this group? Design-Build (D-B) delivery seems to be on the increase in the commercial market sector from the group's experience. Nearly all private work is Construction Manager as Contractor (CMc) or D-B delivery.

Comment: Possible responses did not include Engineer Procure Construct (EPC) delivery method. This may have showed a greater acceptance than design-build. Both methods are essentially the same. In the industrial sector, EPC may be the more familiar term. For future roundtables, responses will include EPC as a separate choice or combined with D-B.

#### Round Table 2

Although Design-Build and Design-Build/EPC tied, with CM closely behind it, the majority of the group is Design-Build focused.

Conversation was around cost and risk being managed. The pitfall of Design-Build are the bridging documents. The owner ends up paying twice.

It is all about relationships with people, rather than solely about the design.

Regarding CM at risk: Southern CA to Northern CA the connections subs have to suppliers is a key factor. Progressive Design-Build is used more than IPD. It can be a big leap for D-B-B owners to go to D-B contract. It is wise to go with a GMP.

Discussion around if the contract documents are different. They become instruments of service, such as buyout verse accounting. The specifications are different as well. RFI is also different, and RFC is used instead.

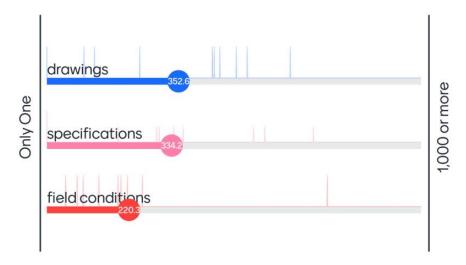
When an incorrect contract is used, it brings difficult communication paths and change order processes.

A contract set up with performance contingencies, which include reward and set true incentives for success. It helps in reduction of documents and unnecessary details. There is reliance on the architectural team using correct teams and subs, where there is an established relationship. Documentation is often based on collaboration and AHJ (authorities having jurisdiction).

Prefabrication is another avenue to simplify the design process. The challenge is getting AHJ on board. Prefabrication is subject to specific delivery methods.

# DISCOVERY 4: Thinking about a typical project - How many RFIs are due to ....

- 1. Drawings 35%
- 2. Specifications 33.4%
- 3. Field Conditions 22%



Attendees asked for explanation about this question and among themselves decided the way to answer the question was to assign the percentage of RFIs per project based on source of the RFI, rather than a raw number of RFIs. So read the scale as 0-100%.

A discussion followed and the following points were highlighted and emphasized:

### Schedule As a contractor:

- Schedule becomes "the law" and target
- More info is needed before contractor can share
- Contractors typically put "2-3 month buffers" into schedule to account for this
- "Trust Piece" contractor commented that owners tend to lose trust in the contractor when they bring them in and schedules and budgets change

#### Schedule As an Owner:

- Time is spent on front end (unnecessary)
- Proposal times are 6 weeks when it should be 3 months to get accurate pricing. Contractors feel forced
- Not enough time to even talk to subs

#### What would be ideal time to join a team:

- Contractor: if the contractor could come in EARLIER to participate 2-3 months of design at the same time 2-3 months of engineering estimating (Side by Side)
- Contract methods help support getting a better handle on schedule

### **DISCOVERY 4: RFIs Continued**

The discussion focused on schedule and timing of team involvement. Contractors are concerned about the time allotted for talking with subcontractors and preparing bids. The consensus was that earlier involvement allowed an opportunity to review, comment, and improve the construction documents, reducing the number of RFIs.

The distribution of RFI sources is interesting considering Conspectus (as the specifier) sees very few RFIs for projects, suggesting those stemming from specification are few. We know our larger projects have many RFIs, usually greater than 800. Some of these may be occurring during design from CMc and D-B contracts when the contractor is involved in precon

The concern about schedules suggests the RFIs may be pushed into the construction phase rather than being resolved during design and bidding. This may be compounded by the D-B-B delivery method. This should strengthen the position of the specifier, allowing early construction team involvement in spec production to ask and resolve questions before bidding and construction. The implication is eliminating 30% of RFIs.

Schedule emphasis may mean that design documents are issued before they are ready just to meet the schedule. This also may mean that design decisions needed for document preparation are delayed too long for proper coordination. This may support the specifier's position of managing design decisions for better outcomes and tracking design completion by level of development in UNIFORMAT.

### Round Table 2

- RFIs are from coordination issues, even with common details in drawings.
- Often the model is note reliable.
- Ask this question about RFIs by delivery method.
- Time & money are the biggest concerns.
- Often see these when the sub comes on the site. There is an "oh, surprise!" moment.
- On the Owner's side, the RFI is a pass through. The RFI will go straight to the owner, instead of to the Architect. A resource is a chart for Owner driven RFI and changes.
- Time is used during design, and issues come up in construction administration, where there is no fee available. It becomes clash prevention.
- What is the value proposition in reducing RFIs?
- How much time is really spent in 'paper-pushing'?

# DISCOVERY 5: Thinking about quality - How would you describe specs for your projects?



The following is the complete list of words attendees provided:

- Unnecessarily complex
- Uncertain project start
- Platform managed
- Not tailored to user
- Poor communication medium
- Not edited for clarity
- Evolved
- Lack of information

- Bogus
- Barely Adequate
- Improvable
- Not consistent
- Variable
- Loose
- Lacking
- Need improvement

- Exhaustive
- Not project specific
- Challenged
- Lack Clarity
- Ambiguous
- Incomplete
- Low quality

None of the words were repeated to stand out as a preferred answer. "Evolved" could be positive, meaning better than previously. "Exhaustive" may have two diametric meanings - incredibly complete or excessive. Without context, the intent of exhaustive is impossible to know.

No other word was complimentary. Nearly all were derogative - indicating less than desirable quality.

Who is the specifier, on each project? Can the individual be identified by name? The majority of the participants could not identify the specifier on their project. The specifier is on the design/architect/engineer team and that is the extent of knowing who that team member is. The conversation continued into having the specifier become more involved from the very beginning to document decisions to support the design team and project estimator.

Anecdotally, contractors regularly describe specs as boilerplate and cut-and-paste. Attendee comments indicate the same lack of specificity to the project and a quality that does not instill faith in the documents. This is an area where a specifier can build a strong relationship with contractor and owner clients, considering the current impression of specs.

### Round Table 2

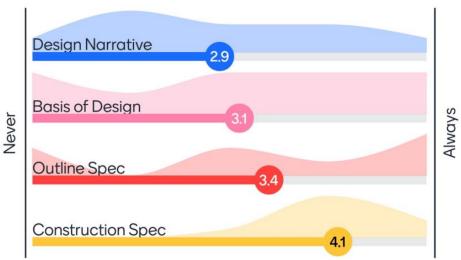
Discussion took place around the root causes to these descriptions. It is important to understand what they are because the owner is the most protected by the specifications. The common culprits of negative options are:

- Specs are typically 'edit by deletion'
- Staffing and coordination
- Schedules are tight and specs are boilerplate

Specifications should drive performance, use Uniformat to inform cost estimating.

# DISCOVERY 6: How frequently are these project documents used? Scale 1 - 5

- 1. Construction Spec 4.1
- 2. Outline Spec 3.4
- 3. Basis of Design 3.1
- 4. Design Narrative 2.9



Outline spec use was ranked quite high, but it was also the most variable. Conspectus's experience, as specifiers does not support common use. American Institute of Architects (AIA) and ConsensusDocs Owner-Designer contracts both require outline specs as a Design Development (DD) Phase deliverable. Engineers rarely produce outline specs.

The Design Narrative together with Basis of Design (BOD) as preliminary design documents are used on projects to document early design decisions. Also, the Design Narrative and Basis of Design are often used interchangeably. The relative use when considered together may be greater.

By bringing a contractor on sooner, the narrative can be validated, schedule verified, and cost controlled.

With early involvement, contractors saw the Narrative and BOD as a way to help positively influence design with their market and supply chain conditions and pricing knowledge. It may be helpful to explore when each of the documents is used during the design process. This will help confirm if these are once-and-done as a single deliverable or maintained documents used throughout the design and construction process.

A participant referenced a project that the contractor couldn't bid or construct based on Narrative or BOD. Once the contractor was brought on board, there was a tremendous cost savings with their input and narrative adjustments.

Additional discussions included a contractor comment for a Pharmaceutical Campus. The contractor was brought on board far into the process, and it was difficult to honor the narrative requirements. Savings happened, but time was wasted.

### Round Table 2

These 4 projects documents were equal in usage. Comments following the results:

- Business plan is created after the narrative.
- Hard to find skilled narrative writers.
- Owner PM CM conversation starts before engagement with the designer.
- Once drawings are shown, narrative is used less, however there is a loop back to narrative to prevent scope drift.
- Narrative must be written for public and private projects. It depends on how that narrative is used through the project.

# DISCOVERY 7: What is the relative time/value of each?

\*\*\*This question was skipped due to time.\*\*\*

Conspectus continues to investigate this question with contractors. It is critical for us to understand the the time required and the value delivered for both drawings and specifications.

Drawings -

Specifications -

This question relates directly to the quality of specifications asked earlier. If the quality is poor, the time spent is little, and the value is high, there is a mismatch that must be addressed to improve construction documents.

### Round Table 2

The results showed that drawings have more value and more time is giving to them. Which may go hand in hand. Discussions resulted in the following points:

- Clients want to be able to read drawings. The builder want to put more emphasis on the specs.
- This point may also depend on the type of procurement.
- This point also causes an issue with bridging documents.
- 90% of the Architects fee often goes to drawings.

# DISCOVER 8: What can you find in specifications? Scale 1 - 5

- 1. Performance Criteria 3.7
- 2. Product Requirements 3.6
- 3. Design Criteria 3,3
- 4. Owner Project Requirements 3.2
- 5. System Descriptions 3.2



System description were most variable. This may be a reflection of traditional MasterFormat construction specs that are not arranged by systems. MasterFormat specs may contain performance and design criteria and will contain product requirements. Having those three ranked high is expected.

The lower and variable ratings for Owner Project Requirements (OPR) and system descriptions may signal an opportunity to educate the industry about UNIFORMAT and its use and a different set of specifications that complements MasterFormat specifications.

#### Round Table 2

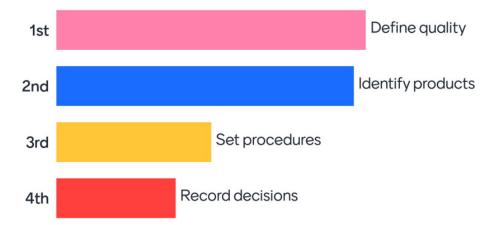
The results from this audience showed the Performance Criteria flipped. It received the lowest in likeliness for being referenced. However, Product Requirements had a high ranking, similar to the above results.

Discussion resulted in the following points:

- Matching performance and design criteria is the biggest challenge.
- Design Build spec and performance criteria is "thinner".
- Commissioning agent is brought on as soon as Design Build project is started.
- In a BIM execution plan, Uniformat is hierarchical to make decisions. Decisions should be made at the appropriate time, and in appropriate detail.
- Uniformat moved through the projects from conceptual cost to procurement.

### DISCOVERY 9: Most important first - Rank the Purpose of Specifications:

- 1. To Define Quality
- 2. Identify Products
- 3. Set Procedures
- 4. Record Decisions



After seeing the ranking, Stutzman asked if attendees agreed that specs, by recording decisions, also document all of the others. The group agreed. This seemed to be an AHA moment for everyone - relating specs to recording decisions.

Stutzman also asked: If the contractor could work with the specifier directly, what value would that add in recording and managing decisions?

The participants agreed that recording decisions, in a transparent and collaborative manner, projects would see a higher level of success. Having input on decisions as early as possible would help improve the outcome. The owners were very vocal on this point.

The group answers are predictable. The focus is on the result rather than the process of writing specifications. Documenting design decisions contemporaneously with the design process provides a record for evaluating the design solution against the established project criteria.

#### Round Table 2

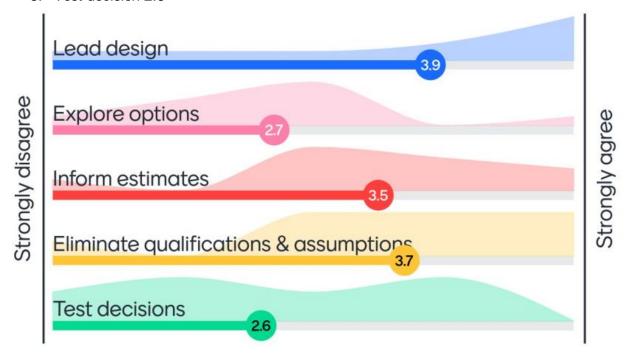
The results of this question were similar in the first two purposes. However, this audience weighed Record Decisions higher than setting procedures.

Record decisions: "Record" vs "Record"

It can be problematic when requirements are recorded. It may conflict with the owner's requirements, especially in Design Build.

# DISCOVERY 10 - Do you think specifications should... Scale 1 - 5

- 1. Lead design 3.9
- 2. Eliminate Qualification and Assumptions 3.7
- 3. Inform Estimates 3.5
- 4. Explore Options 2.7
- 5. Test decision 2.6



Though "Lead Design" had single votes for 1, 2, and 3 rankings, it had a peak at 5. Perhaps this was a reaction to the previous question and the AHA moment. Conspectus has heard this in other settings recently stated voluntarily and without prompt. Through this concept, is there a way of getting to an informed decision and minimizing rework in design.

Owner, who has retired twice, provided a lot of input towards how projects and processes should run. Many participants discussed how critical the process is.

Specifications can describe projects in words more easily and more quickly than drawings. Many options can be included without the need to draw any of them allowing for effective cost and performance analysis before committing to a solution. The top three answers, if used together, may have significant impact on the decision-making process, maintaining project budget, and eliminating rework due to value engineering.

### Round Table 2

Informing estimates is the priority choice with this audience. Secondly, similar to first audience is to eliminate qualifications and assumptions. Discussion points include:

- How can stakeholders participate more in writing the spec?
- Can Uniformat be used as a tool to record stakeholder or user group needs?
- Programmers and specs could work together through the project.

### DISCOVERY 11 - When should specifications be started?

- 1. Concept Design 6 responses
- 2. Day One 1 response
- 3. Schematic Design 1 response
- 4. Design Development 1 response
- 5. Construction Documents 0 responses

The high ranking for concept design shows the emphasis on early project contractor involvement that was discussed throughout the meeting. The fact that Construction Documents (CD) Phase had zero votes is an encouraging sign of the need to push specs earlier in the projects.

The discussion for Day 1 was more about getting executive buy-in for the project, an effort that specs may not be well suited to support. This seemed to be high-level summary information only that was needed for project initiation.

The conversation continued on "the sooner, the better". Architects wait too long to do specs.

Note on responses: Attendees started leaving the meeting before getting to this question. Previous questions had up to 12 contributors. From this point on there were seven contributors.

### Round Table 2

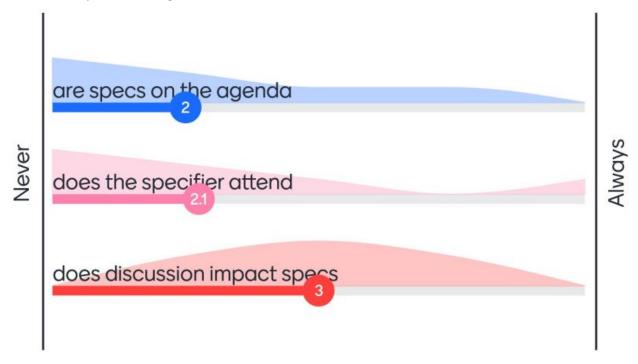
Concept Design was favored as first choice. Day One was second choice. No other options were chosen.

### Discussion points:

- Day One is the business plan, BUT there are standards and requirements already defined that can start the specs.
- Sticking point with Architects is getting them to work on specs, while decisions are being made.
- Can facility assessments be in Uniformat? Answer: Augmentation assessment could definitely use Uniformant.

# DISCOVERY 12: In progress meeting, how often... scaled never to always (1 - 5):

- 1. Does Discussion Impact Specs: 3
- 2. Does the Specifier Attend: 2.1
- 3. Are Specs on the Agenda: 2



Project meeting discussions impact spec content, yet specs are not on the agenda and specifiers do not attend the meetings. Conspectus experience provides that specs are rarely on a meeting agenda, and specifiers are rarely invited to the meetings. It is more so that architect clients do not want to pay for our meeting attendance. Conspectus perspective is design meetings are often about aesthetics and layout rather than technical aspects.

A counter point - an owner said their specifier attends.

Another owner point: "things are done this way, because they always have been. This is why we need to fix it!!"

### Round Table 2

The results were similar. No specifier is ever invited, but the Architect is.

There was discussion around how standards and specifications can and should be brought to the front.

If everyone is involved in the OAC, that might be too much. But it is important that the thinking around the spec happens, even if not everyone is there.

# DISCOVERY 13: When do you contribute to specifications?

- 1. Continuously as written 6 responses
- 2. 100% Design Phases 0 responses
- 3. 50% & 100% Design Phases 0 responses
- 4. Never 0 responses

The owners thought they were continuously involved because they provided standard specs and design guidelines at the start of the project. At this point in the meeting, by observation, it was owners that remained. So contractors had no voice in these answers.

### Round Table 2

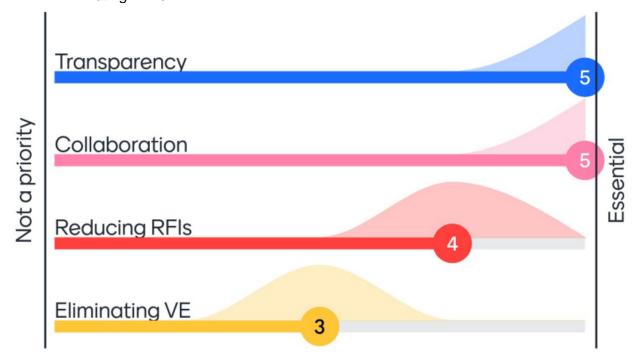
All participants commented that they are involved at 50% and 100%. However, does that allow enough time to develop them? NO.

Specs must be progressive, but how do you capture someone's attention? How do you put this into practice?

No solution was recorded.

### DISCOVERY 14: What is the value of .... Scale 1 - 5

Transparency: 5
 Collaboration: 5
 Reducing RFIs: 4
 Eliminating VE: 3



For this question, only one attendee responded. Little can be said from this slide, as a consensus.

An owner with LEAN experience - discussed his experience throughout his career and how this ties into LEAN practices.

Having an open discussion from the beginning is critical.

Anecdotally, transparency and collaboration are always presentation and discussion topics at industry conferences. Both are seen as a way to improve team communications and project outcomes. RFIs are rampant and increasing. VE occurs on nearly every project, usually more than once. By LEAN principles, both are waste and should be eliminated. The hope is that transparency and collaboration, when implemented early with the entire project team, will eliminate this waste.

### Round Table 2

Collaboration also lead the choice with this audience, with transparency in second place. However, are these just buzzwords? Can specifications be a team sport?

- Could an asset description be used all the way through?
- Conspectus has written a 25 page document in Uniformat for a Cancer Infusion Center, that was used for construction.
- Aligning with a guide is the biggest challenge.
- Bridging documents, with options.

# DISCOVERY 15: Rank positive impact on projects.

This question asked at Round Table 2 only.

THINK ABOUT RELATIVE IMPACT, FIRST IS GREATEST

# Rank positive impact on projects



#### Comments from audience:

- This is difficult to answer.
- VE is when you fail.
- Valued in LEAN, is collaborations. NOT valued: broke supple chain. Just in time delivery.
- It is difficult to collaborate when the Owner is not pulling weight or any point of the team project.
- "Lazy works double". Grandmother

# **CONCLUSION**

#### FINAL THOUGHT: PEOPLE-PROCESS-SYSTEMS

The final question was posed to group: What is the correct order of importance of the above three areas of the project. The group unanimously agreed on the order of people first, process second, and systems third.

\_\_\_\_\_\_

Feedback from participants:

Thought it was some good discussion with our peers and beneficial. It was interesting to hear that the industry as a whole was experiencing the same issue with keeping their specifications up to date. As with the Prairie Dog OS2 model our industry needs to be driving a shared risk across our businesses thus eliminating paper work.

- Owner

\_\_\_\_\_\_

Did you find this round table productive and beneficial?

Yes, I found them interesting and productive. There was an ability to assemble perceptions and experience from a diverse group of highly experienced practitioners that enabled good conversation. I was glad I stayed over.

What was your biggest take away?

There is a potential for significant interaction between Conspectus and Uniformat and the Fundamental Scoping Block concept that I'm advocating.

What would have made it a better experience?

Enough time for small group breakout sessions.

- Project Delivery Leader - Engineering firm