



UNITED STATES
CIVILIAN BOARD OF CONTRACT APPEALS

DENIED: May 30, 2007

CBCA 402

MITCHELL ENTERPRISES, LTD.,

Appellant,

v.

GENERAL SERVICES ADMINISTRATION,

Respondent.

William P. Weir, Fort Worth, TX, counsel for Appellant.

Catherine Crow and Dalton F. Phillips, Office of General Counsel, General Services Administration, Washington, DC, counsel for Respondent.

Before Board Judges **DANIELS** (Chairman), **HYATT**, and **DeGRAFF**.

DANIELS, Board Judge.

From 2001 to 2004, Mitchell Enterprises (Mitchell)¹ constructed a new United States Courthouse in Laredo, Texas, under a contract with the General Services Administration (GSA). Mitchell subcontracted the mechanical and plumbing work to LDI Metalworks, Inc.

¹ The contract was awarded to Mitchell Enterprises, Inc. Joint Stipulation 1. On or about December 31, 2002, Mitchell Enterprises, Inc. transferred all its assets, obligations, and liabilities to Mitchell Enterprises, Ltd. Joint Stipulation 76. The parties refer to the Mitchell entities interchangeably as "Mitchell," and we do the same here.

(LDI). In this decision, we consider and deny a claim by subcontractor LDI which has been brought in the name of prime contractor Mitchell.

The claim has lived through many permutations. It was originally in the amount of \$1,615,791.37. It was later revised to \$1,787,347.56 and a time extension of 131 days. The claim in that posture was denied by the contracting officer, and this appeal was taken from that denial. As a part of the settlement of other appeals involving other claims by Mitchell on this project, \$354,372.25 of the claim amount and the time extension of 131 days were removed from this case. Joint Stipulations 91-97. By the time of our hearing in the case, in November 2006, the amount of the claim had been reduced to \$953,469. Transcript at 4-5. That is the amount the contractor currently seeks. Appellant's Posthearing Brief at 1.

Mitchell divides the claim into three elements: \$942,335 related to defective drawings, \$8300 for making additional flashed duct penetrations, and \$2834 for repairing a sump pump. Appellant's Posthearing Brief at 1, 28. The bulk of the amount, obviously, relates to the costs resulting from defective drawings. This figure is divided into four components: \$549,748 for additional fittings ("offsets" or "elbows" necessary to maneuver ductwork and piping around obstacles), \$86,909 for additional shop drawings, \$58,400 for extended project overhead over eighty-two days of compensable delay, and \$247,278 for loss of productivity. *Id.* at 8, 20-21.

Because the element of the claim which is based on the allegation of defective drawings encompasses almost all of the money at issue, we focus on that element in our decision. The contractor's position on this element is marred by two misunderstandings by LDI, one as to the portion of the structure made available under the contract for installing building systems and the other as to the nature of the contract drawings. LDI's errors were compounded by Mitchell's failure to implement the contract requirements for coordination of the work.

The parties agree that the principal issue as to this element, and as to the case as a whole, is whether GSA's design for the building provided sufficient interstitial space to accommodate all of the building systems. Appellant's Posthearing Brief at 1; Respondent's Posthearing Brief at 1. Interstitial space, generally, is the space between stories of a building. Systems include the building's heating, ventilation, and air conditioning (HVAC) system; water, sewer, storm drain, and fire sprinkler piping; and electrical conduit and apparatus.

The parties disagree about how much of the space between stories was the interstitial space which LDI might reasonably have expected to be available for placement of the mechanical (HVAC) and plumbing (piping) systems it had subcontracted to install. In the Laredo courthouse, each floor was concrete, supported by metal beams. The disagreement

concerns whether the space between the beams should have been considered part of the available space. Mitchell and LDI assert that it should not have been considered available, and GSA contends that it should have been. The matter is critical to the claim, since with the exception of a few places where the design was modified (and where Mitchell and LDI were compensated for extra work if necessitated by the modifications), many of the items LDI installed fit within the interstitial space as designed only if the beam space is included within that area. *See* Joint Stipulations 55, 63, 66, 69-71, 79-81; Transcript at 115-16, 143-44, 190, 623-24, 679-80, 694-97, 969-70, 974-75; Appeal File, Exhibits 71, 92.

Mitchell's project manager and LDI's president and project manager all believe that interstitial space is the space above a ceiling and below the beams which support the floor above it. Transcript at 18, 145, 285. They insisted at hearing that the space between the beams should not have been considered available for placement of the systems because it did not provide "a clear avenue" for installation. *Id.* at 344-45. GSA witnesses, on the other hand, testified that the interstitial space is all space between a ceiling and the floor above it -- including the area between the beams that support the floor. These witnesses were the project managers for the agency itself and the agency's construction manager, 3D/International (3D/I); an architect with HDR Architecture, Inc. (HDR), which designed the building; an HDR construction contract administrator; and the agency's expert witness, Stephen Weathers, a professional engineer with twenty-one years of experience in various aspects of construction project management. *Id.* at 544, 655, 717-18, 733, 881, 883, 939. We find that GSA's witnesses, who had a much broader range of training and more experience with construction projects of this size and scope, were more credible than Mitchell's on this point. Thus we find that as a general proposition, the definition of interstitial space to which the GSA witnesses subscribed is more reasonable.

GSA finds support for its position not only in the testimony of its witnesses, but also in a document prepared by the Department of Veterans Affairs. The document defines interstitial space as "unfinished or non-habitable space utilized for building service . . . subsystems of sufficient size to accommodate workers and permit maintenance and alteration without disruption of activities in functional spaces. The term usually refers to the portion of the service zone *between the finished ceiling and the floor above.*" Transcript at 419-20 (emphasis added). Mitchell looks instead to a decision of the Department of Veterans Affairs Board of Contract Appeals, which defines the term, as used in the contract at issue there, as the "space above each operational or occupied floor of the building. The *top of the interstitial space is the floor slab (or roof) above.* The bottom of the interstitial space is a corrugated metal deck with lightweight concrete poured on top." *Clark Construction Group, Inc.*, VABCA 5674, 00-1 BCA ¶ 30,870, at 152,389 (emphasis added). According to Mitchell, this definition excludes beam space because the contract in the *Clark* case required the contractor to install below the beams the kinds of materials LDI installed in the Laredo

courthouse. Appellant's Reply Brief at 1-2. The distinction is not persuasive because the *Clark* contract did not define the area between the beams as other than interstitial space; instead, it merely designated which systems would be installed there. The definition used in the *Clark* decision, like the definition in the Department of Veterans Affairs document, supports GSA's position that the area between the beams is part of interstitial space.

More important to the resolution of this case than any general definition, whether by testimony or documentation, however, is the words of the contract under which the Laredo courthouse was constructed. The contract directed Mitchell (and through Mitchell, LDI) to "[k]eep pipes, ducts, conduit, and the like *as close as possible to ceiling slab*, walls, and columns to take up a minimum amount of space." Joint Stipulation 5 (emphasis added). Because the contract told the contractor to keep its materials close to the ceiling slab, the contract can only be read as telling the contractor that for this project, it should have realized that it might have to use the space between the beams -- which was under the ceiling slab -- in making its installations.

LDI's other fundamental misunderstanding pertains to the relationship between the contract drawings and the installation of building systems.

The contract warned that its drawings "are recognized as being diagrammatic in nature and not completely descriptive of requirements indicated thereon." Appeal File, Exhibit 1001 at 55. Within its mechanical division, the contract said that "[d]rawing plans, schematics and diagrams indicate *general* location and arrangement of piping systems." Joint Stipulation 6 (emphasis added). The contractor was required to prepare and submit shop drawings showing in detail where each trade would install its materials and coordination drawings showing how the work of those trades would fit together. Shop drawings were required for both mechanical and electrical systems, and coordination drawings were required not only for each of those trades but also for project work as a whole. Joint Stipulation 5.

As explained by the HDR architect and construction contract administrator, a diagrammatic drawing shows only generally where systems need to be placed; it does not show all the twists and turns a contractor will need to make in installing components of those systems. Transcript at 715-16, 746, 877-78. When drawings are diagrammatic, the responsibility for filling in the details is imposed on the contractor. *Id.* at 755-56, 879. If an architect intends that systems be installed precisely as shown on contract drawings, the set of contract drawings would have to be considerably larger and more detailed, and there would be no need for shop drawings and coordination drawings. *Id.* at 879. Consequently, these witnesses explained, a contractor should expect that in installing systems depicted in diagrammatic drawings, more turns ("offsets" or "fittings") will be required than are shown and an allowance for them should be made in developing a bid. *Id.* at 754-55, 872, 880; *see*

also Southern Comfort Builders, Inc. v. United States, 67 Fed. Cl. 124, 149 (2005). As explained by the HDR engineer who reviewed mechanical division drawings for the project, “Most contractors that I’ve worked with make allowances for things like [needing more offsets than are shown on contract drawings]. . . . [A]ny contractor that takes the drawings literally, knowing that they’re conceptual and diagrammatic in nature, is probably asking for trouble.” Transcript at 832.

LDI bid this job on the assumption that the project would be built just as it was depicted on the contract drawings, putting all of the mechanical and plumbing systems into open areas and requiring very few offsets. Transcript at 117, 199-200, 203, 970. This assumption was inconsistent with the way the contract was structured. It ignored the statements that the contract drawings were diagrammatic and showed only the general locations of systems, as well as the requirements that the contractor provide shop drawings and coordination drawings which would show in detail how the contract drawings would be implemented.

Mitchell compounded LDI’s errors by failing to implement the contract requirements for coordinating the work performed on the project so that the work would be performed in an efficient manner. The overarching requirement was that Mitchell “[c]oordinate work of different trades so that interference between mechanical, electrical, and structural work, including existing services, will be avoided and within limits indicated the maximum practical space for operation, repair, removal, and testing of equipment is provided.” Joint Stipulation 5 (ungrammatical sentence faithfully reproduced). Mitchell also had to hold monthly general project coordination meetings at which “every entity currently involved in coordination or planning for work of the entire project” would be present and coordination problems would be resolved. In addition, pre-installation meetings and coordination meetings were required for each major element of the work. *Id.* Further, Mitchell had to employ a coordinator for the project as a whole and an MEP (mechanical, electrical, and plumbing) coordinator. The former was to “act as the general coordinator of interfaces between units of work”; the latter was to “manage and coordinate MEP operations between all major subcontractors.” Joint Stipulation 8. The coordination drawings were of course to assist in coordination of the work as well. *See M. A. Mortenson Co.*, ASBCA 53105, et al., 04-2 BCA ¶ 32,713, at 161,847.

While the project was under construction, GSA’s project manager expressed concern that coordination meetings were not being held as frequently as required and that some work was being performed in the absence of pre-installation conferences. Joint Stipulation 13; *see also* Joint Stipulation 49 (similar concern by 3D/I’s project manager). He also objected to Mitchell’s proposal that instead of designating a single MEP coordinator, the contractor designate one coordinator for mechanical and plumbing work (LDI’s project manager) and

another for electrical work (the electrical subcontractor's project manager). GSA's project manager maintained that having two MEP coordinators would not promote coordination of the various trades, but he ultimately allowed Mitchell to proceed in the way it wanted. Joint Stipulations 10, 12; Transcript at 536. Even given this dispensation, however, Mitchell's project manager was not sure how coordination between the two coordinators was to be accomplished. Transcript at 165-67. LDI's project manager testified that "[e]verybody assumed I was the [MEP] coordinator," but she told Mitchell "[p]robably on a daily basis" that she did not hold such a position. Joint Stipulation 14; Transcript at 119.

Mitchell's project manager understood that coordination drawings are "a tool to be used to identify problems" and were for Mitchell's benefit on this project. Joint Stipulation 62; Transcript at 170. Despite this understanding and frequently repeated cautions from GSA's and 3D/I's project managers that coordination drawings were needed, Mitchell never provided a complete set of composite coordination drawings. Joint Stipulations 17-21, 25-26, 29-31, 35-36, 38-39, 62; Transcript at 542-45, 653-54, 663. Nor did the contractor even accept responsibility for these drawings. Mitchell's project manager testified that subcontractors were responsible for all coordination drawings and that Mitchell was simply an agent responsible for transmitting those drawings to GSA. Transcript at 164-65.

As a result of Mitchell's failure to coordinate the project sufficiently, the record contains many complaints about coordination problems. The drywall and masonry subcontractors built structures which interfered with planned installations of piping and ductwork. Joint Stipulations 58, 60, 64, 65; Transcript at 116-17. The fire protection subcontractor hung sprinkler pipe where ductwork was supposed to be placed. Joint Stipulation 74; Transcript at 116-17. LDI's project manager at one point expressed with some exasperation, "These [mechanical coordination] drawings and all of the coordination is useless if all the trades do not install their work as discussed and agreed upon. We do not have the power to force any of the trades to adhere to the agreed location." Joint Stipulation 56.

The difficulties described above were major contributing factors to our determination not to award Mitchell any money for any of the four components of the principal element of its claim. We also note the following problems which contribute to this determination.

With regard to the largest component, the costs of providing additional fittings, the number of "additional" fittings is the difference between LDI's "original bid units" and its "as-built units." Appeal File, Exhibit 505, Tabs 14, 15; *see also* Transcript at 84, 91, 94, 295. As we have explained, the baseline for this calculation does not have any validity because LDI bid the job on the assumption that it could follow the contract drawings precisely and that assumption was not reasonable. The record contains no information as to how many

fittings a contractor could reasonably have projected, making a prudent allowance after reviewing the diagrammatic contract drawings carefully. *See P. J. Dick Contracting, Inc.*, VABCA 3177, et al., 92-2 BCA ¶ 24,827, at 123,859. Thus, we have no idea whether the number of fittings LDI needed was really additional to a rationally-based figure. We also note that a prospective supplier to LDI would have fabricated duct fittings (or “offsets”) at no additional cost if those bends had been identified before fabrication. Appeal File, Exhibit 38; Transcript at 252. This statement indicates that advance planning, through coordination and shop drawings, could have reduced the costs of whatever fittings were necessary on the project.

GSA expert witness Stephen Weathers credibly testified as to more problems with the additional fittings component of the claim. Mr. Weathers stated that from the drawings the contractor presented as exhibits, he was unable to make an accurate count of the offsets alleged by LDI; he estimated that LDI’s counts of as-built offsets are about twice as high as the counts he could make from the drawings. Transcript at 917-19. In addition, some of the markups (for engineering and drafting) duplicate separately identified costs; other costs (such as ladders and “job expense”) appear to be excessive; and different parts of the component use different hourly rates for supervision (between \$27 and \$55) and different markups on labor costs (twenty-eight to thirty-eight percent). *Id.* at 902-06.

With regard to the costs of making shop drawings, LDI was required to make two major revisions of the drawings, and it believes that GSA should reimburse it for those revisions. Transcript at 400-01; *see also id.* at 102. A major contributing factor to the need for the revisions, however, was LDI’s failure to understand that it would have to use space between beams to install much of its ductwork and piping. LDI believed that huge portions of the contract drawings were defective and needed to be redrawn, not understanding this fundamental aspect of the project, but it could not identify specific problems. Transcript at 774-81. In making its first set of shop drawings, LDI unilaterally decided to make changes to the basic design of the ductwork in order to eliminate conflicts it perceived in HDR’s design. After being informed that this was not permissible and that the shop drawings were incomplete, LDI had to make further changes to comply with HDR’s design as well as to make the shop drawings complete. Joint Stipulation 47; Transcript at 29, 663-67; Appeal File, Exhibits 54, 75. After Mitchell had completed its work, GSA convened a team of professionals from both inside and outside the agency to consider design deficiency issues on the project. Transcript at 523-24. The team found forty-five “design issues” and determined that they resulted in \$144,000 of additional project cost -- less than one-half of one percent of total project cost. The team concluded, “It is our opinion then that the items associated with these change order design issues do not constitute consideration as ‘Design Deficiencies.’” Appeal File, Exhibit 1165. We do not see any reason to question this conclusion.

With regard to overhead costs over eighty-two days of delay, we know that LDI was on the job far longer than it expected to be, Transcript at 315, but cannot find that GSA was solely responsible for this subcontractor being there for eighty-two or any other number of extra days. To establish entitlement to an extension based on excusable delay, a contractor must show that the delay resulted from unforeseeable causes beyond the control and without the fault or negligence of the contractor. In addition, the contractor must show that the unforeseeable cause affected the critical path of performance so as to delay the overall completion of the contract. *Sauer Inc. v. Danzig*, 224 F.3d 1340, 1345 (Fed. Cir. 2000). Mitchell has not done this here. Its expert witness, Robert McCullough, did not perform a schedule analysis on which a delay claim could best be based, and he knows that no such analysis has been made. Transcript at 446-47. The record does contain evidence that according to Mitchell, various of its subcontractors delayed completion of the project. *E.g.*, Appeal File, Exhibits 1117 (roofer), 1118 (LDI), 1141 (millworker), 1144 (electrician). GSA expert witness Weathers, after careful analysis, concluded, “There’s no entitlement to compensable delay of 82 days.” Transcript at 900. He did find twenty days of delay attributable to the Government, but concluded that those days were concurrent with days of delay attributable to Mitchell and its subcontractors (predominantly the millwork subcontractor) and therefore were not compensable. *Id.* at 889-93, 924.

With regard to loss of productivity, LDI’s president testified that most of his firm’s work was performed under very difficult conditions and some was performed out of sequence. Transcript at 346, 348-49, 353. The contractor has not persuaded us that Mitchell’s expert witness is correct, however, in attributing the entire loss of productivity to GSA. *See id.* at 989. We have already noted the inefficiencies that derived from Mitchell’s failure to coordinate project work successfully. We note also that Mr. Weathers conducted a measured mile analysis, as a result of which he concluded that LDI’s labor productivity was “relatively on target” through the end of 2002 and fell off significantly after that date. He attributed the loss of productivity largely to actions of various subcontractors (including LDI’s own actions). *Id.* at 909-11. He found no cause-and-effect relationship between GSA’s actions and LDI’s loss of productivity. *Id.* at 916-17. Indeed, statements by Mitchell in this case demonstrate the contractor’s recognition that at least some of the inefficiency was its own fault. Mr. McCullough testified, “The impacted work then was installed out of sequence because in order to keep the project moving *Mitchell* allowed the drywall contractor to go ahead and install and other contractors to go ahead of the duct work installation and piping installation.” *Id.* at 402 (emphasis added). The contractor’s posthearing brief, at 20-21, asserts that the loss of productivity resulted in part from “[t]he fire sprinkler [sub]contractor [having been] allowed to install ahead of the ductwork and piping.” Whether to allow the fire sprinkler subcontractor to install ahead of LDI was a call the prime contractor, not the Government, would have made. Even if we were able to quantify LDI’s

loss of productivity with a degree of confidence, Mitchell has provided us with no evidence on which we could allocate responsibility for that loss between Mitchell and GSA.

The remaining two elements of the claim -- costs of making additional flashed duct penetrations and repairs to a sump pump -- are small and can be dealt with quickly.

LDI maintains that Mitchell was ordered by 3D/I, and LDI was then ordered by Mitchell, to install flashing at 123 locations where ductwork penetrated drywall constructions “at all walls going to the deck.” LDI says it included no such work in its bid. Appeal File, Exhibit 505, Tab 2 at 2; Appellant’s Posthearing Brief at 23. According to Mr. McCullough, the contract “only called for sheet metal flashing around walls that had acoustic batt insulation,” and the claim is for flashing in other places. Transcript at 393-94. GSA responds, “LDI has not provided copies of the drawings it relies upon under its latest theory and has presented no testimony regarding its interpretation of the drawings. . . . [LDI’s president] has not indicated the exact locations at issue or how [LDI] calculated its damages.” Respondent’s Posthearing Brief at 29-30. Mitchell’s reply brief, at 9, calls certain drawings to our attention, but provides no guide as to how to read them so as to identify the 123 locations. No such assistance was provided by any witness at our hearing or appears in the documentary record. Nor do we have any evidence at all as to the cost of flashing ductwork penetrations of drywall. We deny this element of the claim as insufficiently proven.

The parties agree that the contract called for Mitchell to provide a sump pump to remove water from the basement of the building while construction was taking place and that the contractor, by subcontract with LDI, complied with this requirement. Appellant’s Posthearing Brief at 23; Respondent’s Posthearing Brief at 56. While the building was under construction, this sump pump broke and LDI repaired it. Transcript at 135. According to Mitchell’s project manager, the pump probably ceased to operate “because of all the sand and grit that it sucked in out of the basement whenever we had to turn it on to get the water out of the building.” *Id.* at 157. LDI’s president believes that the pump was subjected to so much debris because paving the parking garage was delayed several times. *Id.* at 314. This may have been true, but 3D/I’s project manager testified, without contradiction, that not paving the parking area in the upper part of the basement was “solely a decision made by Mitchell” to avoid having the surface damaged during construction. *Id.* at 670-72. Because the repairs were effectively caused by Mitchell’s choice as to the sequence of construction, GSA is not obligated to pay for the repairs.

Decision

The appeal is **DENIED**.

STEPHEN M. DANIELS
Board Judge

We concur:

CATHERINE B. HYATT
Board Judge

MARTHA H. DeGRAFF
Board Judge