Office of Dispute Resolution for Acquisition
Federal Aviation Administration
Washington, D.C.

FINDINGS AND RECOMMENDATIONS

Matter: **Contract Dispute of Strand Hunt Construction Under Contract No. DTFA04-97-C-10022**

Docket: **99-ODRA-00142**

Appearances:

For Strand Hunt Construction, Inc.:	Traeger Machetanz, Esq. Kevin Brady, Esq. Oles Morrison Rinker & Baker, LLP, Seattle, Washington
For the FAA Alaskan Region:	Glenn H. Brown, Esq. Office of Regional Counsel

I. Introduction

On September 17, 1999, Strand Hunt Construction, Inc. ("SHCI") submitted a contract dispute ("Dispute") under Contract No. DTFA04-97-C-10022 (the "Contract") to the FAA Office of Dispute Resolution for Acquisition ("ODRA"). The Contract involved construction of a new air traffic control tower and associated facilities at Merrill Field, Anchorage, Alaska (the "Project"). The Dispute, docketed as 99-ODRA-00142, involved several claim items previously submitted to the Contracting Officer at the FAA's Alaska Region ("Region") as part of a Comprehensive Request for Equitable Adjustment ("CREA") in March 1999. The CREA and Dispute both

Pursuant to the ODRA Procedural Rule, 14 CFR Part 17, the parties engaged in alternative dispute resolution ("ADR") efforts from the initial filing until March 27, 2000. As is further discussed below, the ADR efforts resulted in settlements of several issues. The default adjudication process for the unsettled issues commenced on April 11, 2000.

involved SHCI's attempt to recover additional time and costs expended in connection with its performance of the Contract.

The Contract was awarded to SHCI on June 6, 1997, and called for work to be complete within 490 calendar days ("CDs") of the Notice to Proceed, *i.e.*, on or before October 9, 1998. The contract was not completed by the scheduled completion date, and the Region assessed liquidated damages ("LDs") against SHCI in the specified amount of $800 per compensable day ("CD") from October 10, 1998 through December 15, 1998, a period of 67 CDs. The total of CDs assessed was $53,600.

Upon filing the Dispute, the parties entered into an Alternative Dispute Resolution ("ADR") Agreement, under the terms of which SHCI submitted a "Definitive Restatement" of its claims, in order to comply with the requirements of 14 CFR § 17.25. SHCI refers to the "Definitive Restatement" as the "ODRA Supplement". Although both the CREA and original contract dispute sought a total equitable adjustment of $3,782,556, the total amount listed in the SHCI's ODRA Supplement was reduced to $3,506,234. As a result of the ADR effort, several individual claim items were settled by the parties. However, the parties were unable to achieve a complete resolution of the Dispute. Under the terms of the ADR Agreement, the ODRA's Supplement and the Region's Statement of Position in response to it, were to be useable as part of the record in any subsequent adjudication by the ODRA.[1]

The parties engaged in discovery and a hearing was conducted by the ODRA under its default adjudicative process during the period July 10 through July 21, 2000. After the hearing and the filing of the final written submissions by both parties on August 21, 2000, the total claim was further reduced to $3,411,772.

For the reasons set forth below, the ODRA recommends that the Administrator order providing SHCI with a contract time extension of 110 calendar days and remission of all amounts withheld

[1] The CREA contained Exhibits 1-190, and the ODRA Supplement contained Exhibits 191 - 720. The hearing exhibit numbers continued in this sequence from 721 to 823. The Region's Dispute File, which contained 19 discrete looseleaf files, is referred to by Tabs and by document description.

for LDs. The ODRA further recommends that the Administrator order the Region to equitably adjust SHCI's contract price in the amount of $1,573,933, plus applicable interest.

II. Findings of Fact

A. Background and Contract Award

1. This dispute arises out of a contract for the construction an airport traffic control tower and associated facilities at Merrill Field in Anchorage, Alaska.

2. The FAA issued a Screening Information Request ("SIR") on December 20, 1996, for the purpose of establishing a Qualified Vendor's List for this project. Technical and business proposals were initially due on January 24, 1997. However, the Contracting Officer extended the time for submission of qualifications until February 7, 1997. A Request for Offers ("RFO") was issued on March 28, 1997, to seven pre-qualified firms, including SHCI. The original closing date was May 2, 1997, but was extended to May 12, 1997, to incorporate six solicitation amendments.

3. The scope of work was to include all work associated with the construction of a 116-foot low activity level airport traffic control tower ("Tower") consisting of 9 floors (Levels 1-9) with a control cab mounted on top, administrative base building, environmental support unit ("ESU"), also referred to as the "link", to be situated between the Tower and the base building, and related site work. Specification § 01010-1, part 1.1. The construction was to result in approximately 14,470 square feet of actual space, including the Tower unit and base building, and the link. The structure was to house both air traffic controllers and FAA administrative personnel. Colver Tr. 12-13.

4. SHCI is an experienced general contractor, familiar with large-scale, multi-million dollar federal construction projects. Federal contracting is SHCI's primary focus, although it also does large-scale private and other governmental work. Hunt Tr. 1595-6. SHCI submitted an offer in response to the Region's RFO. It is undisputed that, with the exception of one

second-tier subcontractor's portion of the bid,[2] SHCI's overall bid was reasonable. Van Den Top Tr. 651-52; 648; 694-95; Bias Tr. 1067. SHCI's bid was higher than the Government's estimate. Alfsen Tr. 2461.

5. SHCI was the successful low bidder and was awarded the Contract in the amount of $5,760,000 on June 6, 1997. The second and third lowest bids were $5,864,000, and $6,000,000, respectively.

B. Notice to Proceed

6. An administrative notice to proceed ("NTP") with the Contract work was issued to SHCI on June 6, 1997. The NTP did not authorize site work. An operational NTP, which authorized site work, was issued twelve days later, on June 18, 1997.

7. SHCI awarded major subcontracts to: Superior Plumbing and Heating, Inc. ("Superior") on June 30, 1997, to perform all mechanical work; Quality Electric ("Quality") on July 30, 1997, for electrical work; and to Little Susitna Construction Company ("LSC") on August 20, 1997, for all painting and drywall work. Honeywell, Inc. was awarded a second-tier subcontract by Superior on June 11, 1997, for the provision of environmental control systems. SHCI also awarded a subcontract to The Erection Company ("TEC"), for structural steel erection, the date of which is not discernable from the record. Exhibit ("Exh."). 741.

8. SHCI started incurring direct labor costs for this project on June 14, 1997; Quality Electric and Honeywell both started incurring direct labor costs for this project on June 16, 1997; and Superior started incurring direct labor costs for this project on July 30, 1997. Exh. 589, page 6.

[2] The evidence shows that the controls subcontractor, Honeywell, Inc., a second tier subcontractor (under Superior Plumbing & Heating), made a significant mistake in preparing its bid. Although Honeywell's representative testified that Honeywell intentionally bid the job at cost to position Honeywell to capture other projects, Morgan Tr. 810-12, that testimony was not believable in the face of his May 13, 1997 letter to all mechanical contractors for the Merrill Field Project that expressly stated "we erred in the revision process". Exh. 733.

9. Based on the administrative NTP date of June 6, 1997, contract completion was to occur on or before October 9, 1998 (490 days after the administrative NTP, per Contract Clause F-0001).

C. Schedule

10. SHCI submitted a preliminary schedule on July 21, 1997 ("First Preliminary Schedule"). The First Preliminary schedule was disapproved by the Contracting Officer based on the following stated criticisms:

    1. No time, or inadequate time, allowed for procurement and delivery of materials,
    2. Inadequate time allowed for review and approval,
    3. Redundant activities,
    4. Schedule is not constant on Start-Finish, holidays, etc., and
    5. Submittal must be on software which matches the software provided to the COR.

Letter, dated July 21, 1997 (FAA/SHC-027); Smith Tr. 2224-25; Dun Tr. 2897-8.

11. Following receipt of the Region's rejection of its First Preliminary Schedule, SHCI revised its schedule, inserting specific time frames into the schedule to accommodate submittal review. Gothard Tr. 358-64; Smith Tr. 2224-26; Exh. 5. The revised schedule ("Revised Preliminary Schedule") was presented by SHCI to the FAA at a July 28, 1997, partnering meeting, and then was officially transmitted to the FAA on July 31, 1997. On August 28, 1997, the FAA approved SHCI's Revised Preliminary Schedule, "for planning purposes only." Smith Tr. 2225-26, 2898. Tab 5, FAA/SHC –027, dated July 21, 1997; FAA/SHC-031, dated August 28, 1997. Significantly, the Revised Preliminary Schedule showed SHCI's plan to complete the work on June 3, 1998, more than four months earlier than the contractually-specified completion date of October 9, 1998.[3] SHCI's planned early completion date of June 3, 1998 was feasible and not unreasonable. Colver Tr. 19; Gothard Tr. 355; Bias Tr. 1093-94; Goss Tr. 512-13; Dokoozian Tr. 3236-37.

[3] The evidence shows that the *pre-bid* schedule contemplated a completion date of June 3, 1998 as well. Gothard Tr. 351-353; Exh. 192.

12. In support of its claim, SHCI presented a retrospective as-planned versus as-built schedule analysis (the "comparative schedule"). Although the parties disagree as to the reliability of the various schedules presented during the course of these proceedings, they generally agreed that the as-built critical path of the project followed SHCI's progress towards Tower completion. *See generally*, Dun Tr. 2772; 2804; Exhs. 142 and 306.

D. Excavation and Concrete Foundations

13. SHCI completed Tower foundation excavation on July 18, 1997. Exh. 306.

14. In order to expedite the foundation concrete work, SHCI ordered and received the reinforcement steel ("rebar") prior to rebar submittal approval. SHCI had planned to construct formwork for the concrete and to set the rebar in place and to pour the concrete after rebar submittals had been approved. Colver Tr. 85-89. Tab 7A, daily construction report #4, dated July 10, 1997; daily construction report #11, dated July 21, 1997.

15. Throughout construction of the Project, the Region took the position that approved submittals and a preparatory meeting were required, for all elements of construction, before any work could commence. Colver Tr. 90; Alfsen Tr. 2487-88; Smith Tr. 2236-37; Exh. 129; Tab 5, FAA/SHCI-129, dated May 13, 1998. However, at the hearing, the Region conceded that only certain designated submittals required the Region's approval before the commencement of work. Smith Tr. 2238-29; Alfsen Tr. 2486-87.

16. The specification expressly provided that, unless approval was specifically required, the contractor could proceed with the work at his own risk before receiving contracting officer approval. Dokoozian Tr. 3201-3203; Blake Tr. 1340-41; Hunt Tr. 1618-21; Tab 4, SHC/FAA-121, dated February 5, 1998.

17. Reinforcement steel – "rebar" – was specified to be included within the concrete foundations. However, it was not among the items that required specific approval prior to commencement of work. Accordingly, the Region's action in halting rebar assembly was not authorized by

the contract. Although the SHCI superintendent testified as to how rebar would have been assembled on a "normal job" in advance of submittal approval (Colver Tr. 86-90), SHCI failed to prove that the Region's unauthorized delay of rebar assembly on this job had any effect on timely completion of the Tower foundation concrete.

18. SHCI also alleges that the Region unreasonably interjected itself into SHCI's "means and methods" of performance during the concrete pours. However, SHCI failed to demonstrate whether this in fact occurred and to what extent such interjection caused disruption to the pouring of concrete. *See* Colver Tr. 94-96; Smith Tr. 2201-12.

19. SHCI alleges that its excavation and Tower foundation concrete were delayed and disrupted by the Region's Contracting Officer's Representative ("COR") having communicated directly with SHCI's site subcontractor, rather than through SHCI. However, other than presenting opinion testimony as to how such communications might theoretically disrupt a project, SHCI failed to elicit any factual testimony or provide any evidence regarding specific instances in which such interference actually disrupted the project and the extent of any disruption. *See* Blake Tr. 1386-87.

20. SHCI completed the Tower foundation concrete on July 25, 1997. Exh. 306.

E. Structural Steel Erection

1. FABRICATION-RELATED DELAYS

21. Two Government delays caused steel fabrication and delivery to be late. First, the Region delayed steel fabrication by 4 days in failing to follow industry practice with respect to redlining of steel fabrication drawings. *See* FF 119, *infra*. In addition, the ODRA finds the steel fabrication process was slowed another 3 days, by reason of the Nickel Welding Rod change under Red File No. 2. *See* Footnote 34, *infra*.

2. FALL PROTECTION PLAN

22. According to the comparative schedule, SHCI's early start date for commencing structural steel erection for the Tower was July 18, 1997. Exh. 142. However, it was not until July 30, 1997, that SHCI had structural steel delivered to the project and was ready for erection. Graham Tr. 1954. On July 31, 1997, SHCI advised FAA that SHCI intended to commence erecting the first level of structural steel for the Tower and base building beginning on Sunday, August 3, 1997. Colver Tr. 267; Graham Tr. 1954; Exh. 85. At this point, steel erection commencement was sixteen days late in terms of SHCI's comparative schedule. *See* Exh. 142.

23. Contract Specification § 01100-3, Part 1.2.6 required that, prior to the commencement of work with respect to any elevated work areas (in excess of six feet above ground), the contractor was required to submit to the COR a fall protection plan, *i.e.*, drawings depicting all aspects of a "positive fall protection system." However, SHCI's erection subcontractor, TEC, chose to bolt together large subassemblies of structural steel on the ground before erecting the steel. This construction methodology is an accepted industry technique for steel erection. Steeves Tr. 2575. The requirement regarding a fall protection plan technically would not apply to such pre-assembly. Alfsen Tr. 2463- 2465. Nevertheless, the Region, at the time the work was being performed, advised SHCI that: (1) no work of any sort on the steel would be allowed in advance of an approved fall protection plan and a preparatory inspection meeting; and (2) a meeting would not be scheduled until the fall protection plan was approved. Colver Tr. 108; Smith Tr. 3394; Tab 6A, FAA QAR Report, dated 7/31/97.

24. On August 1, 1997, SHCI forwarded to the Region Submittal 01100-01, Fall Protection Plan, Exhibit 772, shop drawing, 8/1/97, labeling the submittal as "hot" and requiring a response "ASAP." Alfsen Tr. 2466. The Region concluded that the plan failed to comply with the contract specification. Alfsen Tr. 3194. In particular, the Region took issue with TEC's Part G, Control Zone with Safety Monitor and Warning Line System. That portion of the fall protection plan submittal envisioned the use of an individual who would watch the steel

erectors and warn them of any danger. The record is devoid of any explanation as to why the monitoring was considered to be at odds with the specification, given that other portions of SHCI's fall protection plan incorporated by reference the requirements of the Occupational Safety and Health Administration ("OSHA") and set out specific details regarding the equipment to be used to provide "positive fall protection" – including safety belts, full body harnesses, and safety lanyards, secured to chokers, catenary and lifelines, the use of platforms and guardrails, etc.[4] SHCI's daily log for August 4, 1997, indicates that the Region's Resident Engineer ("RE") had advised SHCI on that date that the submittal for the elevated work area plan was likely to be disapproved. Alfsen Tr. 2384-5.

25. On August 11, 1997, SHCI submitted Submittal 01100-01-A, which attempted to correct for the alleged non-compliance by adding a letter from TEC that advised of TEC's intent to erect steel in accordance with OSHA, 29 C.F.R. Part 1926, Subpart R. Alfsen Tr. 2385. The Region did not regard this addition as sufficient and, on August 12, 1997, the Region formally disapproved SHCI's fall protection plan. Exh. 655.

26. SHCI had attempted to expedite plan approval by providing further verbal assurances regarding the plan's merits, but the Contracting Officer determined that the fall protection plan submittal was not sufficiently clear and required further detail. In a Memorandum for File, dated August 12, 1997, she states: "We understand that … [SHCI] would like the submittal expedited; however, we consider project safety, including the matter of fall protection, to be of extreme importance on this project, so we advised … [SHCI] we will take the time necessary to review the fall protection plan completely and assure it meets the contract requirements prior to approval." Exh. 655; Alfsen Tr. 2467.

27. SHCI provided another fall protection plan submittal, dated August 19, 1997, which the Region received on August 20, 1997. The revised plan deleted the use of the earlier described monitoring system and indicated once again that it would comply fully with the

[4] *See* The Erection Company Site Specific Fall Protection Working Plan, 7/28/97, Revision O, Section B, Methods of Fall Arrest and Restraint.

technical specifications for fall protection. On August 22, 1997, the Region approved this revised fall protection plan with certain "exceptions." This approval permitted SHCI to begin steel erection of the first 30 feet of the 116-foot Tower, with the understanding that additional information would be provided to address the "exceptions" prior to any erection above 30 feet. Alfsen Tr. 2386-87.

28. TEC mobilized and was set to begin work on August 23, 1997. In the ODRA's view, the Region did not articulate a basis for the delay in approval of the fall protection plan. That delay, consisting of 20 days – between August 3, 1997 (when SHCI had intended to proceed) and August 23, 1997 – accordingly is chargeable to the Government.

29. As of August 23, 1997, however, SHCI still could not proceed, because of two self-inflicted delays. First, work on pre-assemblies was halted until August 28, 1997, because a gusset plate had been welded on the wrong side. When steel work resumed on that day, it had to be stopped once again until a larger crane could be brought to the site. The crane TEC had provided initially was found to be inadequate for the required loads. Work proceeded effectively on August 29, 1997. Tab 7A, SHCI Daily Construction Reports, dated 8/23/97 – 8/29/97. Thus, SHCI is chargeable for the days of delay to steel erection between August 23 and August 29, 1997.

3. BOLT HOLE ALIGNMENT PROBLEM

30. On September 2, 1997, SHCI surveyed the bearing plates (on which the columns were to rest) and verified that the elevation of the plates were within specified American Institute of Steel Construction ("AISC") tolerances of $\pm$ 1/8 inch. Colver Tr. 113 –18; Exhs. 93-94.

31. Alignment of the first level columns was verified on September 4, 1997, prior to placement of concrete walls that were to surround them. This verification confirmed that the first-level structural steel was within contract tolerances. *Id*. TEC left the site while the base concrete work was being completed and TEC remobilized on September 16, 1997 to continue Tower

frame erection. At that time, TEC resumed its pre-assembly of structural members into large subassemblies prior to erection. Parties' Statement of Facts, ¶ 23.

32. The Region had specifically requested that HNTB, the designer, use bolted connections, rather than welded connections, because erection of the Tower was anticipated to occur during the winter months in Alaska, when welding can be problematic. Fredericks Tr. 1966; 1976. The record reflects that, but for the Region's request for bolted connections, HNTB had a clear preference for, and would have used, welded connections. Fredericks Tr. 1979. HNTB chose to employ bearing bolts in the steel design. These can only be used in standard round holes. Fredericks Tr. 1967. Although this type of connection is the strongest and requires the fewest number of bolts in the design, it also provides the least amount of flexibility in terms of correcting for bolt hole misalignment. Fredericks Tr. 1968

33. In connection with its commencement of steel erection, SHCI issued a Contractor's Request for Clarification ("CFRC") 075, in which it requested that the Region specify a standard fix for any bolt hole misalignments that might be encountered. The FAA responded on August 25, 1997, by asserting that, under the Contract specifications, no more than 1/16th-inch hole-diameter greater than the bolt size would be permitted. Parties' Statement of Fact, ¶ 20. For misaligned holes, the Region indicated, reaming of up to _ inch would be acceptable. However, in order to maintain the specified 1/16 inch spacing between holes and bolts, for reamed holes, SHCI would be required to substitute larger sized bolts. Tab 8B.1, CRFC 075.

34. The Tower was designed to minimize any horizontal movements between each floor and the floor just above or below it. This movement is otherwise known as "story drift." Fredericks Tr. 1969. To prevent story drift, the Tower was designed using a bolted and braced steel frame. Fredericks Tr. 1962; 1969; and 1972. SHCI's structural steel expert, Mr. Craig Freas, described the structure as unusual, in that a single monolithic steel crossbeam ran along the entire length of each side of the building. For each level on each side of the building, there were two columns, the monolithic crossbeam, and diagonal bracing. At each level of the building, the steel members were all connected and braced together. Freas Tr. 967-968; 973-

74. The rigid structural design provided little or no opportunity for movement between the structural elements relative to one another during the erection process. Freas Tr. 976. In this regard, the Region's structural steel expert, Mr. Harry Steeves, testified that he found the use of diagonal bracing here to have presented a "potential field erection concern." Steeves Tr., 2573.

35. As Tower frame erection progressed, bolt hole misalignments became a noticeable problem for SHCI, and reaming of bolt holes became a necessity. Parties Statement of Fact, ¶ 25; Exh. 96. On September 18, 1997, the misalignment problem became so pronounced that reaming could not produce an adequate solution, and the contractor sought permission to weld the members in lieu of bolting them. *Id*.

36. On September 23, 1997, by CRFC 117 (Exh. 97), SHCI advised the Region of 112 more locations where the bolt hole misalignments exceeded _ inch and requested permission to use a welded alternative for those connections as well. On that same date, HNTB provided a detail (sketch) for a welded connection, SK-22. Exh. 98.

37. Because welding in accordance with SK-22 proved to be extremely time-consuming, SHCI, by CRFC 160, dated September 30, 1997, sought permission to ream "oversized holes" – beyond the previously approved _-inch reaming limit – in lieu of welding. The Region, in its response to CRFC 160, permitted this reaming solution, but insisted that for each proposed correction requiring such extensive reaming, SHCI provide for the Region's approval calculations demonstrating that the strength of the proposed connection would be no less than that indicated on the contract drawings. In order to assist with review of proposed fixes and to expedite this documentation effort, SHCI retained the services of Andersen, Bjornstad, Kane & Jacobs ("ABKJ"), an established engineering firm. Freas Tr. 952-953; Tab 8.B(2), CRFC 160.

38. SHCI asserts that the bolt hole connection difficulties it encountered all stem from a latent deficiency in the structural steel design; and that everything it was required to do to make the

connections work (in terms of unanticipated reaming and welding) as well as the substantial delay that it sustained in the steel erection process came as a direct result of this alleged design deficiency. In its CREA, SHCI describes how the various fabrication and erection tolerances allowed by the specified AISC standards can cumulate in such a way as to produce bolt holes that are as much as 13/16-inch out of alignment. CREA, pp. 49-64. SHCI contends that, with the possibility of these cumulating tolerances, and with the rigid structural design developed by HNTB, the use of standard bolts in round bolt holes was improper and constituted a latent design deficiency, and that, as a result of this "design deficiency," the Tower could not possibly have been erected here without extensive reaming and/or welding. In support of this position, SHCI's steel erection expert, Mr. Freas, urged that welded connections or the use of elongated "slotted" bolt holes should have been specified. Freas Tr. 972.

39. Although the Region's steel expert, Mr. Steeves, did not question the theoretical possibility of cumulation of tolerances, he pointed out that, since tolerances are allowed in either direction, it is likely that positive and negative tolerances will cancel themselves out. Steeves Tr. 2542.

40. Although, as Mr. Steeves conceded, it may have been theoretically possible for TEC to "snug up" the bolts on the ground without having their heads snap off, so that they could be loosened and the steel adjusted after erection in the air, Steeves Tr. 2562, Mr. Michael Gillen, SHCI's former Contractor Quality Control (CQC) Manager for the Merrill Field project, who inspected every bolt and every reamed hole, Colver Tr. 125-127, testified that, in fact, the heads on the LaJeune bolts were snapped off as the subassemblies were being bolted up on the ground. Gillen Tr. 2863. As it was constructed, there was no possibility that the steel could be "racked", or shifted slightly, in order to bring misaligned bolt holes into alignment. *See* Steeves Tr. 2561-62. Although SHCI's counsel was able to point to a document that suggested that some of the LaJeune bolts may have been tightened after erection, the COR testified that almost all of them were snapped off on the ground. Smith Tr. 2216. Once the heads snap off, it is extremely difficult to adjust them and manipulate the steel. This might

be done by "chipping" at the bolts. It is also theoretically possible to remove and replace LaJeune bolts that have been installed. Steeves Tr. 2555: 2562. However, there is no evidence in the record that "chipping" was done or that such removal and replacement was ever attempted.

41. Significantly, the structural steel design had been peer reviewed for the Region by Mr. Freas' own firm prior to issuance of the contract solicitation here, and there were no comments made by that firm regarding any potential problems with the design. Steeves Tr. 2552-3.

42. As noted above, the Government is responsible for delaying erection commencement by 20 days, and the contractor, in turn, is responsible for delaying erection commencement by a total of 6 days. (Findings 28 and 29). Actual erection with respect to the Tower– which was to take only 7 days – consumed a total of 54 days, from August 29, 1997 through October 22, 1997. Exh. 306. The remaining 47 days of steel erection delay have not been shown to be attributable to the Government.

F. Tower Slab and Deck Concrete

43. According to the Revised Preliminary Schedule, there was a planned gap of thirty-four days between the scheduled completion of Tower steel erection (July 24, 1997) and the scheduled commencement of Tower slab and deck concrete work, *i.e.*, the slab on grade and concrete decks for Tower levels one through nine (August 27, 1997). The Revised Preliminary Schedule further indicated that SHCI intended to complete the slab and deck concrete for the Tower in nine days, from August 27, 1997 through September 5, 1997. In actuality, the concrete for the Tower appears to have been completed during the three-day period November 5, 1997 through November 7, 1998, inclusive, *i.e.*, six days faster than planned. Exh. 306. Although SHCI complained generally of the Region's interference with its "means and methods" relative to concrete work, as indicated previously, it failed to provide evidence that this interference resulted in any specific delay to completion of the Tower concrete, including the construction of the slab on grade and concrete deck concrete. Thus, SHCI has

failed to demonstrate the existence of any delay in performing slab and deck concrete work, let alone that such delay was attributable to the Region.

G. Fireproofing

44. SHCI's construction plan for the project called for completion of fireproofing of all structural steel prior to the onset of winter weather. Blake Tr. 1929. Fireproofing is weather sensitive, because it requires the use of water and should not be done in freezing weather. Colver Tr. 132; Smith Tr. 2272. Testimony at the hearing indicated that fireproofing material should only be applied to steel when the steel's temperature is at or above 50 degrees. Colver Tr. 131. Because of the aforesaid delay in the steel erection, SHCI's slab and deck concrete work as well as the follow-on fireproofing work were delayed into winter weather. To perform such work, SHCI had to install weather protection, consisting of a Visqueen wrap and the provision of temporary heat.

45. The record indicates that Tower steel erection was completed by the end of October 1997 (*see* Exh. 306, item entitled "Tower Steel Erection L1-L9", completed October 22, 1997), that such winter protection installation was commenced in advance of the Tower slab and deck concrete work, on October 30, 1997 (*Id*., item entitled "Tower – Temporary Cover & Heat), and that Tower concrete slab and deck pours were completed by November 7, 1997 (*Id*., item entitled "Tower Pour Slab on Deck Floor 6 to 9"). Exh. 306. The record also indicates that SHCI did not begin with fireproofing –which was planned to commence immediately after the deck pours (Exh. 142) – until January 7, 1998, two months later. Exh 306. SHCI attributed this substantial time gap entirely to the time necessary to install winter protection and alluded to an incident where the Visqueen cover was "lost to the wind." Colver Tr. 130; Blake Tr. 3354-55.

46. The Region's expert, Mr. Dokoozian, indicated that installation of the Visqueen and provision of the temporary heat in this case should reasonably have taken SHCI about one week to complete. Dokoozian Tr. 3441-3442. As to the incident regarding the Visqueen cover being "lost to the wind," the daily reports indicate that repairs to the Visqueen were

completed on November 5 and 6, 1997, and did not stop the placement of concrete in the Tower. *See* Tab 7B, SHCI Daily Reports, dated 11/5/97 and 11/6/97. Thus, SHCI was not able to explain the 61 day fireproofing commencement delay – from November 8, 1997 through January 7, 1998 – as being attributable to the Government. *See* FF 131 – 132, *infra*.

47. The question arises whether weather protection would still have been needed for the fireproofing absent the Government's 27 days of delay to the commencement and performance of steel erection (3 days associated with the Nickel Welding Rod change; 4 days associated with the Government's failure to use the standard red lining technique in reviewing the steel fabrication shop drawings; and 20 days associated with its handling of the requirement for a fall protection plan – *see* FF 43, *supra*). As noted above, SHCI completed steel erection on October 22, 1997. SHCI had planned a gap of 34 days between the steel erection and commencement of Tower slab and deck concrete work. Exh. 142. The SHCI schedule update printouts indicate that this gap was reduced to only 13 days. Tower slab and deck concrete commenced on November 5, 1997, 13 days after the October 22, 1997 steel erection completion. Tab 306. SHCI had planned to complete the Tower slab and deck concrete work in 8 days (August 27, 1997 through September 3, 1997), with fireproofing to start on the very next day, September 4, 1997, as noted above. Exh. 142. Assuming steel erection completion 27 days earlier, on September 25, 1997, and a 13 day gap between steel erection and Tower concrete work, with fireproofing starting on the ninth day after commencement of concrete installation, under this best case scenario, fireproofing would have started October 17, 1997. At that time, however, the Inspectors Quality Assurance Report (QAR) Daily Logs of Construction showed temperatures in Anchorage, Alaska around freezing (*i.e.*, 32 degrees Fahrenheit). Dispute File, Tab 6.A. Freezing temperatures create great difficulties with fireproofing, given that water is used to mix the fireproofing material and to clean the plaster pump. Colver Tr. 132; 279. Further, as was testified to by SHCI's Superintendent, fireproofing should not be applied when the steel temperature is less than 50 degrees. Colver Tr. 131. Given these facts, even if SHCI had been ready to perform fireproofing on October 17, 1997, it would have been unable to proceed without first

installing weather protection. Accordingly, the ODRA finds that weather protection would have been required, even absent the 27 days of Government-caused delay.

48. In a partnering meeting held on October 30, 1997, as SHCI was about to install the weather protection, SHCI informed the Region that the alleged defective design had caused significant additional cost and had shifted into winter weather the performance of fireproofing work and installation of the outer skin of the structures, known as the Exterior Insulation and Finish System ("EIFS"). Exhs. 15 –16. Later, by letter dated November 24, 1997, SHCI offered the Region three options in terms of continuing work through the winter, each option carrying a corresponding price tag, as follows:

Option #1 Proceed Through Winter	$243,842
Option #2 Shutdown job for Winter (December to April)	$322,984
Option #3 Shutdown Tower only until April	$323,369

Tab 4, Letter SHC/FAA-092, dated November 24, 1997.

49. In its response, by letter, dated December 2, 1997 (Tab 5, Letter FAA/SHC-050), the Region refused to select any alternative, emphasizing that it was "strictly [SCHI's] option as to how [it] will proceed in order to complete the remaining work by the October 9, 1998, contract completion date" and also SHCI's "responsibility to mitigate any damages related to additional work or delays [it] intend[ed] to claim were caused by the Government." SHCI, by letter of December 5, 1997, notified the Region of its intention to continue under the winter work option, which it ultimately believed to be the least costly. Exh. 101.

50. Fireproofing, according to SHCI's comparative schedule (Exh. 142) was planned for the 6-day period from September 4, 1997 through September 10, 1997. Actual performance of this work took place in 16 days from January 7, 1998 through January 23, 1998. SHCI has not shown that the Government was responsible for this 10 day delay. Moreover, since fireproofing preceded the EIFS panel installation in terms of sequence, Dun Tr. 2819, the earliest time in which EIFS panels could have been installed in the Tower was late January.

Therefore, any impact suffered by SHCI, as a result of cold weather working conditions and increased weather protection costs, was caused by delays in steel erection and fireproofing, which have not been shown attributable to the Government.

H. EIFS

51. The fireproofing and EIFS work were both being performed by the same subcontractor, Morrison Mechanical Insulation ("Morrison"). Dun Tr. 2820-1. The EIFS panels for the Tower were assembled at a nearby hangar on Merrill Field, as well as in place at the project site. The EIFS panels installed at the bottom and the top levels of the Tower, as well as those installed on the Base and ESU buildings, were all assembled in place, not at the hangar. Alfsen Tr. 2368; Exh. 799, page 14.

52. EIFS panels consist of polystyrene boards (approximately 4-inches thick), attached to a "substrate" of metal studwalls with gypsum sheathing, either by adhesive or mechanical fasteners. The polystyrene insulation board is overlaid by mesh of varying weights affixed to the insulation board by water-based acrylic adhesive. In turn, the mesh is covered by a cementatious coating, which is applied like plaster. Specification §07240-3; Colver Tr. 46. In terms of mesh, there were three types specified; (1) a "standard" mesh weighing "not less than 5 ounces per square yard"; (2) a "non-woven standard mesh" weighing "not less than 6 ounces a square yard"; and (3) a "heavy mesh" weighing "not less than nineteen ounces per square yards." All such mesh was to be "open weave, coated glass fiber type, as provided by the EIFS manufacturer." *Id.*, ¶2.1(g).

53. According to SHCI's comparative schedule (Tab 142), EIFS work took place from January 7, 1998 through July 23, 1998 for a total of 197 days. The daily reports indicate that actual EIFS installation in the Tower only took 30 days, from June 24, 1998 through July 23, 1998. Tab 7, SHCI Daily Construction Reports, dated 6/24/98 – 7/23/98.

54. During a visit to the aforesaid hangar in early December 1997, the Region's Quality Assurance Representative ("QAR") noted the presence of EIFS mesh of Canadian origin.

SHCI's daily log 11/17/97 also indicates that high-impact 20-ounce mesh being used by Morrison was made in Canada.[5] Alfsen Tr. 2355. The QAR treated each element of the materials incorporated into the panels separately for purposes of determining compliance with the Buy American Act ("BAA"), and, accordingly, requested that SHCI notify Morrison to cease constructing the EIFS panels at the hangar with foreign-made mesh. Colver Tr. 135-36. By letter dated December 4, 1997, SHCI directed Morrison not to proceed further with panel fabrication at the hangar, without first providing documentation regarding material origin. Exh. 80.

55. By letter dated December 18, 1997, Morrison advised SHCI that the 6-ounce mesh was of Canadian origin and offered to give a credit for the value of the mesh. This offer was forwarded to the Region. Exh. 79

56. In a letter, dated January 23, 1998, the Contracting Officer responded to Morrison's offer, by stating that she considered a reduction in the contract amount to be acceptable, but did not agree to the credit amount being offered. DF Exh. 80. The Contracting Officer subsequently requested a detailed cost proposal, as well as information as to the cost of American-made mesh. Exh. 81.

57. On March 20, 1998, SHCI provided to the Contracting Officer certifications of BAA compliance for a proposed substitute mesh. Exh. 82.

58. By letter, dated March 25, 1998, the Contracting Officer advised SHCI that a submittal would be needed for the substitute mesh. The Contracting Officer also indicated that 12 of the completed EIFS panels had been constructed with Canadian mesh, and cited information provided by SHCI that there was a strong possibility that the panels currently being manufactured were still using 6-ounce mesh manufactured in Germany. The letter requested additional information as follows:

[5] Interestingly, the Contracting Officer testified that the Government later learned that some of the mesh was actually manufactured in Germany. Alfsen Tr. 2358;2367.

> How many panels have been constructed with a double layer of 4-ounce mesh? What is the origin of this mesh? Provide all documentation you have regarding its origin.
>
> How many panels have been constructed with 6-ounce mesh? What is the origin of this mesh? Provide all documentation you have regarding its origin.
>
> Provide the quantity and size of mesh currently stored, which is intended for use on this contract. Provide the origin of this mesh. Provide all documentation you have regarding its origin.

Exh. 83.

59. SHCI has taken the position that the EIFS panels incorporating the foreign mesh were delivered to the site from the off-site hangar completely assembled. As such, SHCI maintains that the panels qualified as "construction materials" under the BAA, *i.e.*, pre-assembled items brought to the construction site for incorporation into the building. Colver Tr. 135-36. Thus, SHCI argues, the EIFS panels would not be subject to the BAA restrictions on foreign panel components. *Id.* The Contracting Officer indicated that the Region would adhere to the position previously taken by the QAR in connection with determinations of BAA compliance, *i.e.*, that the Region would evaluate the mesh individually as "construction materials" and not as part of a complete panel system. In this regard, she advised, the hangar being used for panel fabrication was considered an "on-site" facility for BAA purposes. Colver Tr. 135-36. The same facility was being treated as "on-site" for purposes of providing progress payments to the contractor for materials and likewise was treated as "on-site" for purposes of wage payments under the Davis Bacon Act. The Contracting Officer, during her testimony, explained that she found it difficult to treat the hangar as "off-site" for BAA purposes under those circumstances. Alfsen Tr. 2353, 2359-2363. Accordingly, the Region has continued to maintain its position that the mesh itself should be considered a separate "construction material." See Tab 5, Letter FAA/SHC-142.

60. The Contract drawings indicate the bounds of the project site, and the hangar location falls outside those bounds. Also, Specification §01100, ¶1.1.1 states that a perimeter security

fence will confine the operations, activities, storage and materials, etc., within the project boundaries and that any additional space the contractor deems necessary "shall be obtained off-site at no additional cost to the government." The hangar in question clearly was located outside the perimeter fence, and the rental for its use was paid for by SHCI, not the Government. Alfsen Tr. 2483-2484.

61. Initially, the Tower EIFS panels were to have been delivered to the site for installation in December 1997. The issue of foreign-made mesh delayed manufacture of those panels approximately 103 days until March-April, 1998. Exhs. 80-83. At that juncture, Morrison was no longer able to perform, due to the arrest of Morrison's principal, Mr. Lance Morrison, and SHCI was required to take over Morrison's work with its own forces. Gothard Tr. 451. As noted above, EIFS installation was not completed until July 23, 1998.

62. Even if the Region's interpretation of the BAA with respect to EIFS were to be considered unreasonable, any EIFS-related delay caused by the Government's position ran concurrently with Government-caused delays attributable to the controls (discussed more fully below), delays which far overshadowed such EIFS delays. Furthermore, it does not appear that the delay associated with EIFS installation was on the *as-built* critical path. EIFS completion was obviously needed to close in the building, so that finish items could be performed. However, before any finish work could commence, the heating, ventilation and air-conditioning ("HVAC") systems had to be in place with all environmental controls completed and tested. *See* Finding 111, *infra*. At the time the EIFS was completed on July 23, 1998, the environmental controls were not yet complete. In fact, it was not until late October that the controls were completed. Exhs. 142 and 306. Thus, in terms of overall delay to the project, the EIFS related delays appear to have been inconsequential.

I. Mechanical, Electrical, and Controls Work

63. Mechanical and electrical work in the Tower was to include electrical riser and plumbing riser installation, as well as electrical rough-in, plumbing rough-in, wall/ceiling piping rough-in, and HVAC rough-in, and, finally, electrical and plumbing finishes (fixtures, etc.). In

addition, SHCI was to install associated environmental controls. This involved installation of controls rough-in and controls finishes.

64. Based on SHCI's comparative schedule (Exh. 142), electrical and mechanical work was to commence on September 23, 1997, 13 days after completion of fireproofing on September 10, 1997. Actual completion of fireproofing in the Tower occurred on January 23, 1998. Thus, according to the scheduled sequence, riser work should have started on February 5, 1998, some 13 days later. Actual commencement, according to SHCI's Daily Reports, did not occur until February 20, 1998, some 15 days later. Tab 7.C, SHCI Daily Construction Report, dated 2/20/98. SHCI did not prove this 15-day delay was the fault of the Government. The comparative schedule also indicates that control finishes were to be complete on December 24, 1997, and that the final aspect of mechanical and electrical work, *i.e.*, plumbing finishes, were to be completed on January 2, 1998. Exh. 142. Thus, the plan contemplated a total of 101 calendar days (September 23, 1997 through January 2, 1998) for all mechanical, electrical and controls related work. Actual performance of such work consumed a total of 252 days, from February 20, 1998 through October 30, 1998. Exh. 306. The overall delay for all such work was thus 151 calendar days.

65. SHCI seeks to attribute these delays solely to the Government, pointing to problems associated with the following: (1) design clarification requests and Government design changes; and (2) the Region's imposition of a requirement for coordination drawing approval prior to commencing work. The precise impacts of each of these causes of delay and disruption were not quantified by either party at the hearing.

66. The facts show a significant number of design problems and contractor requests for clarification ("CRFCs") that particularly affected the electrical and mechanical work on the project and caused impact to the progress of work in the Tower. In total, there were over 600 CRFCs issued on the project.[6] At the hearing, both SHCI and the Region presented analyses

[6] Testimony at the hearing indicated that this amount was higher than would normally be expected from a project of this size and complexity, and was in part attributable to the fact that CRFCs were routinely used to document a variety of communications related to the project. Smith Tr. 2052-55.

that summarized the nature of the CRFCs in terms of their nature and the associated response times. Exhibits 718 and 744. In both analyses, CRFCs were classified as either (1) requests for design clarifications or confirmation of verbal design clarifications; or (2) resolution of design errors, conflicts or omissions. Smith Tr. 2058, 2062; Blake Tr. 1466.

67. Even if one were to consider just the Region's analysis of CRFCs and its characterization of CRFCs, one would find that approximately 340 CRFCs were considered *by the Region itself* to be more than just requests for "clarification," *i.e.,* CRFCs involving design errors, conflicts or omissions. Smith Tr. 2061-62; 2267; 2327. Of these 340 CRFCs, at least 90 CRFCs relate to the electrical subcontractor and 76 CRFCs relate to the mechanical subcontractor. Exh. 744.

68. The testimony at the hearing underscores the impact these design problems had on the ability of the electrical and mechanical subcontractors to prosecute their work. Mr. Rick Goss, the field office manager for Superior Plumbing and Heating, testified as to the excessive numbers of CRFCs issued by Superior to resolve design issues. Goss Tr. 502; 514.[7] Its issuance of those mechanical-related CRFCs was not shown to have been unreasonable or unjustified, and, from the testimony at the hearing, it is clear that the resolution of the many design issues delayed and disrupted the progress of the mechanical work, particularly in the link area. The basic problem in the link was that the space was insufficient to contain all the mechanical and electrical equipment, pipes and conduits specified. Goss Tr. 547-9. According to Mr. Colver, this problem was particularly acute with regard to mechanical equipment and gave rise to numerous CRFCs, design changes and change orders. Colver Tr. 52-55. Mr. Goss further testified that, even after the link was redesigned (*i.e.,* presumably by Contract Modification No. 26, which effected significant changes to the link design), more problems arose, requiring yet additional CRFCs and design adjustments. Goss Tr. 547.

[7] CRFC 57 (utilidor piping), Goss Tr. 518-9. Exh. 718; CRFC 54 (vent location), Goss Tr. 521-2, Exh. 718; CRFC 63 (fuel oil trench), Goss Tr. 526; CRFC 105 (pipe diameter), Tr. 541-542, Exh. 744; CRFC 215 ("ghost sink"), Goss Tr. 536-37, Exh. 744; CRFC 231 (electric unit heaters), Goss Tr. 544-545, Exh. 744; CRFC 255 (sink dimensions), Goss Tr. 542; Dispute File, CRFC-255; CRFC 287 (utility coordination), Tr. 546, CRFC-287; CRFC 334 (boiler exhaust), Goss Tr. 551, Exh. 744; CRFC 341 (exhaust), Goss Tr. 552, Exh. 744.

69. The electrical subcontractor, Quality Electric experienced similar design related difficulties. Its owner, Mr. Bart Bias, testified that his organization was overwhelmed by the excessive numbers of CRFCs regarding design issues. Bias Tr. 1076-78. He further testified that the Region's responses to Quality Electric's electrical questions were inadequate, requiring a second or even possibly a third request for information. Bias Tr. 1098; 1101; 1110. He described the impact of these design issues as follows:

> We never had any areas where we actually started a rough-in project and things went smoothly or we went in and the whole room was framed out because of conflicts … [in] the contract documents …. So there never seemed to be a time and point when the job was ready for us to come into an area and actually be efficient at what we were doing. … I've got to try to keep these guys employed. And if there's a slow time, you know, and the efficiency level's down, I can't just get rid of them for a week and then have them come back next week because they want… their payroll. So we're trying to keep people moving around the job site with the three buildings and the efficiency just goes down.

Bias Tr. 1082-83.

70. CRFC numbers 219 through 229, relative to the electrical work, were received by the Region on October 10, 1997, and covered various issues ranging from conduit in floors to the conduits in the cable chase. Every single one of these CRFCs are considered by the Region to be more than just requests for "clarification," *i.e.*, they admittedly involved design errors, conflicts or omissions. Smith Tr. 2062; 2327. Responses to these ten CRFCs were provided on October 15, 1997. Exh. 744. Likewise, at least 58 design-related CRFCs were issued during the period of October 17, 1997 through May 19, 1998, relating to electrical work.[8] These CRFCs delayed and disrupted the progress of the electrical work in the Tower.

71. The delay and disruption arising from the numerous CRFCs and design adjustments was exacerbated by the fact that related submittals could not be prepared until the issues raised by

[8] CRFC Nos. 242; 245; 249; 252; 253; 254; 257; 264, 265; 266; 269; 276; 277; 280; 285; 292; 292A; 296; 301; 302; 303; 308; 309; 311; 133A; 312; 317; 327; 332; 336; 339; 347; 355; 357; 358; 372; 373; 378; 398;420; 422; 445; 446; 448; 468; 468A; 468B; 476; 477; 488; 488A; 494; 495; 496; 497; 498; 498A; 503.

the CRFCs and design adjustments were resolved.[9] Additionally, the Region prohibited work from proceeding until it approved "coordination drawings". Colver Tr. 73-84; Goss Tr. 547-548; Bias Tr. 1124-27. Coordination drawings are meant to show how pipe or conduit is run so as to avoid installation conflicts. By contrast, layout drawings address the placement of equipment within a defined space. Bias Tr. 1132-33; Exh. 14. The Region required coordination drawings from all the trades, in every project area, showing elevations and locations. Hunt Tr. 1617-18. Moreover, the Region threatened to shut down, or actually shut down, the job when those drawings were not provided. Colver Tr. 73-84; Smith Tr. 2278-82; 2287-89. These actions had significant impact on Quality Electric and Superior by adversely affecting their labor productivity as well as their work schedules. Colver Tr. 83-84.

72. As discussed previously (FFs 15 and 16), SHCI disagreed with the Region's requirement that submittals be approved before work was allowed to commence. Colver Tr. 90; Smith Tr. 2236-37; 2487-88; Exh. 129. Despite general testimony that this requirement was "stalling out the project" (Hunt Tr. 1613-14), the specific impact of this requirement was not quantified in terms of days of delay for any given submittal relative to the mechanical or electrical work.

73. There is evidence in the record of contractor-caused delay in conjunction with the boilers submittal. Although SHCI planned to make all mechanical submittals in July of 1997, the boilers submittal was not made until October 29, 1997. Jack Van Alstine Tr. 2645. Further, when the boilers were submitted, Superior put forward a substitute brand in lieu of the boiler that had been specified and sought an exception to permit a pressure rating of 70 psi (pounds per square inch) instead of the specified 80 psi. Jack Van Alstine Tr. 2645. Because Superior's initial boiler submittal did not show the correct gas train, it was rejected. A

[9] The mechanical submittals for the Tower (coordination drawings) were submitted on January 16, 1998 and were not approved until January 27, 1998. The submittal for the link coordination drawings was submitted on February 19, 1998 and not approved until February 26, 1998. The electrical submittal for the Tower (layout drawings – cable tray) was submitted on April 7, 1998 and was not approved until April 14, 1998. Tab 9, Submittal Register. Although the record lacks specific evidence as to how the design problems in the link impacted the progress of the Tower, the ODRA finds that since the work was planned to flow up from the link through the Tower, any delay to the link must ultimately have impacted the Tower.

second boiler submittal, with the correct burner assembly was not presented until January 12, 1998. Final boiler approval was given in late January 1998. Jack Van Alstine Tr. 2645-8. In addition, the Region alluded to Superior's having difficulties preparing its submittals in a format acceptable to SHCI and not conforming to Specifications Division 1. Van Den Top Tr. 678; 654. But the Region in this instance failed to establish any impact of these alleged contractor-caused problems, in terms of specific days of delay to overall project completion. *See* FF 81, *infra*.

74. The environmental controls for the project were provided by Honeywell, Inc., a subcontractor to Superior. Alfsen Tr. 2390. As a matter of sequence, the installation of the controls generally follows the installation of mechanical and HVAC equipment and related ductwork and piping. Jack Van Alstine Tr. 2592. The controls serve to operate the mechanical and HVAC systems, *e.g.*, opening and closing valves and dampers, providing reports, and setting off alarms. Jack Van Alstine Tr. 2590-91. Certain controls elements (controls "rough-in") are installed early in the construction process and other ("finish") elements are installed at the end. Jack Van Alstine Tr. 2591; Van Den Top Tr. 670.

75. At the hearing, Mr. James Morgan, who was the Branch Manager for Honeywell's Alaska operations during the time of this project, testified that he observed numerous issues with respect to the controls specifications when he commenced submittal preparation. Morgan Tr. 822, 825-26. These issues mainly involved the redundant nature of the contract specifications.[10] Morgan, Tr. 828-9; 831-4. As a result of these issues, Honeywell issued 18 requests for information that it considered critical to its preparation of controls submittals. On September 15, 1997, SHCI transmitted these requests to the Region by CRFC 98. Jack Van Alstine Tr. 2644; Exh. 102 and 103; FAA Ex. 8B(1), CRFC 98.

76. A meeting was held on September 17-18, 1997, between Mr. Morgan, the Region and the designer, to review Honeywell's questions relative to the control system design. Morgan Tr.

[10] FAA requirements for controls differ from those for normal commercial construction, in that they require system redundancy. Smith Tr. 2003. For example, the power generation systems and battery systems that serve the control Tower's critical power systems are backed up by a "factor of 2 or more." *Id.*

845; Jack Van Alstine Tr. 2648. At that meeting, the Region asked that SHCI re-issue separate CRFCs for each question. Jack Van Alstine Tr. 2666. During the meeting, among other things, Honeywell recommended control sequences different from what the Region had specified. At the Region's request, Mr. Morgan agreed to summarize the minutes of the meeting and to detail the proposed control sequences. On September 30, 1997, Mr. Morgan's summary was provided to Superior for transmittal to the Region. Jack Van Alstine Tr. 2648; Exh. 104.

77. On October 6, 1997, in accordance with the Region's request, SHCI resubmitted CRFC 98 in the form of 18 separate CRFCs (CRFCs 190-207). CREA Exh. 102.

78. It was not until October 22, 1997, that SHCI transmitted Honeywell's summary of meeting to the contracting officer. Exh. 104. Apparently, the document was mislaid in Superior's office and was not received by SHCI until October 22, 1997. Jack Van Alstine Tr. 2648. The 22-day delay (from September 30 – *see* FF 76 – until October 22, 1997) was entirely caused by Superior and thus is attributable to the contractor. Jay Van Alstine Tr. 2871. Although the FAA provided a partial response to the contractor on October 27, 1997, it did not fully respond until December 9, 1997, some 48 days later. Exh. 102 and Tab 8B.3; CRFCs 201-207. No explanation was given for the delay in responding and, in the ODRA's view, the response time was unreasonably long, given the maximum 30-day period specified for Government approval of submittals. Specification § 01300-4, paragraph 1.4.2.

79. On January 12, 1998, the Region transmitted change order 18, which revised the control sequence for the project. This change incorporated design revisions stemming from the issues Honeywell had raised in the CRFCs. Jay Van Alstine Tr. 2872-73. Exh. 105. The ODRA is satisfied that until these issues were resolved by change order 18, Honeywell could not complete its controls submittals. Morgan Tr. 849-51; Jack Van Alstine Tr. 2695; Smith Tr. 2250-51; Exh. 105. Although certain Honeywell CRFCs may have suggested different ways to perform functions, Dun Tr. 2745-6, the record does not support the Region's claim that delays associated with the controls were caused by Honeywell's attempt to "rewrite" the

specifications, in order to reclaim losses resulting from its bidding error. *See* Region's Final Submission, page 18.

80. Following receipt of the Region's change order 18, Honeywell was able to complete preparation of the controls submittals. Those submittals were provided to the Region on February 18, 1998. Exh. 106 and 306. The Region's review of SHCI's controls submittals was completed on March 20, 1998. SHCI Ex. 106 and 107.

81. The Region asserts that the real source of controls-related delay was not the CRFCs associated with Honeywell's controls submittals, but rather Superior's delay in providing its mechanical submittals. Ordinarily, controls submittals will follow mechanical submittals by 1 to 2 months, because controls submittals are based to some extent on information contained in the mechanical submittals. Van Den Top, Tr. 669. In this regard, Mr. Van Den Top testified that Honeywell needed the mechanical submittals in order to prepare the controls submittals, because the controls had to be designed to match the approved mechanical equipment. *Id.,* Van Den Top Tr. 668-669. However, as previously found above, the Region had also delayed the mechanical submittals by the redesign in the link. FF 68. Even so, the record shows that Government approval of mechanical submittals were not needed in order for Honeywell to start work on its own controls submittals. More specifically, Honeywell prepared and forwarded its controls submittals in February 1998, in many instances before Superior's submittals were approved (in January and February 1998), thereby assuming any risk that the controls submittals would be disapproved. Tab 9, Submittal Register; Exh. 104; Colver Tr. 621-22; Morgan Tr. 816-817; 875; 905-06; 939-40; Jack Van Alstine Tr. 2706-08; Jay Van Alstine Tr. 2921-22. Thus, Superior's delay in providing mechanical submittals (including the aforesaid boiler submittals – *see* FF 73) does not appear to have impacted controls submittals in this case.

82. In February 1998, at the time Honeywell had forwarded its controls submittal, rough-in and metal stud activities were critical to the progress of the project. Honeywell used a lower tier subcontractor to install control wire. Alfsen Tr. 2390. That subcontractor had commenced

installing control wiring without the required preparatory meeting with the Region. For that reason, SHCI issued Superior a stop work order calling for such work to cease. Alfsen Tr. 2393; Exh. 130-131. To mitigate delay, SHCI asked the Region for permission to conduct a partial preparatory meeting for controls conduit rough-in only. The Region acceded to this SHCI request, the meeting was held on March 9, 1998, and thereafter, work resumed. Tab 306.

83. On April 2, 1998, the FAA Alternate QAR noted that the controls wiring being installed was made in Canada. On that same date, the FAA Alternate QAR notified SHCI's Contractor Quality Control ("CQC") representative that such wiring would have to be removed. Later, however, the Contracting Officer advised the FAA Alternate QAR that the material need not be removed. Accordingly, the controls wiring was not removed. Alfsen Tr. 2390.

84. Mr. Morgan of Honeywell confirmed that some of the materials that made up the environmental controls system were manufactured outside the U.S. Nevertheless, he noted, the BAA itself permits life safety systems to be evaluated as an integral whole. In this regard, he advised the Contracting Officer that, if the control system were to be considered a single life safety system, which he urged, then it would be BAA compliant, because the controls wiring and all other foreign-made materials associated with the controls would constitute only a minor portion of that system. Parties' Statement of Facts ¶ 45.

85. A meeting to discuss this BAA issue was conducted on April 10, 1998,and was attended by representatives of the Region, SHCI, Superior and Honeywell. The Contracting Officer indicated during her testimony that "very good information" was provided at that April 10 meeting. Alfsen Tr. 2392.

86. On April 10, 1998, Mr. Morgan provided the Region with a detailed letter identifying the parts and pieces of the system and stating that, if it were considered one system, there would be no BAA problem. On that same day, the letter was provided to the Region's mechanical

engineer, Mr. Jack Van Alstine. The Region provided an interim response to SHCI by letter dated April 14, 1998, but did not provide a final determination as to BAA compliance.

87. On April 21, 1998 (Exhibit 660), SHCI wrote the Region advising that SHCI was anxiously awaiting the Region's determination of BAA compliance, noting that completion of controls installation was an activity on the project's "critical path" and that delay in obtaining this determination was having a negative impact on SHCI's ability to meet the project CPM schedule. In addition, the letter advised, SHCI's controls submittal process could not be completed until that BAA compliance issue was resolved. Although Mr. Van Alstine prepared a memorandum to the Contracting Officer also dated April 21, 1998, in which he estimated that two-thirds of the Honeywell DDC control system was in some way related to basic life safety issues, Alfsen Tr. 2469, that memorandum was not transmitted to the Contracting Officer until some time on April 24, 1998. Exh. 658; 659 and 660.

88. In serial correspondence Letter FAA/SHC-119, dated April 24, 1998 (Tab 5), the Contracting Officer responded to SHCI's April 21, 1998 letter, informing SHCI that the Region was in the process of determining BAA compliance. It appears that Mr. Van Alstine's memorandum had not yet been received by the Contracting Officer at the time her April 24, 1998 letter was dispatched to SHCI. Exhibit 774; Alfsen Tr. 2398.

89. On April 27, 1998, Ms. Alfsen advised SHCI that she had determined that the environmental controls system would be evaluated as one "construction material" (a single life safety system) and requested a breakdown of costs of domestic and foreign components. It is unclear why, if, as the Contracting Officer has acknowledged, "very good information" was already provided at the aforesaid April 10, 1998 meeting regarding the materials components of the controls system being over 50% American made, she would still insist upon such a detailed breakdown in her April 27, 1998 letter. *See* Alfsen Tr. 2468-9; Exh. 132.

90. SHCI provided the Region with the requested detailed cost breakdown by letter, dated May 11, 1998. The breakdown showed that the made-in-America content of the control system was 82%. Exh. 135.

91. By letter dated May 28, 1998, and without any apparent basis for believing that any of the items involved were manufactured in prohibited foreign countries, the Region then required SHCI to clarify where 11 items were manufactured. SHCI was able to provide this additional information on June 8, 1998. Alfsen Tr. 2470-71.

92. Finally, after over two months of delay, the Region, on June 12, 1998, determined that the controls system was in compliance with the BAA and approved Honeywell's list of materials for use on the project. At the hearing, the Contracting Officer admitted that the approval process for the control system took too long. Alfsen Tr. 2399, 2401.

93. During the same time period in which the controls system's compliance with the BAA was being resolved, another issue arose with respect to the controls system's valves and actuators.[11] The Region on March 20, 1998 refused to accept the actuators and valves that were part of the listed Honeywell system components, because they did not meet the specifications. Exh. 107. In particular, the valves Honeywell submitted did not have the specified Teflon packing. Jack Van Alstine Tr. 2612; Exh. 107.

94. Apparently, the valves Honeywell submitted required special maintenance procedures, which were more complicated than those required for maintaining Teflon-packed valves. Jack Van Alstine Tr. 2619-20, Exh. 109. Although Honeywell claimed that Teflon-packed valves were not commercially available during the performance period of the contract, Jack Van Alstine Tr. 2613, Honeywell's own catalogs for '96-'97 and '98-'99 had indicated that these valves were available. Jack Van Alstine Tr. 2614-5; Exhs. 787 and 788. Furthermore, it was undisputed that Teflon repacking kits were commercially available. Jack Van Alstine Tr. 2621-3. Eventually, SHCI and Honeywell agreed to a Teflon packing retrofit for each valve.

[11] An actuator is connected to and controls the activity of a valve. Jack Van Alstine Tr. 2611.

This required Honeywell to order the standard valve from its manufacturer and substitute the Teflon packing. The Region approved SHCI's proposed solution on April 30, 1998. The actual retrofitting of valves with Teflon packing took approximately one minute per valve, Jack Van Alstine Tr. 2621-3, and there were only about 12 such valves in various locations around the project. Lindberg Tr. 790; Jack Van Alstine Tr. 2622-3.

95. SHCI alleges that the Region's insistence that Honeywell change the packing in the large valves to Teflon packing was a contract change and claims the resulting additional costs. SHCI Final Submission, page 102.

96. On February 18, 1998, Honeywell had also submitted small linear valves that were also rejected, because they too did not have Teflon packing. Exh. 106 and 107. Honeywell resubmitted these small valves on March 31, 1998, after the Region's initial rejection, because it believed that the small, linear valves were the only valves that could meet the specified flow coefficient.

97. The specification only describes Honeywell's large valves, and indicates that the valves shall be modulating and shall have certain flow coefficients (Cv). Specification §15971-28, paragraph 2.1.17. Although SHCI contends that in some applications, the large valves did not have small enough coefficients to meet the specifications, this was never proved. Furthermore, in terms of flow requirements, the significance of having a large valve instead of a small valve only meant that water would come on full-flow and go off full-flow, rather than going from a trickle to full-flow. Jack Van Alstine, Tr. 2625. Mr. Van Alstine testified that, in some instances, this outcome is preferable, and that the large valves have worked satisfactorily since installation. *Id.*

98. The Region had also rejected the actuator submitted by Honeywell in the February 18, 1998 submittal. Honeywell submitted a Belimo actuator for the dampers, a simpler, smaller and less expensive actuator than the specified Honeywell Modutrol actuator. The majority of the gears in the Belimo were plastic. Jack Van Alstine Tr. 2607. The Belimo was rejected,

because it failed to meet the specifications requirement that the valve operators have gears of steel or copper alloy. Specification §15971-27, paragraph 2.1.16.1.

99. The record reflects that the specified actuator was no longer available from any manufacturer. Although Honeywell's Modutrol actuator may have met the specification at the time the project was designed, sometime during 1997, Honeywell added one "sacrificial" plastic gear, which was designed to fail first before the rest of the gear train was damaged. Van Alstine Tr. 2633.

100. The specification had been designed around the Honeywell Modutrol actuator, which was the standard in the industry. As the project designer, HNTB admitted in a memo to the Region that the control specifications were over two years old. Jack Van Alstine Tr. 2603; 2681. Mr. Morgan maintained that the Modutrol was expensive and obsolete, and that the Belimo represented "cutting edge" technology. Jack Van Alstine Tr. 2632. .

101. The FAA returned Honeywell's resubmittal of valves and gears on May 4, 1998, without review, insisting that SHCI provide contractor-approved submittals. Parties' Statement of Facts, ¶ 72.

102. On May 6, 1998, SHCI resubmitted the mechanical submittal. The Region reviewed and rejected the submittal on May 8, 1998, again insisting that actuators have steel or copper gears, and that the valves have Teflon packing. Parties' Statement of Facts, ¶ 73.

103. Notwithstanding the Region's rejection of SHCI's submittal on actuators, the Region's mechanical engineer, Mr. Van Alstine, had written a memorandum on April 13, 1998, identifying the Honeywell substitute actuators SHCI was offering, *i.e.*, the Belimo, as the "best value to the government." Exh. 658. In fact, the Region had this recommendation in hand at the time of its May 8 rejection.

104. At a meeting on May 14, 1998 at which representatives of Honeywell, Superior, SHCI and the FAA were present, Mr. Morgan informed all in attendance that he had gone outside the Honeywell organization in an attempt to find valves and actuators that met the specification. Mr. Morgan produced documentation from a number of actuator manufacturers to demonstrate that no actuator could meet the "all steel or copper alloy gear" specification. Exh. 119.

105. Specification §15971, paragraph 1.6.4 requires that all control items must be the product of one manufacturer. Thus, even if the specified actuator were available from another manufacturer, the provision of another brand of actuator would have violated the specification. By letter dated May 15, 1998, SHCI advised the Region that the FAA controls specification was defective to the extent that no single manufacturer could provide the system as specified, nor could a combination of several manufacturers' components be assembled to meet the Region's specification. Parties' Statement of Fact, ¶ 76. SHCI further documented its position on this specification deficiency in a letter dated May 19, 1998 and again warned that the controls activity was on the critical path and was being impacted by the Government's delay. Parties' Statement of Fact, ¶ 77.

106. On May 27, 1998, SHCI transmitted yet another letter to the Region regarding the non-approval of the actuators. In an attachment to that letter, Honeywell advised that it had contacted various manufacturers, and provided letters from those manufacturers to the effect that there was no product available that would comply with the specifications. Parties' Statement of Fact, ¶ 78. Although the Region now contends that it would have accepted the newest version of the Modutrol, Honeywell ultimately convinced the Region to accept the Belimo actuator as a substitute. Jack Van Alstine Tr. 2635.

107. On June 3, 1998, the Region advised SHCI: (a) the large valves were to be used for in-line valves (even though they failed to meet the specified flow requirement), but had to have Teflon packing; and (b) actuators would be acceptable without all-steel or copper alloy gears. Parties' Statement of Fact, ¶ 79.

108. The cost of the Belimo actuator is approximately $500 less than that for the Modutrol, and the Belimo is easier to install – *i.e*., requires less labor cost. Overall, it was estimated that the substitution of the Belimo for the Modutrol provided Honeywell with total savings of approximately $13,000. Jack Van Alstine Tr. 2638. Nevertheless, the Region did not seek or receive a credit for this substitution. Exh. 793.

109. SHCI/Superior had previously piped through the locations where the valves were to be installed, in order to mitigate the impact of the controls submittal approval delay. As a consequence of that delay, SHCI/Superior had to modify the rough-in by cutting in thirty valves. This constituted out of sequence work. *See* Van Den Top, Tr. 685-686; Jack Van Alstine, Tr. 2660.

110. The Region finally approved the controls system submittal on June 22, 1998. Tab 9, Submittal Register. By this time, SHCI and its subcontractors had experienced significant delay and disruption to the project. Controls rough-in was completed on September 23, 1998. Controls finishes work began immediately on September 24, 1998 and was completed on October 30, 1998. *See* Tab 7, SHCI Construction Report, dated 10/30/98.[12] The total time from the Region's approval of the controls system until completion of the finishes was 99 days (June 22–October 30, 1998). Based on SHCI's Revised Preliminary Schedule, SHCI had planned to take 122 days from approval of the controls system to completion of the controls finishes[13] It appears that the somewhat shorter timeframe can be attributed to SHCI's having been permitted to start controls rough-in in advance of controls submittal approval. Exh. 192 and 306. There was no evidence presented at the hearing that the contractor caused itself any quantifiable days of delay in its performance of either the controls rough-in or the installation of the controls.

[12] Plumbing finishes, which had originally been scheduled to complete after controls finishes, were actually installed about a month before SHCI was able to complete controls finishes. *See* Exh. 306.
[13] Assuming 30 days for approval, the approval date would have been June 20, 1997 and the planned completion date for the control finishes was December 24, 1997. Exh. 192.

111. Based on SHCI's planned schedule, the span of time between the submittal date for controls (May 21, 1997 – *see* Exh. 144) and the completion of controls finishes in the Tower (December 24, 1997 – *Id*.) would have been a total of 189 calendar days. The actual initial submission for controls was made on February 18, 1998 (FF 80), and actual completion of controls finishes in the Tower was not achieved until October 28, 1998 (Exh. 806), an overall period of 252 calendar days. The 63 day difference (252 minus 189), the ODRA finds attributable to concurrent SHCI and Government causes. More specifically, there was a 94 calendar day delay in obtaining approval for the controls submission. The ODRA derives this 94 day figure by subtracting from the actual approval date of June 22, 1998, the theoretical approval date of March 20, 1998 (which is derived by applying the 30 day specified maximum approval time to the February 18, 1998 submission date). The ODRA attributes the approval delay jointly to SHCI (for its submission of non-compliant valves) and to the Region (for its improper continued insistence on having actuators with all metal gears). As noted above, SHCI was able to mitigate some of the approval delay by piping through and later coming back to cut in the valves (FF 109). Accordingly, what might have been a 94 day delay to contract completion, was reduced to only 63 days. Thus, of the total overall delay of 151 calendar days experienced in connection with the mechanical, electrical and controls related work (FF 64), the ODRA finds 88 days solely attributable to Government causes and 63 days attributable to concurrent causes.

J. Finishes

112. The lack of a completed environmental controls system delayed the installation of finish components and, ultimately, the completion of the project. Finishes on the project included finish carpentry, acoustical ceiling tile, acoustical wall surfaces, carpet, and wall fabrics. Pursuant to the specifications, the installation of these finishes was contingent on the building achieving and maintaining certain environmental conditions prior to, during, and after

installation. These conditions encompass specified temperature and relative humidity levels – so called "typical in service conditions."[14] Tab 4, Letter SHC/FAA-0270.

113. SHCI's Superintendent expressed concerns on August 11, 1998 regarding SHCI's inability to meet the requirements for tile, cabinets and carpet. Exh. 708, Job Diary, dated August 11, 1998. Subsequently, on August 13, 1998, SHCI wrote a letter to the FAA requesting a relaxation of the above specifications, as the environmental limitations specified therein still could not be met, because of the prior delays SHCI had sustained in resolving the controls issues. Tab 4, Letter SHC/FAA-0270. The Region denied this request summarily by letter of August 31, 1998. Tab 5, Letter FAA/SHC-170.

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[14] For example, the specification with respect to the finish carpentry stated:

> Environmental Limitations: Do not deliver or install interior finish carpentry until building is enclosed and weatherproof, wet work in space is completed and nominally dry, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels through the remainder of construction period. Section 06200, paragraph 3.1.3.

The specification section pertaining to acoustical ceilings stated:

> Environmental Conditions: For 24 hours before, during, and 24 hours after installation of acoustical units, maintain temperature and relative humidity at typical in service conditions. Interior finish work shall be completed and dry before installation. Mechanical, electrical, and other work above the ceiling line shall be completed and approved prior to the start of acoustical ceiling units. Section 09510, paragraph 1.4.

With respect to acoustical wall surfaces, the specification stated:

> Environmental conditions: For 24 hours before and during installation of acoustical wall treatment units, maintain temperature and relative humidity at typical in service conditions. After installation, ambient temperature and humidity must be continuously maintained at values indicated for final acceptance of building. Section 09520, paragraph 1.4.

As for carpet, the specification stated:

> In no case may floor temperature be less than 65 degrees F for 24 hours prior to, during and after installation. Carpet shall be installed where the temperature is between 65 degrees F and 95 degrees F, and the relative humidity is between 10% and 65%.

The environmental conditions specified for wall fabrics stated:

> Minimum temperature of area to receive wall covering, before, during and after installation, and requirements for conditioning adhesive and wallcoverings shall comply with the wallcoverings manufacturers printed instructions. However, in no case shall the area temperature be less than 50 degrees F, 72 hours prior to, during installation, and until the adhesive is dry.

114. The lack of controls precluded SHCI and its subcontractors from proceeding with all of their finish work. Colver, Tr. 143-9. Because of the narrow temperature and humidity ranges that were specified for application of finishes, [15] an operational controls system (as opposed to merely operating components of the heating system) was required. Goss Tr. 644; Van Den Top Tr. 673-75; Morgan Tr. 877-78; Blake Tr. 3278-81; 3326-27; Exh. 622, § 15971 paragraphs 3.12.2 and 3.12.4.

115. The record further shows that Mr. Colver identified "environmental limitations for interior finishes" as "Hindrances to Normal Progress of Work" in his job diary from August 25, 1998 through September 15, 1998. Exh. 708.

116. Interior finishes, including casework, ceiling tile, carpeting, and wallcovering, in the Tower were installed from October 12, 1998 through November 18, 1998. There is no evidence in the record of any contractor-caused delay with respect to such finishes installation activities.[16]

K. Miscellaneous Items of Alleged Delay and Disruption

117. In addition to the delays discussed above, SHCI complained of other problems on the project that allegedly contributed to overall delay and disruption. These complaints related to: (1) the numbers of design related CRFCs and lack of clear responses thereto; (2) the FAA's unreasonable interpretation of contract requirements for submittal approval, as well as coordination and layout drawings; (3) interference with SHCI and its subcontractors' means and methods, (4) misuse of the Buy-American Act; and (5) failure to timely process SHCI's requests for equitable adjustment and time extensions ("the Red Files").

118. As discussed previously in Section K, there was a significant volume of design-related CRFCs on this project. The record shows that the need to prepare design related CRFC's affected the productivity of SHCI and its subcontractors, causing work to be set aside until

[15] Smith Tr. 2314-15.
[16] Although the Region, in its Final Submission (p. 32) alludes to some contractor-caused damage to the finish walls, doors and acoustical tile on October 20, 1998, there is no demonstration as to how this damage caused overall delay to the completion of the finishes work.

the CRFCs were resolved, and adversely impacting the planning and execution of work in various locations. Colver, Tr. 25-29; Dokoozian Tr. 3187. At the hearing, SHCI's superintendent testified as to specific CRFCs (including Nos. 24, 25, 28, 57, 60, 81, 230) that disrupted the schedule and work flow, causing work activities to be rescheduled, re-sequenced or postponed. Colver, Tr. 34-62.

119. SHCI also demonstrated at the hearing that the Region deviated from the typical industry practice of returning marked up shop drawings ("red lines") with respect to the structural steel shop drawings. Steeves, Tr. 2569; Fredericks Tr. 1983-87. Instead, the Region copied and edited the designer's comments for transmission to SHCI on 8 1/2 x 11 inch paper. Smith Tr. 2218.[17] In at least one instance, SHCI's steel supplier was required to convene a teleconference with the designer, so that it could clarify the Region's written comments and proceed with fabrication. Graham Tr. 1949-52; SHCI Exh. 85. This particular incident translated into a four-day delay in steel fabrication. Graham Tr. 1944-45, 1947-48; Colver Tr. 62-69; Smith Tr. 2218-21.

120. The record reflects other instances in which the Region may have provided inadequate submittal responses with respect to the mechanical work, thereby increasing the costs of project administration. Goss Tr. 515; 517-567; Van Den Top Tr. 658. However, SHCI failed to demonstrate any specific adverse impact of these response inadequacies in terms of project delay. It merely provided general testimony that these actions generally led to "acceleration, trade stacking, trade jumping and all of the associated labor inefficiencies," (Colver Tr. 149-51; 155-56; Blake Tr. 1371-73; and Dokoozian Tr. 3223),.

121. As was discussed in Section E above, the Region unreasonably interpreted the contract requirements with respect to submittal approval. The requirement that all submittals be approved by the Contracting Officer prior to the commencement of work disrupted SHCI's planned flow of work and cause labor inefficiencies to some unquantified extent.

[17] Evidence also showed that the Region edited the designer's responses if "they provided too much information" or "too many requirements." Smith Tr. 2218.

122. Furthermore, as discussed above, the Region's requirement for coordination drawings "in accordance with Division 1 requirements" inevitably hindered SHCI's efficiency and workflow. *See* Hunt Tr. 1613-14; 1619.

123. As to electrical work in particular, the Region interpreted Section 01010-2, paragraph 1.4.2 as requiring electrical layout drawings for every room, not merely the equipment rooms. Smith Tr. 2282; 2284-85. That specification section in question only mentions "equipment rooms." There does not appear to be another more general layout drawing requirement in the specifications. Once again, although SHCI did not identify specific days of delay or quantify the impact of this interpretation, it is clear that forcing the contractor to submit layout drawings for all electrical items before permitting any installation disrupted the job and created inefficiencies.

124. SHCI also claimed that the Region unreasonably interfered with its means and methods of contract performance, thereby contributing to the "cumulative impact" of Government delay and disruption. Smith Tr. 2201-2215. Examples provided by SHCI included one instance where the Region rejected a load of concrete because it exceeded a specified level for air content, even though the margin of error for the test was greater than the amount by which the level was exceeded. Colver Tr. 91-92. Another example involved rebar clearances, in which the Region attempted to stop SHCI from pouring grade beams because of alleged lack of proper rebar clearance. SHCI's superintendent subsequently produced documentation showing that the clearances were, in fact, within acceptable tolerances, and the work ultimately proceeded on that basis. Colver Tr. 95-96. The ODRA finds these isolated examples insufficient to provide substantial evidence of unreasonable interference. The record reflects numerous instances where the Region extended itself to assist SHCI and to facilitate contract performance. *See* Region's Final Submission, page 39.[18]

[18] According to the Region, CRFCs that "helped" SHCI were CRFC Nos. 60, 85, 85A, 100, 104, 112, 127, 201-7, 293, 305, 314, 319, 336, 357, 380, 423, 426, 449, 457, 476, 496, 514, 527, 530, 531, 548, 603, 604, 610, 617, 623, 627, 628 and 628A. *Also see* Tab 7, SHCI Daily Construction Reports for 9/8/97, 10/17/97 and 11/20/97.

L. Buy American Act

125. In addition to the BAA issues relative to the EIFS (discussed in Section H) and the controls (discussed in Section I), SHCI contends that the Region generally misapplied the BAA with respect to the entire project, and specifically with respect to a fire pump and a "Josen" toilet carrier.

126. Contract Clause I-0030, 3.6.4-3, "Buy American Act—Construction Materials (April 1996)," required that the contractor *warrant* that only domestic construction material would be used in the performance of the Contract. The Region interpreted the BAA as further requiring the Contracting Officer's "approval" of the contractor's warranty. Alfsen Tr. 2473. Under the Region's interpretation, in addition to furnishing a warranty, SHCI was required to provide the Region with supplementary documentation in support of BAA compliance. Alfsen Tr. 2480. Examples of this documentation included letters of certification signed in "original ink" by an officer of the company and detailed breakdowns of the dollar amounts and percentages for all component items, including customs duties and freight for foreign material.[19] Tr. 2370-2373; 2475-76. See Tab 5, Letters FAA/SHC-085; FAA/SHC-111; and FAA/SHC-147; Exh. 764. These additional documentation requirements were particularly imposed on SHCI relative to the fire pump and the Josen toilet carrier. Tab 5, Letter FAA/SHC 147; Exh. 764. There was no indication that such items were other than American-made, and the Region provided no justification for a further inquiry and demand for additional documentation.

127. It was apparent from the evidence presented at the hearing that the Region's administration of the BAA requirements was excessive and unjustified. *See* Colver Tr. 99-100; Goss Tr. 568-69. In particular, SHCI witnesses described the actions of a single FAA quality control inspector who would obsessively examine every nut and bolt for evidence of non-compliance. Colver Tr. 98-99; Goss Tr. 574-75, 578-80. This individual's passions about the BAA ultimately drove him to smash a boiler valve that he believed to be of foreign

[19] This supplemental "proof" of BAA compliance was required even though the Region had no apparent reason to doubt the legitimacy of the contractor's original warranty. Alfsen Tr. 2468-71, 2476-77.

origin, damaging previously installed mechanical equipment in doing so. Colver Tr. 99-101. This single incident is reflective of the overall tense and adversarial relationship between the Region and contractor personnel on this job and at the hearing.

128. With respect to the fire pump, the Region's demand for BAA documentation did not appear to cause actual delay to the project. The fire pump had already been installed prior to the Region raising an issue regarding BAA compliance and prior to SHCI's request for its approval. Alfsen Tr. 2379; Exhs. 765 and 766. Likewise, with respect to the Josen toilet carrier, although the Contracting Officer admitted at the hearing that she was wrong in asking for the supplementary information, she also indicated that the Josen toilet carrier had been installed notwithstanding her lack of approval. Alfsen Tr. 2476. Thus, aside from BAA-related delays associated with the EIFS and controls, SHCI was unable to establish that the Region's position regarding the BAA had any appreciable impact on the completion of the project.

129. Another purported cause of delay and increased costs alleged by SHCI was the Region's undisputed failure to provide telephone lines in a timely manner, so as to allow the testing of certain systems, *e.g.*, fire alarm, security and elevators. Exh. 23. The Region was responsible for providing these telephone lines. Exh. 23. After verbal discussions regarding the provision of the telephone lines on November 3, 1998, SHCI gave written notice to the Region on November 23, 1998 that the lack of telephone lines was delaying testing of the systems. Gothard Tr. 408-09; Exh. 23. Again, other than a general indication that this delay contributed to "cumulative impact," SHCI failed to demonstrate how this delay yielded any specific impact in terms of days of delay or any disruption in terms of additional labor or other cost.

M. Project Delay Summary

130. At the hearing, SHCI presented a "Schedule Analysis," consisting of a comparison between the as-planned and the as-built schedule, which was updated monthly. The analysis was based on SHCI's original plan for project construction and contained various

"constraints," which apparently were used by SHCI to aggressively prioritize work. For purposes of supporting its claim, according to SHCI, these constraints were removed and "replaced with appropriate logic" to reflect a more realistic schedule. CREA Supplemental Narrative, page 102. SHCI, in its final submission, claims that its schedule analysis establishes this factual predicate to recovery. SHCI claims every day of delay to have been Government-caused. However, the ODRA's review of the record reveals a significant amount of contractor-caused delay, in addition to Government-caused delay, and other delays either not attributable to either party or not proven to have significantly delayed the overall project.

131. As reflected in the foregoing findings of fact, the ODRA has identified Tower construction activities as controlling the course of the critical path of the project. Specifically, the *as-built* critical path proceeded as follows for the Tower activities: (1) excavation; (2) concrete foundations; (3) steel erection; (4) preliminary riser work, *i.e.*, setting the sleeves for mechanical and electrical risers in preparation for the concrete pours; (5) concrete slab on grade (S.O.G.) and floor decks; (6) fireproofing; (7) mechanical, electrical, and controls installation; and (8) finishes. Steel erection was scheduled to begin on July 18, 1997, but SHCI was not prepared to erect steel until August 3, 1997. Thus, there was an initial 16-day delay in the commencement of steel erection. Of these 16 days, only 9 are attributable to SHCI being behind its own schedule. The remaining 7 days consist of the above-described Government-caused fabrication delays relating to the failure to "red line" and the Nickel Welding Rod change. *See* FF 21. From August 3, 1997 through August 23, 1997, the Region caused a further 20 days of delay to steel erection commencement, with respect to the approval of the fall protection plan. FF 28. Next, there were 6 days of delay between August 23, 1997 and August 29, 1997 attributable to SHCI because of an improperly welded gusset plate and a crane that proved too light. FF 29. Tower erection finally commenced on August 29, 1997 and took 54 days, some 47 days beyond the 7 days allowed in the contractor's schedule. The additional 47 days for steel erection are not shown to be attributable to the Region. FF 42. Following the completion of Tower steel erection on October 22, 1997, SHCI spent 15 days – from October 22, 1997 through November 6, 1997 -

- installing mechanical and electrical sleeves (preliminary riser work) in the Tower.[20] Tab 7.B. SHCI Daily Construction Reports. The Tower concrete work commenced on November 5, 1997, and was completed on November 7, 1997, which was 6 days faster than the 9 days planned in its schedule.[21] *See* FF 43.

132. SHCI has not explained or shown any cause for the 61 days of delay incurred prior to commencing fireproofing, *i.e.*, from November 8, 1998 through January 7, 1998. FF 45 and 46. This delay is attributable to SHCI, as is the 10-day delay in performance of fireproofing. *See* FF 50.

133. Although the overall installation of the EIFS for all structures took far longer to complete than scheduled, the EIFS installation for the Tower only consumed 30 days from June 24, 1998 through July 23, 1998. FF 53. Further, it does not appear that EIFS installation delay caused the overall project completion to be delayed, *i.e.*, that EIFS installation was on the as-built "critical path" of the project. At most, it was a concurrent cause of Government delay, *i.e.*, it occurred during the same timeframe as the Government-caused delays to the mechanical and electrical work. *See* FF 65 and 111, *supra*.

134. The ODRA finds the overall project completion was delayed solely by reason of Government causes by a total of 115 calendar days, consisting of:

Fall Protection Plan Delay (FF 28)	20 days
Nickel Welding Rod Change Delay (FF 21)	3 days
"Redlining" Delay (FF 21)	4 days
Mechanical/Electrical/Controls Delay (FF 111)	88 days
Total	115 days

SHCI was unable to demonstrate that the remainder of the overall project completion delay was attributable solely to the Government.

[20] SHCI had planned to accomplish all riser work in 6 days. Exh. 292.

[21] The ODRA has found that Superior had "lost" the controls submittal for a period of 22 days from September 30, 1997 through October 22, 1997. FF 78. This delay was concurrent with the Tower erection delays (Tower erection having completed also on October 22, 1997). The Region received the submittal on October 22, 1997 and did not approve it until December 9, 1997. The Region had up to 30 days to approve submittals. The 18 additional days the Region took to approve the controls submittal contributed to the overall project delay. FF 78.

N. Project Inefficiency Summary

135. The ODRA concludes that the Government-caused disruption and delay associated with design-related CRFCs, unreasonable contract interpretations (submittal approval, coordination drawings, and BAA) and the Red Files, as discussed above in FFs 65 - 71, are linked to, and had the overall effect of delaying and disrupting prosecution of the project by SHCI and its subcontractors. The evidence further shows that this delay and disruption reduced the labor productivity experienced by SHCI and its subcontractors. Hunt Tr. 1630-33; Colver Tr. 152-54; Goss Tr. 509-10; Bias Tr. 1121-22.[22] Specifically, the delay and disruption caused SHCI and its subcontractors to be deprived of the ability to follow the planned schedule, resulting in out-of-sequence work, congestion/stacking of trades, overmanning/undermanning, rework costs and diminished morale and attitude, loss of learning curve and dilution of supervision. *Id.*

O. Contract Completion, Claim Submission and Subsequent History

136. On December 15, 1998, SHCI requested that the Region conduct a final inspection. The Region advised SHCI that it would consider the project substantially complete if all fire and life safety systems were complete. On January 6, 1999, SHCI submitted verification that all fire and life safety systems were operable. The Region responded on January 7, 1999, stating that it agreed that the project was substantially complete and ready for final inspection and acceptance. The Region has assessed liquidated damages against SHCI in the amount of $800 per day for a total of $53,600, for the period from October 9, 1998 to, and including, December 15, 1998, the date it considers the project to have been "substantially complete." Although SHCI had requested additional time in connection with various change order proposals, the Region had not granted SHCI any time extensions. According to the

[22] With respect to the testimony of Mr. Blake, we note that conclusory assessments of project managers or the opinion of its experts are not sufficient substitutes for SHCI's underlying obligation to contemporaneously document the severe adverse impact on labor efficiency it claims resulted from the changes and CRFCs. *Clark Construction Group, Inc*. VABCA-5674, 00-1 BCA 30,870, *citing, inter alia, Centex Bateson Construction Company, Inc., supra.*

Contracting Officer, final acceptance of the project occurred on January 27, 1999. Alfsen Tr. 2452-54.

137. Notwithstanding final acceptance, punchlist work continued at least until February 28, 1999. Alfsen Tr. 2452-53; 2512-13; *see also* Exh. 741, Audit Report at page 26. Thereafter, until June of 1999, SHCI was involved in such tasks as closing out submittals and internal administrative items. Gothard Tr. 478-480.

138. On March 26, 1999, SHCI submitted to the Contracting Officer a consolidated request for equitable adjustment ("CREA") for $3,508,248. Subsequently, the CREA was revised to $3,782,556 and re-submitted to the Region on May 27, 1999.

139. Because the parties failed to negotiate a resolution of the CREA, SHCI submitted the CREA to the ODRA on September 20, 1999.

140. On or about October 19, 1999, the parties entered into an ADR Agreement. On January 10, 2000, pursuant to the ADR Agreement and in order to comply with the requirements of 14 CFR § 17.25 regarding the content of contract disputes, SHCI presented the ODRA and the Region with a restatement of its CREA. The restated claim, which it termed the "ODRA Supplement," seeks $3,506,234 inclusive of interest through April 1, 2000, subcontractor claims, and a contract time extension to February 28, 1999, together with relief from the assessment of all liquidated damages and/or deductions that the Region has previously asserted or may intend to assert against SHCI in connection with this project.

141. With the assistance of an ODRA ADR Neutral, the parties were able successfully to resolve several of the individual Red File items within the restated claim by means of ADR, but were unable to achieve a full settlement of their differences.

142. An evidentiary hearing was conducted by the ODRA under its default adjudicative process beginning on July 10 and continuing through July 21, 2000. After the hearing and

the parties' filing of their final written submissions on August 21, 2000, the total SHCI claim was reduced to $3,411,772, including interest.

P. Claim Elements

143. SHCI's claim items, as currently formulated, are summarized as follows:

1.	SHCI Labor Inefficiencies		$321,165.00
2.	SHCI Weather Inefficiencies and Other Related Costs		119,399.00
3.	CREA Preparation Cost		126,415.00
4.	Subtotal		$566,979.00
5.	Prime Overhead @ 15% of line 4		85,047.00
6.	Prime Profit @ 10% of lines 4 + 5		65,203.00
7.	Subtotal		$717,229.00
8.	Disproportionate Consumption of Resources - Field (Base Contract Period)		112,596.00
9.	Disproportionate Consumption of Resources - Home (Base Contract Period)		0.00
10.	Extended Field Costs (6/3/98 - 12/15/98)		197,760.00
11.	Extended Home Office Overhead (6/3/98 - 2/28/99)		159,045.00
12.	Additional Field Office Overhead (12/16/98 - 6/29/99)		150,297.00
13.	Subtotal		$1,336,927.00
14.	Prime Profit @ 10% lines 8 - 12		61,970.00
15.	Subtotal		$1,398,897.00
16.	Bond Premium @ 0.5875% of line 15		8,219.00
17.	Subtotal		$1,407,116.00
18.	All Risk Ins. @ 0.1900% of line 17		2,674.00
19.	Subtotal		$1,409,790.00
20.	Unresolved Pending Changes		352,179.00
21.	Interest on Contractor Funded Changes	See below	
22.	SHCI Total		$1,761,969.00
	Subcontractor Requests:		
23.	The Erection Company		$29,323.00
24.	Superior Plumbing and Heating		578,747.00
25.	Quality Electric		395,792.00
26.	Little Susitna Construction		92,968.00
27.	Alaskan Landscape		1,778.00
28.	Cost Duplicated in Pending Changes		-74,425.00
29.	Subtotal		$1,024,183.00
30.	Prime Overhead @ 10% of line 29		102,418.00
31.	Prime Profit @ 8% of lines 29 + 30		112,660.00
32.	Subtotal		$1,239,261.00
33.	Bond Premium @ 0.5875% of line 32		7,281.00
34.	Subtotal		$1,246,542.00
35.	All Risk Insurance		2,639.00
36.	Subcontractor Total		$1,249,181.00
	Total Amount of CREA (lines 22 + 36)		$3,011,150.00

144. The FAA contracted with the firm of Automated Information Management, Inc. to perform an audit of SHCI's $3,782,556 claim. In connection with this work, the auditor, Anthony Szarleta, CPA, prepared Audit Report No. 99-002. The Audit Report was submitted and received by the Region on December 3, 1999. The Audit Report questioned $1,776,822 of SHCI's total claim amount of $3,782,556. Copies of this Report were provided to the Region and SHCI.

145. Under the terms of the parties' ADR Agreement, there was to be a formal written response by SHCI to the Audit Report by December 16, 1999, which by agreement of the parties was to be part of the record for adjudication purposes. By letter of that date, SHCI's counsel provided one and one-half pages of generalized unsupported statements, criticizing various aspects of the audit report. The ODRA Supplement, however, did incorporate additional detail in response to the Audit Report. See ODRA Supp. at Tab 10, page 251.

146. The scope of the audit performed by Mr. Szarleta expressly excluded any analysis or evaluation of contractual entitlement, technical and legal issues. Further, the audit did not address the revisions reflected in the ODRA Supplement submitted on January 10, 2000. The amounts sought in the ODRA Supplement differ from those sought in the May 27, 1999, revised claim by an aggregate total of $276,332. In addition, many individual SHCI claim items and subcontractor claim amounts were revised within the ODRA Supplement. These revisions were not addressed within the Audit Report.

147. The administrative record contains a copy of the Audit Report as originally submitted, as well as an annotated copy of the Audit Report, in which SHCI, by handwritten annotations, comments on or takes issue with certain conclusions reached therein. The auditor did not testify, and neither party presented any other accounting expert testimony.

148. At the hearing, Mr. Blake, who admitted he is not an accounting expert,[23] acknowledged that, when corrected for certain procedural errors and assumptions, the audit is "in fairly close agreement" with the costs indicated by SHCI's overall claim. Blake Tr. 1778.

149. SHCI contends that the FAA auditor, in evaluating this claim, improperly credited subcontractor labor, not just SHCI labor, to SHCI's account as labor recovered through resolved modifications; and that the audit amount of that credit, $109,213.00, should have been only $16,219.00. Blake Tr. 1779-82; Exh. 592 and 741.

150. Based on Mr. Blake's testimony, and a review of the record, the ODRA is persuaded that the audit contains an error with respect to the use of the $109,213 figure for labor in resolved modifications and that the proper amount should have been $16,219. Blake Tr. 1779-1782. Exh 592.

151. SHCI further contends that the auditor incorrectly calculated the direct cost of labor by deducting an erroneous amount for field overhead labor from the total job costs. Mr. Blake indicated that the field overhead pool should not include weather protection costs, since those costs were charged to the project as direct costs. Blake Tr. 1782-84; Exh. 741. SHCI Final Submission, page 82. The Region agrees that a proper matching of recorded direct labor to claimed direct labor should include the weather protection related labor costs totaling $11,561. Region Statement of Facts, paragraph 109.

152. SHCI has acknowledged that, even correcting the audit based on Mr. Blake's comments, the auditor properly questioned costs of $83,909 out of a claimed increase in direct labor costs of $663,873. *See* Exh. 741 at page 11. According to the audit as thus corrected, the maximum increase incurred by SHCI in direct labor costs above the original bid estimate for direct labor cost would be $579,964. In other words, assuming SHCI's total entitlement, this amount would be the maximum SHCI theoretically may recover for this claim item.

[23] Mr. Blake testified generally as to alleged defects in the audit, relying on the handwritten annotations, which had been prepared by his associate, Mr. Michael Harvey. We note that no information was provided as to the experience or credentials of Mr. Harvey. Blake Tr. 1777.

153. However, SHCI urges that this theoretical labor overrun amount is understated, because it would have completed the project earlier than contemplated in its project bid. The evidence does not support this contention. To the contrary, it appears that SHCI's bid already reflected the early planned completion date of June 3, 1998, and there is no credible evidence that SHCI could have completed the project any earlier than that date.

1. SHCI LABOR INEFFICIENCIES

154. SHCI has claimed damages in the amount of $345,726 for direct labor inefficiencies resulting from owner-caused project disruptions. SHCI Final Submission, p. 81. Mr. Blake testified that he determined lost man hours for this claim element by applying inefficiency factors to the actual man hours expended on the project by month. The factors he used were based upon percentages established in accordance with ranges set forth in the Mechanical Contractors Association of America ("MCAA") Guidelines. Blake Tr. 1549-53; Exhs. 175 and 590. Blake Tr. 1569-1572; Exh. 591.

155. Mr. Blake testified that although developed from mechanical contractor data, the MCAA Guidelines are applicable to broader categories of labor. Blake Tr. 1814. Mr. Dokoozian agreed that the MCAA Guidelines are a good starting point for pricing impact claims. Dokoozian Tr. 3226-7. Accordingly, the ODRA sees no reason why the MCAA Guidelines should not be used as a basis for approximating recovery in this case. *See* Discussion, *infra*.

156. There was general testimony at the hearing by witnesses with first-hand knowledge that SHCI suffered a significant amount of labor inefficiency as a result of various Government acts and omissions. Mr. Blake testified that the "judgments" he applied in assigning specific values under the MCAA Guidelines were based on his interviews with project personnel and his review of job records. Blake Tr. 1553-60; 1562; 1814-15. Nevertheless, to the extent those "judgments" are not corroborated by testimony of witnesses with first-hand knowledge and/or contemporaneous documentation, the ODRA cannot give them weight.

157. The MCAA Guidelines used by Mr. Blake -- the Management Methods Committee Bulletin No. CO 1, Appendix B, Factors Affecting Productivity -- sets forth the following percentage values for productivity losses associated with various sources of project disruption:

Stacking of Trades	Operations take place within physically limited space with other contractors. Results in congestion of personnel, inability to locate tools conveniently, increased loss of tools, additional safety hazards and increased visitors. Optimum crew size cannot be utilized.	Minor 10%	Average 20%	Severe 30%
Morale and Attitude	Excessive hazard, competition for overtime, over-inspection, multiple contract changes and rework, disruption of labor, rhythm and scheduling, poor site conditions, etc.	Minor 5%	Average 15%	Severe 30%
Reassignment of Manpower	Loss occurs with move-on, move-off men because of unexpected changes, excessive changes, or demand made to expedite or reschedule completion of certain work phases. Preparation not possible for orderly change.	Minor 5%	Average 10%	Severe 15%
Dilution of Supervision	Applies to both basic contract and proposed change. Supervision must be diverted to (a) analyze and plan change, (b) stope and replan affected work, (c) take off, order and expedite material and equipment, (d) incorporate change into schedule, (e) instruct foreman and journeyman, (f) supervise work in progress, and (g) revise punch lists, testing and start-up requirements.	Minor 10%	Average 15%	Severe 25%
Errors and Omissions	Increases in errors and omissions because changes usually performed on crash basis, out of sequence or cause dilution of supervision or any other negative factors.	Minor 1%	Average 3%	Severe 6%

Exh. 175.

158. The bulk of the testimony with respect to labor inefficiency loss involved impacts caused by Government design errors and omissions, which resulted in the issuance of inordinate numbers of CRFCs and which in turn caused SHCI's work to be performed out of sequence and with dilution of labor supervision. In this regard, Mr. Colver testified that design issues

arose continuously on the project and drastically affected SHCI's productivity. Colver Tr. 29-30. He described the impact of these design issues on SHCI's labor productivity as follows:

> Hopefully, you can keep enough activities in front of your crew where you can keep your manpower stabilized and keep the work activities productive to where you can meet your unit rates – the estimate. That's the goal. We try to sychronize our crews. This doesn't only affect the crews that I have in the field, but it also affects the subcontractors. If there's a question – if we get to something where we're building the structure or some architectural walls of some nature and we're unable to build say a metal partition in a building, that not only affects the crew that I have, but it affects the plumber and the electrician and the insulator and all the various crafts that come behind that. So, it kind of snowballs on you when you have issues that seem minuscule at the time. There might be a wall location or a height of a ceiling or something of that nature. But those things add up and have a tendency to domino on you when you can't plan your work and work your plan.

Colver Tr. 29.

159. Mr. Hunt also testified generally that the Region's erroneous interpretation that all submittals had to be approved before work could proceed was "stalling out" the project, adversely impacting SHCI's ability to prosecute work. Hunt Tr. 1614 -17.

160. Mr. Hunt further testified that the usual flow of work was completely out of sequence, attributing it in part to piping and conduit conflicts and extreme space limitations in the link's ceiling space. Hunt Tr. 1628. Mr. Hunt characterized the disruption he observed as creating a "stop position" until the Government decided on how to resolve certain issues in the link. Hunt Tr. 1629. There was no contrary testimony from the Region's witnesses, and the ODRA's review of the record indicates that problems associated with design difficulties persisted over lengthy periods of time throughout the project. Accordingly, the ODRA views the impact of errors and omissions on this job as *severe* and assigns it a factor of 6% (the maximum allowance) in accordance with the MCAA Guidelines.

161. The testimony also supports a finding that morale and attitude of SHCI personnel was adversely affected by overzealous inspections, changes and rework, disruption of labor

rhythm and scheduling. Specifically, Mr. Colver testified extensively as to morale problems on the job that were so severe that several employees quit. Colver Tr. 152-154: 157.

162. Mr. Hunt likewise testified as to frustration by workers who could not get approvals and move forward in a systematic manner. Hunt Tr. 1631. He also testified that this job had the "lowest morale" and that people were leaving the project. Hunt Tr. 1632. Again, no contrary testimony was introduced by the Region. On the other hand, it is unclear whether the morale problem was pervasive during the entire project. Accordingly, the ODRA only assigns this "morale and attitude" factor an *average* severity factor of 15%.

163. The evidence in the record also supports SHCI's contention that it experienced some "trade stacking" and "re-assignment of manpower." However, Mr. Colver testified only generally as to trade stacking that occurred. Colver Tr. 154-156. In this regard, he described labor inefficiencies being exacerbated from the change in the planned sequence of work, due to requiring different equipment and/or the mix of trades depending on the nature of the substituted work. Colver Tr. 33. Because of the lack of specifics as to re-assignment of manpower, and because the cramped work space would have entailed some stacking in any event, the ODRA assigns to these factors *minor* severity ratings of 10% and 5%, respectively.

164. Finally, the record supports a certain extent of claimed inefficiencies resulting from dilution of supervision. For example, based on his own first hand observation during the month of October 1998, Mr. Blake testified that he saw Mr. Colver, SHCI's Superintendent, "buried in the trailer," consumed with design changes. Blake Tr. 1558. However, since Mr. Colver did not testify to this, and since the only testimony provided related to a one-month period, the most the ODRA can assign to this factor is 10%, *i.e.*, *minor* severity.

165. Based on the testimony from witnesses who observed labor inefficiency first-hand and using the MCAA factors, the ODRA can deduce an overall direct labor productivity loss for the project of 31.5%. Applying this loss percentage to direct labor costs of $911,746 (as reflected in the Audit Report and corrected by SHCI), using MCAA methodology as

explained by Mr. Blake (*see* FF 155), the ODRA calculates a total inefficiency loss of $287,200:

> 6% + 15% + 10% + 5% +10% = 46%
> 46/100 divided by (1 + 46/100) = 31.5%
> multiplied by direct labor of $911,746 = $287,200.

166. This amount is well within the theoretical recovery ceiling of $579,964, established by the Region's auditor.[24] *See* FF 152.

2. WEATHER INEFFICIENCIES AND OTHER RELATED COSTS

167. SHCI also claims for weather inefficiencies and other related costs in the amount of $125,926. As indicated above, the ODRA has found that any such costs were not incurred as a result of Government-caused delays. *See* FFs 47 and 50, *supra*.

3. CREA PREPARATION COST

168. SHCI also is claiming its CREA preparation costs in the amount of $126,415. *See* Discussion, *infra*, for a legal analysis of entitlement to these costs. The Region does not challenge the reasonableness of the costs claimed. Given the complexity of the issues presented, the ODRA does not consider these costs to be unreasonable.

4. DISPROPORTIONATE CONSUMPTION OF RESOURCES FOR BASE CONTRACT PERIOD

169. SHCI also is claiming a "disproportionate consumption" of field office resources in the amount of $112,596. SHCI asserts that this element of cost reflects the disproportionate effort expended by SHCI's field administrative staff in processing numerous and complex changes. Blake Tr. 1579-83.

[24] The Region's auditor established as a ceiling on labor inefficiency recovery the difference between SHCI's bid and actual incurred labor costs. *See* Exh. 741, page 12.

170. SHCI calculated "disproportionate consumption" of field office overhead by multiplying the daily field office overhead rate by the duration of the base contract to get the total field office overhead expended during the contract period. Blake Tr. 1583-87; Exh. 10. SHCI then applied a factor representing the percentage of effort attributable to changes to this field office overhead figure to yield the total amount of field overhead attributable to changes. SHCI deducted field overhead costs recovered through approved changes or included in pending changes from the total to yield the amount of underallocated field overhead costs. Blake Tr. 1587; Exh. 592. SHCI contends that this calculation reflects the uncompensated extra administrative time the field administration spent because of the additional paperwork, which is not reflected in change orders, *e.g.*, CRFCs. Blake Tr. 1582-85.

171. The field overhead costs consist of relatively fixed costs which, which normally vary only with the project duration, as opposed to with the volume of work performed. Such costs fall into a number of account categories, such as the following:

Salaries of Field Office Personnel	Toilets
Job Office & Tool Shed	Fencing
Job Office Supplies	Trucks/pickup
Printing Costs	Misc. Job Supplies
Telephone	Safety Compliance
Computer Software	Photos
Job Office Equipment	Dump Fees
Copier Maintenance	Temporary Power and Water
Hangar Lease	Cleanup
Postage/Courier	

Exh. 741. There is no evidence in the record that these costs were increased in magnitude in any way, other than by reason of extension of the contract performance period. For example, there was no evidence that additional field office personnel had to be hired, or that additional office space or equipment was required by reason of the increased volume of design related changes or their complexity. *See also* Discussion, *infra*.

5. EXTENDED FIELD OVERHEAD COSTS AND HOME OFFICE OVERHEAD

a. Field Overhead Costs

172. SHCI claims extended field costs of $197,760 for the period June 3, 1998 through December 15, 1998, and additional field office overhead costs of $150,297 for the period December 16, 1998 through June 29, 1999. These costs are based on an extended field office daily rate of $1,008.98. SHCI Final Submission, Plate 9.

173. For field office overhead costs through December 15, 1998, SHCI develops this daily rate using the total of indirect labor, materials and subcontract costs reflected on the project cost report, containing all such costs through June 29, 1999. SHCI Exh. 607 and 608. SHCI Final Submission, page 87. It adjusts that total to exclude indirect costs recovered in approved contract modifications, pending changes, as well as those costs that are included in SHCI's claim for field overhead costs for the period of December 16, 1998 through June 28, 1999. Blake Tr. 1729-1731. SHCI Final Submission, page 87.

174. Mr. Blake testified that for the period through December 15, 1998, he developed the daily field overhead rate by dividing the total adjusted indirect labor and materials cost by the actual period of project performance. He then calculated the cost associated with delay by multiplying this daily rate by the portion of delay that he asserts was directly attributable to Government-caused changes and impact. Blake Tr. 1731-32; Exh. 10. SHCI Final Submission, page 87.

175. The additional field office overhead from December 16, 1998 through June 29, 1999 was likewise derived from the project cost report as of June 29, 1999. SHCI Final Submission, page 88; Exh. 603. SHCI makes no adjustments to the costs for this latter period, since they all purportedly were the result of Government-caused delays on the project.

176. As indicated above, "final acceptance" of the project occurred at the end of January 1999. However, as indicated by the Contracting Officer's testimony, punchlist work continued to be performed by SHCI on the contract even after such "final acceptance." The Region's auditor, noting the continued incurrence of "relevant costs," included the indirect field labor hours for the months of January and February 1999 in his calculation of extended field overhead. *See* Exh. 741, page 26.

177. As to SHCI's claimed field overhead costs beyond "final acceptance", the record is not clear that these costs relate to Government actions, as opposed to the correction of defects in SHCI's own performance. Consider the following testimony of the Contracting Officer:

> Q. When was final inspection on this project?
>
> A. January 27, 1999.
>
> Q. And what happened at the final inspection?
>
> A. It was – the project was accepted with exceptions, typical.
>
> Q. How many exceptions were there?
>
> A. We had about a 30-page punchlist. There were 700 items and the contractor did come back in. Some of them were not really – when you have an inspection we have a lot of people perform the inspection and some people will write something. And Dick Smith's very good about going through and trying to clear all that out, and there's always some that get through. So we deleted some, but, well, there was still a significant amount of work that still had to be done.
>
> Q. So how did that progress?
>
> A. I don't know. It was – well, its had to tell because the subcontractors, I think the subcontractors did the work and told Kirk [*i.e.*, Kirk Gothard, SHCI's Project Manager] they did the work and then Kirk told us that the work was done and then when Dick would go out and look, it wasn't done. I don't think Kirk was actually going out and checking. It took some time. I would say by the time Kirk left in June or July of '99 most of it was done.
>
> Alfsen Tr. 2452-2453.

178. There was indication from testimony from SHCI that, at least beginning in February of 1999, the field office overhead costs related to "administrative" matters. Gothard Tr. 478-480. SHCI has not provided testimony or other proof that its presence at the site until June 29, 1999 was solely attributable to Government acts or omissions. Nor has SHCI explained why it took so many months after final inspection to close out the contract.

179. Based on the foregoing, and considering that daily reports for the project ceased after the week of January 18, 1999, the ODRA finds as an appropriate cost cut-off date for purposes of SHCI's claim the date of final inspection and conditional acceptance, January 27, 1999. See Tab 5, FAA/SHCI-246; Alfsen Tr. 2452-2453. Accordingly, the ODRA does not recommend awarding field office overhead costs for any period of performance beyond that date.

180. Through cross-examination at the hearing and in its final written submission, the Region urged that SHCI improperly calculated the extended field office overhead rate, by including "non-time sensitive" survey costs of approximately $7,000, one category of "non-time sensitive" steel inspection costs amounting to $2,757; and a second category of steel inspection costs of $21,426 (consisting of engineering costs of $15,082 for QA Services and $6,342 for ABKJ), which purportedly were "double counted." Also, the Region contends that SHCI failed to deduct $52,375 of project manager costs that were incurred prior to the extended period. The Region further claims that SHCI improperly included $34,625 in severance bonuses and other discretionary payments, as well as a charge of $4,650 for final cleanup and several other purportedly "non-time sensitive" costs, including shop drawings, "tool shed/dry shack", the "hangar lease", etc. Region Final Submission, page 54-55.

181. Based on the Region's criticisms, SHCI adjusted its computations by removing from the labor portion of the field overhead costs the costs listed for accounts 01251 and 01252, weather protection and snow removal, as these labor costs were included as direct costs in the weather protection portion of the proposal. Blake Tr. 1782-84, Exh. 741; SHCI Final Submission, p. 86. SHCI also removed the $52,375 of project manager costs and the field

inspection costs that likewise were direct charged in the weather protection claim, as well as most of the remaining steel inspection costs (all but $3,320 for subcontractor costs, which SHCI indicates were not "double counted" as part of the weather protection claim). SHCI also removed all of the survey costs, apparently agreeing with the Region that they were not impacted by extension of time. Blake Tr. 1866. On the other hand, SHCI did not remove any of the shop drawing costs, the hangar lease costs, or any of the other costs the Region had contended were "non-time sensitive."

182. For the reason explained in the Discussion section, *infra*, the ODRA finds the steel inspection subcontractor costs, severance bonuses, as well as other costs, which apparently SHCI did not agree were "non-time sensitive" (see SHCI Final Submission, Plate 9), should remain in the field office overhead pool for the purposes of calculating extended field overhead for the period allowed.

183. As indicated in the "Project Delay Summary" above, the net amount of delay solely attributable to the Government was 115 calendar days.

184. To compute the amount due for extended field overhead, the ODRA takes the adjusted amount listed by SHCI as "TOTAL GENERAL CONDITIONS," $891,694, and subtracts out a total of $105,928 of field overhead recovered elsewhere, which amount was derived as follows:

Amount recovered in Approved Changes	$ 17,136[25]
Amount allocated to Settled Red Files (FF 194 below)	633
Amount allocated to Adjudicated Red Files (FF 234 below)	11,689
Amount recovered as markup on Labor Inefficiency/CREA prep	62,042[26]
Amount recovered as markup on Subcontractor Claims	66,602[27]
Subtotal	$158,102
Allocation Percentage for Field Overhead	x 67%
Total adjustment for Field Office Overhead	$105,928

[25] SHCI Final Submission, Plate 9; Region's Final Submission, p. 54.
[26] *See* Discussion, section A, subsection 5, subsection e, entitled "Summary of Amounts Due SHCI.
[27] *Id.*

185. To derive a daily field overhead cost rate, the net amount, $785,766 (*i.e.*, $891,694 less $105,928) is then divided by the 754 calendar day total contract performance period through SHCI's actual cost completion[28] (June 6, 1997 through June 29, 1999). This daily rate would be $1,042/day. The Daily Rate is then multiplied by the 115 compensable delay days previously derived (FF 134) to yield $119,830 for the total extended field overhead cost allowed.

b. Home Office Overhead

186. The record supports the finding that, as a result of the Region's actions and omissions, overall project revenue was spread over additional time, during which work was suspended for an uncertain period. Hunt Tr. 1633-34; 1665-66; 1666-67. Mr. Hunt testified that during this period of suspension and uncertainty, it was impracticable for SHCI to take on additional replacement work to absorb its home office costs. Hunt Tr. 1667. The Region did not effectively rebut this testimony.

187. SHCI claims extended home office overhead for the period June 3, 1998 through February 28, 1999, in the amount of $159,045, based on a "modified Eichleay" calculation. SHCI Final Submission, Plate 10. In this "modified Eichleay" calculation, SHCI develops a percentage of 9.33% for the total project revenue divided by the total company revenue, and specifically includes in the project revenue numerator the CREA dollar amount:

1997 (prorated 6/6/97 through 12/31/97)	$30,502,065
1998 (1/1/98 through 12/3/98)	56,411,012
1999 (prorated 1/1/99 through 2/28/99)	9,118,492
Total Revenue	$96,031,569

Base	$5,760,000
Approved changes	191,708
CREA	3,011,148
Project Revenue	$8,962,856
Project Revenue as % of Total Revenue	9.33%

[28] Although there was indication that even on June 29, 1999, there was some work remaining, we use this date, since it corresponds with the job cost report end date.

188. The 9.33% figure was then applied to $3,974,075, which, according to SHCI, was the total company General and Administrative ("G&A") costs (adjusted downward to remove home office overhead markups included in resolved change orders and in various CREA items) to determine the total overhead allocable to the project of $370,910. This total allocable overhead amount then was divided by a 632 calendar day period (June 6, 1997 through the auditor's cut-off date, February 28, 1999) to yield the daily rate for home office overhead of $587 per day. The daily rate was then multiplied by the number of net days of owner-caused delays claimed to yield the amount requested. Blake Tr. 1738-40; 1745-46. SHCI Final Submission, Plate 10.

189. For the reasons discussed below, the ODRA finds that SHCI's "modified Eichleay" formula is improper, because it includes the amount of the CREA claim. SHCI has offered no legal authority that would support the inclusion of an unresolved claim amount as Project Revenue, *i.e*., "project billings," within an Eichleay calculation. *See* Discussion below. The ODRA therefore subtracts this CREA amount of $3,011,148 from the Project Revenue figure in SHCI's modified Eichleay calculation. As a result, the ODRA reduces the percentage of Project Revenue to Total Revenue reduced from 9.33% to 6.197%, the ratio of project billings to total billings established by the auditor in accordance with standard Eichleay methodology. Exh. 741.

190. Also, because the ODRA uses the January 27, 1999 conditional acceptance date as its cut-off for project delay analysis rather than the auditor's February 28, 1999 cut-off, it adjusts the prorated 1999 G&A amount accordingly. As for SHCI's home office G&A costs, the ODRA thus calculates as follows:

	Total G&A Costs	
1997 (prorated 6/1/97 through 12/31/97 - 208 CD)	$1,472,226	SHCI Exh. 181
1998 (1/1/98 through 12/31/98)	2,221,852	SHCI Exh. 181
1999 (prorated 1/1/99 through 1/27/99 - 27 CD)	164,356	SHCI Exh. 181
Adjust for home office overhead in CREA summary (recovered in other claim items)	-52,174*	See below
Total Home Office G&A	$3,806,260	

*The adjustment credit of $52,174 was derived as follows:

Amount recovered in Approved Changes	$17,136[29]
Amount allocated to Settled Red Files (FF 193 below)	633
Amount allocated to Adjudicated Red Files (FF 234 below)	11,689
Amount recovered as markup on Labor Inefficiency/CREA prep	62,042[30]
Amount recovered as markup on Subcontractor Claims	66,602[31]
Subtotal	$158,102
Allocation Percentage for Home Office Overhead[32]	x 33%
Total adjustment for Home Office Overhead	$52,174

191. Under the standard Eichleay formula, the $3,806,260 home office G&A adjusted total would be multiplied by the aforesaid allocation percentage of 6.197% to yield allocable overhead of $235,874. Dividing this figure by 600 calendar days (June 6, 1997 through January 27, 1999, the ODRA's cut-off date) in turn yields a daily home office overhead rate of $393 per day. SHCI's recovery for extended home office overhead would then be $393 multiplied by 115 days of compensable delay, for a total of $45,195.

6. RED FILES

192. SHCI's claim also contains a total of 53 requests for specific compensation arising from directed or constructive changes. These cost claims constitute what SHCI refers to as the "Red Files." SHCI and the Region agreed to the amounts due and owing for the following Red Files, but the Region has not paid SHCI for any of these amounts[33], other than Red File No. 94, which was an agreed-upon credit:

[29] SHCI Final Submission, Plate 9; Region's Final Submission, p. 54.
[30] *See* Discussion, section C, "Summary of Amounts Due SHCI."
[31] *Id*.
[32] See Exh. 602
[33] The overhead portion in the settled amounts is taken from the Red Files Status Report contained in SHCI's Final Submission.

Red File Nos.	Settled Total	Overhead in Settled Amount
3 and 16	$500.00	(167.00)
8	0.00	0
11	1,100.00	(38.00)
13	713.00	17.00
20	0.00	0
24	0.00	0
27	477.00	56.00
29	175.00	(84.00)
34	827.00	72.00
36	3,663.00	352.00
38	2,742.00	(40.00)
94	(319.00)	(16.00)
100	2,400.00	36.00
104	4,290.00	378.00
106	671.00	67.00
121	0.00	0
123	0.00	0
124	0.00	0
Total	$17,139.00	$633.00

193. With respect to the above Red Files, SHCI is also claiming impact costs and interest.

194. The unresolved Red Files include Nos. 2, 6, 9, 10, 12, 19, 21, 30, 33, 35, 55, 59, 70, 77, 78, 79, 81, 86, 89, 93, 96, 99, 105, 107, 108, 109, 110, 113, 114, and 118. Exh. 780. In addition, SHCI presented four additional Red Files during the hearing: No. 200 - scratch on cab glass; No. 201 - EIFS punch list; No. 202 - cabinet locks; and No. 203 - radiator connections.

195. For additive changes that were resolved, the markups for SHCI's overhead and profit were 15% and 10%, respectively, and on subcontractor claims, 10% and 8% respectively. *See* Change Orders 18, 20, and 35. On deductive changes, SHCI asserts that any markups applied to deductive changes should be on the basis of its bid markups, *i.e.*, 3% for overhead and 1% for profit. Exh. 820.

196. As indicated previously, the contract incorporated the AMS Cost Principles. These principles provide that "[n]o presumption of reasonableness should be attached to the incurrence of costs by a contractor. If an initial review of the facts results in a challenge of a specific cost by the CO or the CO's representative, the burden of proof is upon the contractor to establish that such cost is reasonable." *See* Discussion below.

197. Red File No. 2: Nickel Welding Rod. The requirement to use nickel welding wire was acknowledged by the Region to be a change, and only quantum is in dispute. The contractor's cost proposal for this change was $12,160. Exh. 318. The Region believes that a reasonable price for the change is $2,214, which is based on its engineer's estimate for this change (Region's Final Submission, page 60; Exh. 751 and 752). Alfsen Tr. 2418. The estimate reflects direct costs of $1,800. With the exception of a single self-serving statement by Graham Steel Corporation's Project Manager that the amount of $12,160 fairly and accurately reflected its increased costs, the record lacks an explanation as to why SHCI believes that amount is reasonable. Graham Tr. 1952-53. Rather, the record shows that questions were raised not only by the Region, but by SHCI itself as to the reasonableness of the claimed costs, and these questions were never answered. Smith Tr. 2109-11; Exh. 320. Accordingly, the ODRA finds that $1,800 is a reasonable amount for the direct costs of this change.[34] When mark-ups totaling 51.4% are applied,[35] that amount is $2,725.

198. Red File No.6: 1-inch Gusset Plate in Lieu of _-inch Plate. SHCI is claiming costs of $1,745 inclusive of markups, plus interest. Exh. 610; Tab 4, Letter SHC/FAA-067. At the hearing, the Region indicated that it was willing to agree to SHCI's proposed price. Tr. 2122-23; Exh. 610.

[34] There was unrebutted testimony at the hearing that indicated that this change caused at least a 3-day delay to the steel erection activity. Graham Tr. 1953.

[35] The compounded markup factor of 51.4% consists of subcontractor overhead of 15%, subcontractor profit of 10%, prime overhead of 15%, prime profit of 10%, bond premium of .5875% and all risk insurance of .1587%. The overhead and profit percentages are those used consistently by the parties. The other elements were confirmed by the Region's auditor. See Exh 741, page 29-30.

199. Red File No. 9: Aluminum Grating Color Change. This Red File involves the costs of changing the thickness of the anodizing (from grade 3 to grade 1). Smith, Tr. 2124. Only quantum is in dispute. Based on an Invoice from Graham Steel in the amount of $2,070, and a change order proposal that adds to that number, crane costs and markups, SHCI is claiming $3,850 for the costs of this change. Tab 4, Letter SHC/FAA-063; Exh. 609. Testimony from the Region as to the reasonable cost for this change consisted of some hearsay testimony (a reported conversation with a vendor) that it is worth $500-600, plus markups. Smith, Tr. 2125. The Region only appears to be challenging the reasonableness of the costs claimed for anodizing. However, the Region's expert, Mr. Dokoozian, indicated that the color change requested by the Region would generate additional costs, as would freight. Dokoozian Tr. 3070-71. No amounts were provided for such additional cost elements. Based on the evidence in the record, the ODRA finds more support for SHCI's position with respect to this item. Accordingly, the ODRA determines the value of this change to be $3,850 (inclusive of markups), as proposed by SHCI. Exhibit 609.

200. Red File No. 10: Anchor Bolt Conflict with Rebar. Only quantum is in dispute. The dispute as to cost relates to the labor hours required to bend or cut rebar. The Region considers $578 plus markup to be a reasonable cost for this change, based on an opinion from HNTB that each location should have taken no longer than 30 minutes. Smith Tr. 2125-27. Exh. 753. SHCI is claiming $2,386 for this work. Exh. 615. At the hearing, Mr. Colver persuasively testified as to the actual effort required to lift and maneuver into a confined area bolts weighing approximately two hundred pounds. Workers were required to position and align the bolts, before cutting the rebar with a torch. Mr. Colver also testified that each location took 2 hours. Colver Tr. 185-194. There is also contemporaneous record evidence that the work actually took longer to perform than estimated by the Region. Tab 7.A, SHCI Daily Construction Report, dated 8/11/97. Accordingly, the preponderance of the evidence supports a finding that the $2,386 amount (inclusive of markups) is reasonable for this change. Exh. 615.

201. Red File No. 12: Delete Extra Spare Fixtures. This Red File is resolved, except for the amount of the deductive markups. SHCI submitted a cost proposal to the Region on November 19, 1997 for a credit in the amount of $13,372, which did not include any markup. On October 8, 1999, the Region issued a unilateral contract modification in the amount of $20,096. This amount included the credit offered plus markups of 15% for overhead and 10% for profit applied to the subcontractor's portion and 10% overhead and 8% profit applied for SHCI – *i.e.,* the same markups SHCI has applied to additive changes. Tab 5, Letter FAA/SH-320, October 8, 1999; Tab 2, Contract Modification No. 21. Only the amount of the aggregate markup is in dispute, *i.e.,* $6,724. Exh. 347. For the reasons stated in the Discussion below, markups on deductive changes should be allowed. Accordingly, the amount of $20,096 proposed by the Region for the deletion was proper and nothing is due SHCI for this item.

202. Red File No. 19: Grating Panel Over Ladder. Only quantum is in dispute. SHCI is claiming $4,212 for this change, which included fabrication, the preparation of shop drawings and "as built" drawings, painting, welding, and concrete imbedding costs. Colver Tr. 194-96; Exh. 617. The Region provided an admittedly "rough estimate," purportedly based on the use of the Means catalog and SHCI's labor rates, in the amount of $1,675, plus markups, as constituting a reasonable amount for this change. Exh. 780 and 754; Smith Tr. 2129; 2508. Given the specific nature of SHCI's testimony and the detailed cost breakdown it furnished, the ODRA finds the preponderance of the evidence supports $4,212 (inclusive of markups) as the reasonable cost of the change.

203. Red File No. 21: Contract Modification No. 25, Delete/Change Engine Generator Requirements. Only quantum is in dispute. On September 16, 1997, an RFP and a change order were issued by the Region to delete and change some of the engine/generator requirements. SHCI submitted a cost proposal 6 months later on April 30, 1998 in the credit amount of $6,215. No markup was applied to the credit. The Region developed an estimate using SHCI's proposal for direct costs, but correcting an erroneous credit for a "breaker disconnect", which was actually an added item. The Region's estimate showed a net total of

$4,950 in direct costs, plus 15% overhead and 10% profit for the subcontractor, and 10% overhead and 8% profit for SHCI for a total credit of $7,439. This estimate was the basis for unilateral Modification No. 25, issued on October 8, 1999. *See* Tab 2, Letter FAA/SHC-324. Apparently, Quality Electric has agreed to its portion of this Red File in the amount of $6,262. Exhibit 780; Region's Final Submission, p. 61. The issue is whether the Region can recover markups of 10% for prime contractor overhead and 8% for prime contractor profit. For the reasons set forth in the Discussion below, the ODRA finds that these markups may be included in the credit amount. The total for this change is therefore a credit of $7,439, the amount of the unilateral modification. Accordingly, nothing is due SHCI for this item.

204. Red File No. 30: Revise Furring at Door 102A. Only quantum is in dispute. The Region issued an RFP and a change order on October 24, 1997 with respect to structural cross braces at Door 102A. SHCI submitted a cost proposal 6 months later on April 29, 1998 in the amount of $2,951. Exh. 379. The Region requested, but never received information from SHCI with respect to the subcontractor's cost proposal for painting. The Region indicates that it considers the amount of $2,000 to be reasonable for this change. Exh. 780, Alfsen Tr. 2508. With the exception of the painting costs, the Region considers the amount of SHCI's proposal to be reasonable. *See* Tab 3B, Change Order No. 12, Statement of Work. At the hearing, Mr. Colver testified that this change affected the painter, in that it added additional taping and painting requirements, and caused the painter to make several trips to the site to apply the primer and finish coats of paint. Colver Tr. 197. In light of Mr. Colver's testimony and the painter's letter indicating that the work required 8 hours of labor, the ODRA accepts the $430 painting costs proposed as reasonable, and, based on the preponderance of the evidence, finds SHCI entitled to the requested amount of $2,951 (inclusive of markups).

205. Red File No. 33, CT Can for ML&P. This Red File is a claim for "the CT Can for ML&P" (Municipal Light & Power), a cabinet that encloses the transformers and houses the meters to monitor electricity usage. Bias Tr. 1137. Specification § 01040-2, paragraph 1.2.4, in part stated: "The Contractor shall coordinate with the Municipal Light and Power utility (ML&P) for the permanent relocation of existing buried power cables, the CT cabinet, and

other electrical service connections. The Government has paid for in full all of the ML&P permits, relocation of the power line, transformer and pad, and the CT–cabinet." Drawing E 13.3, which specifically indicated that the CT can would be furnished by ML&P. Exh. 382. Based on the plain language of the drawing and the specifications, the contractor reasonably understood that the CT-cabinet was to be provided by ML&P and was already paid for by the Government. *See* Discussion below. The Region has not challenged the reasonableness of the costs claimed. Exh. 612. Accordingly, Quality Electric is entitled to the amount requested, *i.e*., $1,793.

206. Red File No. 35: Change in Grounding Tools. In its final submission, SHCI dropped this claim.

207. Red File No. 36: Delete/Change Rooms 402, 502 and 602. On October 10, 1999, the Region issued a unilateral modification in the amount of $3,663, which was the exact amount of direct costs proposed by SHCI for this changed work. *See* Exh. 392. The only issue remaining with respect to this Red File is the interest due on the $3,663, *i.e*., whether SHCI is entitled to interest from July 23, 1998 to October 10, 1999. As explained in the Discussion section, the ODRA finds that interest only starts running as of March 26, 1999, the date this Red File was submitted to the Contracting Officer as a "contract dispute."

208. Red File No. 55: Link ceiling/ESU louver revision/controls. Only quantum is in dispute. Exh. 780. SHCI submitted a cost proposal in the amount of $26,725 for this change. SHCI Exh. 423. The FAA issued a unilateral Contract Modification No. 26 in the amount of $18,238 for a difference of $8,487. SHCI Exh. 429. SHCI did not provide any testimony in support of its affirmative claim under this modification. There were four elements of credit taken by the Region. Two related to work allegedly deleted, namely, $3,624 for deleted fire sprinkler heads ($402 was proposed by SHCI for this deletion), and another credit for $493 relating to piping to the fan coil unit. The two other credits were, according to the correspondence, related to markups on deleted work that should have been, but were not provided as part of SHCI's cost proposal. Exh. 429. Although there was no testimony as to

the first two claimed credits, there was general testimony as to the allowance of markups on deleted work. For the reasons stated in the Discussion section below, the ODRA accepts the markups taken on the deleted work. Because the Region failed to provide record evidence in support of its other two credit claims, there is no basis for allowing those items. Thus, SHCI should be paid the additional $3,715 for the two credit amounts in question. ($493 + $3,222)

209. Red File No. 59: Structural Steel Touch-up Paint. SHCI claims $32,701, plus interest for the costs of structural steel touch-up painting, which arose out of a latent ambiguity in the specifications. The specification provided that steel surfaces that were to be covered with sprayed-on fireproofing would not be painted. Nor were surfaces around bolted and welded connections to be painted. [36] Apparently, after completion of the steel erection, surfaces to receive sprayed-on fireproofing were only to be cleaned with a power tool;[37] however, "exposed areas" were to be painted.[38] In addition, Painting Specification §09900, paragraph 1.10.2 expressly excluded from painting, surfaces that were in *concealed* spaces.[39], while paragraph 1.10.4 specified painting for "*exposed* columns, girders, beams, joists, and metal deck; and other contiguous surfaces." SHCI reasonably interpreted the §05120 reference to "exposed areas" to mean visible areas. SHCI also reasonably interpreted the §9900 reference to "concealed spaces," to mean areas up above the ceiling or behind walls. Hunt Tr. 1623; Smith Tr. 2136-7. SHCI thus reasonably contemplated that painting of all structural steel in those areas (above the ceiling or behind walls) was not required by the contract. Hunt Tr. 1623. Mr. Smith recalled a meeting sometime in January 1998 with Mr. Hunt. He did not specifically recall the issue regarding structural steel touch-up paint being discussed. Smith

[36] Specification section 05120, paragraph 3.1.2, Shop Painting, states: "Do not paint steel surfaces embedded in concrete, galvanized surfaces, bearing surfaces, surfaces scheduled to receive sprayed on fireproofing, contact surfaces for all slip critical bolted connections, or surfaces within _ inch of the toe of the welds prior to welding including surfaces on which metal decking or shear studs are to be welded."
[37] Paragraph 3.2.11, Surface Preparation for Cementitious Sprayed-On Fireproofing states: "Just prior to the application of sprayed-on fireproofing, clean steel in accordance with SP-3" (Power Tool Cleaning).
[38] Paragraph 3.1.10, Touch-Up Painting, states "Immediately after erection, clean field welds, bolted connections, welded burned abraded or otherwise damaged areas to base metal. Apply paint to *exposed areas* using same material as used for the shop painting." (Emphasis added).
[39] Specifically, paragraph 1.10.2(b) defines concealed spaces as "spaces above suspended ceilings, furred spaces, attic spaces, crawl spaces, and chases."

Tr. 2134. In contrast, Mr. Hunt testified that he raised the issue with Mr. Smith and the Contracting Officer at that meeting and told them that he believed the confusion was caused by unclear specifications. Hunt Tr. 1624., 1683-84. Mr. Hunt further testified that he was told very directly by Mr. Smith to do the painting above the ceiling and behind the walls. Hunt Tr. 1694. SHCI's Mr. Lindberg also testified that he recalled the meeting when the issue was discussed. Lindberg Tr. 743-746. Accordingly, the preponderance of the evidence supports the finding that notice of the change was provided to the Region and that SHCI was directed to do the painting. The record shows that SHCI did this work, including sandblasting, with its own crew. The costs claimed for this work are actual costs. Hunt Tr. 1682, 1698-9. The Region did not challenge the reasonableness of the costs claimed for this work, *i.e.*, $32,701, which includes markups, and the ODRA finds the amount claimed to be reasonable. Exh. 439.

210. Red File No. 70: Painting of Folding Partition Head. This Red File involves a claim for the costs of sandblasting, priming and painting a folding partition head. CREA, Exh. 169. The folding partition head was a metal fabrication that was addressed in a specification section separate and apart from the specifications governing the structural steel framework. Specification §05500, Metal Fabrications 2.4.4, Miscellaneous Plates and Shapes. Apparently, the folding partition head had been exposed to outdoor elements prior to installation and had become rusty. Smith Tr. 2140. The RE directed that the partition head be painted. Smith Tr. 2141. SHCI claims that this direction to paint, which also required sandblasting and the application of primer, constituted a change to the contract. CREA Exh. 442. As justification for this direction, the Region cites to §01600 , paragraph 1.1.4., which provides in part: "The Contractor shall store all materials in such manner as necessary to properly protect same from damage. Materials or equipment damaged by handling, or from any other cause will not be accepted." The Region takes the position that unless *painted*, the rust on the item made it unacceptable. Specification §05500 specifies the finishes for items such as the folding partition head in part 2.8. It provides that "[s]urfaces that will be *exposed* in spaces over ceiling, attic spaces, crawl spaces, furred spaces and chases *may* be cleaned in

accordance with SSPC-SP-3 in lieu of being blast cleaned. " (Emphasis added). Paragraph 2.8.5 further stated:

> Apply pretreatment, primer, and paint in accordance with the manufacturer's standard practice and Section 09900, 'Painting'. On surfaces *concealed* in the finished construction or not accessible for finish painting, apply an additional prime coat to a minimum dry film thickness of 1 mil." (Emphasis added).

Here, it was undisputed that the folding partition head was concealed. Smith Tr. 2140. Therefore, the specification gave SHCI the option to blast clean or clean the item in accordance with SSPC-SP-3. Furthermore, the specification clearly provided that, because the folding partition head was concealed, it required an additional coat of primer only. Had the folding partition head been exposed, then it would have been pretreated, primed and painted in accordance with Section 09900.[40] The ODRA finds that the express language of the finishes specification that pertained to metal fabrications clearly and unambiguously required the unexposed folding partition head to be painted with primer. Accordingly, SHCI is not entitled to the costs of sandblasting and priming this item. Exh. 445. Although SHCI theoretically would be entitled to the costs of finish painting this item, there is insufficient proof of the costs associated with the finish painting. Thus, the ODRA cannot recommend any amount for this item.

211. Red File No. 77: Additional Costs to complete EIFS. SHCI claims $158,820 for the amount it spent above the Morrison Mechanical subcontract to complete the EIFS work. Exh. 588. The ODRA finds no basis for this item. *See* Discussion below.

212. Red File No. 78: Revise curtain wall detail. This Red File involves Change Order No. 31, which entailed moving the curtain wall, and installing and finishing as part of the wall, a small piece of triangular sheetrock (12" x 18") across the corner to hide an exposed cross brace. Colver Tr. 199-202; Smith Tr. 2143. The triangular sheetrock installation occurred in the upper right hand corner of the window on every other floor of the stairwell. Smith Tr. 2142. The only cost in dispute is that claimed on behalf of Little Susitna Construction Co., in

[40] Section 09900 does not conflict with §05500, paragraph 2.8.5, because it states: " Do not paint [surfaces in concealed spaces] *unless indicated otherwise*." Emphasis added. Section 05500 indicates otherwise.

the amount of $4,192. Tr. 2144-45; Region's Final Submission, page 66. At the hearing, the Region provided an estimate of the reasonable value for Little Susitna's work and an explanation. Smith Tr. 2144-48. No evidence was provided in support of Little Susitna's demand for $4,192. Thus the ODRA finds the reasonable value of this work, as presented by the Region, to be $240.00. Smith Tr. 2145, 2148. When markups are applied (at the aforesaid compounded markup rate for subcontract work of 51.4%), the total amount of the change is $363.

213. Red Rile No. 79: Change Valves from Class 250 to 150. The Region issued unilateral Contract Modification No. 23 for this item, for the total credit amount of $5,453. Exh. 459. With the exception of deductive markups for the prime, which SHCI disputes, entitlement and quantum for this Red File was agreed upon by the parties. Exh. 780. For the reasons set forth in the Discussion section below, the markups were properly taken and nothing is due SHCI on this item.

214. Red File No. 81: Delete Electrical Cabinets and Add Floor Openings. This Red File involved Change Order No. 28. Exh. 461. SHCI submitted a cost proposal for this change on April 21, 1999. Exh. 467. SHCI's portion of the cost proposal was $870 (inclusive of markups), while the costs claimed by Little Susitna Construction amounted to $6,275.76. The total cost of the proposal was $8,422. At the hearing, the Region conceded entitlement and quantum in the amount of $870, but contested the balance claimed, as it lacked an adequate explanation for the additional costs claimed by Little Susitna. Exh. 780. Tr. 2149-50. The only information Little Susitna provided with respect to the costs it claimed is found in its transmittal letter to SHCI, which described the work as follows: "Additional taping and painting due to revised floor plan, revised duct penetration, revised louvers, curtain wall, duct openings, cable chase doors for 10 floors." Exh. 467. Therein, Little Susitna indicated material costs in the amount of $317.00 and labor costs in the amount of $4,912.80 (120 hours @ $40.94/hour), plus a 20% markup for overhead and profit. This claim is unexplained and unsupported. SHCI has failed to satisfy its burden of proving what additional work, if any, was performed by Little Susitna as well as the reasonableness of the

costs claimed by Little Susitna. Accordingly, the amount due for this Red File is limited to the $870 claimed for SHCI's effort..

215. Red File No. 86: Controls Conduit Upsize. Only quantum is in dispute. Exh. 780. SHCI submitted a cost proposal for this change in the amount of $21,741.00 on July 27, 1998. Exh. 476. The Region argues that SHCI's cost proposal included work already required under the contract, but this argument is not supported in the record. Region's Final Submission, page 67. In contrast, SHCI's claim is supported by cost breakdowns and testimony and appears reasonable. Exh. 474-476; Morgan Tr. 891-94. Accordingly, SHCI is due $21,741, inclusive of markups, for Red File No. 86.

216. Red File No. 89: Add Pipe Riser Guides. Entitlement and quantum are both in dispute. Exh. 780. The Region argues that this work was approved as a no-cost contractor requested change and did not arise as a result of a defect in the specification. CRFC No. 413 asks whether 2" risers and branch lines in the Tower can be welded. Exh. 480. The Region responded by identifying certain conditions that had to be met in order for the proposed method to be acceptable. Tr. 2151; 2875. Even though Mr. Colver testified that the pipe needed to be attached rigidly to the floor, his testimony does not support a finding that the plans were defective or that work could not have been performed as specified. There also was testimony that the methods of attachment could differ, depending on the pipe used. Jay Van Alstine Tr. 2875-76. The ODRA finds no basis for entitlement on this issue.

217. Red File 93: Relocate Air Compressor. *See* Exh. 484. The Region contends that the fire suppression system as set forth in the specification (which apparently included the air compressor), was to be "design-build" and that a location for the air compressor within the equipment room was not specified. According to the Region, the contractor was responsible for determining the location for the air compressor. Smith Tr. 2151-2152. Because of the way SHCI chose to place other equipment within the mechanical room, there was not enough space to accommodate the air compressor. Smith Tr. 2154. The subcontractor was told to find an alternative location. Ultimately, the floor directly above was used, and the air line

was brought down through an existing opening in the floor. Smith Tr. 2152-53. Specification § 01010-2, paragraph 1.4.2, entitled "Layout Drawings," states as follows:

> Plumbing and mechanical and electrical layouts shall be coordinated to eliminate any conflicts of installed equipment and maintenance access…. Equipment rooms shown on the drawings are of adequate size to accommodate equipment of required capacities as available from several manufacturers with sufficient space left for access, servicing and removal. The use of equipment items with dimensions such as 'to crowd the space' will not be permitted.

There is no evidence in the record that it would have been impossible for the air compressor to have fit into the space. SHCI failed to prove that the space was inadequate in size, regardless of how the equipment was arranged. Accordingly, no entitlement is found.

218. Red File 96, Tape/Paint Finish Level. American Society for Testing and Materials (ASTM) Publication C 840, incorporated by reference into Specification § 09250-1, provides for various levels of finish and where they are to be used. Appendix X8 of ASTM C 840 provides that Level 1 finish to be applied to areas not normally open to public view, *i.e.*, concealed, and that Level 2 finish was to be applied to garages or warehouse storage where surface appearance was not a primary concern. Level 3 finish was to be "used in appearance areas that are to receive heavy texture (spray or hand applied) finished before final painting." Mr. Blake opined that the only reasonable interpretation of the specification was that at a minimum, the Merrill Field project was to be finished at Level 3, Blake Tr. 1767; Exh. 512, page 17, as Level 3 is the normal basic commercial quality sheetrock finish. *Id*. In the ODRA's view, even if Level 3 was not specified, the subcontractor should have assumed Level 3 as a minimum because the project was to house FAA administrative offices. See FF 3. Alternatively, even without any reasonable assumption as to the finish level, the lack of a specified finish level would have been an obvious patent omission that it should have been questioned prior to bid submission. Dokoozian Tr. 3075-6. SHCI is claiming for the extra cost of providing (as opposed to Level 3 finish work) Level 4 finish work. Its claim is for $5,500.00. Blake Tr. 1768. There is no evidence that Little Susitna provided any Level 4 finish work. Rather, the weight of the evidence shows that the level of finish work was

"barely level 3." Exh. 494; Smith Tr. 2154-5. Accordingly, no entitlement is found for this Red File.

219. Red File No. 99: H1 – L8 Tower, Humidifier Lowered. Entitlement is not in dispute. The contract required that a humidifier be installed within the Tower. The Region directed that the location for that humidifier be lowered. SHCI has claimed a total of $7,868 for this change. The Region contends that SHCI's proposal treats the change as a "totally new installation," when the contract already required the installation of the humidifier. For this reason, the Region argues, SHCI should be paid one-half the cost of installation, after the removal of costs that were "not applicable." Region's Final Submission, page 68. The Region provided no evidence to substantiate its position that these costs were "inapplicable". Nor did it provide any basis for an equal sharing of costs. The record on this point consists solely of a claim by SHCI in the amount of $7,868.00. Exh. 519. That amount is composed of SHCI direct job costs of $1,452, subcontractor costs of $4,993 (derived from a cost breakdown prepared by the subcontractor) and markups. Exh. 518. The preponderance of the evidence in the record thus supports a finding that SHCI is entitled to $7,878. Exh. 591. Although some credit may be due the Government for the cost of the initially specified installation, there was a failure of proof on this point as to quantum.

220. Red File No. 105: Base Building Canopy Light Revisions. Entitlement is not in dispute. Exh. 780. The FAA directed SHCI to replace six specified H7 light fixtures with three H5 fixtures. Exh. 532. SHCI is claiming $1,686 as a result of this change. Exh. 533. The originally specified fixtures were already purchased and were to be turned over to the Region. The Region asserts that it never received the F7 light fixtures that were being replaced. Smith Tr. 2155-57. There is no evidence in the record that the replaced F7 light fixtures were ever provided to the Region. Bias Tr. 1146-50. The Region therefore seeks a credit against the cost proposal for the replacement fixtures. However, it did not present any evidence as to the cost of the F7 Fixtures. Again, there was a failure of proof. The Region does not challenge the cost claimed for the H5 fixtures. Accordingly, the preponderance of

the evidence supports entitlement for SHCI in the amount sought, *i.e.*, $1,686, including markups.

221. Red File No. 107: Sidewalk, Asphalt, and Curb Revisions. This involves Modification No. 22, a partial change order to delete sidewalk and stoops. The Region's estimate of $9,063, as a reasonable credit, was based on three or four telephone quotes for prices per square foot of sidewalk and curb. Smith Tr. 2159. In contrast, SHCI's proposed credit was based on its bid. Gothard Tr. 419-20. The Region's expert testified that the method used by the Region to price the work resulted in a 10 to 15 percent premium over the price that could have been obtained with the benefit of competition, and that a price based on SHCI's bid would be lower than that available in the marketplace. Dokoozian Tr. 3076-78, 3239-41. The ODRA finds the expert's testimony credible and thus finds that the reasonable price for this deletion is an amount 12.5% less than the credit amount taken by the Region in Modification No. 22. Consequently, SHCI is entitled to the 12.5% difference, *i.e.*, $1,132. *See* Discussion section below for legal analysis of pricing deductive changes.

222. Red File No. 108: Revisions to Roofing for Lighting Cable Attachment. Both entitlement and quantum are in dispute. Under specification Section 07530, Single Ply Membrane Roofing, SHCI's roofing subcontractor was required to select the manufacturer and installer of the roofing materials. Additionally, the subcontractor was to provide a special "Total Roof System" leak free warranty for 10 years after final acceptance. Specification Section 07530, paragraph 1.6.1. The specification also instructs the subcontractor to provide products, which are recommended by manufacturers to be compatible with indicated substrates, or provide separation materials as required to eliminate contact between incompatible materials. Specification Section 07530, paragraph 2.1. SHCI's roofing subcontractor selected Sarnafil, Inc. as its manufacturer. In order to maintain the roofing warranty, Sarnafil, Inc. required a rubber adhesive clamp on the copper cable. Smith Tr. 2160-62; Exh. 543. However, its bid contemplated using lead copper screw-in clamps. It turned out that screw-in clamps could not be used on a rubber roof. Smith Tr. 2162-3. Although the Region's own expert testified that the type of clamp required could not

have been reasonably known until it was specified by the roofing manufacturer, Dokoozian Tr. 3079-80, the ODRA finds that, when it bid the work of providing whatever ultimately might be necessary to furnish an operable system capable of being warranted by the roofing manufacturer, the contractor assumed the risk because no particular fastener was specified by the Government. *See* Discussion below.

223. Red File No. 109: Add Chilled Water Lines For CRUs. This Red File arose from CRFC 532 regarding unidentified water connections required for humidifier units. The Region directed SHCI to connect the units to the closest and most convenient water supply. Exh. 546. Drawing P12.1, which reflects plumbing details, shows no connection to the water connection line for some units. SHCI submitted a cost proposal for the added connections in the amount of $2,350 and asked for an additional two workdays to install the water lines. Exh. 548. The Region contends that the connections were required to make an operable facility, since every chiller requires chilled water lines. The Region further contended that since it was his piece of equipment, only the subcontractor would have known the exact size of chiller lines that would be required. Smith Tr. 2164-5. Not all of the chilled water lines that were required were shown on the plans. However, the Region insisted that the contractor install chilled water lines for all humidifier units. The same issue arose in Red File 110 with respect to condensate drain lines. Smith Tr. 2319-20. Mr. Dokoozian testified that under such circumstances, where some drain lines are shown and others are not, confusion will result. Dokoozian Tr. 3080. Notwithstanding Mr. Dokoozian's testimony, the ODRA finds that pursuant to the Contract's Order of Precedence clause, the language in Division 1, Part 1.3.3 under Specification Section 01010, would control over the possibly misleading nature of Drawing P12.1. That language reads as follows:

> Omissions from the drawings, specifications, or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed detailed of the work but they shall be performed as if fully and correctly set forth and described in the drawings and specifications.

The ODRA therefore finds no entitlement on this item.

224. Red File No. 110: Add CC drain for 041 air handler unit. This Red File arose from CRFC 533, which involved connections between a condensate drain to the cooling coil in AHU-11. This issue is similar to the drain lines issue in Red File 109, in that the connection was not indicated on the drawings. Exh. 551. Apparently, however, the installation of the cooling coil drain is manifestly necessary for the proper functioning of the air handler unit. The Region directed the contractor to install a cooling coil drain with a connection to the nearest drain. Smith Tr. 2165-6. For the reasons as set forth above in Red File No. 109, SHCI is not entitled to the amount of $1,188 sought in this Red File claim.

225. Red File No. 113: Paint above cab ceiling/additional masking requirements. This Red File arose from CRFCs 555 and 590, which were issued to obtain clarification of the note on Detail 1 of Drawing Sheet A3.4, which read: "Paint all surfaces above ceiling flat black." Exhs. 558 and 559. The Region responded in CRFC 590 as follows:

> The surfaces above the ATCT Cab ceiling to be painted flat black are as follows:
>
> 1. All of the structural steel.
> 2. The steel collar and angles for the hoist cable guide [5&6/A7.4]
> 3. Roof deck.
> 4. Roof drains, except for any labeling.
> 5. Electrical conduits if they are installed, but no labeling.
> 6. Exhaust Fan #6 housing.
>
> Do not paint above the ATCT Cab ceiling the following:
>
> A. Roof access ladder
> B. Folding aluminum stairway.
> B. [sic] Inside surfaces of the roof hatch and glass dome.
> C. Flexible duct(s).
> D. Manufacturer name plates and labeling.
> E. HVAC control units, valves, motorized damper controls.
> F. Vapor barrier

Exh. 559. The contractor was required to mask those items that did not require painting and SHCI claims $1,016 for the additional work associated with this effort. Exh. 561. According to the Region, the contract indicates in the painting specification what is to be

excluded from painting, *i.e.*, aluminum, glass, brass and almost everything above the ceiling. Alfsen Tr. 2435-6. *See* Specification Section 9900, paragraph 1.10. 1-5 and Specification Section 9900, paragraph 3.1. With the exception of the vapor barrier (which is not mentioned in the specification), the specification requirements are not inconsistent with the Region's response to CRFC 590. Here, under the Order of Precedence clause of the contract, the specification would control over the note set forth in the drawing. *See* Discussion, below. However, the Contracting Officer acknowledged that the specifications did not require making for the visqueen vapor barrier and ventured the Region owed SHCI "a few hours" for masking the vapor barrier. Alfsen Tr. 2436; Exh. 778. Testimony at the hearing indicated, however, that the effort related to masking the vapor barrier would take substantially longer than two hours and that two people would be required to do the masking work. Dokoozian Tr. 3069. The record further shows that the amount billed SHCI by Little Susitna was based on two men at 6 hours each. For unexplained reasons, Little Susitna charged overtime rates for the painting performed on Friday, July 31, 1998. There is no evidence that this work was performed after normal working hours or that it could not be done during normal working hours. Based on the assumption that overtime is paid at time and one/half, the hourly rate has been reduced by one-third ($40.94 x .66 = $27). Accordingly, SHCI is entitled to $465 [12 hours x $27 plus subcontractor markup (per Little Susitna) @ 20%, plus SHCI markups of 10% for overhead, 8% for profit, bond premium of .5875% and all risk insurance of .1587%.].

226. Red File No. 114: Coordinate Misinformation. This Red File arose from CRFC 513, which requested information regarding light base/poles and their locations. The light poles were not indicated on the drawings. Exh. 564. The Region responded to this CRFC by providing light base locations. However, the information was incorrect. Exh. 565. Ultimately, the COR told SHCI the location of the coordinates to use. Tr. 2320. Exh. 567 – 574. Even so, once SHCI obtained the correct coordinates for the light bases and began drilling, it encountered additional obstructions including asbestos containing pipe, temporary power feeders; a storm drain; abandoned cables and PVC pipe which was not indicated on the plans. Testimony from the Region indicated that "there was enough blame to spread

around" and that these events "may have caused 5 hours of delay" at a cost of "about $3,500." Smith Tr. 2166-71. The record shows that SHCI had itself installed the storm drain and the electrical service lines that were damaged by the drilling. Smith Tr. 2168-69. However, SHCI's superintendent testified at length as to the difficulties he encountered as a result of hitting the asbestos containing pipe, the cables and PVC pipe that SHCI had not installed and, on the basis of this testimony, the ODRA concludes that the vast majority of the time expended pertained to encountering items that SHCI had not itself installed. Notwithstanding counsel's "reasonable settlement" offer in its final submission to "split the difference," the ODRA recommends SHCI be paid a total of $3,967.00, which includes markups, but excludes the subcontractor costs of Cullips Excavating, Inc.[41]

227. Red File No. 118: Frontier Paving. This Red File involves a claim of $8,524 for increased costs incurred as a result of obstructions to the paving operation, *i.e.*, light poles and galvanized bollards. Exh. 578. Drawing sheet C-1.3 shows the civil site plan and Note 8 states "see electrical for luminaire locations and details." This indicates that one needs to see another plan for that information. Smith Tr. 2171-72. The Electrical Site Plan E11.1 clearly indicates the locations of the electrical pole bases. The ODRA credits the testimony of Mr. Dokoozian that the subcontractor should have examined the electrical drawings and taken this work into account in his original bid. Dokoozian Tr. 3083-86. However, because in some instances the luminaries changed locations, Mr. Dokoozian acknowledged that the changes would have involved some hours of additional work, *i.e.*, he estimated that some supervisory individuals probably spent a day working on the changed locations. Accordingly, based on the hourly labor rates indicated in the claim prepared by Frontier Paving, the ODRA finds SHCI entitled to $1,197 inclusive of markups. This amount is based on the cost of two supervisory individuals for a day at $50/hour [16 x $50 plus subcontractor markup of 25%, Exh. 578, plus SHCI markups of 10% for overhead, 8% for profit, bond premium of .5875%, and all risk insurance of .1587%].

[41] SHCI's final submission concedes that the costs associated with Cullips Excavating are to be subtracted from its claim for this Red File. SHCI Final Submission, page 136.

228. Red File No. 200: Scratch On Cab Glass: This Red File arose as a result of a scratch on the outside of the cab glass in the Tower that occurred during construction. Only quantum is in dispute. SHCI contends that it should not have to pay for the replacement cost of the cab glass, as this would constitute an impermissible "economic waste." Instead, SHCI asks the ODRA to determine a reasonable credit amount for the scratch. SHCI Final Submission, page 137. The evidence in the record indicates that the scratch is about 14 inches long and is very deep, and that the air traffic controllers indicated that the scratch would be a problem. Alfsen Tr. 2432-33. Testimony at the hearing further indicated that the scratch could not be satisfactorily repaired by "buffing." Hunt Tr. 1655. The Region's direction to replace the cab glass was therefore reasonable. The only evidence in the record as to the cost to replace the cab glass is testimony from the Contracting Officer that the cost would range from $7,000 to $10,000. Alfsen Tr. 2426-27. The ODRA notes that, during the hearing, when Red Files 200, 201, 202 and 203 were initially raised by SHCI, the Dispute Resolution Officer allowed them into the record and expressly advised the Region that it would have the opportunity to provide with its Final Submission any additional exhibit or affidavit it deemed necessary to support any of these Red Files. Hunt Tr. 1649-51. However, no further exhibits or affidavits were submitted by the Region with its Final Submission. Notwithstanding the assertion by counsel on page 70 of the Region's Final Submission that an award was made to the low offeror for the window replacement in the amount of $14,331, there is no evidence of this award in the record. Accordingly, based on the testimony in the record, the ODRA finds the Region entitled to a credit of $10,000 (inclusive of any subcontractor markups), plus prime markups of 10% overhead, 8% for profit, bond premium of .5875% and all risk insurance of .1587%), *i.e.*, $11,969 for the replacement of the cab glass.

229. Red File No. 201: EFIS Punch List. This Red File arose as a result of some unsightly black paint spots on the EFIS panels. Alfsen Tr. 2430-31. SHCI takes the position that the Region and SHCI should negotiate a reasonable credit. SHCI Final Submission, page 138. The Region indicates on page 71 of its Final Submission that, while it is disappointed with the appearance of the EIFS, it does not intend to pursue this issue further. Therefore, Red File No. 201 is effectively withdrawn.

230. Red File No. 202: Cabinet Lock. The specifications required locks on cabinet doors and drawers. *See* Solicitation Amendment 3, page 3, which clarifies Specification Section 06200, paragraph 2.7.1. SHCI's casework supplier claims that the cabinet model number specified did not have such locks built in, and he considered the specification to be "defective" and assumed it did not control his work. Hunt Tr. 1657; Exh. 714B. The supplier submitted shop drawings without locks to the Region for approval. However, there was no variance indicated on the submittal showing that locks would not be furnished and the drawings were approved.[42] During the final inspection, the Region indicated that locks were required. Hunt Tr. 1658; Alfsen Tr. 2428. The locks were not provided, and the work was terminated. Alfsen Tr. 2429-30. Although the Region is entitled to a credit for the missing locks, other than unsupported assertions of counsel in the Final Submission, there is no evidence in the record as to the cost of this work. Accordingly, the Region's claim for a credit fails for lack of proof as to a reasonable credit amount.

231. Red File No. 203: Radiator Connections. This Red File involved a stand-alone radiator located on the patio, connected by a pipe to a generator located in the mechanical room. Hunt Tr. 1658-59. The generator was identified as a sole source item by Solicitation Amendment No. 5, which stated "the Contractor shall furnish and install an engine-generator system manufactured by Kohler – no substitutions – in accordance with the technical specifications, drawings, and amendments." Hunt Tr. 1660; Tab 1, Amendment No. 5, page 3. The electrical subcontractor took the position that it provided everything that the sole

[42] As to this point, paragraph h of Contract clause I-0019, 3.2.2.3-60 Specification, Drawings and Material Submittals (April 1996) clearly provided:

> If submittals show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the submittal, at the time of submission. The variation description, a copy of the respective submittal and a proposal for its incorporation into the contract shall be sent directly to the Contracting Officer. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

Furthermore, approval by the Contracting Officer was not to be construed as authorizing any deviations from the contract specifications and drawings, unless the deviation itself was explicitly designated as the subject of the approval. *See* Specification § 01300-6, Part 1.4.7. Specification §01300-7, paragraph 1.4.9 required any variations to be expressly indicated on a submittal.

source supplier gave it, while the mechanical subcontractor claimed it provided everything required by the specification in terms of piping. Hunt Tr. 1661-62. Because the piping requirements were set forth in Division 16, Electrical, the mechanical subcontractor thought that the connection would be supplied by the electrical subcontractor. Hunt Tr. 1686. The electrical contractor assumed that the sole source generator supplier would provide all the equipment required by the specifications. Hunt Tr. 1687. In the end, the Region did not receive a flexible connection for the remote radiator for the engine generator as specified. Alfsen Tr. 2431. Specification section 16200-16, 2.6.2.3C expressly states "connections to radiator shall be made with flexible mounting hardware for pipe connections." Alfsen Tr. 2432-33. The specifications clearly require a flexible connection to the radiator. Furthermore, specification §01040-1, paragraph 1.1.3 states: "It shall be the duty of the Contractor to resolve all coordination conflicts that arise among his subcontractors and suppliers of project materials, products, and services." The ODRA finds that the specification with respect to the flexible connection is not defective, and that the dispute is one to be resolved between SHCI and its subcontractors. *See* Dokoozian Tr. 3093-94. However, as with Red File No. 202, there is no evidence in the record as to the cost of providing a flexible connection, other than the unsupported statement of counsel in the Region's Final Submission. Accordingly, the Region's claim for a credit fails for lack of proof.

232. SHCI is entitled to a total of $ 83,398[43] for the foregoing described Red Files as summarized in the following chart:

[43] Generally, where the ODRA allowed the amount claimed, the overhead portion was taken from the amount listed in SHCI's Red File Status Report, which was contained in its Final Submission. Otherwise, the calculation of the overhead portion of the adjudicated red file amounts were calculated in reverse, backing out the various components using the markups identified in Footnote 35, *supra*.

Adjudicated Red File Nos.		Overhead in Adjudicated Red File Amounts
2	$2,725.00	$228
6	1,745.00	204
9	3,850.00	422
10	2,386.00	279
12	0	0
19	4,212.00	494
21	0	0
30	2,951.00	328
33	1,793	151
35	0	0
36	0	0
55	3,715.00	310
59	32,701.00	6763
70	0	0
77	0	0
78	363	30
79	0	0
81	870	73
86	21,741.00	1836
89	0	0
93	0	0
96	0	0
99	7,868.00	716
105	1,686.00	151
107	1,132.00	95
108	0	0
109	0	0
110	0	0
113	465	39
114	3,967.00	470
118	1,197	100
200	-11,969.00	-1000
201	0	0
202	0	0
203	0	0
TOTAL	$83,398	$11,689

7. THE ERECTION COMPANY

233. SHCI's contract dispute includes the claim of its subcontractor, The Erection Company ("TEC"), in the amount of $29,323. According to SHCI, TEC's damages were calculated based on extra work orders prepared and issued by TEC contemporaneously with job

performance. Exh. 185. SHCI Final Submission. Page 92. These costs involve reaming and welding work that was required in order to erect the structural steel frame for the Tower. Exh. 185. As explained previously, in FFs 30–42, SHCI has not established that the Region is responsible for these costs.

8. SUPERIOR PLUMBING AND HEATING

234. SHCI's contract dispute – as restated in its final written submission – contains a claim for its subcontractor, Superior Plumbing and Heating ("Superior") in the amount of $578,747. This amount includes:

Additional Direct Labor	$263,233
"Red File Amounts"	43,972
Honeywell Claim	101,350
Subtotal	$408,555
15% G&A	61,283
G&A increased labor costs (adjusted)	56,295
Subtotal	$ 526133
10% Profit	52,613
Total Claim	$578,747

235. The ODRA has found that Superior did suffer labor inefficiencies as a result of design-related CRFCs, unreasonable contract interpretations and other various Red File issues. *See* Findings 65-68, 71-72, 109 and 134; *See also, generally,* Van Den Top Tr. 650-651.

236. Superior's General Manager, Mr. Van Den Top, who prepared the bid (Van Den Top Tr. 647), testified that he reviewed the plans and drawings, and the specifications to determine all the materials that needed to be furnished and installed. Van Den Top Tr. 648. He testified that the Merrill Field Project was a normal job with regular mechanical systems. Van Den Top Tr. 680. He testified that he took into account the crowded nature of the project site and Tower structure when he estimated the job. He noted that the significant degree of repetitive work would counteract those job conditions, such that he expected the overall productivity level to be average; *i.e.*, a "wash." Van Den Top Tr. 681-683. He also testified that the second low mechanical bid on this project was within "a couple thousand

dollars." Van Den Top Tr. 693. The evidence in the record thus supports the finding that Superior's bid – other than the amount included for Honeywell (*see* Footnote 44, *infra*) -- was reasonably formulated. Furthermore, the ODRA finds no other cause for the labor overrun but for the previously described design-related problems, unreasonable contract interpretations and other various red file issues. *See* Findings 65-68, 71-72, 109 and 134.

237. The Region's Auditor took no exception to Superior's claim of $226,718 for additional direct labor. The auditor found the total labor cost overrun experienced to have been slightly more -- $228,780. Exh. 741, page 35. SHCI's final claim for Superior's additional direct labor, as reflected on Exhibit 187 and SHCI's final written submission, is for a total of $263,233. The difference in figures was never explained and is not decipherable, either from SHCI's handwritten annotations to the audit report (Exh. 741) or from the exhibit entitled "Analysis of Superior Plumbing and Heating Claim." Exh. 187.

238. In addition to the labor cost overrun, Mr. Van Den Top also testified that Superior experienced a material cost overrun of approximately $140,000. Van Den Top Tr. 652. However, in its claim, Superior is claiming only $14,226. The record lacks any explanation for claiming this amount. Nor has any justification been provided for recovery of a material cost overrun.

239. Mr. Van Den Top also testified that Superior encountered a substantial increase in overhead costs as a result of time expended for review and revision of various mechanical submittals. Van Den Top Tr. 655. However, Superior was completely unable to explain the basis for its calculation of additional overhead:

> Q: …but where did you come up with the formula for [adding additional overhead], that's the question?
>
> A: Assumptions.
>
> Q: So this is a formula you came up with yourself?
>
> A: That's correct.

Q: Have you ever seen it used before?

A: No.

Van Den Top Tr. 689. Thus, although Superior is claiming $56,295 for "G&A Increased Labor Costs (adjusted)", the ODRA finds there is no evidence in the record to substantiate this claim. Additionally, the ODRA subtracts from Superior's claim the amount of $43,972, as duplicative of claims presented in the Red Files.

240. Included in Superior's claim is a Honeywell claim in the amount of $101,350. Of this amount, the ODRA subtracts $13,375 in material costs attributable to Teflon packed "unitary valves" and engineered cable. Exh. 741, page 48. As found below, the specified Teflon packed valves were not found to violate the implied warranty of commercial availability and the record is devoid of any support for the costs of engineered cable. Likewise, the ODRA subtracts $15,273 for increased extended overhead for lack of evidentiary support and $15,750 already claimed in Red Files as duplicative. The amount claimed for additional labor[44] was not questioned by the Region's auditor (Exh. 741, page 47) and directly relates to problems with the control design and compliance with the Buy American Act. The remaining amounts for Honeywell are as follows:

Additional Labor	$40,820
Overhead @ 17.9%[45]	7,335
Subtotal	$48,155
Profit @ 10%	4,816
Total	$52,971

241. Based on the foregoing, the ODRA finds Superior has no meaningful alternative to calculating its labor cost overrun, other than by use of the total cost method, and recommends allowance of a total of $353,806 for Superior's claim.

[44] It should be noted that in contrast to the other claims, Honeywell's claim is based on "bottoms up" estimates of additional hours incurred, rather than on a comparison of total hours/dollars incurred with the total labor hour/dollars bid. Accordingly, although there is some indication that Honeywell underbid the project (*see* Footnote 2, *supra*) that fact will not affect the determination of the amount due.

[45] The Region's auditor did not question Honeywell's claimed G&A overhead rate of 17.97%. Exh. 741, page 49.

Superior's Additional Direct Labor	$226,718
Honeywell Claim	52,971
Subtotal	$279,689
15% G & A (per audit)	41,953
Subtotal	$321,642
10% Profit	32,164
Total	$353,806

9. QUALITY ELECTRIC

242. SHCI's contract dispute – as restated in its final written submission – also includes a claim for its subcontractor, Quality Electric in the amount of $395,792. This amount includes:

Additional direct labor	$245,406
15% G&A	$36,811
G&A increased labor costs (adjusted)	73,422
Subtotal	$355,640
10% Profit	35,564
"Red File amounts"	4,589
Total Claim	$395,792

243. The ODRA has found that Quality Electric also suffered labor inefficiencies as a result of design-related CRFCs, unreasonable contract interpretations and other various Red File issues. *See* FFs 65-72 and 135.

244. Quality Electric's Owner, Mr. Bart Bias, testified that, with the assistance of his wife, he prepared the bid for the Merrill Field Project. Bias Tr. 1064. Mr. Bias further testified that he personally prepared the take-offs from the drawings and specifications, going page-by-page to identify every item of material needed to perform the job. Bias Tr. 1064-65. Then Mr. Bias calculated the labor hours associated with the installation of each item of material and multiplied the total labor hours by the labor rate, and adding overhead and profit. Bias Tr. 1065-66. Mr. Bias further indicated that he was comfortable with the final bid (Bias Tr. 1067) of $990,000, and as evidence of bid reasonableness, noted that at the conclusion of the job, the actual costs of the material component of the bid was less that two percent off his estimate. Bias Tr. 1068. The Region did not meaningfully challenge the reasonableness of

Quality Electric's bid.[46] Based on the foregoing, the evidence in the record thus supports the finding that Quality Electric's bid was reasonably formulated. Furthermore, the ODRA finds no other cause for the labor overrun but for the previously described design-related problems, unreasonable contract interpretations and other various red file issues. *See* FFs 69-70.

245. The Region's auditor took exception to $37,828 of Quality Electric's claim of $249,795 for additional direct labor. Exh. 741, page 57. However, this difference was due to the fact that Quality Electric's bid was based on an hourly labor rate of $50, while the claim is priced at the actual experienced average rate of $42.62 per hour. Bias Tr. 1080-82; 1159; Exh. 710. The audit further confirms that Quality Electric did expend additional direct labor costs of $245,405, based upon multiplying the additional hours incurred over those bid by the $42.62 per hour rate. Exh. 741, page 57. The ODRA finds that Quality Electric would have made a profit of $7.38 per hour, *i.e.,* $50 per hour minus the $42.62 per hour average actual labor rate, for an additional profit of $31,402 on the original bid. Establishing the original bid as a floor to computing the "maximum" recovery ceiling would eliminate this additional profit that Quality Electric would have otherwise realized, but for the impact of the Government-caused inefficiencies. This, in the ODRA's view, would not be appropriate. Accordingly, the ODRA recommends compensating SHCI for the full $245,405 of additional direct labor costs expended by Quality Electric.

246. Although Quality Electric is claiming $73,422 for "G&A Increased Labor Costs (adjusted)", there is no evidence in the record to substantiate this claim. Additionally, the ODRA subtracts from Quality Electric's claim the amount of $4,589, as duplicative of claims presented in the Red Files.

[46] Although the Region asserts without support in its Final Submission that Quality Electric's bid exceeded the next low by 20%. The Region also asserts without support or further explanation that Quality Electric did not budget for many required activities. The ODRA must base its findings only on evidence in the record. This, if anything, would serve to confirm that it did not underbid the project. Moreover, Quality Electric is not claiming an overrun on a "total cost" basis (bid verses actual costs), but rather on its overrun in labor hours times the actual labor rates experienced.

247. Based on the foregoing, the ODRA recommends allowance of a total of $310,439 for Quality Electric's claim.

Additional Direct Labor	$245,405
15% G&A	36,811
Subtotal	$ 282,216
10% Profit	28,222
Total	$310,438

10. LITTLE SUSITNA

248. Little Susitna, SHCI's painting and drywall subcontractor, claims the amount of $146,829, which includes costs for additional direct labor, materials, overhead and profit, extended overhead, as well as amounts claimed in various Red Files. At the hearing, there was some testimony about damage to little Sustina's drywall work as a result of SHCI and its other subcontractors being forced to work out of sequence. Colver Tr. 173-74. However, that testimony also referred to lack of quality in Little Susitna's work, and there is no testimony that allows the ODRA to segregate that portion of Little Susitna's work that was solely attributable to the impact of Government causes. For example, Mr. Colver testified as follows:

> Little Susitna … wasn't unscathed, in that they had to work out sequences well and – and, consequently, there were some quality control issues that were there and their foreman and Strand Hunt's people met on site to discuss some of these quality issues. And – and it was determined that – that they needed to do a better job than what they were doing and that they were concerned about coming back and doing re-work, because they knew that we were at a place in the schedule where there was going to be a lot of activity from that point on and that Andre expressed a concern to me that – his work was going to get damaged. He didn't want to come back and … fix up his quality control issues because it was just going to get damaged anyways.

Colver Tr. 171-172.

249. Mr. Blake also testified that Little Susitna probably had some fault of its own with respect to its cost overrun. Blake Tr. 1771. Little Susitna itself did not provide any testimony or affidavits in support of the amounts it is claiming. Although Little Susitna was

may have been impacted by Government-caused inefficiencies, the evidence in the record does not support any recovery on its claim.

11. ALASKAN LANDSCAPE

250. Finally, SHCI's subcontractor, Alaska Landscape, claims the amount of $1,778 for material cost overruns resulting from project delay. Exh. 189. The amount claimed is based on an increase in cost for 90 cubic yards of rock that was originally scheduled for delivery to the project in June of 1998. During the period in which the project was delayed by the Region, the price of the gravel increased from $13.00 per cubic yard to $32.75 per cubic yard. Exh. 741, page 16; Exh. 189. The Region's auditor took no exception to the $1,778 claimed for such cost escalation. The Region does not challenge the reasonableness of these costs. Accordingly, the ODRA recommends that Alaskan Landscape be compensated for the full amount of its claim.

12. OTHER MARKUPS

251. SHCI seeks a bond premium rate of 0.5875% and an insurance rate of 0.1900% as markups to the SHCI claim. SHCI Final Submission, page 96. For purposes of calculating quantum, the ODRA uses the bond and insurance rates confirmed in the audit – *i.e.,* 0.5875% for bond premium and 0.1587% for insurance. *See* Footnote No. 35, *supra.*

252. The parties recognized that SHCI did not charge its full overhead and profit markups on subcontractor work. SHCI proposed in many instances markups of 10% overhead and 8% profit on subcontractor change order proposals. The auditor did not question these markups. The ODRA therefore recommends that these prime contractor markups be used for work performed by subcontractors to SHCI.

13. INTEREST

253. In accordance with the legal analysis set forth in the Discussion section below, interest on the amount found due and unpaid is calculated as of the date the contracting officer received the CREA, *i.e.,* March 26, 1999.

III. DISCUSSION

A. Entitlement

In the absence of an adjustment clause, a firm-fixed price type of contract "places the risk of incurring unforeseen costs on the contractor rather than on the Government." *Sagebrush Consultants, L.L.C*., IBCA 4182E-2000, 2000 IBCA LEXIS 11 (October 26, 2000), *citing* John Cibinic, Jr., and Ralph C. Nash, Jr., Formation of Government Contracts (Third Edition, 1998), at 1079. The purpose of an equitable adjustment is to "keep a contractor whole" whenever the Government modifies a contract. *Bruce Construction Corp. v. United States*, 163 Ct. Cl. 97, 100, 324 F.2d 516, 518 (1963). Where such entitlement exists under the contracts Changes clause, the contractor is entitled to an equitable adjustment consisting of the difference between the reasonable cost of performing the work with the change and without the change. *B.R. Services, Inc.*, ASBCA No. 47473, *et al*., 99-2 BCA ¶ 30,397 at 150,271-72.

Generally, the burden of proof lies with the party seeking the equitable adjustment. *E. Avico, Inc.*, 00-ODRA-00149. A contractor's claims must be proven by a preponderance of the evidence, and must demonstrate liability, causation, and injury. *Sagebrush Consultants, supra, citing Wilner Construction Co., v. United States*, 24 F.3d 1397, 1401 (Fed Cir. 1994).[47] The Government likewise must bear the burden of proving any claim against a contractor, *Martin Resnik Construction Company*, 99-ODRA-00111, *citing Maintenance Engineers, Inc*., VABCA Nos 5350, 5457, 99-2 BCA 30,513, as well as of establishing the reasonableness of any credit ("downward adjustment") claimed for deleted work. *Martin Resnik, supra, citing Environmental Data Consultants, Inc. v. General Services Administration*, GSBCA Nos. 13244, 13331, 13534, 96-2 BCA ¶ 28,614. As to the Government's claims for liquidated damages, once the Government establishes a *prima facie* case that its assessment of liquidated damages is accurate, the burden of proof shifts to the contractor to show why its failure to meet the contract

[47] Decisions of Boards of Contract Appeals, the General Accounting Office, the Court of Federal Claims, and the United States Courts of Appeals for the Federal Circuit are not binding on the ODRA. However, they may, where not inconsistent with the principles of the AMS, be viewed as "persuasive authority." *Protests of Camber Corporation and Information Systems & Networks Corporation*, 98-ODRA-00079 and 98-ODRA-00080 (Consolidated).

completion date was excusable. *Kemron Environmental Services Corp*. ASBCA No. 51536, 00-1 BCA ¶ 30,664. Here, the Region is not entitled to the amount it claimed for liquidated damages, FF 136, because it was found to have delayed contract completion by 115 days. FF 134.

1. Breach Damages/"Equitable Adjustment"

SHCI claims entitlement to its extra costs arising from alleged Region breaches of: (1) the implied warranty of specifications; (2) its duty to cooperate and not hinder contract performance; and (3) its duty to correctly interpret the contract specifications. As damages, SHCI seeks an equitable adjustment under the Changes clause, under a theory of "constructive change." Breaches of this kind frequently have been treated as "constructive changes." *Environmental Safety Consultants, Inc*., ASBCA No. 47498, 2000-1 BCA ¶ 30,826, 2000 ASBCA LEXIS 36 at 80-81, *quoting from J.A. Jones Construction Co*., ASBCA No. 43344, 96-2 BCA ¶ 28,517 at 142,420.

a. Breach of Implied Warranty of Specifications

The Government generally is deemed to provide an implied warranty of the adequacy of its design specifications to produce the desired result and must compensate a contractor for any extra work required or for any additional costs incurred, in the event the specifications prove defective. *See United States v. Spearin*, 248 U.S. 132 (1918); *Jordan & Nobles Construction Co*., GSBCA No. 8349, *et al*., 91-1 BCA ¶ 23,659. In order to recover for damage attributable to defective Government design specifications, the contractor must prove: (1) that the specifications were defective; (2) that it complied fully with applicable specifications;, and (3) that the damage was directly attributable to the design defect. *Fox Construction v. General Services Administration,* GSBCA No. 11543, 93-3 BCA ¶ 26,193, *citing Santa Fe Engineers, Inc*., ASBCA No. 27933, *et al*., 85-2 BCA ¶ 18,001. The contractor must also demonstrate that the problems it encountered were not as a result of its own actions or inactions. *Trescon Corporation,* ENG BCA No. 5253, 88-3 BCA ¶ 21,163, *citing Gulf & Western Industries, Inc*., ASBCA No. 21090, 80-1 BCA ¶ 14304.

SHCI's claims of breach of the implied warranty of specifications relate to alleged specification defects with respect to (1) the structural steel design; (2) the design of HVAC controls; and (3) designs associated with various "Red Files."

(1) Design Omissions or Defects

SHCI's claims under several Red Files are based on alleged design omissions or defects. The allegations of design omissions or defects regarding disputed Red Files are resolveable using standard rules of contract interpretation (see discussion below), with three exceptions. With respect to Red File No. 89, "Add Pipe Riser Guides", SHCI failed to demonstrate that the plans were defective, *i.e.*, that the work could not have been performed as specified. FF 216. With respect to Red File No. 93, "Relocate Air Compressor," SHCI failed to demonstrate that the space indicated on the drawings was inadequate in size, regardless of how the equipment contained therein was arranged. FF. 217. Finally, with respect to Red File No. 202, Cabinet Lock, SHCI failed to demonstrate that the casework specifications were defective. FF 230.

(2) Impossibility/Commercial Impracticability of Design

SHCI claims that the Region breached its implied warranty of suitability of the plans and specifications because contract performance in accordance with the steel and the controls specifications was either impossible or commercially impracticable. In order to prevail on these claims, SHCI has the burden of proving not only that performance was impossible or commercially impracticable, *GLR Constructors*, ENG BCA No. 6021, 94-3 BCA ¶ 27,216, *citing Koppers Co. v. U.S.*, 186 Ct. Cl. 142 (1968); *Centrex Corporation*, ASBCA No. 26773, 83-2 BCA ¶ 16,829; *Intercontinental Manufacturing Co., v. United States*, 4 Cl. Ct. 591 (1984), but that the contractor's difficulties were not self inflicted. *See GLR Constructors, supra, citing, inter alia, ASC Systems Corp.*, DOTCAB No. 73-37, 78-1 BCA ¶ 13,119, *aff'd*, 223 Ct. Cl. 672 (1980); *Centrex Corporation, supra*.

(a) Structural Steel Design

SHCI failed to meet its burden of proving that the steel design was defective. The record reflects that AISC tolerances in question and the use of standard bolts in round bolt holes are a standard in the construction industry, *i.e.*, they are used to construct thousands of structures throughout the country. Furthermore, in this case, no evidence was presented that a tolerance cumulation problem actually occurred on the project.

The cumulation theory put forth by SHCI is simply a theoretical explanation of why SHCI may have encountered difficulties with bolt hole connections on the project. FF 37. Moreover, the record supports a more plausible theory. The contractor's election to bolt up large steel subassemblies prior to erection, rather than erecting the steel one member at a time, eliminated flexibility, thus preventing bolt holes from being brought into alignment. Steeves Tr. 2554-55; FF 38.

The situation was aggravated by the kinds of bolts TEC used for the subassemblies, and how it used those bolts. More specifically, TEC used a special LaJeune bolt, whose head snaps off once the bolt is tightened to the proper torque level. FF 40. Here, the testimony was that the bolt heads were snapped off when the bolts were tightened while the subassemblies were on the ground, *i.e.*, before they were lifted into place. FF 40. Once the Lejeune bolts are tightened and the heads snapped off, the bolts could not readily be loosened to accommodate adjustments to the structure. The record simply does not support SHCI's allegation of a "latent design defect with respect to structural steel design." FF 41.

Given this finding, the ODRA concludes that the Region properly interpreted Specification §01300-6, Part 1.4. as requiring SHCI to obtain submittal approval of any deviations from the structural steel design. In this instance, the deviations requested with respect to the connections were a consequence of SHCI's chosen means of erection. Testimony at the hearing further indicated that enlarging the diameter of a hole reduced its bearing capacity. Freas Tr. 1052-53. Moreover, the requirement of calculations with respect to the re-designed connections was not

shown to be unreasonable. The preponderance of the evidence is that any delay encountered with respect to the steel erection was as a result of a self-inflicted injury by SHCI. The ODRA therefore recommends that no contract extension or damages be awarded to SHCI for delays associated with structural steel erection. See FFs 30 through 42.

(b) Design of HVAC Controls

SHCI contends that the controls specifications were not suitable, because it was impossible to comply with the design requirements in the current commercial marketplace. SHCI Final Submission, p. 102. As a general rule, there is no implied warranty that materials in specifications will be commercially available, *Logics, Inc.,* ASBCA No 469364, 1997 ASBCA LEXIS 131l 97-2 BCA ¶ 29,125, *citing Franklin E. Penny Co. v. United States*, 207 Ct. Cl. 842, 524 F.2d 668 (1975). However, where a specification expressly requires the use of a standard commercial product, there is an implied warranty that a standard product is available that satisfies all aspects of the specifications. *See Toyad Corporation*, ASBCA Nos. 26785, 85-3 BCA ¶ 18,354 (extensive discussion of commercial availability). Under circumstances where no standard product exists that meets the specification requirements, the specifications have been held to be defective as misleading. *Logics, Inc. supra, citing J.W. Bateson Company, Inc.* ASBCA No. 19823, 76-2 BCA ¶ 12,032; *Thurmont Construction Company, Inc.* ASBCA No. 13417, 69-1 BCA ¶ 7602.

In this case, the preponderance of the evidence demonstrates that the controls specifications were defective insofar as they depicted the specified actuator as a standard product.[48] The specifications required that the actuator have entirely metal gears. FF 98. However, as noted above, the specified actuator was no longer commercially available; and its current configuration included a plastic gear. FF 99-100. The specifications created an impossibility of performance

[48] With respect to the mechanical systems, the specifications stated in §15011-4, paragraph 1.9.1:

> Materials and equipment shall be *standard* products of a manufacturer regularly engaged in the manufacture of such products, which are of a similar material, design and workmanship. The *standard* products shall have been in satisfactory commercial or industrial use for two years prior to bid opening. *Emphasis added.*

by indicating that the actuator made up of entirely metal gears would be a standard product. The evidence further showed that the Region's response to SHCI's inquiries regarding this specifications defect, and ultimate waiver of the "all metal gear" specification, resulted in significant delay to SHCI's installation of the controls system. FF 101-107.

In terms of the controls, SHCI also claimed, but failed to prove, that the specifications for large valves, for some applications, were defective, in that they allegedly did not have small enough flow coefficients to meet the specification requirements. FF 97. Also, in terms of the Teflon packing controversy, the facts showed that commercially available kits were used by SHCI to retrofit standard valves with Teflon packing, so as to satisfy the specification requirements. FF 94. Moreover, the record contains excerpts from Honeywell's catalogs from 1996-1999, which indicate that Teflon-packed valves were commercially available as specified – *i.e.*, that the retrofit kits would not even have been necessary. FF 94. Accordingly, SHCI failed to meet its burden to prove by a preponderance of the evidence that the specification regarding valves was defective.

b. Breach of Duty to Cooperate and Not Hinder Performance

SHCI alleges that the Region breached its duty to cooperate and not hinder performance by virtue of its (a) untimely and/or inadequate responses to CRFCs, submittals, and other requests; (b) misuse/misapplication of contract provisions; (c) failure to timely complete Government work that was precedent to SHCI work; and (d) other various interferences. SHCI Final Submission, pp. 103-110. As recently stated in *Environmental Safety Consultants, Inc*., ASBCA No. 47498, 00-1 BCA 30,826:

> It is long established that the Government has an implied duty to cooperate with the contractor and not to hinder its performance**.** *Atlantic Dry Dock Corporation,* ASBCA No. 42609 *et al.*, 98-2 BCA P 30,025 at 148,551. Where the failure to take some positive action is alleged as a breach of the duty of cooperation, it must be shown that the action was necessary for performance of the contract, and that the Government unreasonably failed to take the action. *Tri Industries, Inc.*, ASBCA Nos. 47880, 48140, 48491, 99-2 BCA P 30,529. Failing to give the contractor, after a valid request, information necessary to continued performance

> or giving the contractor erroneous information, the Board has said clearly hinders the contractor's performance. *Kahaluu Construction Co., Inc.*, ASBCA No. 31187, 89-1 BCA P 21,308, *aff'd on reconsid.*, 89-1 BCA P 21,525.

The record reflects instances in which the Region failed to cooperate and hindered contract performance. The Region deviated from typical industry practice of returning marked up ("red lined") shop drawings. FF 119. There was testimony from Quality Electric that inadequate responses to CRFCs from the Region caused it to submit a second or even a third request for information. FF 69. Moreover, there was clear evidence in the record that, with respect to the CRFC relating to HVAC controls, (CRFCs 190-207), the Region's response time was unreasonably long. FF 78. *See generally Clark Construction Group, Inc*. VABCA-5674, 00-1 BCA 30,870 (reasonableness of response time must be gauged from the context of when the CRFC was submitted and when the work was to be performed).

There is also evidence that the Region incorrectly interpreted contract provisions relating to coordination drawings, submittals, and work requirements (*see* discussion below). Further, the Region misapplied the BAA and was over-vigilant in its attempts to enforce that Act. FF 125-126. Likewise, it was undisputed that the Region failed to provide telephone lines in a timely manner. FF 129. Accordingly, the evidence supports a finding that the Region failed to cooperate with and hindered contract performance by SHCI and its subcontractors. However, the actual impacts of these actions on overall contract completion varied significantly. FFs 117 through 128.

c. Duty to Correctly Interpret Specifications

SHCI alleges that the Region breached its duty to correctly interpret its specifications, and that this breach gave rise to a constructive change requiring SHCI to perform in excess of the minimum requirements of the contract. Further, SHCI alleges that the FAA's interpretation of specifications, particularly with respect to submittal requirements, coordination drawing requirements and BAA obligations, were particularly unreasonable. SHCI Final Submission, page 111.

(1) Submittals

The Region took the position that, in all cases, submittals had to be approved prior to the work commencing. FF 15-16. This position is contrary to the plain and unambiguous language of the specifications. With respect to submittal approval, Specification § 01300-3, Part 1.4.1 provides:

> The adequacy of submittals for compliance with the contract is the responsibility of the Contractor. Shop drawings shall bear the approval of the Contractor. Further, shop drawings for certain items requiring such Contracting Officer approval are designated in the respective pertinent sections of these Specifications. Terms such as "for approval" or "subject to approval", as used in the specifications sections, shall mean that specific approval by the Contracting Officer is required. …. Failure by the Contractor to make a required submittal for any item of work prior to construction will result in withholding of progress payments for that item. The Contracting Officer may issue an order stopping any work for which the prescribed submittals have not been submitted and processed, as required.

Specification § 01300-6, Part 1.4.8, further permitted all submittals to be Contractor approved. However, certain specified submittals also required Contracting Officer approval when those submittals:

> (1) were specifically identified in the specifications or drawings for Government approval, or
> (2) were extensions of design, or
> (3) depicted deviation from the contract specifications or drawings (such as an "or equal" decision).
>
> Specification § 01300-6, Part 1.4.8

By the express terms of the Contract, which incorporated the specifications by reference (*see* Contract clause C-0002), only specified submittals were to be specifically approved by the Contracting Officer. To the extent that the Region stopped work, or prevented work from starting, on the basis of submittals that did not require specific Contracting Officer approval, such action constituted a change. *See* FFs 15, 16 and 72.

(2) Coordination Drawings

The ODRA finds that, contrary to the position of the Region, there was no requirement in the contract that all trades submit coordination drawings to the Region for approval. Furthermore,

even though Specification §15050-4 required mechanical submittals with respect to "coordination drawings for access panel and door locations" (paragraph 1.4.4) and "coordination drawings *according to Division 1 requirements*" (paragraph 1.4.5 –emphasis added), there was no requirement for coordination drawings *per se* in specifications Division 1. There was only a requirement for "layout drawings" in Specification Section 01010-2, paragraph 1.4.2, which stated:

> Layout Drawings: The Contractor shall submit mechanical and electrical scaled layout drawings for approval, including appropriate elevations and sections as required, showing the room arrangement the Contractor proposes for all pieces of mechanical and electrical equipment and appurtenances thereto that are to be located in the room. Plumbing and mechanical and electrical layouts shall be coordinated to eliminate any conflicts of installed equipment and maintenance access. No payments will be made to the Contractor for furnishing or installing equipment until the layout drawings have been approved by the Contracting Officer. Plumbing and mechanical and electrical equipment layout drawings shall be identified and submitted as specified herein. Equipment rooms shown on the drawings are of adequate size to accommodate equipment of required capacities as available from several manufacturers with sufficient space left for access, servicing, and removal. The use of equipment items with dimensions such as "to crowd the space" will not be permitted.

The above quoted provision for layout drawings refers only to the arrangement of equipment within equipment rooms and cannot be interpreted to encompass the provision of "coordination drawings" detailing the routing of all mechanical piping, HVAC ductwork, and electrical conduits, and the specific placement of all floor, wall, and ceiling penetrations. *See* Specifications Section 15050-4-5, paragraphs 1.4.5.1-4. Moreover, to the extent that the Region threatened to stop work or actually stopped work under the contract for lack of coordination drawings, such actions were contrary to the Contract requirements, and constitute a change. *See* Dokoozian Tr. 3242-48; Smith Tr. 2289.

(3) Buy American Act

The Contract contained Clause I-0030, 3.6.4-3, Buy American Act—Construction Materials (April 1996) ("BAA"), which required the Contractor to warrant that only domestic construction

material would be used in the performance of the Contract. It defined "construction material" as follows:

> an article, material, or supply brought to the construction site for incorporation into the building or work. Construction material also includes an item brought to the site pre-assembled from articles, materials or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, which are discrete systems incorporated into a public building or work and which are produced as a complete system, shall be evaluated as a single and distinct construction material regardless of when or how the individual parts or components of such systems are delivered to the construction site.

The Region incorrectly interpreted the BAA in two respects, namely: (1) its requirement that the Contractor warrant the use of only domestic construction material; and (2) in its interpretation of the term "construction material." As found in FF 126, the Region interpreted the BAA as requiring the contracting officer's "approval" of the contractor's warranty. As a result of this interpretation, the Region imposed on SHCI the requirement of supplemental proof of BAA compliance, even where the Region had no apparent reason to doubt the legitimacy of the contractor's original warranty. FF 126. This requirement for Contracting Officer approval of the warranty was in excess of the contract requirements.

Moreover, the Region incorrectly treated the off-site hangar (in which the EIFS panels were being assembled containing foreign mesh) as "on-site" for BAA purposes. FF 59. The contract itself defined the bounds of the project site, which did not include the hangar. FF 60. In contract interpretation, the plain and unambiguous meaning of a written agreement controls. Neither a party's belief nor customary practice can make an unambiguous contract provision ambiguous or justify departure from its terms. *R. B. Wright Construction Co. v. United States*, 919 F.2d 1569 (Fed. Cir. 1990)). Under fundamental rules of contract interpretation, an interpretation will be rejected if it leaves a portion of the contract language meaningless, useless, ineffective or superfluous. *See* Restatement, Second, Contracts, Section 203(a); *Fortec Constructors v. United States*, 760 F.2d 1288 (Fed. Cir. 1985). It is further well established that all parts of a contract must be read together and harmonized, if possible, and that no provisions be rendered meaningless. *Union Pacific Insurance Co. v. United States*, 204 Ct. Cl. 686, 497 F.2d 1402 (1974). Here, the contract unambiguously defined the project site, and the Contracting Officer's reliance on any

extra-contractual definition of "on-site", although understandable in the circumstances, where the hangar was being treated as "on-site" for other purposes, was in error, given the plain language of the Contract defining the project site.

d. The Red Files

The following "Red File" items are in dispute regarding basic entitlement.

(1) Red File No. 33, CT Can for ML&P.

Although the Region "acknowledges" a conflict between its drawings and specifications with respect to which party is responsible for providing the CT can, the ODRA sees no such conflict. Rather, the specification clearly distinguishes between the contents of the CT-cabinet (meter section and metering provisions) and the CT-cabinet itself (which houses the meters). FF 207. Specification §16425, paragraph 2.2.2, states: "Provide meter section and metering provisions per 'Electrical Service Requirements and Guidelines.'" Specification section 01040-2, paragraph 1.2.4 directs the contractor to coordinate with ML&P for the CT-cabinet and indicates that the CT-cabinet has been paid for in full by the Government, and Contract Drawing E 13.3 confirms that the CT cabinet would be furnished by ML&P. The specifications and drawings clearly provide for a Government furnished CT-cabinet. Accordingly, the ODRA finds entitlement for the costs of providing this item. *See* FF 205.

(2) Red File No. 59: Structural Steel Touchup Paint.

An ambiguity exists where two or more reasonable interpretations of the terms or specifications are possible. A party's particular interpretation need not be the most reasonable to support a finding of ambiguity. Rather, a party need only show that its reading of the specification provisions is reasonable and susceptible of the understanding that it reached. *E & I Systems, Inc*. 99-ODRA-00146. Here, the facts show that the specifications contained a latent ambiguity with respect to structural steel painting requirements. FF 209. Where a contractor reasonably interprets language that is latently ambiguous, the ODRA will apply the usual rule of *contra proferentum* against the contract drafter. *E & I Systems, supra.* SHCI reasonably interpreted

these ambiguous provisions to mean that painting of all structural steel in concealed spaces was not required. Accordingly, the ODRA finds SHCI entitled to the additional costs of performing structural steel touchup.

(3) Red File No. 70: Painting of Folding Partition Head.

This dispute is resolved by reference to the clear and unambiguous language of the specification that pertained to the folding partition head. FF 210. The language of the specification required the unexposed folding partition head to be painted with primer. That specification language required the unexposed folding partition head to be painted with primer. In interpreting a contract, all parts of the document must be read together and preference is given to an interpretation, which gives effect to all contract terms and leaves no provision meaningless. *United States v. Johnson Controls*, 713 F. 2d 1541, 1555 (Fed. Cir. 1983). The ODRA thus accords the language pertaining to the folding partition head its plain and ordinary meaning. *Elden v. United States*, 617 F. 2d 254 (Ct. Cl. 1980). Accordingly, SHCI is not entitled to the costs of cleaning and priming this item.

(4) Red File No. 77: Additional Costs to complete EIFS.

SHCI's claim for the amount it spent over and above the EIFS subcontract is based on *J.D. Hedin Constr. Co. v. United States*, 347 F.2d 234 (Ct. Cl. 1965), where the contractor was awarded the difference between its actual costs to complete the subcontractor's work and the original subcontract amount, when the subcontractor could not financially continue work due to circumstances of performance which owner-caused delay imposed on the work. *Id*. at 256-57. Here, it is undisputed that the subcontractor's default was caused by reason of the criminal activity and resultant arrest of its principal. FF 61. SHCI argues that, but for the Government's EIFS related delays, Morrison's work would have been completed prior to Mr. Morrison's arrest and the need for SHCI to complete its subcontractor's work would have been averted. SHCI provides no authority to support the novel proposition that the Government can be said to assume the risk and liability arising from a subcontractor's illegal activities, merely by reason of

Government delay to the subcontractor's performance. The ODRA finds no entitlement on this item.

(5) Red File 96, Tape/Paint Finish Level.

This Red File is again resolved based on fundamental rules of contract interpretation. The contract incorporated by reference an appendix, which set forth the various finish levels depending on the nature of the space. FF 218. Given the descriptions of the various finish levels contained in the appendix, combined with the fundamental rule that a contract will be interpreted to fulfill the principal objective purposes of the parties (and not one party's subjective, unwritten intent), *Cray Research, Inc. v. United States*, 1999 U.S. Claims LEXIS 137, 44 Fed. Cl. 327 (1999), it is clear that a Level 3 finish was required. *See* FF 218. In this instance, the Region's interpretation was reasonable. Moreover, the evidence in the record did not sustain the assertion that performance actually exceeded Level 3. FF 218. Accordingly, no entitlement is found for this item.

(6) Red File No. 108: Revisions to Roofing for Lighting Cable Attachment.

The contractor assumed the risk when it bid the work assuming that it would use screw-in clamps. FF 222. In *Overhead Electric Company*, ASBCA No. 25656, 85-2 BCA ¶ 18,026, the Armed Services Board of Contract Appeals essentially found that to submit a bid without having adequate information is simply an exercise of the bidder's business judgment. Where, as in this case, the judgment exercise turns out to be erroneous, that is a risk assumed by the offeror upon submission of its bid. The ODRA finds no entitlement on this item.

(7) Red File No. 109: Add Chilled Water Lines For CRUs and Red File 110: Add CC Drain for 041 Air Handler Unit.

The Region's interpretation of the specifications with respect to these two Red Files is reasonable. FF 223-224. Entitlement as to these Red Files is resolved by reference to Contract

clause I-0019, 3.2.2.3-60, Specification, Drawings and Material Submittals (April 1996), which provided in paragraph d as follows:

> Omissions from the drawings and specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. They shall be performed as if fully and correctly set forth and described in the drawings and specifications.

This provision is mirrored in Specifications, Division 1, Part 1.3.3 under paragraph 01010, which provides:

> Omissions from the drawings, specifications, or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work but they shall be performed as if fully and correctly set forth and described in the drawings and specifications.

The fundamental rule of interpreting to fulfill the principal purpose of the parties' intent results in a recommended finding of no entitlement on either of these two Red File items. *See J.W. Bateson Co*., VACAB 676, 68-1 BCA ¶ 6829 (contractor responsible for installation of ice water lines not shown on drawings because completely operational system was required).

(8) Red File No. 113: Paint above cab ceiling/additional masking requirements.

Contract Clause I-0016, entitled "Order of Precedence", provides: "Any inconsistency in this solicitation or contract shall be resolved by giving precedence in the following order: (a) the Schedule (excluding the specifications), (b) contract clauses, (c) specifications, (d) drawings, (e) other documents and attachments, (f) representations and instructions." Although a drawing note directs all surfaces above the ceiling to be painted "flat black," pursuant to the Order of Precedence clause, that note is modified by specification Section 9900, paragraphs 1.10. 1-5 and 3.1. These paragraphs clearly identify certain types of items to be excluded from painting. With the exception of the visqueen vapor barrier, the Region's response to CRFCs 555 and 590 is

consistent with the specification. FF 225. *See Elden*, *supra*, and *Johnson Controls*, *supra*. The ODRA therefore recommends entitlement only for the costs of masking the vapor barrier.

(9) Red File No. 118: Frontier Paving.

The Region's interpretation of the contract drawings is correct with respect to this Red File. FF 227. Drawing sheet C-1.3 shows the civil site plan, and Note 8 clearly and unambiguously refers the reader to the electrical plans for luminaire locations and details. Here, SHCI was responsible for coordinating the work of its subcontractors. Specification Section 01040-1, paragraph 1.1. A contractor who limits a part of his bidding estimate to one part of the contract documents, ignoring the provisions of other contract documents, is still charged with the knowledge of what is required by all of the contract documents read as a whole, and will be held responsible for assuring that all of the requirements of the entire contract are met. *See Caddell Construction Company, Inc.*, 1993 VA BCA LEXIS 15, 93-3 BCA ¶ 26,114, *citing Blackhawk Heating & Plumbing Co., Inc. & Donovan Construction Co.*, VACAB No. 739, 68-2 BCA ¶ 7393; *see also*, *H.S. Kaiser Company*, VACAB No. 761, 68-2 BCA ¶ 7378 (a contractor who ignores certain sections of a contract does so at his own risk). Accordingly, no entitlement is due just because of the existence of light poles and galvanized bollards in the area to be paved. However, SHCI is entitled to the additional labor hours arising from the fact that some luminaries changed locations from those indicated on the drawings. FF 227.

(10) Red File No. 203: Radiator Connections.

The Region's interpretation of the contract drawings is correct with respect to this Red File. FF 231. Solicitation Amendment No. 5 expressly required the contractor to furnish and install an engine-generator system manufactured by Kohler in accordance with the technical specifications, drawings, and amendments. Specification section 16200-16, paragraph 2.6.2.3.C expressly states "connections to radiator shall be made with flexible mounting hardware for pipe connections." The facts show the radiator was connected to the engine generator with a pipe. FF 231. Thus, based on the clear and unambiguous language of the specifications, as well as SHCI's duty to coordinate its subcontractors pursuant to specification Section 01040-1,

paragraph 1.1, it was incumbent on SHCI to provide the specified radiator connections. *See Elden, supra*. Although the Region is entitled to the cost of providing the flexible connection, it failed to provide proof of such costs. *See* FF 231 and Discussion on proving cost reasonableness below.

2. Adjustments for Delay and Inefficiency

SHCI claims entitlement to contract price and time adjustments for Government-caused delay, as well as for labor and weather related inefficiencies. Specifically, the delay costs claimed are comprised of extended field costs from June 3, 1998 through December 15, 1998 (196 calendar days); extended home office overhead from June 3, 1998 through February 28, 1999 (271 calendar days); and additional field office overhead from December 16, 1998 through June 29, 1999 (196 calendar days). Also included is a claim for "disproportionate consumption of resources" in the field during the base contract period (The original claim for "disproportionate consumption" of home office resources, as noted above, was dropped).

a. Delay

A contractor asserting a claim based upon alleged Government-caused delay has the burden of proving "the extent of the delay, that the delay was proximately caused by government action, and that the delay harmed the contractor." *Martin Resnik Construction Company*, 99-ODRA-00111, *citing Wilner v. United States*, 24 F.3d 1397, 1401 (Fed. Cir. 1994) (*en banc).* Specifically, the contractor has the burden of proving: (1) that the claimed compensable delay was solely due to Government causes; (2) that it was not concurrent with contractor-caused or excusable delay not attributable to the Government; and (3) that the delay in question serves to delay the overall completion of the contract. *Resnik, supra, citing M. Raina Associates, Inc.*, ASBCA No. 50486, 99-1 BCA ¶ 30,180. Where the Government caused delay is concurrent or intertwined with other non-chargeable causes of contract delay, there is no recovery. *J.A. Jones, supra, citing Commerce International Co. v. United States*, 338 F.2d 81 (Ct. Cl. 1964).

Where a contractor asserts entitlement to delay beyond a date prior to the date specified for contract completion, the contractor must present clear proof that it could have and would have

finished early but for Government-caused delays. *Hensel Phelps Construction Company* ASBCA No. 49270, 1999 ASBCA LEXIS 123; 99-2 BCA ¶ 30,531, *citing Wickham Contracting Company v. Fischer*, 12 F.3d 1574, 1581-82 (Fed. Cir. 1984). A contractor is not prohibited from finishing early and measuring the delays pursuant to a realistic early completion schedule. *See e.g., Owen L. Schwam Constr. Co.*, ASBCA No. 22407, 79-2 BCA 13,919; *Gardner Displays Co. v. United States*, 171 Ct.Cl. 497, 346 F.2d 585 (1965); *Sydney Constr. Co., Inc*., ASBCA No. 21377, 77-2 BCA 12,719. Ultimately, the "burden of proof or persuasion is upon the claimant and the final evidentiary question is whether the claim is supported by substantial evidence and proved by a preponderance of the evidence." *Bechtel Environmental, Inc.* ENG BCA Nos. 6137, 6166, 1996 Eng. BCA LEXIS 24; 97-1 BCA ¶ 28,640, *citing J.C. Edwards Contracting and Engineering, Inc*., VABCA No. 1947, 85-2 BCA ¶ 18,068 at 90,690.

In order to its prove entitlement to delay, a contractor typically provides a "critical path analysis" or other substantive analysis proving its delay claim. By definition, a delay to an activity that is on the project's "critical path" will result in a corresponding delay to the overall completion of the project. Thus, the determination of the critical path is crucial to any calculation of delay damages. *G.M. Shupe, Inc. v. United States*, 5 Cl. CT. 662, 728 (1984), *cited with approval in Kelso v. Kirk Bros. Mechanical Contractors, Inc*., 15 F.3d 1173, 1177 (Fed. Cir. 1994).

Where Government-caused delay is established, the burden is on the Government to prove that, despite the delay caused by the Government, the contractor could not have performed the project in less time, and would have been delayed to the same extent. *John Driggs Company, Inc*., ENG BCA No. 5926, 87-2 BCA ¶ 19,833.

Finally, liquidated damages may not be recovered for delays in contract completion that the Government has caused or that result from concurrent Government and contractor delay factors. *Resnik, supra, citing Elias Pamfilis Painting Company*, ASBCA No. 30113, 86-2 BCA ¶18,913. In the present case, the ODRA has found the Region solely responsible for 115 calendar days of overall project delays, *i.e*., delay to the project's "critical path." *See* FF 134. But for these

Government delays, SHCI would have completed the project before the specified completion date of October 9, 1998. Accordingly, the Region has no entitlement to liquidated damages here.

b. ***"Disproportionate Consumption of Resources" – Field; and"G&A Increased Labor Costs" – Home.***

SHCI and its subcontractors further seek to recover "disproportionate consumption of field office resources" which represents the alleged disproportionate effort expended by SHCI and its subcontractors' administrative field staff in processing numerous and complex changes. SHCI Final Submission, p. 119. FF 169 – 171; FF 240 and 246. In order to demonstrate entitlement to such a claim, SHCI would have to show that its costs increased in magnitude by reasons other than an extension of time, *i.e.,* additional personnel, space or equipment was required. *See M. A. Mortenson Company*, ASBCA Nos. 40750, et al., 97-1 BCA ¶ 28,623. SHCI made no such showing here. Accordingly, the ODRA finds no entitlement on this item. *See* FF 171.

c. ***Labor Inefficiency/Cumulative Impact***

SHCI has the fundamental responsibility to prove, by a preponderance of the evidence: (1) that Government action *caused* its labor to be less efficient than planned; and (2) the extent of that impact on completion. *Clark Construction Group, Inc*. VABCA-5674, 00-1 BCA ¶ 30,870, *citing, inter alia, Centex Bateson Construction Company, Inc*. VABCA Nos. 4613 *et.al*., 99-1 BCA ¶ 20,153. SHCI claims that the various instances of design deficiencies and "project mal-administration" gave rise to significant "cumulative impact" in terms of lost labor efficiency. SHCI Final Submission, page 119.

It has been held that "the mere existence of numerous contract changes, in and of themselves, whether or not the number of changes is considered to be reasonable or unreasonable and whether or not the changes resulted from defective specifications, establishes no right to recover cumulative impact costs." *Centex Bateson Construction Corp., Inc.* VABCA Nos. 4613, *et.al*., 99-1 BCA ¶ 30,153. In order to demonstrate a basis for recovery of an equitable adjustment for "cumulative impact," the facts must comport with the following definition:

> [It] is the unforeseeable disruption of productivity resulting from the "synergistic" effect of an undifferentiated group of changes. Cumulative impact is also known as the "ripple effect" of changes on unchanged work that causes a decrease in productivity and is not analyzed in terms of spatial or temporal relationships. This effect is unforeseeable and indirect. For the Government to be liable for cumulative impact, a contractor must show that the Government exceeded the permissible limits of its discretion under the Contract changes provisions serving to "materially alter the nature of the bargain" originally agreed upon. *Wunderlich Contracting Co*. 351 F.2d 956, 965-966; *Aragona Construction Co., Inc. v. United States*, 165 Ct. Cl. 382, 394 (1964); *Dyson & Co*., ASBCA No. 21,673, 78-2 BCA 13,482 at 65,970.

Coates Industrial Piping, Inc., VABCA No. 5412, 99-2 BCA 30,479.

The ODRA has found that SHCI in this case was able to demonstrate that it and its subcontractors, Superior and Quality Electric, did sustain significant labor inefficiency loss as a result of the cumulative impact of numerous Government design-related problems. FF 135. The ODRA therefore has found entitlement on this item.

d. Weather-Related Inefficiency

When Government-caused delay pushes contract performance into winter weather that would not otherwise have been encountered, a contractor may be entitled to an equitable adjustment for weather related inefficiency. *See Pan-Pacific Corporation*, EngBCA No. 2479, 65-2 BCA ¶4984. However, with respect to SHCI's claim for winter weather related costs in this case, the ODRA has found that the costs associated with weather protection and winter related inefficiencies would have been incurred regardless of the delays attributable to the Government. *See* FFs 47 and 50. Accordingly, there is no entitlement on this item.

3. Professional Fees and Costs

SHCI claims CREA preparation costs incurred prior to September 15, 1999, *i.e.*, the point in time when its contract dispute was filed at the ODRA. The amounts involved are $81,150 for Bruce Blake Consulting and $45,265 for the legal services of Oles, Morrison, Rinker & Baker, LLP.

The evidence in the record shows that the CREA was initially submitted to the Contracting Officer on March 26, 1999, and revised on May 27, 1999, and that SHCI intended to use the CREA to negotiate an amicable settlement with the Region. Hunt Tr. 1637-38, 1645-46; Blake Tr. 1346-49. Upon receipt of the CREA, the Region proceeded to investigate the merits of its contentions by requesting additional information from SHCI, obtaining an independent analysis of the alleged delay and requesting an audit. Alfsen Tr. 2446-50. However, contrary to SHCI's expectations, no meaningful settlement negotiations were conducted with respect to the CREA. Hunt Tr. 1637-41; Blake Tr. 1349-51; Tab 5, Letter FAA/SHCI-263, dated 4/1/99. SHCI filed essentially the same CREA document with the ODRA as a contract dispute on September 17, 1999. The parties subsequently entered into an ADR Agreement and attempted to resolve the dispute through mediation, and managed to settle some individual claim items (Red Files) with the assistance of an ADR neutral.

SHCI contends that its CREA preparation and negotiation costs are recoverable as a "necessary project expense" of contract performance and administration, as they were incurred prior to conversion of the CREA to a claim submission to the ODRA, and cites *Bill Strong Enterprises v. Shannon*, 49 F.3d 1541 (Fed Cir. 1995), for this proposition. SHCI Final Submission, page 140. The *Bill Strong* line of cases, which were decided under the Contract Disputes Act, 41 U.S.C. §601, *et seq.* ("CDA"), are inapplicable to disputes under the AMS system, since the CDA does not apply to the AMS. Under the AMS, the prosecution of disputes does not contemplate the filing of a "certified claim". Under the AMS, the recoverability of legal and consulting costs is governed by the FAA Contract Cost Principles, which were expressly incorporated by reference into the subject contract.

The FAA Contract Cost Principles provide that costs of "legal services and consultants" are "*generally allowable if reasonable*." FAA Pricing Handbook, Chapter 13. Cost Principles, Appendix 13A, Section jj. The Cost Principles further provide that such costs may include administrative and clerical expenses. Such costs are only rendered unallowable if they are

incurred in connection with the "prosecution of appeals" against the FAA. *Id.*[49] However, SHCI's CREA was not being "prosecuted" as an "appeal" at the time it was initially presented to the Contracting Officer on March 26, 1999. Rather, *prosecution* of SHCI's claim began only when it was filed with the ODRA as a contract dispute on September 15, 1999. Thus, reasonable amounts claimed for legal and consultant's fees incurred prior to the filing of the contract dispute with the ODRA are allowable. In this case, when reviewed in the context of this complex, multiple issue contract dispute, the ODRA has found the fees claimed are reasonable. FF 168. Accordingly, under the express language of the FAA Contract Cost Principles, SHCI is entitled to the amounts it claims for preparing and submitting the CREA to the Contracting Officer.

[49] Specifically, legal costs that are considered to be unallowable under the FAA Contract Cost Principles include:

- Costs incurred in connection with any proceeding brought by a Federal, State, local or foreign Government for violation of, or a failure to comply with law or regulation are unallowable if the result is:
  - A conviction in a criminal proceeding;
  - Finding of contractor liability or imposition of monetary penalty in a civil or administrative proceeding;
  - Final decision by appropriate executive agency official to:
    - Debar or suspend;
    - Rescind or void contract; or
    - Terminate for Default for violation or failure to comply with a law or regulation.
  - Disposition of matter by consent or compromise except that cost may be allowable if agreement of consent or compromise between the contractor and the US Government specifically allows such costs.
- Proceedings not described above where the underlying alleged misconduct could have led to such proceedings.
- Costs incurred in connection with:
  - Defense against Federal claims or appeals or the prosecution of claims or appeals against the Government.
  - Prosecution of protests and appeals against the FAA.
  - Organization, reorganization or resisting mergers and acquisitions.
  - Defense of antitrust suits.
  - Defense of suits brought by employees or ex-employees under Section 2 of *Major Fraud Act of 1988* where the contractor was found liable or settled.
  - Defense or prosecution of lawsuits or appeals between contractors arising from either an agreement or contract concerning a teaming arrangement, a joint venture, or similar arrangement or dual sourcing, co-production or similar programs.
  - Patent infringement litigation.
  - Representation of or assistance to individuals, groups, or legal entities which the contractor is not legally bound to provide, arising from an action where the participant was convicted of violation of a law or regulation or was found liable in a civil or administrative hearing.

4. Interest

SHCI claims that, based on the express contract language pertaining to interest recovery, the crucial inquiry concerns when the Contracting Officer, and not the ODRA, received the "contract dispute." SHCI Final Submission, page 142. Section 3.9.1-1(l) of the instant contract provides:

> The FAA will pay interest on the amount found due and unpaid from (1) the date the contracting officer receives the contract dispute, or, (2) the date payment would otherwise be due, if that date is later, until the date of payment. Simple interest on contract disputes shall be paid at the rate, fixed by the Secretary of the Treasury, which is applicable to the period during which the Contracting Officer receives the contract dispute and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pending contract dispute.

The "Disputes" clause contained in SHCI's contract defines a "contract dispute" as follows:

> [A] written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. A contract dispute arising under a contract, unlike a contract dispute relating to that contract, is a dispute that can be resolved under a contract clause that provides for the relief sought by the contracting party seeking relief. However, a voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a contract dispute. Such submission may be converted to a contract dispute by written notice, to the Contracting Officer (CO), that it is disputed either as to liability or amount.

Under the plain language of the definition above, the CREA would qualify for interest purposes as a "contract dispute," [50] as it was a non-routine, written demand seeking, as a matter of right, the payment of money in a sum certain. Accordingly, the ODRA finds that interest started running on the CREA as of March 26, 1999, when it was first presented to the Contracting Officer. To the extent SHCI claims interest for various periods prior to March 26, 1999, with respect to certain Red Files, the ODRA considers these Red Files to involve routine requests for payments, which did not become part of a "contract dispute" until they were filed with the Contracting Officer as part of the CREA.

[50] It must be noted that the standard FAA "Disputes" clause and its definition of "contract dispute" have been revised to conform to the definitions and provisions of the ODRA Procedural Regulations, 14 C.F.R. Part 17, which took effect after the instant contract was awarded. Accordingly, allowance of interest hereunder is not necessarily a precedent for interest recovery in other cases.

The Region further claims that more than 45% of SHCI's claim for interest consists of interest on subcontractor claims and interest on markups for SHCI overhead and profit. These amounts, the Region contends, are not "costs" funded by SHCI and, therefore, there is no "economic justification" to recover interest. The Region also contends that SHCI revised its claim three times since the March 27, 1999 submittal,[51] and thus that the amounts claimed are not "sums certain." These arguments have no merit. The contract expressly states that interest will be paid on "*the amount due,*" and there is no exemption of certain types of costs from the application of interest. Moreover, the contractual requirement for a "sum certain" applies at the time the written demand is made. Accordingly, the fact that the amount claimed subsequently changed does not invalidate a claim for interest on the amount ultimately found due.

B. Quantum

The following discussion will proceed in roughly the order in which SHCI summarized its claims, and will cover only those claims for which the ODRA has found a factual basis for entitlement to an equitable adjustment.

1. Labor Inefficiencies

The ODRA found that SHCI, Superior, Honeywell, and Quality Electric suffered significant losses in their labor efficiency on the job as a result of owner-caused project disruptions. FFs 167, 237, 246 and 247. Where damages are established, it is proper to utilize a jury verdict approach when there is uncertainty as to the extent or amount of the damage. *Vehicle Maintenance Services v. General Services Administration*, GSBCA No. 11663, 94-2 BCA 26,893, *citing H.K. Enterprises*, GSBCA 10166, 91-2 BCA 23,697. The following three factors must exist before using a jury verdict approach, namely: (1) that clear proof of injury exists, (2) that there is not a more reliable method for computing damages, and (3) that the evidence is sufficient for a court to make a fair and reasonable approximation of the damages. *Vehicle Maintenance Services, supra, citing Dawco Construction, Inc. v. United States*, 930 F.2d 872

[51] SHCI revised its claim on May 27, 1999; January 10, 2000 (for the "ODRA Supplement") and at the ODRA hearing, partly as a result of ADR settlements.

(Fed Cir. 1991). Moreover, the claimant is not required to prove its damages with absolute certainty or mathematical exactitude. It is sufficient if the decider of fact is furnished with a reasonable basis for computation, even though the result is only approximate. *Deval Corporation*, ASBCA No. 47132, 99-1 BCA 30,182. It has been recognized that maintaining cost records identifying and separating inefficiency costs is both impractical and essentially impossible; and thus, percentage estimates of loss of efficiency is an appropriate method to quantify such losses. *Clark Construction Group, Inc*. VABCA-5674, 00-1 BCA 30,870, *citing, inter alia, Centex Bateson Construction Company, Inc., supra* (using MCAA productivity factors as a "reasonable starting point" for rendering a jury verdict in a claim for mechanical work).

Use of the MCAA productivity factors is an established method used by various boards for measuring and quantifying labor inefficiency losses. *See, e.g., Clark, supra, Triad Mechanical, Inc*. IBCA 339, 97-1 BCA 28,771; *Stroh Corp*., 96-1 BCA 28,265; *Fire Securities Systems, Inc*., BABCA 3086, 91-2 BCA 23,743. In this case, the ODRA sees no reason why the MCAA factors should not be used, given that the impacts in large part were attributable to mechanical-related design issues. Moreover, the working environment was no different for SHCI than it would have been for the mechanical subcontractor. Even the Region's own expert opined that the MCAA productivity factors are "a reasonable starting point" to quantify SHCI's labor productivity damages, Dokoozian Tr. 3226-7. Based on the MCAA productivity factors, and testimony at the hearing, the ODRA finds that SHCI suffered an overall direct labor productivity loss of 31.5%, *i.e.*, $287,200. *See* FFs 154-166.

The ODRA also recognizes that, as a method of quantifying labor inefficiency losses, the total cost approach is generally not favored by either the boards or the courts. *O.K. Johnson Electric Co., Inc*., VABCA- 3464, 94-1 BCA 26,505, *citing Servidone Construction Corporation v. United States*, 931 F.2d 860, 61 (Fed. Cir. 1991). The total cost method is to be used only as a "last resort" where the contractor is able to show:

(1) the impracticality of proving actual losses directly;
(2) the reasonableness of its bid;
(3) the reasonableness of its actual costs; and
(4) lack of responsibility for the added costs.

J.W. Bateson Company, Inc., VACAB-1148, 79-1 BCA 13,573. Although Superior's additional direct labor cost claim is calculated on a "total cost" basis – *i.e.*, total actual labor cost less the amounts bid for labor cost – the ODRA found that Superior established that it had no alternative means of calculating its labor cost overrun, and established the other elements necessary for a total labor cost recovery. Therefore, the ODRA finds Superior's use of the total cost method to be proper and that it is entitled to the amount of $226,718 plus markups for its additional direct labor. *See* FFs 236, 237 and 241.

The ODRA further notes that there is no uncertainty as to the calculation of Honeywell's and Quality Electric's labor inefficiency claims. Those claims are based on audited, actual additional labor costs incurred. Accordingly, the ODRA finds Honeywell and Quality Electric to be entitled to the amounts of $52,971 and $310,438, respectively. *See* FF 240 and 244-45; Footnotes 44 and 46, *supra*.

2. Delay Damages

a. Extended Home Office Overhead from 6/3/98 through February 28, 1999

Here, as indicated above in the findings of fact, SHCI has sustained its burden of proving that the Region was solely responsible for delaying overall project completion by a total of 115 calendar days. Under long established precedents, recovery of unabsorbed/extended home office overhead recover may be calculated pursuant to the Eichleay Formula. *Resnik, supra.*

The ODRA found that SHCI demonstrated the necessary prerequisites for the use of the Eichleay Formula for recovering its unabsorbed overhead recovery, namely, it experienced some form of Government work suspension for a "period of uncertain duration," during which it was impracticable to take on additional replacement work to absorb its home office costs. FF 186. *See Resnik, supra*.

The Eichleay Formula, as set forth in the FAA Pricing Handbook, Section 16.5.1, Overhead and General and Administrative (G&A) Expenses, is as follows:

Direct contract billings / Total billings for contract period	x	Total overhead for period	=	Allocable overhead
Allocable overhead / Actual days of contract performance	=	Daily overhead		
Daily overhead	x	Number of days of delay	=	Unabsorbed overhead

Mr. Blake's calculation improperly included the CREA claim amount in the project revenue ("contract billings") figure. Although he asserted that his allocation formula has been accepted by the General Services Administration, the Navy and the Corps of Engineers, no specifics were provided to allow for verification. Moreover, SHCI cites no legal precedent for the use of the Blake formula. The ODRA notes that the inclusion of the CREA amount results in an "apples to oranges" comparison, in that the total revenue figure (the denominator of the revenue-to-revenue ratio) does not likewise include claim amounts pending on behalf of SHCI in this contract as well as those under SHCI's other contracts. Inclusion of claim amounts for both project revenue and total revenue would first require the determination of entitlement on the CREA claim, as well as any other claim, prior to their inclusion in Mr. Blake's formula. More importantly, the Blake formula is at odds, not only with the FAA Pricing Handbook, but with prior ODRA case law, which made clear that the standard Eichleay formula would be used to compute unabsorbed/extended home office overhead. *See Martin Resnik, supra.* As noted above, the ODRA calculates extended home office overhead through January 27, 1999, the date of final inspection and conditional acceptance, rather than the auditor's cut-off date of February 28, 1999. *See* FF 179. Based on a daily home office overhead rate of $393 per day, multiplied by 115 compensable days of delay, the ODRA finds SHCI entitled to recover $45,195 for extended home office overhead. *See* FF 191.

b. Extended Field Costs from 6/3/98 through 12/15/98; and "Additional Field Office Overhead" from 12/16/98 through 6/29/99

In *Resnik, supra*, the ODRA recognized that "[e]xtended jobsite costs, sometimes known as extended field overhead costs, have long been recognized as an allowable item of contractor recovery, where Government delay factors extend the duration of a project." SHCI has established proof of its extended field office costs through January 27, 1999. FF 179. The Region contended that SHCI had improperly calculated its extended field office overhead rate, by including "non-time sensitive" costs. FF 180. By its actions, SHCI agreed that only time-sensitive costs should be in the overhead pool, when it adjusted its computations for those items believed to be "non-time sensitive." FF 181. As for the remaining disputed costs, FF 182, the ODRA finds them to be time-sensitive and properly included in the overhead pool. Bonuses and severance pay is expressly allowable under the FAA Cost Principles, provided that they are reasonable and/or allowable. FAA Cost Principles, Appendix 13A, Section d, Compensation for personal services. These amounts have not been challenged as to their reasonableness and allocability as they benefit the contract by rewarding employees for staying on a delayed and difficult job. *See* Cost Principles Chapter 13, Section 14.4, Elements of Allowability. The other allegedly non-time sensitive costs criticized by the Region also were not challenged as to reasonableness, and satisfy the standards for allocability set forth in the FAA Cost Principles. *Id*.

Accordingly, based on the field office overhead daily rate of $1,042 and the 115 compensable delay days previously found, the ODRA finds SHCI to be entitled to $119,830 for its total extended field overhead cost. *See* FF 184-185.

3. Red Files

a. Proof of Cost Reasonableness

An equitable adjustment under the changes clause is intended to compensate a contractor for the reasonable cost of performing the change, which is usually his actual costs, plus overhead and profit. *Midwest Environmental Control, Inc*. No. 93-BCA-12, 1996 DOL BCA LEXIS 2; 98-2 BCA 30,058, *citing Bruce Construction Corp. v. U.S.*, 163 Ct. Cl. 97 (1963). The contractor

bears the burden of proving the reasonableness of claimed costs. *Resnik, supra, citing H.E. Johnson Co., Inc*., ASBCA No. 50861, 98-2 BCA 29,868. The contractor must make a *prima facie* case of the reasonableness of all costs claimed, whether by its own forces or by those of its subcontractors. *Amelco Electric,* No. VABCA-3785, 1996 VABCA LEXIS 7; 96-2 BCA 28,381; *see also Kelly Martinez d.b.a. Kelly Martinez Construction Services*, IBCA Nos. 3140, 3144-3174, 1997 IBCA LEXIS 12; 97-2 BCA ¶ 29,243. In contrast, the Government bears the burden of proving the reasonableness of any credit claimed. *Resnik, supra*.

However, under the FAA Contract Cost Principles (FAA AMS Toolbox Guidance T3.3.2), incorporated by reference in the subject contract, no presumption of reasonableness attaches to the actual costs incurred by a contractor. The AMS Toolbox Guidance states:

> a. A cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person in the conduct of competitive business. Reasonableness of specific costs must be examined with particular care in connection with firms or their separate divisions that may not be subject to effective competitive restraints. No presumption of reasonableness shall be attached to the incurrence of costs by a contractor. If an initial review of the facts results in a challenge of a specific cost by the contracting officer or the contracting officer's representative, the burden of proof shall be upon the contractor to establish that such cost is reasonable.
>
> b. What is reasonable depends upon a variety of considerations and circumstances, including-
>
> i. Whether it is the type of cost generally recognized as ordinary and necessary for the conduct of the contractor's business or the contract performance;
>
> ii. Generally accepted sound business practices, arm's-length bargaining, and Federal and State laws and regulations;
>
> iii. The contractor's responsibilities to the Government, other customers, the owners of the business, employees, and the public at large; and
>
> iv. Any significant deviations from the contractor's established practices.

Claim letters and pleadings are not proof of disputed facts. *Bechtel Environmental, Inc.*, ENG BCA No. ¶ 6137, 97-1 BCA 28,640, *citing e.*g. Peterman Windham and Yaughn, Inc., ASBCA No. 21147, 77-2 BCA ¶ 12,674; *B.W. Hilton*, ASBCA No. 10263, 65-1 BCA 4766; *Leach Refractories Co., Inc*., VACAB No. 956, 71-1 BCA ¶ 8894.

The ODRA found SHCI to be entitled to a total amount of $83,398 for the disputed Red Files. A summary of the individual amounts is set forth in FF 232. As was discussed in the Findings of Fact Section pertaining to the "Red Files", the Region claimed several credits for deleted work. However, in several cases, the Region either (1) failed to establish the reasonableness of the amounts claimed, or (2) to provide evidence that would permit the ODRA to determine the quantum of claimed credits. Therefore, although the Region may have been entitled to a credit, it failed to prove the amount it claimed. *See, e.g.*, FFs 208, 219, 220, 221, 230 and 231.

b. Markups Applied

The rates for additive change order work are used for determining the proper rates for overhead and profit on a deductive change. *P.J. Dick Inc. v. General Services Administration*, GSBCA No. 12215, 95-1 BCA 27,574, *citing Santa Fe Engineers Inc.,* ASBCA No. 31762, 91-1 BCA ¶ 23,571. *See, also*, *Algernon Blair, Inc*. ASBCA No. 10738, 65-2 BCA ¶ 5127. Therefore, the ODRA recommends that the Region's mark-ups on deductive changes be allowed in the same amounts as those applied on additive changes. FF 251 and Footnote 35.

With respect to the elimination of profit from the overhead recovery, the ODRA notes that the underlying rationale supporting recovery of overhead in this case is predicated on a suspension of work, rather than a changed work theory. Thus, profit is not available on extended field overhead or any Eichleay recovery amount for extended home office G&A costs. *See Richerson Construction Inc., v. GSA*, GSBCA No. 11161-R, 93-3 BCA ¶ 26,206. Accordingly, the ODRA finds SHCI is not entitled to a markup for profit on such extended costs.

Finally, because a contractor is entitled to recover the additional bond premium it is required to pay on pricing adjustments recovered under the contract, *see, e.g., Proserv, Inc.,* 78-1 BCA ¶ 13,066, *at* 63,811 n.1, the ODRA finds the markup for additional bond premium to be properly included in the total amount due SHCI. Similar treatment is afforded for SHCI's all risk insurance premiums.

C. Summary of Amounts Due SHCI

The total amount the ODRA finds due SHCI is computed as follows:

1. SHCI Labor Inefficiencies	$287,200.00
2. SHCI Weather Inefficiencies and Other Related Costs	0
3. CREA Preparation Cost	126,415.00
4. Subtotal	$413,615.00
5. Prime Overhead @ 15% of line 4	62,042.00
6. Prime Profit @ 10% of lines 4 + 5	47,566.00
7. Subtotal	$523,223.00
8. Disproportionate Consumption of Resources - Field (Base Contract Period)	0
9. Disproportionate Consumption of Resources - Home (Base Contract Period)	0
10. Extended Field Costs (115 CDs)	119,830.00
11. Extended Home Office Overhead (115 CDs)	45,195.00
12. Subtotal	$688,248.00
13. Bond Premium @ 0.5875% of line 12	4,043.00
14. Subtotal	$692,291.00
15. All Risk Ins. @ 0.1587% of line 14	1,099.00
16. Subtotal	$693,390.00
17. Adjudicated Red Files	83,398.00
18. Interest on Contractor Funded Changes - See below	0
19. SHCI Total	$776,788.00
20. Subcontractor Requests:	
21. The Erection Company	0
22. Superior Plumbing and Heating	353,806.00
23. Quality Electric	310,438.00
24. Little Susitna Construction	0
25. Alaskan Landscape	1,778.00
26. Subtotal	$666,022.00
27. Prime Overhead @ 10% of line 26	66,602.00
28. Subtotal	$732,624.00
29. Prime Profit @ 8% of line 28	58,610.00
30. Subtotal	$791,234.00
31. Bond Premium @ 0.5875% of line 30	4,648.00
32. Subtotal	$795,882.00
33. All Risk Insurance @ 0.1587% of line 32	1,263.00
34. Subcontractor Total	$797,145.00
35. Total Amount Due (lines 19 + 34)	$1,573,933.00

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CONCLUSION

For the foregoing reasons, the ODRA recommends that SHCI be provided an equitable adjustment in the total amount of $1,573,933.00 (which does not include the Red File amounts settled by the parties, as listed in FF 194), plus interest as provided in Contract Clause I-0031, 3.9.1-1, Contract Disputes,[52] beginning as of March 26, 1999, until the date of payment. The ODRA further recommends that the Region provide SHCI with a contract time extension of 110 calendar days and remission of all amounts withheld for liquidated damages.

_____/s/_____
Marie A. Collins
Dispute Resolution Officer
FAA Office of Dispute Resolution for Acquisition

APPROVED:

____/s/_____
Anthony N. Palladino
Associate Chief Counsel and Director
FAA Office of Dispute Resolution for Acquisition

[52] Paragraph (l) of that clause states:

> Simple interest on contract disputes shall be paid at the rate, fixed by the Secretary of the Treasury, which is applicable to the period during which the Contracting Officer receives the contract dispute and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pending contract dispute.