ARMED SERVICES BOARD OF CONTRACT APPEALS

Appeals of --	)	
	)	
Galaxy Builders, Inc.	)	ASBCA Nos. 50018 and 50136
	)	
Under Contract No. DACA63-94-C-0087	)	

APPEARANCE FOR THE APPELLANT: David J. Larson, Esq.
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APPEARANCES FOR THE GOVERNMENT: Frank Carr, Esq.
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William M. Brown, Esq.
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U.S. Army Corps of Engineers,
Fort Worth District

OPINION BY ADMINISTRATIVE JUDGE YOUNGER

In these appeals under a construction contract, appellant seeks additional time, remission of liquidated damages, and an equitable adjustment on behalf of itself and two subcontractors allegedly resulting from respondent's unreasonable delay in approving submittals. Respondent contends that there is no showing that any activities affected by the delays were on the critical path. Only entitlement is before us. We deny the appeals.

FINDINGS OF FACT

1. By date of 25 March 1994, respondent awarded the subject contract to appellant to construct the Mission Support Facility at Laughlin Air Force Base, Del Rio, TX, for $2,668,000. (R4, tab 3 at 1-2) The facility was to be a 22,400 square foot building constructed for use for administrative support purposes at the base. The salient structural features of the building are: a concrete foundation; steel framework; concrete masonry unit (CMU) exterior walls; and a standing seam metal roof. The interior walls consist of metal studs covered with gypsum board. The facility has two distinct sections that are designated as the North wing and the South wing. (Government's Proposed Stipulations (Stip.), ¶ 2; tr. 1/19, 2/21, 26)

2. Based upon appellant's acknowledgment of receipt of notice to proceed on 20 May 1994, the original completion date was 5 May 1995. By virtue of various modifications, the revised completion date was 24 October 1995 (Stip., ¶ 3; tr. 1/19).

3. The contract contained various standard clauses, including: FAR 52.243-4, CHANGES (AUG 1987); FAR 52.236-2, DIFFERING SITE CONDITIONS (APR 1984); FAR 52.236-15, SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984); FAR 52.249-10, DEFAULT (FIXED PRICE CONSTRUCTION) (APR 1984); and FAR 52.212-12, SUSPENSION OF WORK (APR 1984) (R4, tab 3 at 00700-18, -72, -76, -79, -95).

4. The contract also contained specifications. Specification section 01305, Submittal Procedures, provided in paragraph 3.3, Scheduling, that "[a]dequate time (a minimum of 60 calendar days exclusive of mailing time) shall be allowed . . . for review and approval" of submittals. (ASBCA 50018 R4, tab 5 at 01305-2)

5. Specification section 01310, Progress Schedules, provided in part in paragraph 3.1, Contractor-Prepared Network Analysis System (NAS), that, "[p]ursuant to the Contract Clause entitled 'SCHEDULE [sic] FOR CONSTRUCTION CONTRACTS,' the Contractor shall prepare a schedule for construction which shall be based upon a critical path method (CPM) network analysis system as described below." (ASBCA 50018 R4, tab 6 at 01310-1)

6. CPM is both a schematic and written description of the sequence of work that a contractor plans to use to complete the project within the contractually prescribed time. It is based upon a network, which is a graphic diagram displaying all of the activities that must be accomplished to construct the project, as well as their mutual time dependencies and durations. Work activities are linked together to show their interdependency or logic. Network logic is the planned sequence in which activities are to be performed, with the start of some activities logically dependent, or restrained, by the completion of other activities, and some activities independent of others and hence capable of being performed concurrently. A series of activities that precede and follow each other constitute a path. The critical path is the longest path from notice to proceed to project completion, or the path with the least amount of slack or float. (App. ex. 12, ¶ 4; resp. ex. 1 at 3-4)

7. Specification section 01310 provided in paragraph 3.1.1, Critical Path Method, that:

> Float or slack is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the NAS schedule. Float or slack is not time for the exclusive use or benefit of either the Government or the Contractor. Extension [sic] of time for performance required under the CONTRACT CLAUSES entitled CHANGES, DIFFERING SITE CONDITIONS, DEFAULT (FIXED PRICE CONSTRUCTION) or SUSPENSION OF WORK will be

> granted only to the extent that the equitable time adjustments for the activity or activities affected exceed the total float or slack along the paths involved.

Paragraph 3.1.2, Network Analysis System, provided in part that "[t]he network analysis system (NAS) shall consist of logic diagrams and accompanying CPM mathematical analysis. Both the logic diagrams and the CPM mathematical analysis will be updated monthly during construction to show the impact of progress and changes." Paragraph 3.1.2.9, CPM Mathematical Analysis Update, provided that the contractor "shall submit, at intervals of thirty (30) calendar days, a report of the actual construction progress by updating the CPM mathematical analysis." The contractor was to include in these monthly updates "a revised issue of affected portions of the detailed logic diagram." Paragraph 3.1.2.3.2, Modification Activity Time Adjustments, provided in part:

> The CPM mathematical analysis shall accept approved modification activity time adjustments and recompute all scheduled dates and float accordingly.
>
> The Contractor shall indicate in his proposals for <u>all</u> contract modifications, by event number, the activities affected, activities added, or activities deleted. The effect shall be indicated for each activity in both time and money. When modifications in the work are found to necessitate issuance of a notice to proceed prior to proposal submission and/or settlement to avoid delay and additional expense, the Contractor shall furnish the Government suggested changes in the logic diagram(s) and/or duration of all activities affected by the modification within ten (10) calendar days from notice to proceed. In the event the Contractor does not furnish the suggested logic changes or an agreement cannot be reached, the Contracting Officer's representative will direct the Contractor as to the specific logic changes and/or time adjustments which shall be entered into the CPM mathematical analysis.

Paragraph 3.1.4.1, Data Disks, provided that "[t]he automated scheduling software utilized by the Contractor shall be capable of direct data input or some system of input to the scheduling system used by the government" and paragraph 3.1.4.1.1, Standard Data Exchange Format, provided for an alternative method where direct data exchange was not possible. (ASBCA 50018 R4, tab 6 at 01310-1, -2, -6, -8, -10, -11)

8. Specification section 00800, Special Clauses, clause 1, FAR 52.212-3, COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK (APR 1984), established liquidated damages at $386 per calendar day for all work. (R4, tab 4 at 1)

9. The contract also contained drawings. Drawing sequence no. 27, Exterior Details, portrayed a roof system with the following components: 1) a metal roof deck was to be attached to the bar joist rafters; 2) the bottom portions of Z-purlins were to be attached to the metal roof deck and to the building's structural steel; 3) a rigid insulation was to be inserted in the space above the metal roof deck and along side the Z-purlins; 4) a layer of 30 pound felt, for weatherproofing, was to be attached above the rigid insulation; and 5) the tops of the Z-purlins were to be attached to the standing seam metal roof. (Resp. ex. 6, drwg. seq. no. 27; tr. 1/44-45, 2/23-25)

10. By letter dated 6 September 1994, appellant transmitted to respondent its preliminary "as planned" CPM activity schedule, listing the tasks that appellant planned for project completion (ASBCA 50018 R4, tab 7A). Shortly thereafter, appellant transmitted its initial CPM network diagram (ASBCA 50018 R4, tab 7B).

11. Appellant's initial CPM network diagram shows the general sequence of work activities to include sitework, followed by construction of the North and South wings, and then by interior work. Appellant showed that the North and South wings would be constructed roughly concurrently. Appellant showed the following sequence of activities, with applicable nodes, for the North wing: structural steel erection (510-15); joists and bridging (515-20); edge angles & miscellaneous framing (520-25); roof deck (525-30); CMU walls (530-50); CMU veneer above roof (550-55); and, then, metal roofing (560-65). (ASBCA 50018 R4, tab 7B) Appellant showed the same sequence of activities, but with different node numbers, for the South wing. From this network diagram, as well as credible testimony (tr. 2/27, 70-71, 87), we find that appellant planned to construct the CMU walls *after* constructing the roof deck and *before* installing the standing seam metal roof. We further find that appellant in fact constructed the CMU walls before installing the standing seam metal roof (tr. 2/36, 70-71).

12. Appellant's initial CPM logic diagram also showed that, after installation of the roof deck, the first phase of interior work activities was to be performed concurrently, with no restraints between the activities. That is, appellant would begin the following interior activities including, with applicable nodes: studs and furring (1000-90); plumbing rough-in (1015-55); HVAC duct rough-in (1030-65); and HVAC controls rough-in (1035-90). (ASBCA 50018 R4, tab 7B) We find that appellant in fact performed these interior activities in conjunction with the metal decking and with each other (tr. 2/30-32). The first phase of interior activities was also scheduled to be performed concurrently with certain exterior activities, including: CMU walls (530-50 & 675-95); CMU veneer above roof (550-55 & 695-700); CMU below roof (555-65 & 700-10); and metal roofing (560-65 & 705-10). Significantly, the scheduled duration for plumbing insulation (1055-1090)

is four days, for HVAC pipe insulation (1060-1090) and for HVAC duct insulation (1065-1090) is fourteen days. The scheduled duration for metal roofing, however, is ten days. (ASBCA 50018 R4, tab 7B) We accordingly find that appellant scheduled most of the HVAC pipe and duct insulation to be done *before* drying in the building by installation of the metal roof.

13. Appellant's initial CPM diagram shows that the second phase of interior work beginning after installation of the metal roof included such activities as hanging gypsum board (nodes 1090-1105). (ASBCA 50018 R4, tab 7B; tr. 2/88)

14. We find that appellant's 16 monthly CPM updates during performance, and the final update dated 5 January 1996, did not change the basic sequence of work as set forth in its initial CPM diagram. (ASBCA 50018 R4, tabs 7B, 17; tr. 2/86-88)

15. By date of 28 December 1994, appellant submitted shop drawing transmittals nos. 79 and 81 to respondent for review. Transmittal no. 79 consisted of design analysis of the metal roofing system and transmittal no. 81 consisted of material and component submittals for the roofing system. (Stip., ¶ 7; ASBCA 50018 R4, tabs 8, 9; tr. 1/20) While the majority of transmittal no. 81 was for information only, one item consisted of a request for a deviation regarding the insulation board to be used in the roofing system. Appellant requested respondent's approval, asserting that its proposed insulation would satisfy the specifications regarding smoke requirements and flame spread. (ASBCA 50018 R4, tab 9; tr. 1/27, 145-46) In view of the requirements of paragraph 3.3 of specification section 01305 (*see* finding 4), we find that the transmittals should have been reviewed by on or about 28 February 1995, plus mailing time.

16. We find that the structural steel was delivered to the site on 16 January 1995, the date reflected in appellant's letters dated 31 January 1995 and 28 March 1995, attached to Modification No. P00029 (Resp. ex. 1 at 8; Resp. ex. 3, mod. P00029; tr. 1/9-10, 27; *see also* finding 29)

17. By date of 31 January 1995, appellant tendered to respondent an update to its CPM network analysis. In this update, appellant took the structural steel delay into account, showing the actual finish date for the deliveries of 25 January 1995, whereas the original approved start date was 13 June 1994. (Tr. 1/72, 75-76)

18. By dates of 6 February and 3 March 1995, respectively, appellant submitted narrative reports regarding progress. Both narratives contained the identical statement that, because of the structural steel delay, the original CPM schedule:

> is now obsolete and will have to be revised in order for it to be useful as a tool for monitoring job progress and completion dates.

. . . .

> Due to the large number of days delay, the original schedule will not be met and [appellant] will not make an attempt to do so. However, every effort will be made by [appellant] to complete all remaining activities within their individual durations.

(App. ex. 13 at 2; app. ex. 14 at 2) We find no evidence that respondent understood these statements to mean that appellant was abandoning the CPM schedule, or that the schedule would not otherwise be used as required by the contract.

19. By 1 March 1995, appellant's subcontractor was constructing the metal roof decking, which was completed on 19 April 1995 (app. ex. 9 (4/19-20/95); tr. 1/47, 50-51).

20. In mid-March 1995, appellant began CMU wall construction (tr. 2/36).

21. By date of 27 April 1995, respondent sent facsimile comments to appellant regarding transmittals nos. 79 and 81. (*See* finding 15) In part, respondent stated that the proposed variation for the insulation board would be acceptable if Firestone Building Products Company, the manufacturer, could furnish test reports showing that it met standards regarding flame spread and smoke development. (App. ex. 4 at 2) In May, Firestone stated that it could not produce the test results. (*Id.* at 3; tr. 1/149-50) Thereafter, respondent advised that a Celotex product satisfied the requirements, and on 15 May 1995, appellant ordered that insulation board, even though it still lacked formal approval of transmittal nos. 79 and 81. (App. exs. 5, 6; tr. 1/121, 150-51)

22. On 1 June 1995, appellant began installation of the Z-purlins and the insulation in the roofing system (tr. 3/36-37).

23. On 31 May 1995, appellant completed the CMU wall construction (tr. 2/36; Resp. ex. 1 at 11).

24. On 9 June 1995, appellant's roofing subcontractor had applied insulation boards, Z-purlins and felt to the lower North Wing roof, with the result that "about 80% of this area is dried in" (app. ex. 9 (6/9/95); tr. 1/58).

25. By date of 14 June 1995, respondent returned transmittals nos. 79 and 81 to appellant with formal review comments. (ASBCA 50018 R4, tabs 8, 9) These comments were identical to respondent's facsimile comments dated 27 April 1995 (tr. 2/128-29; *see* finding 21). Following receipt of the June comments, appellant ordered further materials (tr. 1/67-68).

26. By 7 July 1995, appellant's roofing subcontractor "completed all dry-in with felt." On the same date, panels for the standing seam metal roof were delivered to the site. (App. ex. 9 (7/7/95); tr. 1/83) Thereafter, on 18 July 1995, appellant's roofing subcontractor began installation of the roof (app. ex. 9 (7/18/95); tr. 1/84-85, 2/36).

27. Appellant adduced testimony from its superintendent and its project manager that delays in approval of the roofing submittals in turn delayed drying in the building and pushed back all the interior work and hence the entire project (tr. 1/35, 66-67, 142). We find this testimony unpersuasive and we further find more credible other testimony that the theory looks only at Government delay, to the exclusion of contractor delay, and that duct insulation could not be done entirely in the dry under appellant's schedule in any event (tr. 2/179-80, 188-89).

28. By bilateral Modification No. P00021 dated 7 August 1995, the parties agreed to $12,500 and 20 days of additional time for changes regarding studs, plumbing and HVAC pipe and ductwork. (App. ex. 8) We find that both parties justified this modification with CPM analysis (*id.* at 2; tr. 1/137-39, 2/109-112). We further find that the 20 days of additional time was erroneously granted, inasmuch as the changes had no impact on the end date of the contract (tr. 1/136-38, 2/109-12, 181-82, 189-90).

29. By bilateral Modification No. P00029 dated 29 September 1995, the parties agreed to $80,000 and 100 days of additional time due to delays associated with structural steel design deficiencies (Resp. ex. 3, mod. P00029; tr. 2/100). In its 29 March 1995 letter to the contracting officer during the negotiations for the modification, appellant analyzed the delay as reflected on the CPM:

> Steel arrived on the jobsite on January 16, 1995, rather than the original approved early start date of June 13, 1994. Even with the 104 days of positive float reserved for contractors contingency to complete this activity, the steel got there exactly 100 days after Oct 8, 1994. I J node 260-510 on the attached computer print out of March 21, 1995 indicates 100 days of negative float. This delay has caused the critical path for the project to be extended. . . .

(Resp. ex. 3, mod. P00029) In turn, respondent's price negotiation memorandum for the modification stated that "[a]fter a careful review of the contractor's CPM and . . . [the] project daily reports, the Government and the Contractor agreed there was a 100 day impact to their schedule." (*Id.*)

30. On 15 November 1995, the final inspection was conducted on the facility, and on 17 November 1995, respondent accepted the project (Stip., ¶ 9; tr. 1/20).

31. By unilateral Modification No. P00037, dated 19 December 1995, the administrative contracting officer granted appellant $7,623 in extended overhead and eleven days of additional time for Government delay in approving transmittal no. 81 (ASBCA 50018 R4, tab 13 at 1-2).

32. By date of 5 January 1996, appellant submitted its final updated CPM network diagram, reflecting activities added as a result of Modification Nos. P00018, P00019 and P00021 (ASBCA 50018 R4, tab 17; tr. 1/162-63, 2/88-89).

33. Appellant adduced testimony that, while it utilized the CPM schedule for planning and scheduling during the early stages of the project, both parties abandoned the CPM in January 1995, after the steel delay (*E.g.*, tr. 1/26, 28-29, 69-70, 138-39). We find no evidence that the parties expressly agreed to abandon the CPM (tr. 2/43-44, 113). In addition, while appellant's superintendent testified that he created "like a hand chart" to supercede the CPM for planning and scheduling, he conceded that he could not recall showing his chart to any of respondent's representatives (tr. 1/27-28, 69-70). Instead, we find that: appellant's daily reports recite that, in April 1995, appellant was "NOTIFIED, if . . . CPM updates are not issued to CORP. [sic] by the next pay application, MONEY WILL BE WITHHELD," which reflects respondent's enforcement of the monthly update requirement (app. ex. 9, 4/17/95 log; tr. 1/78-79); appellant continued to submit monthly CPM updates following the steel delay (tr. 1/75-76, 2/55-56); the parties employed the CPM to support appellant's monthly pay requests (tr. 1/78-79, 153, 2/44-45, 66-67); appellant's requests for time extensions, including those relating to the steel delay and the shop drawing transmittal delays, were supported by CPM analysis (Resp. ex. 3; ASBCA 50018 R4, tab 13 at 3; tr. 1/79-81, 94-95, 125-26, 137, 154-55, 162-63, 2/102-04, 124; *see also* findings 28, 29); and appellant's claim purported to be based in part on CPM analysis (ASBCA 50018, tab 18 at 2; tr. 2/94-95).

34. Appellant cites testimony tending to show that respondent failed to: inform appellant that it would not pay for work done out of sequence (tr. 1/29, 63, *but see* 2/60); request appellant to prepare a recovery CPM schedule accounting for project delays (tr. 1/55-56, 125); analyze appellant's CPM logic (tr. 2/104); verify appellant's CPM mathematical analysis in the monthly updates (tr. 2/191-93); object to appellant's own failure to change logic and durations based on events at the site (tr. 2/164-67); instruct appellant, in all cases, what interim time extension to put in its schedule pending agreement (tr. 2/151, 171-72); and, detect appellant's error on the CPM analysis that it submitted for additional time on modification P00021 (tr. 1/137-39, 2/181-82, 189-91; *see* finding 28). We find that several of the cited instances are wholly or partially attributable to appellant's noncompliance with paragraph 3.1.4.1 (*see* finding 7) by using inaccessible proprietary software for its CPM (tr. 2/104-05, 144-47; app. ex. 12, ¶ 4; resp. ex. 1 at 5) and that all of the instances taken together fail to establish that both parties abandoned the CPM.

35. We find that, when appellant negotiated change orders for the steel delay, and certain tenant-requested changes, respondent did not give appellant any specific direction to modify the CPM network analysis to take the delays into account. (Tr. 1/136, 138)

36. By letter to the contracting officer dated 12 March 1996, appellant submitted a certified claim for $133,546.29, allegedly representing its additional costs, as well as those of Sanders Construction and J.A. Plumbing (*see* findings 37, 38), together with 59 days of additional time. (ASBCA 50018 R4, tab 18) Thereafter, by decision dated 2 July 1996, the contracting officer denied the claim. (*Id.*, tab 2) Appellant thereafter brought a timely appeal that we docketed as ASBCA No. 50018.

37. The sponsored claim of Sanders Construction, the subcontractor that installed the interior metal studs and some of the drywall, is for payroll and living expenses, gas and mileage and scaffold rental for the period 22 May 1995 through 16 June 1995. (ASBCA 50018 R4, tab 18) Sanders Construction's owner testified that this period was chosen because "we had finally been able to spread out enough that we could work effectively" (tr. 1/184). We find the owner's testimony (tr. 1/166-88) to be too vague and unfocused to warrant a finding of any causal link between Sanders Construction's problems and respondent's conduct.

38. The sponsored claim of J.A. Plumbing, the mechanical contractor that installed insulation around the HVAC ductwork and chilled water lines, is for inefficiencies resulting from interior studwork that blocked J.A. Plumbing's insulation work. (ASBCA 50018 R4, tab 18; tr. 1/203-04) J.A. Plumbing's subcontract, as well as efficient duct insulation, required that J.A. Plumbing perform its work before installation of the interior metal studs (tr. 1/192-94, 207-09). J.A. Plumbing began work in April 1995, and was able to work efficiently until directed by appellant to stop work on 27 April. J.A. Plumbing did not resume duct insulation until June, by which time interior studs and sheetrock had been installed, causing the inefficiencies that it attributes to respondent. (Tr. 1/193, 196, 199, 200, 202, 203) We find that, in late April, appellant's superintendent chose to vary the planned sequence and give interior studs, drywall and other trades priority over duct insulation, although he "knew it would be a problem for the insulator. . . once the partitions were up, but . . . I had to look at the overall project . . . to see what I was going to benefit" (tr. 1/42-43).

39. By letter dated 16 January 1996, the administrative contracting officer notified appellant that its pay estimate no. 18 was approved in the amount requested, less $10,422 in liquidated damages based upon completion 27 days late. (ASBCA 50136 R4, tab 12) By letter to the contracting officer dated 27 June 1996, appellant submitted a claim for remission of the $10,422 in liquidated damages. (*Id.*, tab 25) In the absence of a decision, appellant invoked our "deemed denied" jurisdiction under 41 U.S.C. § 605(c)(2), (5) and brought an appeal that we docketed as ASBCA No. 50136.

Concurrently, the contracting officer rendered his decision denying the claim. (*Id.*, tab 2) It is undisputed that respondent ultimately withheld liquidated damages of $8,878 based upon 23 days of delay in project completion (Stip., ¶ 9).

40. At the hearing, appellant introduced the affidavit of David L. Webber, the scheduling consultant who prepared appellant's CPM schedules and monthly updates during performance. Mr. Webber did not appear at the hearing (tr. 1/4-6, 217). According to his affidavit, he performed a CPM analysis to determine the effect of the roofing submittal delays. He considered selected data. He reviewed the initial schedules, all change orders leading to time extensions, and conferred with representatives of appellant and J.A. Plumbing. He was "given information from the daily reports," as well as actual observations of performance, and was furnished submittal information and response dates. (App. ex. 12, ¶ 6)

41. Mr. Webber concluded that appellant's CPM contained erroneous logic regarding the sequence of installation of the roof deck, the HVAC duct insulation and the roofing system. (*See* finding 12) Mr. Webber opined that "installation of the roof deck would not dry in the building to allow HVAC duct insulation," thereby leaving the insulation open to damage by rain. He also stated that the HVAC duct insulation should have been restrained by installation of the metal roof. (App. ex. 12, ¶ 7) We find no evidence, however, that appellant sought to change this logic in any of the numerous monthly CPM updates that it tendered during contract performance (tr. 2/83-84, 198-99; *see* findings 14, 17, 32).

42. In his CPM analysis, Mr. Webber took appellant's original 20 May 1994 schedule, which apparently is the one transmitted on 6 September 1994, and assumed that: (a) transmittals nos. 79 and 81 were tendered on 28 December 1994, and facsimile comments were returned on 27 April 1995, with formal review comments returned on 14 June 1995 (*see* findings 21, 25); (b) on 15 or 16 May 1995, following return of the facsimile comments, appellant ordered the roof insulation board and sought to dry in the building, commencing application of the insulation board on 6 June 1995 (*see* finding 24); (c) J.A. Plumbing was delayed nine weeks in completing HVAC duct insulation because its start date was delayed and it had to work in a different sequence than planned (*see* finding 38); (d) Sanders Construction was delayed in completing its work because its crew was on site until August 1995, and had varying crew sizes during July and August (*but see* finding 37). Mr. Webber applied these assumptions, together with the change orders for which time extensions were granted, and his logic change concerning approval of the roofing system before duct insulation could commence (*see* finding 41), to "the original scheduling data from May 20, 1994" and re-ran it in November 1997. He concluded that "the delays in approval of the roofing system and [appellant's] inability to commence the insulation board until June 6, 1995 caused the project completion date to be extended until November 16, 1995." (App. ex. 12, ¶¶ 8-10) He further opined that,

had appellant waited until the roof was approved and installed, the project would have been delayed until 20 December 1995. (*Id.*, ¶ 11)

43. We find Mr. Webber's analysis unreliable. On the May 1994 CPM schedule, Mr. Webber isolated certain roofing activities, added new durations for those activities and left other existing activities unchanged, three and one half years after the schedule was generated and two years after final acceptance. Thus, the duration for metal roofing has been increased from 10 days in the May 1994 schedule (which Mr. Morris incorrectly testified was 14 days) to 223 days and new activities have been added for "partial roof approval," "deliver roof insulation," and "roof final approval" (tr. 2/210). The record contains credible evidence that such a methodology distorts a schedule, assumes that respondent is responsible for all delay, and does not present a proper delay analysis (tr. 2/210-12).

44. At the hearing, respondent adduced expert testimony from Roland E. Morris, a scheduling consultant (tr. 2/131-34; Resp. ex. 1). In contrast to Mr. Webber, Mr. Morris was cross examined about his report and his criticisms of Mr. Webber's affidavit (tr. 2/140-84, 190-200, 213-15). Mr. Morris performed a manual, rather than a computerized, analysis of appellant's CPM schedule and updates because of appellant's use of proprietary software. He reviewed appellant's initial CPM schedule and all of the monthly updates, including the logic diagrams and narratives, as well as appellant's daily contractor quality control reports. His conclusion was that:

> the delayed approval of the Metal Roof shop drawing did not delay the project when the delay is analyzed using [appellant's] CPM schedule. [Appellant's] extended durations for critical activities preceding the metal roofing, and the extended durations for HVAC, Glass and Glazing, and roof flashing were the cause for the delay to the overall project.

(Resp. ex. 1 at 5, 13) He further concluded that "[t]he drywall and duct insulation may have been impacted by the extended durations of activities, however not by any fault of the government." (*Id.*)

45. Mr. Morris traced the critical path from July 1994, the date of appellant's first update, through October 1995, which was the last update before acceptance in November 1995. Within that period, he found that the critical path went through the following activities at the following times:

(a) from July through November 1994, it ran through structural activities, including foundation, steel, roof decking and CMU walls;

(b) in December 1994, it went through the energy management control system and from there to interior tasks, bypassing metal roofing activities;

(c) in January and February 1995, it changed to HVAC controls and then to hanging gypsum board and other interior activities;

(d) in March and April 1995, the critical activities are shown as delivery of steel doors and frames, "HM Frames in CMU," CMU above and below the roof, hanging gypsum board, to other interior activities;

(e) in June 1995, when respondent returned formal comments on transmittals nos. 79 and 81 (*see* finding 25), the path went through delivery of HVAC controls and telephone system;

(f) in July 1995, *after* the delay associated with transmittals nos. 79 and 81, roofing activities, including plumbing risers through the roof, metal roof, and windows, were on the critical path; and

(g) from August through October 1995, the path went through glass and glazing, paint, and HVAC controls.

From thus tracing the critical path, Mr. Morris concluded that "[t]he Metal Roof activity, from Notice to Proceed through June, 1995, was never on the critical path. In other words, the metal roofing, including any delay to the submittal approval, not being critical, was not responsible for the delay to the project." (Resp. ex. 1 at 9-10)

46. Mr. Morris also examined both appellant's CPM schedule and its contractor quality control reports. He concluded that several activities that preceded metal roofing exceeded their planned durations. In particular, he determined that: metal decking, which was started on 1 March and completed on 18 April, took 49 days to complete, rather than the 4 days planned; CMU walls took 43 days to complete rather than 30 days planned; CMU veneer below the roof took 171 days to complete in one wing and 147 days in another, rather than the 30 days planned; metal roofing itself took 30 days to complete rather than the 20 planned; and gutters, fascia and downspouts took 64 days to complete rather than the 5 days planned. (*Id.* at 11-12)

DECISION

In seeking additional time, remission of liquidated damages and an equitable adjustment on behalf of itself and two subcontractors, appellant argues, first, that respondent breached the contract by its late return of transmittals nos. 79 and 81, which related to the roofing system, resulting in additional costs. Appellant then contends that the late return of those transmittals delayed project completion. Appellant urges that the submittal delay precluded it from drying in the building and made it impossible for interior activities to be performed, thus extending the completion date. While acknowledging that "the contract scheduling provisions . . . require that project delays be established using a CPM analysis," appellant urges that "the weight of the evidence confirms that the CPM was not used as required by the Contract and was, indeed,

abandoned by the parties as a true method for measuring contract performance." (App. post hearing br. (Opening Brief) at 26, 27))

For its part, respondent stresses that appellant bears the burden of establishing that Government-caused delays impacted the completion date or other phases of the work. Respondent urges that, given the contract provisions and applicable case law, appellant can only make that showing by using the CPM schedule for the project. Respondent insists that the CPM schedule shows that the roof was not on the critical path until after it returned transmittals nos. 79 and 81 in June 1995. Finally, respondent denies that the parties abandoned the CPM schedule and contends that appellant's management of its subcontractors was responsible for delaying their performance. (Brief for the United States (Resp. br.) at 28-41))

We conclude that appellant is not entitled to recover. We reach that conclusion for three principal reasons.

First, the abandonment issue is resolved against appellant by our findings. The contract required that appellant prepare, update and use a CPM schedule (findings 5, 7) and provided in section 3.1.1 that time extensions were to be granted "only to the extent" that they can be justified under the CPM schedule (finding 7). While we recognize that the contractor and the Government may, by their actions, abandon CPM schedules, the record cannot justify the proposition that they did so here. As we have found, there is no evidence that the parties expressly agreed to abandon the CPM schedule (finding 33). We cannot accede to appellant's efforts to endow its statements in the February and March 1995 narratives with significance on the abandonment issue. The narratives do not contain "specific statements . . . that the CPM would not be used for scheduling the job" (Opening Brief at 15), but are at most assertions that the CPM schedule was then "obsolete and [would] have to be revised" because of the steel delay (finding 18).

While the parties' express language does not establish abandonment, neither does their conduct. As we have found, respondent enforced the monthly update requirement, and appellant's own pay requests, time extension requests and claim were all supported by CPM analysis (findings 28, 29, 33, 36). In addition, other evidence cited by appellant does not establish abandonment. Many of the cited instances reflect respondent's efforts to wrestle with appellant's use of proprietary software or relate to matters that were appellant's responsibility as the party required by the contract to prepare, update and use the CPM schedule(findings 34, 35; *see also* findings 5, 7).

Given the state of the record here, we cannot agree with appellant that this case is comparable either to *Fortec Constructors v. United States*, 8 Cl. Ct. 490 (1985), *aff'd on opinion below*, 804 F.2d 141 (Fed. Cir. 1986) or to *J. W. Bateson Company, Inc.*, ASBCA No. 27491, 84-3 BCA ¶ 17,566. In *Fortec*, which is not binding on us, the court declined to rely upon the CPM schedule after concluding that: the CPM schedule was updated

only once during the 18 months of performance; the Government refused to authorize revisions to the CPM to reflect the changed performance; the Government refused to grant timely and adequate time extensions; and, save for a minor portion of the work, no notices to proceed were issued, and hence the contractual obligation to revise the logic diagram to reflect ordered changes was never triggered. *Fortec, supra*, 8 Cl. Ct. at 505-06, 508. In contrast, here the CPM was updated numerous times (finding 14), respondent granted time extensions, one of which gave appellant time to which it was not entitled (findings 28, 29), and respondent issued the notice to proceed shortly after award (finding 2).

Bateson also cannot be harmonized with the record here. While we disregarded the CPM schedule in *Bateson* in favor of an as-built delay analysis, the contractor's conduct that led us to disregard the CPM in *Bateson* is not mirrored here. Thus, the contractor submitted the CPM over six months late, omitted required items and included unduly restricted or inaccurate deadlines. *Bateson, supra*, 84-3 BCA at 87,534-35, findings 6, 7, 10, 11.

We therefore conclude that the parties did not abandon the CPM schedule and that appellant should be held to the contractual provisions to which it agreed, requiring that project delays be established using a CPM analysis.

Second, CPM analysis does not establish that the late return of the roofing submittals delayed project completion. While the contract contained a 60 calendar day review and approval period (finding 4), "[t]he length of time taken to give approval does not 'establish ipso facto an unreasonable delay on the part of [respondent].' It is [appellant's] burden to show 'where the work was delayed because of lack of approval.'" *Law v. United States*, 195 Ct. Cl. 370, 385 (1971), quoting *Jefferson Construction Co. v. United States*, 368 F.2d 247, 256 (Ct. Cl. 1966); *R.J. Crowley, Inc.*, ASBCA No. 35769, 88-3 BCA ¶ 21,151 at 106,788.

Appellant's CPM showing rests entirely upon the affidavit of Mr. Webber. We assume, but are not certain, that Mr. Webber applied appellant's theory of impacts to the "as planned" CPM. We are uncertain because Mr. Webber states that he applied his assumptions to "the original scheduling data from May 20, 1994," but appellant did not furnish its "as planned" schedule to respondent until September 1994 (*see* finding 10). Nonetheless, we find the methodology unpersuasive.

"To be credible, a contractor's CPM analysis ought to take into account, and give appropriate credit for, all of the delays which were alleged to have occurred." *Gulf Contracting, Inc.*, ASBCA Nos. 30195, 32839, 33867, 89-2 BCA ¶ 21,812 at 109,759, *aff'd on reconsid.*, 90-1 BCA ¶ 22,393, *aff'd*, 23 Cl. Ct. 525 (1991), *aff'd*, 972 F.2d 1353 (Fed. Cir. 1992) (table), *cert. denied*, 506 U.S. 999 (1992). Mr. Webber did not do so. His addition of over 200 days of delay to the May 1994 CPM data presupposes that

respondent is exclusively responsible for delays on the project (finding 43), thereby disregarding evidence suggesting concurrent delay (*see* findings 44, 46). Moreover, appellant's use of the May 1994 data, as distinguished from a later update, disregards the dynamic nature of CPM scheduling, as reflected in the update requirement (*see* finding 7) because it assumes that the all other activities and their durations remained static over the 18 month period until project acceptance in November 1995. In addition, Mr. Webber's assumptions regarding the causes of delay experienced by Sanders Construction and J.A. Plumbing cannot be harmonized with the record (findings 37, 38).

Apart from its methodological infirmities, Mr. Webber's analysis does not command confidence because appellant did not produce him to testify and his conclusions were not tested on cross examination (finding 40). Hence, we are simply left with the many questions raised by the affidavit, which is insufficient.

Mr. Webber's analysis does not stand up against Mr. Morris contrary testimony, which is far more reliable. While Mr. Webber considered narrowly selected data (finding 40), Mr. Morris drew upon more extensive data, consulting all the monthly updates, including the logic diagrams and narratives, as well as appellant's contractor quality control reports (finding 44). In contrast to Mr. Webber, Mr. Morris was cross examined (*id.*), and he was able to defend his assumptions and conclusions by reference to start and finish dates and durations appearing in the record (*e.g.*, finding 46). Mr. Morris' ultimate conclusions – that contractor delays were the cause of project delay and that metal roofing activities were not on the critical path until *after* the submittal delay ended in June 1995 (findings 44, 45) – comports with the record and is reliable.

Although appellant has failed to establish its case with CPM analysis as required by the contract, we have also considered the testimonial evidence that it offered regarding the effects of the submittal delay (finding 27) and have found it not persuasive.

Third, the subcontractor claims are lacking in merit. As we have found, the testimony of the owner of Sanders Construction is not probative of that subcontractor's claim (finding 37). The claim of J.A. Plumbing is not meritorious because the alleged inefficiencies are largely or entirely the result of a conscious business decision by appellant's superintendent to "benefit" other trades at the expense of the duct insulator (finding 38). "As the prime contractor, Galaxy bears the responsibility for coordinating its subcontractors," *Galaxy Builders, Inc.*, ASBCA No. 49039, 97-1 BCA ¶ 28,822 at 143,825. Hence, it is not entitled to recover where it preferred other subcontractors to its duct insulator.

CONCLUSION

The appeals are denied.

Dated: 18 July 2000

ALEXANDER YOUNGER
Administrative Judge
Armed Services Board
of Contract Appeals

I concur

MARK N. STEMPLER
Administrative Judge
Acting Chairman
Armed Services Board
of Contract Appeals

I concur

EUNICE W. THOMAS
Administrative Judge
Vice Chairman
Armed Services Board
of Contract Appeals

I certify that the foregoing is a true copy of the Opinion and Decision of the Armed Services Board of Contract Appeals in ASBCA Nos. 50018 and 50136, Appeals of Galaxy Builders, Inc., rendered in conformance with the Board's Charter.

Dated:

EDWARD S. ADAMKEWICZ
Recorder, Armed Services
Board of Contract Appeals