

Design/Build – a TE/STI Relationship (Case 1040)

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The Case:

Ethan Roberts, P.E. is the principal in charge of design for intelligent transportation systems, one of many specialty services that his firm, Tecxtrans Engineers, offers in the transportation market sector. These intelligent transportation systems encompass a broad range of communications-based information and electronics technologies aimed at relieving congestion and improving traffic safety.

Tecxtrans has historically offered services in the public sector and only within the context of traditional design-bid-build (D/B/B) project delivery agreements. This is because Federal statutes require that highway construction contracts be awarded competitively to the lowest responsive bidder. In such cases, Tecxtrans' professional services are procured through a qualifications-based selection process; whereas, construction contracts are competitively bid.

But in an effort to streamline delivery of a new intelligent transportation system for the City of Franklin – a large metropolitan community in the northeastern United States – the state department of transportation, EDOT, opted to use a design-build (D/B) contract. Through careful negotiation, EDOT got a ruling that the Franklin project could be viewed as an experimental project and that D/B would satisfy existing statutes and regulations as long as the project was awarded using competitive bidding procedures.

So it happened that Tecxtrans Engineers teamed up with Specialty Transit, Inc., an out-of-state construction contractor, to pursue the project as a partnership-type joint venture (TE/STI).

The decision to pursue the project under a D/B agreement was a difficult one for Ethan. On the one hand, Ethan felt that by getting into D/B he was taking on undesirable risk. Convinced that Tecxtrans held the inside track in terms of qualifications, and owing to the fact that EDOT was one of Tecxtrans' flagship clients, Ethan was sure his firm would be short-listed in a traditional D/B/B contract. From this position of strength, he didn't relish the idea of worrying about construction risks. Additionally, Tecxtrans had no D/B experience, so Ethan's team was unaccustomed to serving as a partner with the contractor.

On the other hand, Ethan recognized the limitations of D/B/B, and could see how D/B holds the potential to streamline project delivery. In fact, the trend toward D/B for

private contracts had been growing steadily, and because of this, Ethan felt it would be in Tecxtrans' interest to explore D/B teaming arrangements in the public sector, simply to maintain marketplace competitiveness. Who better to serve clients in this manner than a respected firm like Tecxtrans? By this line of thinking, Ethan was practically obligated to pursue the D/B project delivery option.

The biggest challenge was to find the right contractor partner. Fortunately, Ethan had been sought out and approached by Specialty Transit, Inc., a well-known and successful transportation contractor. With their long experience in D/B contracting in other regions of the country, Specialty Transit was interested in the Franklin project for at least two reasons: (1) this project represented a move into a new region of the country strategic to Specialty Transit's growth, and (2) they were highly qualified to do infrastructure type-construction associated with intelligent transportation systems. For Specialty Transit, the key was to find the right engineering firm, one who enjoyed the trust of the owner (EDOT) and – equally important – a firm with the appropriate design expertise. By partnering with Tecxtrans, Specialty Transit felt they had a “marriage made in heaven.”

The project pre-proposal meeting was the wedding that brought Tecxtrans Engineering and Specialty Transit, Inc. together. Yes, the teaming negotiations were dynamic – Ethan's legal staff considered them a nightmare due to the complex contractual, insurance and organizational issues. However, Ethan was able to get quite a bit of mileage out of the fact that his firm was, without question, the most qualified local design firm. Recognizing that Tecxtrans' expertise and relationship with EDOT was critical to any contractor's success, Ethan negotiated a 50/50 profit-sharing arrangement with Specialty Transit's project manager, Marc Stanton.

Marc was not happy about this. His perspective was that contractors generally make considerably more profit than engineers do on the same project, and he had no desire to split profits evenly with an engineer. Marc felt this was far too high a price to pay for gaining Tecxtrans' help in marketing. But Ethan held firm, and largely due to the strategic importance of the project, the parties reached an agreement and the TE/STI partnership was formed. Marc was the managing partner of the joint venture and was responsible for Specialty Transit's work, while Ethan served as Tecxtrans' principal. The general understanding was that Tecxtrans would be responsible for design and Specialty Transit would be responsible for construction; the issue of what to do in case of a design conflict was not explicitly addressed.

The design-build procurement approach required that EDOT provide prospective bidders with a set of functional requirements detailing the various capabilities of the completed system. EDOT provided a detailed project description to the bidders, including corridors for deployment, functional requirements for equipment, and hardware and software interface design. A multi-step process was followed to select the D/B contractor, the ultimate objective being to provide EDOT with the best value for their investment.

Quite frankly, it was here – in the bid phase – that Ethan started to have doubts about executing the D/B arrangement. For example, Ethan noticed that various details in the

EDOT-provided project information left much to the imagination. Technically these were not errors or omissions, but were points open to interpretation that might turn out to be substantial cost and/or quality factors in the completed project. In D/B/B, Ethan, as the owner's representative, would have discussed these issues with EDOT. But in D/B, Ethan's relationship with the owner and contractor were different. Not sure about how to proceed, Ethan sought out Marc's counsel.

Based on his long experience with D/B projects, Marc informed Ethan that the D/B customer (in this case, EDOT) has to realize that the engineer will be aligned with the contractor and will share in the profits and losses of the venture. Therefore the engineer's fiduciary duties are to the *contractor*, not the customer. Recognizing Ethan's struggle with this shift in roles, Marc reminded Ethan that if the engineer offers any advice to the customer, it should be with the open understanding that such advice may not be wholly objective. In fact, when the engineer is in a D/B relationship with the customer, it would be improper if not deceptive for the engineer to mislead the customer into regarding the engineer as an impartial advisor.

Marc further explained that D/B is not much, if any, different from the contractor's usual relationship with the customer. That is, contractors often give valuable construction advice to their customers. In most cases, the recipient of the advice realizes that it might not be entirely objective. Some advice given by the contractor might be considered to be like a sales pitch and is accepted as such, as long as it does not cross the thin line into misrepresentation. Further, in D/B the engineer's financial position is very close to the contractor's and in direct opposition to that of the customer.

Acknowledging Marc's experience in the matter, and the truth of the situation with respect to D/B, Ethan reluctantly agreed to say nothing. Ultimately the TE/STI partnership was awarded the Franklin contract, the notice-to-proceed was given, and work began.

The project is now approaching 85 percent completion, and Ethan reflects on the cooperative relationship between his firm and Specialty Transit. "Cooperation" somehow doesn't adequately capture the effort – it has been more like *cohabitation*, and it seems pretty clear to Ethan that Marc is accustomed to wearing the pants in the relationship. With the gentleness of a steamroller, Marc has aggressively pushed the design schedule to make project milestones. Some lessons have been painful, but Ethan knows this is not all bad. Projects have budgets and deadlines, and Marc has reasons for displaying statements like "Hurry every time you think about it," and "It is better to seek forgiveness than permission," on the walls of his office. Granted, Ethan has not conceded design responsibility, but only through vigilance and conflict has Ethan's engineering staff avoided becoming unacceptably subservient.

And so it continues. Today, though, Ethan has encountered a more serious issue. While reviewing subcontractor submittals for compliance with specifications, Ethan notices that Marc has authorized several field changes that Ethan does not at all agree with. In the struggle to keep costs within the guaranteed maximum, Marc has apparently substituted

electronics hardware that Ethan sees as being inferior – tantamount to degradation of the quality of materials and design. Ethan is deeply disturbed because the substitution has occurred on the very same systems that he discussed with Marc during the bid phase – the ones that were “open to interpretation.” Clearly, Marc is interpreting as a “contractor” would – in his own favor.

But therein lies the rub – for all intents and purposes, Ethan’s firm *is* the contractor now. And based on previous interactions with Marc, Ethan is painfully aware that design conflicts are not expressly addressed in the TE/STI partnership agreement. Further, the engineer’s usual role as adjudicator of disputes between the owner and contractor would be inappropriate in the D/B setting.

Ethan ponders the fact that in D/B the engineer has no incentive to report this type of construction irregularity to the customer. But Ethan is concerned about maintaining the trust of EDOT and about his own reputation for designing a quality project. Ethan knows he has to learn to operate in the milieu of contracting as a business and not as an impartial advisor to the owner. This may be a gray area but there definitely are two sides. Ethan is torn between his professional obligation to serve EDOT and his own financial interests – not to mention his legal obligations – to fulfill his responsibilities as a partner in the joint venture.

What should Ethan do?

NOTE: This case is based in part on: “Design/Build: What’s it all about? Where do you fit in?” by Arthur O’Leary, *Design Cost Data*, July/August 2001 <http://www.dcd.com/oleary/oleary_ja2001.html>

Alternative Approaches

1. *Celebrate success, happily.* Ethan needs to loosen up and count the revenue. He got into this business to earn a profit, and if he stays out of Marc’s way, a handsome profit is what he will make. TE/STI’s success is a blessing, not a sin.
Percentage of votes agreeing: 0%
2. *Meditate on success, pragmatically.* EDOT’s decision to go D/B was done with their eyes wide open. So who is Ethan to say that the value the TE/STI joint venture is delivering to EDOT in terms of schedule and budget savings does not overshadow any potential quality concern? No one gets to have it both ways. Perhaps EDOT isn’t getting every measure of quality that might emerge from D/B/B, but they are getting what they wanted *and* what they paid for. There is no problem here.
Percentage of votes agreeing: 0%
3. *Live with success, guiltily.* If Ethan does nothing, it seems clear that installation of the inferior electronic gear will, at a minimum, increase system maintenance. So yes, Ethan is right to feel that EDOT won’t get the project they could have had. And yes, Ethan stands to make more profit under the circumstances. But it was EDOT, not Ethan, who chose D/B and opened the door to such possibilities. It may not seem right, but Marc is only playing by the rules and Ethan has done

nothing wrong. Best to let it alone.
Percentage of votes agreeing: 0%

4. *Talk to Marc, openly.* The TE/STI joint venture simply cannot serve EDOT well if Ethan and Marc do not communicate. Ethan should have a heart-to-heart with Marc and explain his thoughts, questions, and concerns about the design change. Further, Ethan should trust Marc to respond professionally and do the right thing in view of the best available data, not the least of which is Ethan's expert opinion.
Percentage of votes agreeing: 35%
5. *Challenge Marc, directly.* Conflict is the stuff of healthy relationships, and Ethan must "push back." Marc needs to be reminded that "design" comes before "build" in D/B. Since Ethan is responsible for the design aspect of the project, Ethan alone approves changes to components of the system.
Percentage of votes agreeing: 11%
6. *Bring in the experts, quickly.* Situations like this should not be handled in isolation. Ethan and Marc should retain an outside engineering firm to perform a peer review of the systems in question to determine their adequacy, and also offer a recommendation on what should be done contractually relative to EDOT.
Percentage of votes agreeing: 11%
7. *Negotiate with EDOT, aggressively.* Ethan must once again mobilize his considerable negotiating skills to help Marc see past short term gain long enough to bring the quality issue to EDOT. Together they must help EDOT see the value of the higher quality electronics, and get EDOT to pay for this. Of course the risk is that EDOT may feel Ethan and Marc are conspiring to submit an unjustified change order, and this will foul the relationship. But the risks of poor quality are much greater.
Percentage of votes agreeing: 11%
8. *Bear the burden, nobly.* If anyone is innocent in the ongoing conflict that Marc and Ethan are experiencing, it is EDOT. EDOT's interests (and by implication, the public's interests) should be held paramount. Knowing that Marc will not likely back down from his position, but feeling that it is critical to get the original equipment installed, Ethan should agree to give up a portion of his share of the profits to offset the cost of the better components.
Percentage of votes agreeing: 5%
9. *Cost share with EDOT, equally.* These kinds of quality issues are intrinsic to contracting in general and to this transportation project in particular. Responsibility is really a matter of perspective. If Ethan or Marc or EDOT were to say, "Not my problem," this leads nowhere. But if each party were to view the situation as everyone's problem, they can take ownership and forge some type of cost-sharing agreement. Everyone will have to pay something, but everyone will get something, too.

Percentage of votes agreeing: 19%

10. *Conspire with EDOT, quietly.* It is not hard to see that when the project is over, Ethan and EDOT will still be in town, but Marc will not. It is clearly in both EDOT's and Ethan's interest to deliver exceptional quality to this project. Contractual obligations aside, Ethan's ultimate responsibility is to the public, so Ethan must go to EDOT to apprise them of the inferior system Marc intends to install. Thus empowered, EDOT can direct a solution that both protects EDOT's (the public's) interests and rewards Ethan for his loyalty.

Percentage of votes agreeing: 8%

Forum Comments from Respondents

1. This is a very difficult situation for Ethan. In essence, the struggle is whether each of the parties in the relationship trusts the other. Does Ethan trust Marc to look out for his (Ethan's) reputation with the client rather than just the bottom line? Do Ethan and Marc trust EDOT to own up to the fact that if they want high quality, they will have to pay for high quality? Does Marc trust Ethan to protect his profit? Does EDOT trust Ethan and Marc to deliver this project faster, cheaper and better? Communication is the means by which these questions can be answered, and the place to start is a conversation between Ethan and Marc.
2. Changes are being made which can lead to inferior systems, potentially violating the contract. No procedures have been established to formally document or negotiate such changes. Failing to address this issue may result ultimately in changes which could jeopardize reliability and safety. Further, Marc is clearly behaving towards Ethan's firm aggressively, not as a partnership. This can only lead to larger problems as each partner's vision of the project drifts further apart. This is clearly a communication issue that must be resolved. Once that is done, the specific issue at hand, which may violate the contract with EDOT, should be dealt with given the tools for communication that are established.
3. As D/B processes emerge and evolve, all parties (Engineer, Contractor, Owner) will need to embrace the realities of the new model. Within the new Engineer/Contractor relationship, neither party will be able to claim an absolute authority regarding some (most?) decisions. In these cases, these "partners" must be open to evaluation and discussion of inevitable problems and disagreements. The Engineer cannot abdicate his responsibility in the name of profit, nor can the contractor choose to ignore the inevitable need to balance quality and costs. Realistically these same choices are made by both parties in the D/B/B process, but perhaps in a different sequence. Likewise, within the new Engineer-Contractor/Owner relationship, there will likely be numerous cases where clear contractual language does not exist to resolve every issue. If there is not opportunity for the open discussion of uncertainties and omissions, then neither party will be able to realize the potential of the D/B process. Again, this same reality exists within the D/B/B process.

Comments from Board of Review Members

1. If the substituted electronics hardware might result in a health, safety or welfare problem for the public, then I believe Ethan has the responsibility to talk with EDOT about the substitution. Such a situation overrides the financial and contractual agreement he has with Specialty Transit, Inc. Poor Ethan. He could lose either way. His reputation is either tarnished with STI or with EDOT. From his interactions with Marc, I doubt whether Ethan would want to work with STI in the future, but he should want to keep his positive relationship with EDOT. Ethan, don't make a bad situation worse by losing your firm's good reputation with EDOT.
2. Other issues are at stake besides the interrelationship between system quality and the public health, safety and welfare. The TE/STI Joint Venture, Ethan's and Marc's long-term reputations, future project opportunities, and short-term profits are also valid considerations. As the project designer, Ethan should investigate the performance aspects of the various changes and make his own determination about which changes will be acceptable, which are not acceptable, and which are borderline. Ethan must then negotiate with Marc in the interest of all parties with a view to all aspects of the situation, not just the ones that are closest to him. It is critical that Ethan and Marc be together on this. From a position of unity, they must initiate conversation with EDOT to resolve the matter.
3. Ethan has first to come to grips with the realities of Design/Build.
 - His responsibility is to provide a design that complies with all applicable codes for the quoted price and that is serviceable for the intended use. The construction industry is held to a standard of serviceability, *i.e.*, make it work based on the scope of work and the contract terms and conditions.
 - Designer preference for specific manufacturers and models has to be tempered by objectively looking at the alternates, putting aside the requirement for the "best" (in whose judgment?) and making an informed judgment on the viability of the specific alternative based on the above statement.

Ethan will have to present an argument to Marc from the following standpoints:

- The equipment has a bad maintenance history.
- The equipment has a poor warranty history/reputation, *i.e.*, warranties will be honored but only after much hassle. Warranties cost the contractor because the removal of such equipment, shipment back to the manufacturer, and re-installation are not covered by the supplier's warranty. These last items have a cost associated with them that the contractor has to bear. How was this addressed in the cost sharing split in the joint venture agreement?
- The reputation of the joint venture for future work, with this client and others, will hinge on the client's satisfaction with this project.

If Marc does not relent, Ethan can:

- Check with EDOT a few months after the project is completed and find out how satisfied they are with the project.
 - Discontinue the partnership/joint venture based on the response from EDOT to the customer satisfaction inquiry.
 - Meet with EDOT after this project is finished and explain why he was not an advocate for them.
 - Apologize to EDOT for not conducting a due diligence investigation into STI's reputation.
4. Like it or not, Design/Build is here to stay. Unfortunately, this method of project delivery tends to cloud the traditional responsibilities of the Engineer, now that the client, through contractual obligation, is the Contractor, rather than the Owner. The ethical responsibility to “act as a faithful agent or trustee” of each client can easily be at odds with the fundamental charge to “hold paramount the safety, health, and welfare of the public” (see ASCE Code of Ethics). In this particular case, it isn't obvious whether the substitution of the inferior electronic system represents a threat to the safety of the public, or merely a decrease in quality that will, at worst, increase the project's life cycle cost to the Owner. If the poor quality components place the public at risk, then Ethan's choice is clear – he must do everything in his power to ensure that the proper equipment is installed, regardless of the potential consequences to Tecxtrans or the TE/STI partnership. If the ramifications are only economic, then Ethan has more of a dilemma. He must weigh the cost of the higher quality components against the value of his firm's reputation. In this scenario, it may be prudent to propose some solution to Marc that would allow the better equipment to be installed, but with Tecxtrans shouldering the additional financial burden. Regardless of the course followed, Ethan must have his team of lawyers close the loophole in their contractual language that led to this problem, so future D/B partnerships do not lead to similar challenges.