ARMED SERVICES BOARD OF CONTRACT APPEALS

Appeal of --	)	
	)	
Taisei Rotec Corporation	)	ASBCA No. 50669
	)	
Under Contract No. N62836-94-C-2545	)	

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OPINION BY ADMINISTRATIVE JUDGE PARK-CONROY

At issue in this appeal is the Government's claim for damages to a CH 53-E helicopter incurred when construction scaffolding erected by appellant collapsed on it. Evidence on both entitlement and quantum was received at the hearing. We sustain the appeal, in part.

FINDINGS OF FACT

The Contract Requirements

Effective 27 September 1995, appellant Taisei Rotec Corporation entered into Contract No. N62836-94-C-2545 with the Naval Facilities Engineering Command (NAVFAC), Okinawa, for the repair and maintenance of hangar doors at Building 539, Marine Corps Air Station (MCAS) Futenma, Okinawa, Japan. The contract amount was 2,500,000 yen. (R4, tab 1) The work was to be performed in an occupied hangar which the Marine Corps would continue to use during contract performance to maintain, repair and house helicopters (R4, tab 1, § 01011 at ¶ 2.3.3.1; tr. 1/161-62, 165-66).

The contract required performance of the work described in the NAVFAC specifications and drawings and the construction contract clauses dated March 1994 (R4, tab 1). The specifications were attached to the contract cover sheet; the drawings and the contract clauses were provided to appellant in separate packages. The contract did not contain a choice of law provision. (Ex. G-160; tr. 1/158-59, 250-51, 437)

Paragraph 1.1, REFERENCES, of specification section 01560 incorporated the Occupational, Safety and Health Administration (OSHA) Regulations for Construction, 29 C.F.R. § 1926 (1995), and the 1992 version of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1. Additionally, paragraph 1.5, SAFETY PROGRAM, of section 01560 required appellant to submit a "safety program, including Accident Prevention Plan, for review and approval" which was to include the OSHA construction regulations, EM 385-1-1 and FAR 52.236-13 ACCIDENT PREVENTION (NOV 1991) - ALTERNATE I (NOV 1991). (R4, tab 1; exs. G-159, -160)

FAR 52.236-13, the Accident Prevention clause, was also a contract clause and required appellant to "provide and maintain work environments and procedures which will (1) safeguard . . . Government personnel [and] property" and to comply with the OSHA construction regulations and EM 385-1-1. It further required that appellant insert the Accident Prevention clause in its subcontracts.

Other contract clauses of relevance include: FAR 52.233-1 DISPUTES (DEC 1991); FAR 52.236-7 PERMITS AND RESPONSIBILITIES (NOV 1991), which provides that "[t]he Contractor . . . shall . . . be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence;" and FAR 52.246-12 INSPECTION OF CONSTRUCTION (JUL 1986), which provides that "[t]he Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to the contract requirements . . . ," that any Government inspections "are for the sole benefit of the Government and do not . . . [r]elieve the Contractor of the responsibility for providing adequate quality control measures," and that "[t]he presence or absence of a Government inspector does not relieve the Contractor from any contract requirement." (Ex. G-160)

The contract further required appellant to submit Contractor Quality Control Reports for each day that work was performed. These reports were to be prepared, signed and dated by the quality control manager and were to reflect that the specifications for the "definable feature of work" had been reviewed and contain a certification stating that "the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications . . . ." (R4, tab 1 § 01400 at ¶¶ 1.13.1, 1.14.2; tr. 1/167-68) Additionally, Contractor Production Reports, prepared, signed and dated by the project superintendent, were to be attached to the Contractor Quality Control Reports. The Contractor Production Reports were to contain information indicating, among other things, that safety requirements had been met for scaffold work and

to attach a statement or check list showing that an inspection had been performed. Any safety hazards encountered were to be identified in the "remarks" section of the Production Report. (R4, tab 1 § 01400 at ¶ 1.14.1)

Paragraph 2.2b., SCAFFOLDING, of contract specification section 01010 provided that scaffolds be erected in accordance with the OSHA construction regulations and EM 385-1-1 (R4, tab 1). The OHSA and EM 385-1-1 requirements are similar. The OSHA scaffolding regulations are found at 29 C.F.R. § 1926.451 (1995) (R4, tab 23). The scaffolding requirements of EM 385-1-1 are found in section 22, WORK PLATFORMS (R4, tab 22).

A pre-construction conference was held on 18 October 1995. Minutes of the meeting reflect that appellant was advised that Mr. Larry A. Davis was the administrative contracting officer (ACO), the "primary point of contact for contract administration," and that Mr. Isamu Toho was the construction representative, the "primary point of contact for submittal coordination, construction and safety surveillance, acceptance of materials and workmanship, . . . [with] authority to stop work for unsafe conditions." (R4, tab 2 at 1)

Appellant was reminded at the meeting that it was "responsible for any damage to Government equipment caused by [its] personnel or equipment" and that it was to "maintain[] sufficient clearance from Government [personnel] and equipment to avoid any damage" (R4, tab 2 at 2). Mr. Davis approved the Marine Corps' request to use the hangar area behind the construction site for helicopter maintenance and denied appellant's request to allocate one-half of the hangar for its construction work area. He limited appellant to "an area about 12 meters wide behind the door being worked on." (R4, tab 2 at 3; tr. 1/178, 279, 5/125) Appellant's construction work area was based upon the height of the doors, in case the doors and scaffolding fell (tr. 5/90, 125).

Appellant was advised: "[the] Government will be able to use most of the hangar during construction. Even though contractor may be working on doors on one half of the hangar, the majority of the area behind those doors will still be available for use by the Government." (R4, tab 2 at 4) This allowed "maximum uses of the hangar" by the Marines (tr. 1/177-78). The minutes also reflect that appellant was directed to erect "barricades to keep personnel outside the work area, and specifically, outside any area that could be in the path of a falling door . . . [and] positioned far enough from the work site to prevent injury or damage" (R4, tab 2 at 3). The ACO did not discuss whether the Marine Corps would park helicopters with blades open or folded in the hangar and gave no thought to the measurements of the hangar and the possibility that a helicopter blade might extend over the barricaded area (tr. 1/279-80, 296).

Additionally, appellant was advised that the Government's "concern for job safety cannot be over stressed" and was directed to submit its written Safety Plan which, among other things, was to include a job activity Hazard Analysis that complied with EM 385-1-1

(R4, tab 2 at 5, 7). The Hazard Analysis is required by section 01.A.09 of EM 385-1-1 prior to the beginning of each "major phase of work," defined as "an operation involving a type of work presenting hazards not experienced in previous operations or where a new subcontractor or work crew is to perform" (ex. G-159). The purpose of the analysis is identify anticipated hazards and eliminate or alleviate them (*id.*; tr. 1/180). Appellant was provided with copies of the minutes and did not take any exception to them (tr. 1/170-71, 5/154).

Appellant submitted its Safety Plan on 18 October 1995. The plan represented that the Accident Prevention clause would be included in all proposed subcontracts to "bind the subcontractors to the requirements of the safety manual EM 38[5]-1-1 to be furnished to the subcontractors." (R4, tab 3 at 1; tr. 1/182-84) It stated: "Supervisors and foremen shall make their inspections daily and check whole working area to ensure that precautionary measures are taken and properly secured from possible accident [*sic*]. The results of the safety inspection will be noted in the daily reports." (R4, tab 3 at 7) The Government approved the Safety Plan, subject to compliance with EM 385-1-1 and the submission of the job activity Hazard Analysis prior to the commencement of each major phase of work (R4, tab 4; ex. G-159; tr. 1/186-87).

Appellant, however, never submitted a job activity Hazard Analysis (tr. 1/187). Mr. Toho did not have authority to waive the requirement for submission of the Hazard Analysis (R4, tab 2). Even if he did have such authority, he never did so (tr. 1/229-34, 3/392-94). The contract provides that "[t]he failure of the Government . . . to insist upon strict performance to terms of this contract . . . shall not be construed as a waiver or relinquishment of the right to assert or rely upon such terms . . . on future occasion" (R4, tab 1 § 01010 at ¶ 1.8).

Appellant subcontracted with Kawamitsu Painting (Kawamitsu) to perform the blasting and painting work and to erect scaffolding (ex. G-163; tr. 2/150-52, 5/198). It did not, however, communicate to Kawamitsu that the scaffolding was to be erected in accordance with EM 385-1-1 (tr. 2/163). The subcontract with Kawamitsu did not include the Accident Prevention clause and did not specifically require Kawamitsu to comply with the OSHA regulations and EM 385-1-1. Instead, Article 1(2) of the subcontract generally required Kawamitsu to perform the work in accordance with instructions from appellant and the prime contract documents. (Ex. G-163)

Kawamitsu, in turn, entered into an oral agreement with Marukazu, a licensed Okinawa scaffolding contractor, to erect the scaffolding (tr. 2/160-61). Kawamitsu wanted scaffolding "experts" because, although its project superintendent was "familiar with ordinary scaffolding," he did not know much about the scaffoldings required for this contract (tr. 5/164, 168-69). Kawamitsu did not tell Marukazu that it had to comply with the OSHA regulations and EM 385-1-1, and did not provide Marukazu with a copy of

EM 385-1-1 (tr. 2/162-63, 5/198-99). There was no evidence that Marukazu had otherwise obtained copies of either the OSHA regulations or EM 385-1-1.

Contract Performance

Work commenced on 18 January 1996, when Marukazu began to erect tubular welded frame scaffolding about the same height as the hangar doors on both the inside and outside of the doors, which were closed and provided support for the scaffolding (exs. G-41, -164 at 1; tr. 2/164-65, 3/138-40, 5/131). Each scaffold was between 900 centimeters and 1.2 meters wide with three levels (ex. G-170). According to appellant's project manager, the scaffolding was "different from normal scaffolding" (tr. 5/130) and "unordinary" (tr. 5/172-73) because it was not secured to the building as is normally done due to the nature of the painting work. No portion of the scaffolding was "firmly affixed against the wall or similar object;" instead, supportive outriggers were used for both the inside and outside scaffolding (tr. 5/131-32, 173). The scaffolding was wrapped with green netting to prevent diffusion of dust and sand. It was inspected by the Government while it was being erected. (R4, tab 21 at 2)

Outriggers are used to provide a wider base for a scaffold and act to stabilize it (tr. 3/159). Marukazu installed an outrigger iron pipe every two spans of the scaffolding (*i.e.*, every 3.6 meters), a total of ten pipes. The outriggers extended from the side of the scaffolding to pipes on the ground and were connected with clamps. (Tr. 5/134-35, 137-38) On the inside of the hangar, the pipes on the concrete floor to which the outrigger was clamped extended to the barricade located at the boundary of appellant's construction work area (exs. G-170, A-28; tr. 5/111-13, 136-39).

The inside barricade was about the height of the first level of scaffolding, approximately 150 to 160 centimeters high (tr. 5/91). It was erected with scaffolding material, placed approximately five meters apart, connected together with single pipes, and covered with the green netting (tr. 2/107, 113, 5/90-92, 190). It was located along a concrete joint line approximately 10 or 12 meters from the scaffolding and door (R4, tab 9 at 7, 8, 10, 12, 17; exs. G-30, -172, A-13, -28, -29; tr. 1/88-89, 289-91, 2/173, 181-93, 229-31, 5/86, 94, 128, 138-39) There was a fire lane behind the barricade. If the barricade was 10 meters from the scaffolding, the fire lane was located 21.55 meters from the barricade. If the barricade was 12 meters from the scaffolding, the fire lane was only 19.55 meters from the barricade. (Exs. A-28, -29; tr. 1/88-89)

The Government's construction representative, appellant's project manager and the painting subcontractor, who were at the site virtually every day, and in particular on 15 April 1996, all agreed that the inside barricade was not moved after it was erected (tr. 2/181, 188, 5/98-100, 148-49).

In early April 1996, the scaffolding became "more extraordinary, unordinary" (tr. 5/173-74). As part of appellant's preparation for its work on the door rails, Marukazu removed a portion of the scaffolding on the outside of the hangar doors and retracted (opened) the hangar doors into side door pockets to permit access to the upper door rails and facilitate painting (ex. G-164 at 128-34; tr. 2/164-65, 182).

The scaffolding was now free-standing and no longer supported by the doors. The outside scaffolding was clamped to the inside scaffolding with horizontal pipes at all three levels. There was one connecting pipe every two spans, a total of 10 pipes, at both the lower and middle levels of the scaffolding. (Ex. G-165; tr. 5/140-41, 174) On the top level, the pipes were placed every 90 centimeters, a total of 40 pipes, to support the wooden scaffolding platform boards from which the contract work was performed (tr. 2/109, 5/140-43). In a few locations, the inside scaffolding was wired to the H-beams on the ceiling of the hangar (exs. G-157, -158; tr. 3/399-400, 5/84, 143-44).

We find that the door rail work and the associated modifications to the scaffolding made by Marukazu constituted a "major phase of work" requiring a Hazard Analysis under EM 385-1-1 because the free-standing scaffolding presented hazards not experienced with the scaffolding appellant had previously erected (tr. 5/173-74).

Appellant's Contractor Quality Control Reports for this time period certify that the scaffolding work was accomplished in accordance with the contract specifications (ex. G-164 at 128-40). However, appellant's quality control manager was not at the site between 1 and 15 April 1996 and the certifications he signed were not based upon his personal knowledge (tr. 4/194-203). Additionally, the Contractor Production Reports for this time period do not reflect any inspection by appellant of the scaffolding after it was modified by Marukazu (ex. G-164 at 128-40).

The Government's construction representative inspected the site at least once a day. An unsigned translation of a summary statement taken on 30 April 1996 indicated that, in his opinion, safety and quality assurance were in place and the braces met safety standards (R4, tab 9, encl. 18). Although he testified at the hearing, he was not asked to clarify the statements contained in this summary, or to provide any context for them.

No employees of Marukazu were called to testify about whether Marukazu knew it was required to comply with the OSHA regulations and EM 385-1-1 or to provide further evidence about how the scaffolding was constructed, either originally or as modified when the doors were retracted, and whether it was inspected by appellant after the modifications to verify that the work complied with the contract specifications.

The Government's inspector was at the work site between 3:00 and 4:00 p.m. on 15 April 1996, and confirmed that the painting work had been completed. He instructed appellant to remove the green netting covering the scaffolding the next morning.

(Exs. A-13, -14; tr. 5/41-42, 104-09) Appellant's crew departed the work site at about 5:00 p.m. (tr. 2/174).

The minutes of the pre-construction conference establish that appellant was to "coordinate all activity within the hangar and the work sequence with the [Marine Corps] Maintenance Control Division" (R4, tab 2 at 4; tr. 1/178-79). The evidence established that the movement of helicopters into and out of the hangar was so coordinated and that the Marine Corps' maintenance controllers twice complied with appellant's insistence that there be no helicopters in the hangar while it was sandblasting the doors (tr. 2/264-67). The Government's inspector recalled that, at appellant's request, he also asked the maintenance controllers to move a helicopter once or twice when it was difficult for appellant to work (tr. 3/372-75, 5/55-56).

Helicopters were parked behind the scaffolding on five occasions, including 15 April 1996, when, after conferring with the appellant's work crew and after they had departed the work site, the maintenance control chief moved a CH 53-E helicopter into the hangar for removal of the tail rotor hub assembly (tr. 2/265-69, 292, 3/71). Although the blades of the helicopter can be folded relatively easily (tr. 2/296), they were left in an open, extended position, apparently because of the nature of the repair work (tr. 4/291). The diameter (tip to tip) of the blades of the CH 53-E helicopter is 79 feet, or 24 meters (tr. 1/110-11). As we found above, the distance between the barricade and the fire lane was approximately 19.5 to 21.5 meters. Thus, the blades of the CH 53-E helicopter would not fit between the barricade and the fire lane (exs. A-28, -29; tr. 1/293-94).

It was the practice and policy of the Marines to park the various helicopters so that the blades did not extend over the barricade or the fire line (tr. 2/274-75, 3/66, 84, 4/285, 296). The maintenance controller was responsible for compliance with both practices (tr. 2/94-96). And, although the CH 53-E helicopter was originally parked so that its blades did not extend over the barricade (tr. 2/270, 3/65), it was subsequently repositioned so that three of the blades extended over the barricade and into appellant's construction work area (exs. G-30, A-28; tr. 2/278-81, 300). It was positioned to utilize the hoist for work on the tail rotor (tr. 2/287-88). The helicopter could have been repaired in the other half of the hangar or at another hangar (tr. 2/289-91, 308).

The Collapse of the Scaffolding

At approximately 11:30 p.m. on 15 April 1996, the group duty officer, First Lieutenant Christopher L. Urban, observed that the scaffolding was in place. The wind was calm and there was a slight drizzle. (R4, tab 9 at 3; ex. G-168; tr. 4/11-12, 45-46) He had received thunderstorm warnings from the weather station at 10:20 p.m. and at 3:00 a.m. on the 16th, he received a warning of 18 knot winds, with gusts up to 25 knots and isolated gusts to 28 knots (R4, tab 7; tr. 4/12). Building 539 is located on a high, unobstructed point and the hangar door opens directly to the airfield (tr. 3/173). The Futenma weather station

is located on the flat runway, approximately 300-500 meters north of the hangar (tr. 2/18, 32, 43). At 3:41 a.m. on 16 April 1996, a wind gust of 31 knots was recorded at the weather station (ex. G-166; tr. 2/31-32, 40). Another wind gust of 36 knots was recorded at 4:02 a.m. (ex. G-166). This is about average for April weather in Okinawa (tr. 2/41-42). Thirty-five years of historical weather data established that the maximum wind gusts on record for the months of March and April at Futenma Air Base are 45 and 41 knots, respectively (R4, tab 19; ex. G-184; tr. 2/20-22).

At between 3:50 and 4:00 a.m., Lieutenant Urban received a telephone call from Gunnery Sergeant Patricia McCollough informing him that Lance Corporal Turrubiartes, who was delivering morning reports, had just discovered that the scaffolding had fallen into the hangar and onto three of the CH 53-E helicopter blades (R4, tab 7; ex. G-168; tr. 2/315-16, 4/35-36). Both Sergeant McCollough and Lance Corporal Turrubiartes recalled that it was raining very hard and the wind was very strong (tr. 2/316, 4/325).

The Marine Corps staff noncommissioned officer in charge of the Futenma weather station testified that, based upon the weather records, it appeared that there was a cold frontal passage, accompanied by a wind shear, which he defined simply as either a change in the direction or speed of the wind without further explanation about what the actual wind shear on the night of the incident might have been (tr. 2/54-58). His testimony on cross-examination regarding the possibility of a microburst or macroburst was speculative, at best (tr. 2/59).

Both the Government and appellant took photographs of the accident site (exs. G-24 through -156; tr. 1/203-04). Additionally, appellant's employees drew rough sketches of the scaffolding as they recalled it existed just prior to the collapse (exs. G-170, -173; tr. 2/65-71). An accident report prepared on the morning of the incident by the manager of appellant's Okinawa office for appellant's internal use states: "It is thought that the outside scaffolds, covered by protective netting, leaned into the inside scaffolds due to strong winds from the runway, and eventually caused the inside scaffolds to collapse both from the strong winds and the weight of the outside scaffolds" (ex. G-171; tr. 2/125, 128-30).

A Contractor Significant Incident Report prepared by appellant's project manager 10 days after the accident identifies an "[u]npredictable strong wind" in block 9.a. of the report form as the "Direct Cause" of the accident and states that the fact that the "[h]elicopter was parked with part of blade inside contractor's work area [*sic*]" was the "Indirect Cause" in block 9.b. (R4, tab 14).

The Government accepted the Contractor Significant Incident Report after making further comments. Specifically, the Government noted that it considered appellant to have violated section 1926.451 of the OSHA regulations, in particular paragraphs (a)(15), which requires that "[t]he poles, legs, or upright[s] of scaffolds shall be plumb, and securely and rigidly braced to prevent swaying and displacement," and (d)(7), which requires that, "[t]o

prevent movement, the scaffold shall be secured to the building or structure at intervals not to exceed 30 feet horizontally and 28 feet vertically," and paragraph 22.B.09 of EM 385-1-1, which requires that "[w]hen the scaffold height exceeds four times the maximum scaffold base dimension . . . the scaffold shall be secured to the wall or structure." (*Id.*)

Additionally, as an "Indirect Cause," the Government's comments state: "Failure of all involved with the contract to recognize any danger related to positioning helicopters so near the scaffolding" (*id*. at 3). The ACO conceded on cross-examination that, in hindsight, he would make it very clear to the Marines that they should not permit the helicopter blades to extend over the barricade (tr. 1/306). There was no evidence of any other weather-related damage to Government property at the MCAS on the night of 15-16 April 1996.

Expert Analysis of the Collapse

Mr. David H. Glabe, P.E., was qualified by the Government as an expert in scaffolding industry practices, safety standards and technical principles, and so testified (tr. 3/120-26). He has investigated over 100 scaffolding accidents during his 25 years of experience in the scaffolding industry (tr. 3/120-24). Because he did not know the exact design or installation of the scaffolding at the time of the collapse, he relied principally upon the objective data obtained from photographs and weather data in formulating his conclusions (R4, tabs 18, 19; exs. G-24 through -156, -166, -182 at 3; tr. 3/130-31).

It is his opinion that the scaffolding should have been able to withstand foreseeable wind gusts of 41 knots or greater (ex. G-182 at 3; tr. 3/148, 169, 172). He explained that, in order to withstand such winds, the two rows of scaffolding should have been connected with adequate horizontal tube bracing and that outriggers are helpful only if constructed properly. He concluded that the scaffolding could not resist the horizontal force of the wind. (Ex. G-182 at 7-8; tr. 3/218-19) He believes that the wind pushed the exterior scaffold into the interior scaffold and that the pipes connecting them failed, causing both to fall over (exs. G-142, -182; tr. 3/221-22). In reaching his conclusions, he acknowledged that there is no evidence regarding the exact wind velocity and its direction at the precise time of the collapse (tr. 3/252-54).

Mr. Glabe prepared an engineering analysis to verify his conclusions (ex. G-182; tr. 3/194). The analysis included his assumptions regarding the configuration of the scaffold and the load, which utilized a vertical load resulting from the weight of the scaffold equipment and a horizontal load caused by the wind (exs. G-170, -182 at 5-6 and slides 1 through 7; tr. 3/197-98, 206-08). He explained that a horizontal wind load can produce less force than one striking the scaffold at an oblique angle (tr. 3/266).

He did not include outriggers on the inside scaffold in his configuration because he found no photographic evidence that there were any inside outriggers. Additionally, he did not believe that outriggers would have added sufficient structural stability because the

outriggers he observed on the outside of the scaffold were not properly constructed (tr. 3/204-05, 211-12, 272, 299, 353-55). While acknowledging that there was at least one photograph evidencing ceiling ties, he concluded that any such ties were insufficient and ineffective because he found nothing else to indicate that the scaffolding was secured to the building or the ceiling (tr. 3/281-84, 287, 347, 356). We find his testimony that any inside outriggers were ineffective and that the scaffolding was not sufficiently secured to the ceiling to be credible.

Because tubular welded frame scaffold, also known as metal frame scaffold, had been used by Marukazu, Mr. Glabe applied the OSHA regulations found at 29 C.F.R. § 1926.451(a) and section 22B of EM 385-1-1, which address scaffolds in general, and 29 C.F.R § 1926.451(d) and section 22C of EM 385-1-1, which address welded frame and metal frame scaffold (exs. G-22, -23, -41, -82 at 4; tr. 3/138-43).

Mr. Glabe was of the view that the collapse of the scaffolding established a number of violations of the OSHA and EM 385-1-1 requirements (ex. G-182 at 4). He found violations of OSHA section 1926.451(a)(7), which requires that "[s]caffolds and their components shall be capable of supporting without failure at least 4 times the maximum intended load" (tr. 3/143-46) and the counterpart provision of EM 385-1-1, section 22.B.01.a which requires that "[s]caffolds and their components shall be capable of supporting without failure at least 4 times the maximum anticipated load" because the scaffold did not withstand a foreseeable horizontal wind force. He further expressed the view that, in any event, the wind should have been considered in the four to one safety factor which is meant to make allowances for unknown events. (Tr. 3/143-47, 167-73) For the same reasons, he found a violation of OSHA section 1926.451(d)(1), which requires that "[m]etal tubular frame scaffolds, including accessories such as braces, brackets, trusses, screw legs, ladders, etc., shall be designed, constructed, and erected to safely support four times the maximum rated load" (tr. 3/146-49). (R4, tabs 22, 23)

He pointed to violations of OSHA sections 1926.451(a)(15), which we identified above in connection with the Government comments to the Contractor Significant Incident Report, and 1926.451(d)(3), which requires: "Scaffolds shall be properly braced by cross bracing or diagonal braces, or both, for securing vertical members together laterally, and the cross braces shall be of such length as will automatically square and aline vertical members so that the erected scaffold is always plumb, square, and rigid. All brace connections shall be made secure." (R4, tabs 14, 23; tr. 3/145-65) He discussed the counterpart provisions of EM 385-1-1, specifically section 22.C.02, which provides that "[t]he sections of metal scaffolds shall be securely connected and all braces shall be securely fastened" (tr. 3/181-89); section 22.C.05.b, which provides: "Scaffolds shall be properly braced by cross, horizontal, or diagonal braces, or combination thereof, to secure vertical members together laterally, and the cross braces shall be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, square and rigid. All brace connections shall be made secure." (tr. 3/189-92); and

section 22.C.05.e, which provides that "[w]here uplift may occur, panels shall be locked together vertically by pins or other equivalent suitable means" (tr. 3/192-94). Mr. Glabe explained in detail why the photographs and the structure's collapse demonstrate that the bracing requirements specified by these OSHA and EM 385-1-1 provisions for secure bracing were not satisfied for the free-standing scaffolding resulting from Marukazu's modifications to the original scaffolding in early April (exs. G-29 through -31, -41, -42, -110, -160, -182 at 4; tr. 3/145-94).

For the same reasons he did not incorporate ceiling ties into the scaffolding configuration he utilized for his engineering analysis, Mr. Glabe also found violations of OSHA section 1926.451(d)(7) and its counterpart EM 385-1-1 section 22.B.09 (tr. 3/173-81), the provisions of which we cited above in connection with the Government's comments to the Contractor Significant Incident Report (R4, tab 14).

As with his testimony regarding the ineffectiveness of any inside outriggers and the insufficiency of ceiling support, we find Mr. Glabe's testimony regarding the various violations of the OSHA and EM 385-1-1 requirements to be credible. Unlike the Government, appellant did not call an expert in scaffolding to testify.

Damage to the Helicopter

The damage to the helicopter was assessed by the Quality Assurance (QA) Officer who was also the acting Aviation Maintenance Officer (AMO) for the Marine Corps the morning of April 16th. He inspected the helicopter and reviewed the pertinent maintenance manual. (Exs. G-30, -186; tr. 4/132-34) He observed that two of the blades were broken and that another blade was bent to the ground, that several of the droop stops mounted on the main rotor head underneath the blades were broken, that the aft primary servo[cylinder] was "bottomed out," that the nose landing gear strut had been "severely compressed," and that hydraulic fluid from the strut was leaking out of the seals. He concluded that there had been a "severe impact" on the blades, causing "a significant amount of stress" on them. (Tr. 4/134-44)

The AMO then consulted the portion of the maintenance manual which addresses "sudden stoppage/high impact" damage to "an installed main rotor blade" and learned that an inspection of the helicopter's "[d]ynamic components" was required (ex. G-186 at 270; tr. 4/146-47). Because the damage to the blades was permanent, based upon paragraph 6.(m)(1) of the inspection requirements, he concluded that the main rotor blades, extenders, main rotor head assembly, swashplate assembly, servocylinders and main gear box had to be removed from the helicopter for inspection because these parts are "absolutely flight critical components" (ex. G-186 at 271; tr. 4/145-50).

The commanding officer agreed with the AMO's determination and the following components were removed from the helicopter and replaced with parts from the Government's inventory by the Marine Corps squadron (tr. 4/93-94, 149-50):

Component	Serial Number
Main Rotor Blade	A117-00468
Main Rotor Blade	A117-00388
Main Rotor Blade	A117-00746
Extender	C100-00665
Extender	C100-00685
Extender	C100-00044
Main Rotor Head	A283-00180
Swashplate	A137-00102
Servocylinder	C140-00245
Servocylinder	C140-00894
Servocylinder	C140-00888
Main Gear Box	A146-00117

(Gov't Statement of Costs at ¶ 7 ; tr. 3/7)

On 19 February 1997, the contracting officer issued a final decision demanding $1,039,828.00 for damages the Government asserted appellant had caused to the CH 53-E helicopter's rotor blades, blade extenders, main rotor head, swashplate, servocylinders and main gear box when the scaffolding collapsed on it. Appellant acknowledged receipt of the final decision on 22 February 1997. (R4, tab 17) This timely appeal followed. Adjustments to the amount requested by the Government are reflected in the following damages findings which calculate the total amount of the damages claimed to be $990,794.38.

(1) Labor

The squadron level of the Marine Corps has the limited capability of removing and replacing helicopter parts (tr. 4/93). The parties stipulated that squadron members expended 159.2 hours removing and replacing the helicopter parts and that the unburdened squadron labor rate should be $16.00 per hour (tr. 1/58-60). Thus, the labor costs claimed for removing and replacing these parts is $2,547.20.

(2) Main Rotor Blades

The parties stipulated that two of the main rotor blades (A117-00468 and A117-00388) were broken in two and were scrapped (tr. 3/7). The third blade (A117-00746) was shipped to Sikorsky Aircraft Division, United Technologies

Corporation (Sikorsky), in Stratford, CT, the original manufacture of the part, for evaluation and ultimately was also scrapped due to static overload, meaning it was stressed beyond its design capability (ex. G-190; tr. 4/173-75).

The parties stipulated that, in March 1995, the Government had purchased 107 blades from Sikorsky at a cost of $120,384.00 each and that the blades purchased from Sikorsky reflect the reasonable replacement cost of the blades damaged on 16 April 1996 (ex. G-189; tr. 4/53-55). The parties further stipulated that, in accordance with Navy guidelines, each blade had a fatigue life limit of 6,000 hours and that, at the time of the incident, each had the following remaining fatigue life: A117-00468 had 3011 hours; A117-00388 had 4464 hours; and A117-00746 had 4097 hours (Gov't Statement of Costs at ¶ 25; exs. G-191, -192; tr. 3/7-8). We find that the cost per hour of each blade was $20.06 ($120,384.00 divided by 6,000). Thus the value of the fatigue life remaining for each blade was: $60,400.66 for A117-00468 (3011 hours times $20.06); $89,547.84 for A117-00388 (4464 hours times $20.06); and $82,185.82 for A117-00746 (4097 hours times $20.06). The total value of the fatigue life remaining for all three blades was $232,134.32.

(3) Rotor Blade Extenders

The rotor blade extender is bolted to the sleeve and spindle assembly and attached to the blade (ex. G-223 at 14; tr. 4/82). The parties stipulated that, after evaluation, all three of the extenders were scrapped (tr. 3/10). They further stipulated that, in 1988, the Government entered into a contract (No. N00383-88-GK302) to purchase extenders from Sikorsky at a cost of $26,020.00 each and that the extenders purchased from Sikorsky reflect the reasonable replacement costs of the damaged extenders (tr. 4/61-62). Additionally, they stipulated that each extender had a fatigue life limit of 6,000 hours and that, at the time of the incident, each had the following fatigue life remaining: C100-00665 had 3402 hours; C100-00685 had 3402 hours; and C100-00044 had 2661 hours (Gov't Statement of Costs at ¶ 70; exs. G-191 at 10, -215 at 1; tr. 3/10-11). We find that the cost per hour of each extender was $4.34 ($26,020 divided by 6,000). Thus, the value of the fatigue life remaining for the extenders was: $29,529.36 for C100-00665 and C100-00685 (3402 hours each, or 6804, times $4.34); and $11,548.74 for C100-00044 (2661 hours times $4.34). The total value of the fatigue life remaining for the three extenders was $41,078.10.

(4) Rotor Head

The rotor head (A283-00180) is the heart of the helicopter and consists of several hundred moving parts (tr. 4/86). It was shipped to Sikorski for an inspection (ex. G-190; tr. 4/182). The only way to inspect the rotor head to ensure the integrity of its components was to overhaul it (tr. 4/186-87). Overhauled parts, such as the rotor head, are returned to

inventory for future use (tr. 3/32-33). Worn parts are either reworked or replaced during an overhaul (tr. 4/202-04, 208-09).

The Government contracted with Sikorski to overhaul the main rotor head pursuant to a fixed priced contract (No. N00383-97-D-016N-7001) in the amount of $431,145.00 (exs. G-203 through -205; tr. 4/58-59). During the overhaul, Sikorski determined that the three sleeve and spindles assembles required further evaluation and the Government incurred extra labor costs in the amount of $8,320.00 before the decision was made to scrap these parts (ex. G-207; tr. 4/178-81, 261-63). The Government verified Sikorski's estimate of the cost to replace the three sleeve and spindles assemblies ($119,703.67, $117,297.93 and $97,176.78), a total of $334,178.38 (exs. G-208, -209; tr. 4/238-49). The main rotor head was not otherwise damaged (tr. 4/187). The Government incurred a total of $773,643.38 to overhaul and repair the main rotor head.

The parties stipulated that the rotor head was overhauled every 1400 hours and that, at the time of the incident, 979 hours remained before the next overhaul was due to be performed (Gov't Statement of Costs at ¶¶ 58, 60; ex. G-211; tr. 3/9-10). The cost per hour of the main rotor head overhaul was $552.60 ($773,643.38 divided by 1400). The value of the useful hours remaining on the main rotor head at the time of the incident is $540,995.40 (979 hours times $552.60).

(5) Swashplate

The swashplate (A137-00102) directs the motion of the individual blades (tr. 4/88-89). It was shipped to Sikorski for an inspection which also required an overhaul to determine whether it was safe for flight and could be sent to inventory for future use (tr. 4/190-91). The parties stipulated that the Government paid $57,568.00 for the overhaul (exs. G-198 through -200; tr. 4/56-58). They also stipulated that the swashplate was overhauled every 1400 hours and that, at the time of the incident, 227 hours remained before the next overhaul (Gov't Statement of Costs ¶ 43; ex. G-201; tr. 3/9). The cost per hour of the swashplate is $41.12 ($57,568.00 divided by 1400). The remaining value of the swashplate was $9,334.24 (227 hours times $41.12).

(6) Servocylinders

The parties stipulated that the three servocylinders were shipped to the Naval Air Maintenance Depot (NADEP) at Cherry Point, NC for evaluation (tr. 3/11). An evaluation of these parts also required an overhaul, which was the only way to determine whether there was damage, to make sure there was "nothing broken, cracked, anything wrong with it" (tr. 4/109-10). The overhaul cost $12,940.00, including shipping, for each servocylinder, a total of $38,820.00 (ex. G-217; tr. 4/256-57).

The parties further stipulated that the servocylinders were overhauled every 1200 hours and that, at the time of the incident, each had the following number of remaining hours before overhaul: C140-00245 had 1177 hours; C140-00894 had 1142 hours; and C140-00888 had 1177 hours (Gov't Statement of Costs at ¶¶ 78, 80; ex. G-218; tr. 3/11-12). The cost of each servocylinder hour was $10.78 ($12,940.00 divided by 1200). The value of the remaining hours for each servocylinder was: $12,688.00 each for C140-00245 and C140-00888 (1177 hours times $10.78); and $12,310.76 for C140-00894 (1142 hours times $10.78). The total value of the remaining hours of the three servocylinders before an overhaul was due is $37,686.76.

(7) Main Gear Box

The aircraft engines are attached to the main gear box (A146-00117) which is the backbone of the aircraft (tr. 4/90-91). The main gear box was shipped to Sikorsky for inspection (tr. 4/187-88), which again involved an overhaul to determine if it was safe for future flights (tr. 4/188-89). No anomalies outside of normal wear and tear were discovered (tr. 4/190). The parties stipulated that the Government paid Sikorsky $237,771.00 for this work (exs. G-194, -195; tr. 4/55). They further stipulated that the main gear box was overhauled every 1400 hours and that, at the time of the incident, there were 400 hours remaining before the next overhaul (Gov't Statement of Costs ¶¶ 33, 35; tr. 3/8-9). The cost of each main gear box hour was $169.84 ($237,771.00 divided by 1400). The value of the remaining hours of the main gear box before the next overhaul was $67,936.00 (400 hours times $169.84).

(8) Shipping

The parts shipped to Sikorsky and NADEP Cherry Point could not be evaluated in Okinawa because the Marines did not have the equipment and personnel to perform the work (tr. 4/93-94). All of the parts removed from the helicopter and sent to either Sikorsky or NADEP Cherry Point were replaced from the inventory in Okinawa which was then replenished with new parts shipped from inventory in the United States (tr. 4/109). Based upon the Department of Defense (DoD) Airlift Rate Book, the cost per pound to ship the parts to and from the east coast of the United States is $2.18 (ex. G-219 at 20-21; tr. 4/271-74).

The parties stipulated to the weight of the main rotor blade, main rotor head, swashplate, main gear box and the blade extenders (Gov't Statement of Costs ¶¶ 89-93; tr. 4/64-66). Each main rotor blade weighed 368 pounds (ex. G-220; tr. 4/64). Thus, the total shipping cost of the rotor blades is $3,208.96 (one repair and three replacement shipments of 368 pounds each at $2.18 per pound). The main rotor head weighed 3600 pounds (ex. G-221; tr. 4/65). Thus, the total shipping cost of the main rotor heads is $15,696.00 (one repair and one replacement shipment of 3600 pounds each at $2.18). The swashplate weighed 1190 pounds (tr. 4/65). Thus, the total shipping cost of the swashplates is

$5,188.40 (one repair and one replacement shipment of 1190 pounds each at $2.18 per pound). The main gear box weighed 7950 pounds (tr. 4/65). Thus, the total shipping cost of the main gear boxes is $34,662.00 (one repair and one replacement shipment of 7950 pounds each at $2.18 per pound). The blade extenders weighed 50 pounds (ex. G-222; tr. 4/65). Thus, the total shipping cost of the blade extenders is $327.00 (three replacement shipments of 50 pounds each at $2.18). The total of the shipping charges incurred by the Government is $59,082.36.

Other Damages Estimates

Two other damages summaries were prepared by the Government using estimates based upon information obtained from a Navy computerized supply system called "NALCOMS" (R4, tab 15; tr. 5/5-6, 11, 14-16, 20, 29-30). NALCOMS provides cost data for both the repair and replacement of aircraft components (tr. 5/19-20). It reflects a cost of $337,750.00 to replace the main rotor head of a CH 53-E helicopter (R4, tab 15 at 3; tr. 5/37). The replacement cost reflects the cost of a used rotor head (tr. 5/38).

DISCUSSION

At issue in this appeal is the Government's claim that, under the Permits and Responsibilities clause of the contract, appellant is responsible for the damage to the CH 53-E helicopter. It asserts that appellant's breach of duties imposed upon it by the contract caused the collapse of the scaffolding which crashed onto the helicopter, resulting in actual loss or damages in the amount of $990,794.38.

Under the Permits and Responsibilities clause, appellant is liable for damages to property resulting from its fault or negligence. We are to apply tort principles to determine whether this contractual provision renders appellant liable for the damage to the helicopter. *See Environmental Growth Chambers, Inc.*, ASBCA No. 25845, 83-2 BCA ¶ 16,609 at 82,600, *citing Simpson Transfer and Storage Corp*., ASBCA No. 24750, 82-2 BCA ¶ 15,949. The Government bears the burden of proof. *Zimcon Professionals*, ASBCA Nos. 49346, 51123, 00-1 BCA ¶ 30,839.

As we found, there was no choice of law provision in the contract and, although there are choice of law disputes relating to several legal issues raised in this appeal, the parties agree that, as a general statement, under the laws of both Japan and the United States, the Government must establish a duty, a breach of that duty and damages caused by the breach in order to recover. (Gov't br. at 44-45; app. br. at 57; Gov't reply, attach. A at 1)

Appellant's Breach

According to the Government, appellant failed to comply with a number of contractually imposed duties relating to the OSHA regulations and EM 385-1-1, the

Accident Prevention clause, and the safety inspection and compliance reporting requirements (Gov't br. at 45-54).

We note first that, under FAR 36.102 and 36.513, both the prime contract and appellant's subcontract with Kawamitsu were construction contracts. Thus, contrary to appellant's contention, the Accident Prevention clause, which required compliance with the OSHA regulations and EM 385-1-1, was applicable to both. The clause was not included in appellant's subcontract with Kawamitsu and appellant did not otherwise advise Kawamitsu of the need to comply with these requirements. Nevertheless, the OSHA regulations and EM 385-1-1 were incorporated into the prime contract by paragraph 1.1. of section 01560 and appellant's subcontract with Kawamitsu required performance of the subcontracted work in accordance with the prime contract documents. Thus, to the extent that appellant's failure to include the Accident Prevention clause in its subcontract with Kawamitsu may have been a technical breach, the scaffolding construction requirements mandated by the OSHA regulations and EM 385-1-1 were nevertheless part of the Kawamitsu subcontract. There was no evidence, however, that Marukazu had copies of the OSHA regulations and EM 385-1-1 or that it otherwise had any knowledge about the scaffolding construction requirements.

The Government's principal breach allegation relates to compliance with the OSHA regulations and EM 385-1-1. It asks us to draw a negative inference from appellant's decision not to call Marukazu's employees to testify that they knew about these requirements and that the reconfigured scaffold met them. We agree that the absence of testimony from Marukazu employees to rebut the Government's evidence that the scaffolding would not have collapsed if it had been constructed in accordance with the OSHA regulations and EM 385-1-1 is damaging to appellant's case. Further, we can, and do, draw the negative inference that these witnesses would not have provided testimony helpful to appellant on this issue of fact and resolve it adversely to appellant. *Sentinel Electronics, Inc.*, ASBCA No. 24207, 85-3 BCA ¶ 18,464 at 92,758.

Moreover, based upon the testimony of Mr. Glabe, we are satisfied that the scaffolding did not comply with the OSHA regulations and EM 385-1-1. It could not have been constructed to withstand four times the anticipated wind load as required by sections 1926.451(a)(7) and (d)(1) of the OSHA regulations and section 22.B.01.a of EM 385-1-1. Wind gusts up to 41 knots should have been anticipated in Okinawa in April. There was no credible evidence that there were wind gusts in excess of 41 knots on the night of the accident; yet, the scaffolding did not withstand gusts recorded at substantially less than 41 knots just before and after it collapsed. For the same reason, the scaffolding could not have been constructed with properly secured bracing as required by sections 1926.451(a)(15) and (d)(3) of the OSHA regulations and sections 22.C.02 and 22.C.05.b and e of EM 385-1-1. Finally, appellant's own project manager described the scaffolding as "unordinary" because it was free-standing and not secured to the hangar, thereby supporting Mr. Glabe's

conclusion that the scaffolding could not have been adequately secured to the wall or structure as required by OSHA section 1926.451(d)(7) and EM 385-1-1 section 22.B.09.

With respect to the safety inspection and compliance reporting requirements, section 01.A.09 of EM 385-1-1 required submission of an activity Hazard Analysis. Appellant was reminded of its responsibility in this regard during the pre-construction conference and was directed to submit a written Safety Plan which was to include the activity Hazard Analysis. Appellant, however, did not submit an activity Hazard Analysis at any time during contract performance, much less when it opened the hangar doors and joined the inside and outside sections of free-standing scaffolding in order to facilitate painting. And, contrary to its contentions, there was no waiver of this requirement. Under paragraph 1.8 of section 01010 of the contract, any failure by the Government to insist upon strict performance of a contract term does not constitute a waiver. Further, as we found, the construction representative did not have authority to waive the activity Hazard Analysis requirement and, in any event, he did not do so.

Additionally, the Inspection of Construction clause required appellant to maintain an adequate inspection system and to perform such inspections as necessary to ensure that the work conformed to contract requirements. Section 01400 of the contract further imposed upon appellant a duty to submit Contractor Quality Control Reports, certifying that the work had been performed in compliance with the contract specifications, and Contractor Production Reports, verifying that the safety requirements for scaffolding had been met and that inspections had been performed. There was no evidence that any inspection of the scaffolding was performed by appellant, Kawamitsu or Marukazu after it was reconfigured to be free-standing. Indeed, appellant's quality control manager, who certified Contractor Quality Control Reports stating that the scaffolding work was accomplished in accordance with the contract specifications, was not even at the site when the scaffolding was reconfigured.

In sum, we are satisfied that appellant failed to construct the scaffolding in accordance with the OSHA regulations and EM 385-1-1. It also failed to comply with its contractual obligations to submit an activity Hazard Analysis and to inspect and certify the scaffolding to ensure safety and compliance with the contract requirements. The Inspection of Construction clause makes clear that any inspection by the Government does not relieve appellant of the responsibility for providing adequate quality control measures and for complying with the contract requirements. Accordingly, we reject appellant's contentions to the contrary. *See Granite Construction Co. v. United States*, 962 F.2d 998, 1003 (Fed. Cir. 1992), *cert. denied*, 506 U.S. 1048 (1993).

Conflict of Law Issues

Appellant urges us to apply the law of Japan to decide the causation and damages issues, including its force majeure and comparative fault defenses (app. br. at 51, 70). The

Government's first argument on the conflict of law issues, which is that Japanese law should not apply because there was no evidence that the contract was executed in Japan, is without merit. In the absence of a choice of law provision, applicable law requires us to apply "the law of the place which has the most meaningful contacts with the contract . . . ." *The Master Builders*, ASBCA No. 26129, 82-2 BCA ¶ 15,842 at 78,535, *citing Gesellschaft Fuer Fertigungstechnik u. Maschinenbau AG (GFM),* ASBCA No. 24816, 81-1 BCA ¶ 14,924. The place of contract execution represents only one contact with the contract. In this case, the most meaningful and significant contacts with the contract occurred in Japan, where the contract was performed.

The Government further argues, however, that there is no conflict between Japanese and United States law with respect to the causation and damages issues and that the outcome of this appeal would be the same irrespective of whether it is decided under Japanese or United States law (Gov't reply br. at 53). Thus, it contends that we should apply the law of the United States. *See Al-Kurdi v. United States*, 25 Cl. Ct. 599, 602 (1992), *aff'd*, 48 F.3d 1237 (Fed. Cir. 1995) (table) (false conflict obviates need to apply foreign law). *See also Schiffahrt-und Kohlen-Agentur*, ASBCA No. 10219, 65-2 BCA ¶ 5038 (United States law applied where result was similar). We agree with the Government for the reasons explained below.

Force Majeure

Appellant asserts that the collapse of the scaffolding was due to a force majeure. It explains that, in *Vacuum Oil v. Dampfschiffsrederai Union AG*, Minroku 16:807 (Gr. Ct. Cas, 2nd P.B., Nov. 25, 1910), the Japanese Supreme Court concluded that a shipping company was not liable for cargo damages incurred during a hurricane because the weather conditions constituted a force majeure (app. br. at 53). According to the lawyer retained by the Government to provide guidance on Japanese law, the Court, in reaching that conclusion, used the term "Act of God," meaning that it was an event "occurring solely by forces of nature, . . . such that no amount of foresight or prudence by any degree of care or diligence could have prevented its occurrence" (Gov't reply br., attach. A at 2).

In the United States, the legal definition of an "Act of God" is an event resulting "exclusively by forces of nature without the interference of any human agency." BLACK'S LAW DICTIONARY 33 (6th ed. 1990). A force majeure is defined as a "superior or irresistible force" which is "outside the control of the parties" and cannot be avoided by the "exercise of due care." *Id.* at 645. In the context of this appeal, we see no substantive difference between the laws of Japan and the United States regarding appellant's force majeure defense.

The evidence established that, at best, it was windy and stormy during the early morning hours of 16 April 1996. The Futenma weather station reported wind gusts of 31 knots at 3:41 a.m., shortly before the scaffolding collapsed, and 36 knots at 4:02 a.m.,

shortly after it collapsed. This was within the average for April weather in Okinawa and appellant's contention that there were exceptional wind shears and possibly microbursts or macrobursts is factually unsupported. Moreover, there is no evidence that there was any other damage at the MCAS caused by the weather that night. We are not persuaded, therefore, that the scaffolding collapsed because of a "superior or irresistible" force of nature which could not have been avoided with the exercise of due care or diligence.

Causation

Appellant advises that, in Japan, the causation standard for negligence is based upon Article 416 of the Civil Code which provides that compensation be for such damages as would "ordinarily arise" from the breach and that, in *K.K. Tokyo Shibaura Denki v. Udagawa*, 10-10 Minshu 1275 (S. Ct. 1956), the Japanese Supreme Court interpreted Article 416 as requiring a "reasonable relationship" between the negligent conduct and the damages (app. br. at 57).

The Government points out that this standard is analogous to the causation requirement applicable to negligence claims in the United States; namely, that there be a "reasonably close causal connection" between the negligence and the damages claimed or that negligence be the "proximate cause" of the damages. *See* W. PAGE KEETON *ET AL*., PROSSER AND KEETON ON THE LAW OF TORTS § 30 at 165 (5th ed. 1984). *See also Ralph M. Parsons Company*, ASBCA No. 24347, 85-1 BCA ¶ 17,787, *aff'd on reconsid*., 85-2 BCA ¶ 18,112 (applying RESTATEMENT (SECOND) OF TORTS § 431 (1965) requirement that negligent conduct be "a substantial factor in bringing about the harm" under the Responsibility of the Architect-Engineer clause) and *Abbott Laboratories v. Brennan*, 952 F.2d 1346, 1353 (Fed. Cir. 1991), *cert. denied*, 505 U.S. 1205 (1992), (noting that "the 'but for' and 'substantial factor' standards for causation generally yield identical results"). Again, we find no conflict between the laws of the United States and Japan on the standard to be applied to establish causation.

Moreover, we are satisfied that there was a reasonable relationship/reasonably close causal connection between appellant's failure to comply with the contractual requirements for construction, inspection and compliance reporting for the scaffolding and its collapse. Stated otherwise, these failures were a substantial factor in bringing about the collapse of the scaffolding which damaged the helicopter.

Both the Government's expert and the report prepared by the manager of appellant's Okinawa office on the morning of the incident concluded that the scaffolding did not withstand the wind. Mr. Glabe determined that the scaffolding was not constructed to withstand four times the anticipated horizontal wind load and had not been properly braced or secured to the hangar as required by the applicable OSHA regulations and EM 385-1-1 provisions because it collapsed in winds of less than 41 knots. He verified his conclusion with an engineering analysis which was based upon a conservative assumption regarding the

horizontal wind load and, absent full knowledge about the actual configuration of the scaffolding, the use of credible assumptions about the configuration drawn from photographic evidence of record. We find Mr. Glabe's opinion to be both persuasive and reliable whereas appellant's contention that there may have been strong updrafts and that the wind may have been significantly higher than recorded wind gusts is based upon speculation. *See Libas Ltd. v. United States*, 193 F.3d 1361 (Fed. Cir. 1999).

With respect to appellant's failure to comply with the other safety provisions, the Hazard Analysis was intended to identify anticipated hazards and eliminate or reduce them. Had appellant prepared a Hazard Analysis and included it in its Safety Plan, it would have had to evaluate whether the reconfigured scaffolding presented a potential hazard. Similarly, had it performed reasonable inspections and prepared compliant Contractor Quality Control and Contractor Production Reports, it would have been required to evaluate whether the reconfigured scaffolding conformed to the contract requirements and presumably would have made changes necessary to make it compliant. Since it failed to comply with these requirements, it did not take the steps necessary to guard against the possibility the scaffolding would collapse.

Accordingly, we are satisfied that appellant's failure to comply with the contractual requirements was a substantial factor in bringing about the collapse of the scaffolding which damaged the helicopter. *See Albin v. T. F. Barrett Construction Co.*, 232 F.2d 501, 503-04 (7th Cir. 1956) (applying doctrine of *res ipsa loquitur* in concluding that barricade would not have fallen without some defect in construction or use by construction company).

The Permits and Responsibilities clause allocates to appellant the risk of damages resulting from its negligence or fault. *See Construcciones Cuevas S.A.*, ASBCA No. 37553, 90-2 BCA ¶ 22,888. Here, the collapse of scaffolding and the damage to the CH 53-E helicopter was due to appellant's negligence or fault. Under the Permits and Responsibilities clause, appellant is responsible for the resulting damages.

Comparative Fault

Appellant asserts next that the Government assumed the risk that the helicopter would be damaged when it parked the helicopter so that three blades extended into appellant's construction work site. It advises that, in Japan, a comparative fault analysis is employed to evaluate an assumption of risk defense. It further explains that, under Japanese law, when a party has assumed the risk of liability, "tort liability lies only within the scope of the . . . negligence [and that] [t]o the extent an injured party's injury is due to his own fault, he may not claim against the other party." (App. br. at 70, *quoting* 13 DOING BUSINESS IN JAPAN, LAW OF TORTS § 1.09(2)(b) (1999))

The Government acknowledges that, under the Permits and Responsibilities clause, comparative or contributory fault is also the rule in the United States (Gov't reply br. at 39). It points to *United States v. Seckinger*, 397 U.S. 203 (1970), in which the Court considered the question of comparative fault in a personal injury case in the context of a Permits and Responsibilities clause that was virtually identical to FAR 52.236-7.

In *Seckinger*, the Court applied established principles of contract interpretation and found nothing to indicate that the Permits and Responsibilities clause could be "stretched to encompass the Government's negligence as well" as the contractor's. *Id.* at 213. It concluded that the clause should be construed to require that liability be premised on the basis of comparative negligence so that the contractor "will be responsible for the damages caused by its negligence; similarly, responsibility will fall upon the United States to the extent it was negligent." *Id.* at 216.

The Court's decision in *Seckinger* is consistent with our decisions applying the doctrine of comparative negligence where property damage has been caused by the negligence of both parties. *See, e.g*. *Environmental Growth Chambers, supra* (doctrine of comparative negligence applied under Responsibility for Supplies clause where damage to a cold room was caused by the negligence of both parties). It has also been followed in cases involving damage to property not premised upon the Permits and Responsibilities clause. *See JEM Development Corp*., VABCA No. 3272, 91-2 BCA ¶ 24,010; *Clovis Heimsath and Associates*, NASA BCA No. 180-1, 83-1 BCA ¶ 16,133.

Appellant argues that the Government was negligent because it limited the size of appellant's construction work site and then parked the helicopter so that the blades extended over the barricade and into appellant's designated work area. The Government responds that appellant failed to meet its burden of proving a breach of any duty it owed to appellant. We disagree.

The contract imposed upon the Government an implied duty of fair dealing and cooperation, *Malone v. United States*, 849 F.2d 1441, 1445 (Fed. Cir. 1988), which includes an obligation not to hinder or interfere with appellant's performance. *See Con-Seal, Inc.* ASBCA No. 41762, 98-1 BCA ¶ 29,501. Here, the contract was performed in an occupied hangar where helicopter repair and maintenance work was ongoing. Thus, the Government was not only obliged to provide appellant with a construction work area that was adequate to guard against possible damage to persons and property, it was also obligated to exercise due care in its continued use of the hangar, in particular in the area behind the doors and scaffolding. The evidence established the Government's full understanding and awareness of these obligations.

The evidence also established that the Government recognized the possibility that the hangar doors or scaffolding might fall. Nevertheless, without the benefit of hangar measurements or any thought about whether the blades of helicopters parked in the hangar

would extend into appellant's construction work area, the Government restricted appellant's work area to "about 12 meters wide behind the door being worked on." In short, it allowed the Marines maximum use of the hangar, the majority of the area behind the doors.

Despite the Government's protestations, we found on the basis of credible evidence that the CH 53-E helicopter was parked with three blades extending over the barricade and into appellant's work area. The barricade was not moved after it was constructed and, irrespective of whether the barricade was 10 or 12 meters from the door and scaffolding, the extended blades of a CH 53-E helicopter simply would not fit between the barricade and the fire lane. Contrary to the policy and practice of the Marines, and although the helicopter could have been parked elsewhere in the hangar, or in another hangar, the helicopter was repositioned so that its blades extended over the barricade and into appellant's construction work area. Even the ACO conceded that, in hindsight, the Marines should not have been allowed to park the helicopter in such a fashion and the comments added to the Contractor's Significant Incident Report by the Government acknowledged a failure "to recognize any danger related to positioning helicopters so near the scaffolding." We conclude that this conduct on the part of the Government constituted negligence and a breach of its implied duty not to hinder or interfere with appellant's performance of the contract work.

Whether the Government's breach caused the damage to the helicopter turns upon a finding that the damage was foreseeable at the time of contracting, which requires that it "be the natural and proximate result of the breach." *Hughes Communications Galaxy, Inc. v. United States*, 271 F.3d 1060, 1066 (Fed. Cir. 2001) *quoting Locke v. United States*, 283 F.2d 521, 526 (Ct. Cl. 1960). *Accord Northern Helex Co. v. United States*, 524 F.2d 707, 720 (Ct. Cl. 1975), *cert. denied*, 429 U.S. 866 (1976). Stated otherwise, the damage to the helicopter must be the "natural and probable consequence" of the Government's breach. *Ramsey v. United States*, 101 F. Supp. 353, 357 (Ct. Cl. 1951), *cert. denied*, 343 U.S. 977 (1952). We are satisfied that the damage was foreseeable.

The contract provided that work would be performed in a hangar which the Government intended to continue using for helicopter maintenance, repairs and housing. The ACO approved the Marine's request to use the majority of the area behind the doors and denied appellant's request to allocate one-half of the hangar as its construction work site, instead restricting the work area to about 12 meters behind the doors. The size of appellant's work area was based upon the possibility that the hangar doors or the scaffolding might fall. The barricade appellant was directed to construct was intended "to keep personnel outside the work area, and specifically, outside any area that could be in the path of a falling door [and] far enough from the work site to prevent injury or damage." We are persuaded, therefore, that it was reasonably foreseeable that injury to personnel or damage to property, such as helicopters the Government knew would be parked in the hangar for repairs and maintenance, would be the natural and probable consequence if personnel or property were within appellant's work area and a door or the construction scaffolding fell.

This, of course, is precisely what occurred when the Government repositioned the CH 53-E helicopter so that its blades extended into appellant's work area and the scaffolding collapsed on it.

Damages

Relying upon a tort case, *Gaspar v. Dowell Divison, Dow Chemical Company and ABC Insurance Company*, 750 F.2d 460, 463, *modified on rehearing*, 754 F.2d 1259 (5th Cir. 1985), the Government seeks damages consisting of the cost of restoring the helicopter to its condition immediately before the scaffolding fell on it. These costs include: (1) $2,547.20 for labor; (2) $232,134.32 for the remaining fatigue life for three rotor blades; (3) $41,078.10 for the remaining fatigue life of the rotor blade extenders; (4) $540,995.40 for the useful hours remaining on the rotor head: (5) $9,334.24 for the hours remaining on the swashplate; (6) $37,686.76 for the hours remaining on the three servocylinders; (7) $67,936.00 for the hours remaining on the main gear box; and (8) $59,082.36 for shipping. The total amount of these damages is $990,794.38.

Appellant asserts that damages should be measured under contract law. It explains that, under Japanese law, the measure of damages is the difference between the injured party's financial position had the contract been performed and its position resulting from non-performance. (App. br. at 82, *citing* 13 DOING BUSINESS IN JAPAN, CONTRACT LAW IN GENERAL § 1.15(3)(d) (1999)). It acknowledges that the Japanese rule is similar to ASBCA precedent which holds that, under the Permits and Responsibilities clause, the Government is entitled to recover the fair value of damaged items based upon a comparison of the value before and after the incident, so long as the damages are reasonably supported. *See Engineering Technology Consultants, S.A.*, ASBCA No. 42649, 93-3 BCA ¶ 26,134. *See also San Carlos Irrigation & Drainage Dist. v. United States*, 111 F.3d 1557, 1562-63 (Fed. Cir. 1997) (general rule is that breach of contract damages should be sufficient to place the injured party in as good a position as it would have been absent the breach).

In this case, both tort and contract law produce the same damages. Nevertheless, because the Government's claim arises out of the contract and is based upon a breach of appellant's duties and responsibilities under the contract, we apply the rules of contract law to measure the damage to the helicopter based upon its value before and after the accident in order to place the Government in the position it would have been absent appellant's negligent breach. Under *Seckinger*, we must then apportion the damages according to fault.

Appellant first asserts that overhauls of the rotor head, gear box and swashplate were not necessary, and that a bench test inspection would have been sufficient. Our findings reflect our disagreement with appellant's assertion. The maintenance manual required removal of all three parts. Once removed, the only way to evaluate the parts to determine whether they were damaged was to perform an overhaul. All three parts were "absolutely flight critical components." An overhaul of the rotor head was required to ensure the

integrity of its components and overhauls of both the swashplate and the gear box were required to determine whether they were safe for flight. The evidence does not support appellant's contention that a test bench inspection would have been an appropriate method to make these determinations.

Appellant further argues that the adjusted overhaul costs used by the Government to calculate damages improperly include rework charges associated with wear and tear that are not related to the accident and the replacement of parts that were not damaged. This is just another way of saying that the parts should have been inspected, and not overhauled. In any event, the Government responds, and we agree, that the parts were overhauled earlier in their life cycle than normal and that its calculation of damages compensates it only for the loss of the remaining useful life of the parts.

Appellant's next argument is that the Government is seeking excessive damages for the rotor head. It asserts that even the discounted total amount sought for the rotor head, $540,995.40, is excessive and should be restricted to the NALCOMS cost of replacement. The NALCOMS costs, however, are estimates and, as the Government points out, the actual cost data it used is preferred over estimates. *E.g., Thomas & Sons Building Contractor, Inc.*, ASBCA No. 43527, 95-1 BCA ¶ 27,336, *aff'd on reconsid.*, 96-1 BCA ¶ 28,101.

The same is true of appellant's last argument, which is that the Government's shipping costs should be based upon NALCOMS data. The NALCOMS cost data are estimates; the Government priced the actual cost of shipping using the stipulated weight of the parts and the DoD Airlift Rate Book.

Based upon the forgoing, we are satisfied that the Government's damages are reasonably supported and that the total amount of the damages, $990,794.38, represents the difference in the value of the helicopter before and after the scaffolding collapsed onto it, thereby placing the Government in as good a position as it would have been absent appellant's breach. *San Carlos Irrigation & Drainage District, supra*.

We concluded, however, that both parties breached duties and obligations imposed upon them by the contract. Applying the rule of *Seckinger*, we further conclude that appellant is responsible for the damages caused by its negligence in the construction of the scaffolding; and similarly, the Government is responsible for damages caused by its negligence in restricting appellant's construction work area and then parking the helicopter so that its blades extended into it. Under the circumstances, it is appropriate to divide the responsibility for these damages equally between the parties. *See Con-Seal, Inc.*, 98-1 BCA at 146,371 (damages apportioned where Government breached implied duty not to interfere with contractor's performance after contractor corrected noncompliant joint sealant) and *Environmental Growth Chambers*, 83-2 BCA at 82,601 (damages divided equally where contractor failed to supply thermostatic control of door gasket heaters and

after delivery of cold rooms the Government failed to monitor and protect them). *See also Jem Development*, 91-2 BCA at 120,184; *Clovis Heimsath*, 83-1 BCA at 80,134.

CONCLUSION

Appellant and the Government share responsibility for the damage to the CH 53-E helicopter. The total amount of the damages was $990,794.38. Appellant and the Government are each responsible for one half of these damages, or $495,397.19. The appeal is sustained to the extent indicated and, otherwise, is denied.

Dated: 30 January 2002

CAROL N. PARK-CONROY
Administrative Judge
Armed Services Board
of Contract Appeals

(Signatures continued)

I concur

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

I concur

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

I certify that the foregoing is a true copy of the Opinion and Decision of the Armed Services Board of Contract Appeals in ASBCA No. 50669, Appeal of Taisei Rotec Corporation, rendered in conformance with the Board's Charter.

Dated:

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