

GRUNLEY CONSTRUCTION COMPANY, INC.,
Appellant

v.

ARCHITECT OF THE CAPITOL,
Respondent

CAB No. 2010-6

Appearance for the Appellant:

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Appearance for the Respondent:

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Office of the Architect of the Capitol

Board Judges:

Sharon L. Larkin (Presiding)
James A. Spangenberg
David A. Ashen

DECISION

Grunley Construction Company, Inc., appeals the final decision of the contracting officer of the Architect of the Capitol (AOC) under contract No. AOC-0400062, denying Grunley's request for an equitable adjustment of \$3,640,520 for work performed to replace certain windows at the United States Supreme Court (USSC).¹ Grunley asserts

¹ Grunley's request for a contracting officer's final decision also included a schedule delay claim of \$12,538,157. The contracting officer decided this claim in a separate

that it and its window subcontractor, Masonry Arts, Inc. (MAI), had to perform additional work to correct AOC's allegedly defective window design. Grunley also contends that AOC is liable for window design changes, differing site conditions, and various other issues relating to the windows' fit, finish, and demolition.

This appeal has been fully developed. The parties have engaged in extensive discovery, jointly prepared a Rule 4 file, presented evidence at trial, and fully briefed their respective arguments. The Board has carefully considered all of the evidence and arguments before it. For the reasons stated below, the Board denies in part and grants in part Grunley's appeal.

BACKGROUND

The USSC Modernization Project

The USSC modernization project was a \$74.5 million effort to modernize and upgrade the USSC to address both functional and security needs. Rule 4 (R4), Tab 1, at 1-2; Tab 6, at 107. The scope of work included replacing and/or modernizing various building systems (e.g., mechanical; heating, ventilation, and air conditioning; electrical; plumbing), performing some interior renovation, and refurbishing historic windows. R4, Tab 1, at 1-2. The window portion of the project, valued at approximately \$3 million, involved upgrading three types of windows: T1, T2, and T4.² R4, Tab 15, at 410; Trial Transcript (Tr.) at 98. At issue in this case is a portion of the window work involving 136 type T1 windows located on the first floor (T1-1) and ground floor (T1-2) of the USSC. Tr. at 97-98. These windows are referred to as "blast" windows because the contract required the windows to be strengthened or replaced to withstand certain explosions.³

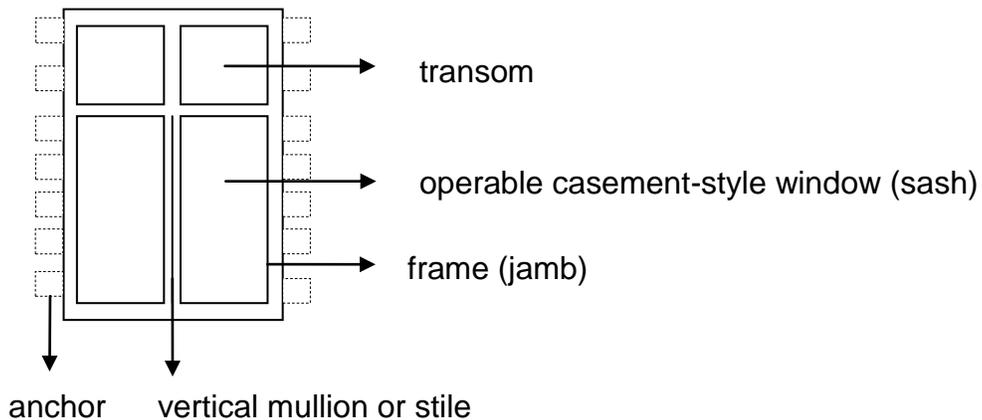
As depicted below, the T1-1 windows are operable casement-style windows, with inoperable transom windows at the top, separated by vertical and horizontal mullions or stiles. R4, Tab 18, Dwg A549. The window frame (also called a jamb) and trim are made of bronze and are attached to the surrounding walls by anchors. R4, Tab 15, at 412.

decision, and Grunley's appeal of that decision is docketed as CAB No. 2010-15. That case is currently stayed pending the resolution of this matter.

² No work was required under the contract for type T3 windows. See R4, Tab 15, at 410.

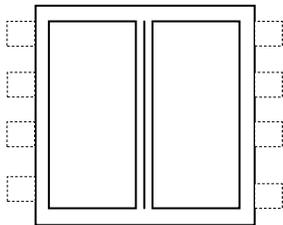
³ In contrast to the type T1 blast resistant windows, type T2 windows were required to be bullet resistant.

T1-1 Window⁴



The T1-2 windows are similar to the T1-1 windows, except that they are smaller⁵ and contain only the operable casement windows without an upper transom.

T1-2 Window



Both the T1-1 and T1-2 windows are finished in bronze.

The Parties

Grunley is a general contractor with over 50 years of experience in performing new construction and renovation work in historic government buildings. Complaint ¶ 1; Tr. at 2543, 2908. MAI is a specialty window manufacturing company that Grunley subcontracted with to perform the window work. At the time of the project, MAI had a division called Physical Security that specialized in glass and glazing systems. Tr. at 1700. To assist MAI with window design issues, the firm retained Jerry Hogan, owner of Bautech, Inc., a design and consulting firm that specialized in exterior wall

⁴ The original T1-1 windows, built in the 1930s, had only four anchors--three at the operable sash and one at the upper transom. R4, Tab 46, at 608-10. In the contract window depicted here, additional anchors were added to strengthen the window's response to a blast event. The development of the contract design is further discussed below.

⁵ The T1-1 windows are approximately 11 feet tall and 5 feet 4 inches wide, whereas the T1-2 windows are approximately 4 feet 8 inches tall and 4 feet 4 inches wide. R4, Tab 18, Dwg A549.

cladding.⁶ Tr. at 1389-90, 1393.

AOC was responsible for overseeing the USSC modernization project. The Hillier Group⁷ was an architect and engineering firm that assisted AOC with design issues for the entire project. Blast engineer⁸ Kirk Marchand, then of Applied Research Associates, Inc. (ARA), was retained by AOC specifically to assist with the analysis and design of the blast windows. Hill International served as AOC's construction manager for the project. R4, Tab 3, at 49.

Development of the T1 Window Design

As part of the USSC modernization effort, AOC investigated how to increase the capacity of the T1 windows to withstand outside explosions or blasts. The design question presented was whether to replace the windows and perhaps lose some of the aesthetic appeal of the existing historic windows, or strengthen the existing windows in a manner that did not significantly alter their appearance. Tr. at 3410. Because of concerns that replacement windows would likely lose operability, have significantly different appearances, and be expensive, AOC decided to evaluate how to upgrade the existing windows to improve their blast performance. See R4, Tab 46, at 604, 607-08, 613. The desired blast performance for the T1 windows was Level D. Id. at 604, 607. Level D refers to one of the protection levels listed in the General Services Administration (GSA) security criteria for the design of window systems, and it is defined by how much of a blast load the window system can withstand. R4, Tab 524, at 3947. The other protection levels are Levels A, B, and C. Level D provides the most protection. Id.

In 2002, Hillier removed a single T1-1 window from the USSC and sent it to ARA for testing. Tr. at 3460; R4, Tab 46, at 604. Mr. Marchand was the lead blast engineer on the ARA team that performed the test. Tr. at 3905; R4, Tab 46, at 603. The ARA team considered two ways to strengthen the window: (1) a "novel method" of letting the operable sash rotate open into the room in a controlled manner while the window system remains attached to the wall, and (2) a more "typical technique" of strengthening the structural members and anchors so that the sash remains in place and does not open. R4, Tab 46, at 618. The ARA team rejected the second approach because of constraints imposed by maintaining window operability and keeping the same window appearance. Id. The ARA team chose to follow the more "novel" method of strengthening the window and allowing it to open in a controlled manner. Id.

⁶ Mr. Hogan is a consultant and designer, but not an engineer. Tr. at 1397. When necessary, Mr. Hogan collaborates on projects with independent consulting engineers. Id. at 1396-97. For the project here, Mr. Hogan collaborated with engineer Daniel Duke. Id. Mr. Hogan developed design ideas and Mr. Duke determined whether the ideas were structurally adequate. Id. 1397-98. Mr. Duke did not testify at trial in this matter.

⁷ In 2007, Hillier merged with RMJM Group and is now known as RMJM Hillier. Tr. at 3400.

⁸ As used in this decision, a blast engineer is a civil engineer with experience evaluating how structural systems respond to blast loads (i.e., explosions). Tr. at 3898-90.

Prior to testing, the ARA team made several changes to the existing window to strengthen it. They replaced the glass with thicker glass, redesigned the window stops, inserted steel inside the structural members or stiles, modified the anchor design, and added anchors. Id. at 620-28. None of these changes significantly altered the window's appearance. Id. at 642.

The ARA team used multiple test methodologies to assess the performance of the modified T1-1 window: engineering analysis, computer modeling, and physical testing using a shock tube facility to generate a blast and using cameras and accelerometers to measure the results. Id. at 614-15. For the physical test, the ARA team subjected the window to a blast load less than Level D because it was not known how the window would perform and the USSC was not going to provide additional windows for testing.⁹ Id. at 604; Tr. at 3930-31, 3950, 4054, 4715. In response to the blast, the operable portion of the window began to deform at the end of the blast load, and it opened like a "bar room door" (as expected) after the blast load dissipated. R4, Tab 46, at 641, 672; Tr. at 3961-62, 3968, 3986, 4718-19, 5600. In addition, the window remained in the frame, no glass debris fell from the window, and the window system stayed attached to the wall. R4, Tab 46, at 638-39. However, two of the anchors at the top left corner of the window detached from the surrounding wall (although the connector to one of the anchors was bent prior to the test). Id. at 638, 673. Based on this test, the ARA team concluded that the window system "may have survived the full Level D load" because the only "weakness" in the design was the transom anchors. Id. at 639, 641. The ARA team recommended that the final design add an anchor on each side of the upper transom to correct this problem and improve performance. Id. at 641. In September 2002, ARA provided AOC with an 82-page report (hereafter the "ARA report"), which documented the team's analysis, test results, and recommendations. R4, Tab 46, at 603-685; Tr. at 4747.

In the spring of 2003, AOC's construction manager, Hill International, shared the ARA report with Kenneth Hayes, MAI's executive vice president, during a meeting to discuss the window work.¹⁰ Tr. at 1708-09. During this meeting, Mr. Hayes expressed skepticism that the existing windows could be retrofitted with sufficient blast protection, and he informed Hill International representatives that the report showed a "failed test."¹¹ Tr. at 1709, 1711. Thereafter, on June 25, 2003, MAI submitted an "unsolicited proposal" to replace the existing T1 windows with new blast-resistant windows for

⁹ In the test, the ARA team used a blast load that had a peak pressure of 7.7 psi (pounds per square inch) and impulse of 68.4 psi-msec (psi per millisecond). R4, Tab 46, at 604, 639. A Level D blast load has a peak pressure of 10 psi and an impulse of 89 psi-msec. R4, Tab 524, at 3947; Tr. at 3945.

¹⁰ MAI was also provided several architectural drawings of the windows, which later became part of the solicitation for the modernization project and are central to the dispute here. R4, Tab 73, at 942.

¹¹ After the meeting, Mr. Hayes provided a portion of the ARA report to an engineer who was familiar with blast criteria for purposes of consulting with that engineer about the results. Tr. at 1805. From the record, it does not appear that this engineer had any further involvement in this project.

\$3,424,840. R4, Tab 73, at 936-1009; Tr. at 1713. This proposal made reference to MAI's belief that the ARA test was a "failure" because the transom anchors failed and the window opened into the occupied space. R4, Tab 73, at 939. AOC did not accept MAI's unsolicited proposal, but later issued the solicitation, which included the window work as part of the comprehensive modernization project.

Solicitation Provisions

On or about December 3, 2003, AOC issued the solicitation for the USSC modernization project. As relevant here, the solicitation required the selected contractor to retrofit the existing T1 windows by reinforcing the existing window components. R4, Tab 15, at 410. The retrofit design was based on the ARA report recommendations with some additional modifications to the anchor design. Tr. at 4871-74. The pertinent documents defining the T1 retrofit requirements and design were section 08545, titled "Bronze Window Restoration," and the applicable contract drawings containing T1 window details.

On February 17, 2004, the solicitation was amended to include option 6, which, if exercised, would permit the contractor to provide new windows in lieu of the retrofit windows. R4, Tab 11, at 378; AOC Trial Exh. 9, at 1, 11. In its entirety, option 6 stated as follows:

Option No. 6: Replacement Windows. Provide all work required to furnish and install new windows in lieu of Window Upgrade Type T1, as indicated in the Contract Drawings and specified in [Section] 08545. The proposed replacement window and anchoring shall have the same alloy, characteristics, performance, profile, finish, and appearance as the Window Upgrade Type T1 design. The Architect and the Court, prior to acceptance of the Option, shall approve a mock-up of a proposed replacement window meeting all of the above requirements. Identify proposed window contractor and provide, on manufacturer's letterhead, relevant and similar historic window replication and replacement experience for the Architect's approval.

R4, Tab 11, at 378. The solicitation gave AOC the right to exercise option 6 after approval of the mockup window or within 180 days of the contract award, whichever was earlier. Id. at 377; R4, Tab 7, at 157.

Section 08545 of the solicitation provided six pages of general, product, and execution requirements for new and retrofitted T1 windows. With regard to fabricating new windows, section 08545 contained a general instruction to "replicate existing windows exactly." R4, Tab 15, at 413. However, this phrase was not interpreted literally by anyone involved in the project, all of whom recognized that modern technology, methods, and materials could be used to replicate the appearance of the windows that were constructed in the 1930s. Tr. at 820-22, 1743, 1930, 2590, 3309. Consistent with this interpretation, section 08545 contained multiple specifications that differed from the existing windows. For example, section 08545 included requirements to internally reinforce existing T1 windows with modern day materials; replace the glazing stops with

new redesigned stops; provide additional and redesigned hinges and hinge anchors; replace the glass with thicker glass that was to be factory glazed (i.e., applied in the factory); and assemble the window components without using exposed fasteners (i.e., screws) unless “unavoidable.” R4, Tab 15, at 410, 412, 413. Window finishes were to “match . . . existing windows,” with new bronze treated “to match the color of existing aged bronze,” but finish designations or classifications were to comply with the National Association of Architectural Metal Manufacturers (NAAMM) “Metal Finishes Manual for Architectural and Metal Products,” which is a modern day manual that identifies and discusses finish designations. Id. at 414. Also, windows were not to be fitted to match the existing 70-year-old windows, which may have shifted over time, but rather the specification required the contractor to “[c]arefully fit, cut, and miter new components to form tight, flush joints between window components.” Id. at 413.

With regard to performance requirements (i.e., blast requirements), section 08545 stated as follows:

Design details for reinforcing and reglazing existing bronze windows are based on extensive analysis and laboratory testing of a mock-up window. Intent of the design is to achieve GSA Level D blast protection without significantly altering the appearance of the existing windows.

Id. at 410.

The solicitation also included a number of clauses, terms, and conditions typical in government construction contracts. For example, the solicitation included the site investigations clause contained in Federal Acquisition Regulation (FAR) § 52.236-3 (Apr. 1984), as well as the differing site conditions clause contained in FAR § 52.236-2 (Apr. 1984).¹² R4, Tab 7, at 148-49. The solicitation also included standard disputes and changes clauses.¹³ Id. at 128-29, 151.

Proposal Submission and Contract Award

In response to the solicitation, offerors were asked to submit technical proposals for evaluation and, thereafter, to submit price proposals. Tr. at 225-26, 2543-44. Grunley’s technical proposal, submitted in late 2003, received the highest grade available. Tr. at 2543.

¹² The differing site conditions clause, FAR § 52.236-2 (Apr. 1984), distinguishes between two types of differing site conditions: (1) subsurface or latent physical conditions at the site which differ materially from those indicated in the contract (Type I differing site condition), or (2) an unknown physical condition at the site, of an unusual nature, which differs materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract (Type II differing site condition). R4, Tab 7, at 148.

¹³ The changes clause required the contractor to assert its right to an equitable adjustment within 30 days of a change order or a written or oral order from the contracting officer directing a change. R4, Tab 7, at 151.

On March 31, 2004 (the day price proposals were due), MAI submitted a written proposal to Grunley for an undefined amount to retrofit the T1 windows or provide new windows pursuant to option 6, along with an oral quote of \$3,000,000 for the entire window project with a reduction in price of \$331,000 if option 6 were exercised. R4, Tab 91, at 1182; Tab 104, at 1274. MAI's written proposal stated, "Pricing based on [MAI's] blast window design for option #6.¹⁴ Base bid design per architectural drawings and specifications." R4, Tab 91, at 1184. MAI's proposal deviated from section 08545 in some respects. For example, the proposal contemplated constructing the new windows (if option 6 were exercised) with aluminum rather than steel subframes, with a profile that was more than twice the size of the existing window profile, and using a "dark bronze interior and exterior" finish. Id. at 1183. Consistent with section 08545, however, MAI's proposal indicated that the new windows would meet the GSA Level D blast requirement and would use the specified anchors. Id. at 1183-84. MAI's proposal also included MAI's production of shop drawings and blast calculations for the new and retrofitted windows. Id. at 1182.

That same day, Grunley submitted to AOC a fixed-price proposal for the entire USSC modernization project, including the window work, in the amount of \$74,550,000. R4, Tab 7, at 113. This price included a budgeted amount of \$3,000,000 for the window work (to include retrofitted T1 windows) and a deduction in price of \$329,000 if option 6 were exercised for new blast resistant windows in lieu of retrofitted windows. R4, Tab 7, at 113-15; Tab 122, at 1373.

AOC awarded a fixed-price contract to Grunley for \$74,550,000 on April 30, 2004. R4, Tab 6, at 107. The contract made binding the provisions, specifications, and drawings set forth in the solicitation and discussed above. Id.; Tab 5, at 105-06. On May 20, 2004, Grunley issued MAI a letter of intent to execute a subcontract for the window work (although the subcontract was not executed until a year later). R4, Tab 113, at 1292. On May 25, 2004, AOC issued Grunley a notice to proceed. R4, Tab 109, at 1282.

Post-Award Design Issues Prior to the Exercise of Option 6

From the outset, MAI preferred to provide new windows, rather than retrofit windows, because manufacturing new windows provided MAI with greater control over the materials, fabrication, quality, and schedule. Tr. at 1737-38, 1828-29, 5966. Through the entire contract, neither MAI nor Grunley undertook any effort to retrofit the windows as contemplated by the base contract; all efforts were focused on redesigning new T1 windows. See, e.g., Tr. at 1534, 1749, 1755-56, 2458; R4, Tab 108, at 1281. In June and July of 2004, AOC directed Grunley (which in turn directed MAI) to proceed with a mockup of a new T1 window so that the government could evaluate whether to exercise option 6.¹⁵ R4, Tab 111, at 1289; Tab 119, at 1365.

¹⁴ MAI's proposal was based, in part, on a proposal from its blast consultant, Jerry Hogan, which included pricing for the design and structural analysis of new windows manufactured under option 6. R4, Tab 88, at 1162.

¹⁵ Under the contract, a mockup window was required for AOC's approval prior to AOC exercising the option. R4, Tab 11, at 378.

By October 2004, Grunley and MAI were provided with the T1-1 window from the USSC that ARA had previously blast tested. Tr. at 1451-52, 2832. In late October 2004, MAI requested confirmation that the new T1 windows were to be designed for a Level D blast, with a protection level of 2 (“break-safe condition”) for the glazing response. R4, Tab 133, at 1433. MAI also requested detailed information about the window test referenced in the solicitation and contract. Id. at 1433-34. Finally, MAI advised that it was anticipating using a “custom” spring anchor designed by MAI, rather than the “rigid” anchor required by the contract. Id. at 1434.

Throughout November 2004, AOC answered each of MAI’s questions and provided Grunley with a copy of the ARA report. R4, Tab 144, at 1482-1563; Tab 146, at 1568-76. When providing MAI with AOC’s responses, Grunley requested that MAI advise it within 10 days if any of the responses would have either a cost or time impact to MAI’s contract. R4, Tab 146, at 1568. MAI did not assert any impacts.

On December 22, 2004, Grunley submitted to AOC “replacement window proposal drawings” that were prepared by MAI for new T1-1 windows with a spring anchor design. R4, Tab 154, at 1612-24. This submittal was returned as “very incomplete” because it was missing structural calculations, shop drawings, and test reports. R4, Tab 171, at 1760.

In late December 2004 and through January 2005, MAI submitted additional questions about the window design requirements and blast analysis performed by ARA in 2002, to which ARA’s lead blast engineer and AOC promptly responded. R4, Tab 151, at 1601-06; Tab 159, at 1637-39; Tab 161, at 1654-56. Continued dialogue between the parties revealed that MAI’s design was taking a different approach to meeting the blast requirements than the retrofit design in the contract. The retrofit design maintained the existing 1-inch depth of the interior profile, anchored the windows to the walls with fixed rigid anchors, and dissipated the blast energy by allowing the windows to open in a controlled fashion. R4, Tab 15, at 413; Tab 18, Dwgs A551-A552, Tr. at 3934. In contrast, MAI’s design intended to keep the windows closed during a blast by adding a center stile to each window, which increased the depth of the interior profile by several inches, and MAI’s design incorporated larger spring anchors that expanded within the wall. Tr. at 615, 779-81, 791, 964. As the weeks passed, it became clear that there was a “philosophical disagreement” between MAI and AOC as to the design requirements necessary to meet Level D. Tr. at 4730, 4738; see also Tr. at 3629-30, 4726-32.

This disagreement about the design requirements led to a meeting on February 1, 2005 between representatives of the USSC, AOC, Hillier, Grunley, and MAI. R4, Tab 163, at 1666. Mr. Marchand (ARA’s lead blast engineer) and Mr. Hogan (MAI’s window designer) also attended. Id. The minutes of this meeting reflect Mr. Hogan’s stated view that the windows must remain closed during a blast event, which would require changes to the interior appearance of the windows. Id. at 1666, 1668. Mr. Marchand, on the other hand, stated that the “windows are allowed to open” and still meet the blast requirement. Id. at 1667; Tr. at 4729-30. USSC and AOC representatives expressed concern that the windows remain operable and maintain the same appearance as the existing windows; due to this concern, they stated that MAI’s proposed larger profile

was unacceptable.¹⁶ R4, Tab 163, at 1667. Although the parties' philosophical disagreement over whether the windows could open during a blast event was never resolved, they nonetheless agreed that MAI would design new T1 windows that would not rotate open in response to a blast, as long as the proposed windows incorporated a smaller profile depth and had less range of motion in the spring anchors than MAI had initially proposed. *Id.* at 1668. It was further confirmed that the required blast level for the window design was GSA Level D, performance condition 2. *Id.* This agreement was reflected in a follow-up letter from George Skarmeas of Hillier (AOC's architect) to MAI's project manager on February 2, 2005. R4, Tab 168, at 1756-57.

In March 2005, MAI submitted revised shop drawings, which AOC approved for construction of the mockup. R4, Tab 173, at 1825-34; Tab 177, at 1891. In May 2005, Grunley submitted a mockup window that was a smaller version of an actual window, which AOC approved with the following comment:

All ground floor Interior finishes to be #4 directional satin finish to match courtyard window interior finish color.

1st floor windows will be [a] combination of statuary and #4 finishes.
Quantity of finishes will be provided upon completion of survey by Marshal of USSC.^[17]

Provide 3 samples of each finish for final selection/control samples.

R4, Tab 197, at 2048; see AOC Trial Ex. 1; R4, Tab 185, at 1973.

At the time the mockup was submitted, MAI and Grunley still had not agreed to the terms of MAI's subcontract for the window work. On May 17, 2005, authorized representatives of MAI and Grunley signed a subcontract for the window work after renegotiating the terms of MAI's original proposal. R4, Tab 192, at 2028. The renegotiated terms reflected design parameters discussed at the February 1, 2005 meeting. For example, the signed subcontract deleted an earlier requirement that MAI's new windows match the existing window profile "exactly"; altered the option 6 language to eliminate the requirement that the new window anchors have the same alloy, characteristics, etc. as the contract design; and substituted the contractually required anchors with an alternative anchor design. *Id.* at 2023. The subcontract also changed the finish from dark bronze to "[a]ll finishes are to match existing" and required that the new windows be factory glazed. *Id.* MAI agreed to perform the revised scope of window work for the same amount as in its original proposal: \$3,000,000 for the base work, less \$331,000 if AOC exercised option 6. *Id.* at 2023-24.

¹⁶ Another concern with MAI's design was that MAI's larger spring anchors could require more demolition. R4, Tab 157, at 1630. However, Mr. Hogan assured the attendees at the meeting that MAI's anchors would in fact require less demolition than the contract anchors because MAI proposed to use fewer anchors. R4, Tab 163, at 1666.

¹⁷ The finish survey consisted of the Marshal asking the Justices to select which of the two finishes they desired. R4, Tab 198, at 2050; Tab 199, at 2051; Tab 200, at 2052.

Option 6 and Execution of Release

While MAI and Grunley were renegotiating the terms of the subcontract, AOC was considering whether to exercise option 6. E.g., R4, Tab 186, at 1975. On June 9, 2005, AOC's project manager (James Yellman) sent a letter to Grunley's senior project manager (Robert Reeve), informing Grunley that AOC had elected to exercise option 6 for new windows in lieu of retrofit windows, and that AOC was assigning change order no. 190 to the issue.¹⁸ R4, Tab 211, at 2099. Mr. Reeve "referred" the letter to his supervisor (John Greenwell, who was Grunley's vice president and project executive), and Mr. Greenwell "relate[d]" to Mr. Reeve that he (Mr. Greenwell) did not consider this to be a change to the contract. Tr. at 974. At trial, Mr. Greenwell recalled telling someone--either Mr. Yellman or perhaps James Beckett¹⁹--that he did not believe that the exercise of option 6 was a change to the contract. Tr. at 580-81, 974, 1340. At trial, Mr. Reeve did not report having any discussions with AOC representatives on this issue.

As some point thereafter, AOC provided Grunley with "Modification 90" for execution. The modification stated that "THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Supplementary Conditions, Article 9, OPTIONS" and that the purpose of the modification was to "exercise Option 6" of the contract. R4, Tab 279, at 2355. The modification contained the following release language:

Contractor's statement of release

In consideration of the modification(s) agreed to herein as complete equitable adjustment, the contractor hereby releases the Government from any and all liability for all costs, both direct and indirect, under this contract for further equitable adjustments for work covered under this Modification.

Id. at 2356. Mr. Reeve, the authorized representative for Grunley, signed the modification without reserving any claims on September 26, 2005. Id. at 2355. AOC's contracting officer signed the modification 2 days later, on September 28, 2005. Id. Prior to signing the modification, Mr. Greenwell and Mr. Reeve discussed the meaning of the release language, concluding that Grunley was not releasing any potential claims that arose after contract award because the modification was only "activati[ng]" option 6. Tr. at 975-78. However, nobody at Grunley advised AOC of Grunley's interpretation of the release. Tr. at 1324. As senior project manager for Grunley, Mr. Reeve had seen the same or similar release language "many times" in modifications and understood what release language typically meant. Tr. at 1311. In fact, Grunley had reserved claims when exercising other modifications to this contract that contained nearly

¹⁸ At this point, more than 180 days had passed since contract award, so AOC no longer had a unilateral right to exercise the option.

¹⁹ Mr. Beckett was a Hill International employee who was not working on the USSC project in June 2005. Later, he served as AOC's quality control superintendent for the project. Tr. at 3026-28.

identical release language. Tr. at 1311, 2984-86; R4, Tab 516, at 3586. However, Grunley did not reserve any claims in modification 90, even though, as Mr. Reeve testified, “everybody [at this time] knew that there were a bunch of changes to the contract documents.” Tr. at 981.

Post-Release Fabrication Issues

While Grunley representatives were considering signing modification 90 with the release, changes were made to the approved finishes. By August 2005, the parties had agreed to substitute #6 directional finish for #4 directional finish on the interior of the first floor windows, except for seven windows that were to receive statuary finish on the interior.²⁰ R4, Tab 257, at 2257; Tab 277, at 2347-48. On September 15, 2005, Grunley’s senior project manager (Mr. Reeve) advised AOC that the finish substitution would require a change order, and AOC’s quality control superintendent (Mr. Beckett) directed that a change order number be assigned to this issue. R4, Tab 277, at 2347. On September 26, 2005, the same day that Mr. Reeve signed modification 90 with the release, he submitted a change order request and cost proposal on Grunley’s behalf in the amount of \$98,184, for costs associated with providing #6 directional finish on 153 windows (although, as noted above, Mr. Reeve did not reserve this claim in modification 90).²¹ R4, Tab 278, at 2349-50. On September 27, 2005, the day before the contracting officer signed modification 90, Mr. Beckett advised Mr. Reeve by email that the “polished bronze” was already a requirement of the contract and that, if Grunley wished to pursue a change, it should do so in accordance with the changes clause of the contract.²² R4, Tab 280, at 2357.

In the months following the execution of modification 90, Grunley and MAI encountered several issues with window fabrication. In October 2005, Grunley expressed concern to MAI that its custom window anchors would cause damage to the finishes surrounding the windows. R4, Tab 287, at 2370-72. In November and December 2005, MAI changed the anchor design because of interference at the window sill; MAI also had

²⁰ In August 2005, Grunley requested and received approval for substituting #6 directional finish for #4 directional finish. R4, Tab 257, at 2257. An email between Hiller and AOC representatives 1 month later (in September 2005) refers to the finish substitution as a “request of the United States Supreme Court Building Committee.” R4, Tab 277, at 2348.

²¹ The record does not explain why Grunley sought relief for 153 windows, given the testimony that only 136 T1 windows existed. Compare R4, Tab 278, at 2349 with Tr. at 97-98; Grunley Post-Trial Brief (Jan. 26, 2012) at 5.

²² A year and a half later, on March 28, 2007, Mr. Beckett issued a formal notice denying Grunley’s change order request and referring Grunley to the disputes clause of the contract for further rights and remedies. R4, Tab 511, at 3547. It is not clear what prompted this formal notice, as the record does not suggest that AOC gave any additional consideration to Grunley’s finish claim since Mr. Beckett’s email in September 2005.

difficulty providing AOC with sample spring anchor components for testing.²³ R4, Tab 307, at 2520; R4, Tab 299, at 2438-39.

Through January 2006, MAI was having difficulty producing acceptable finish samples. R4, Tab 316, at 2570-72; Tab 333, at 2611. There was also some dispute as to what finishes were required by the contract, and MAI demanded a change order before proceeding with finish application. R4, Tab 325, at 2593-94; Tab 329, at 2604-05. As it had in September 2005, AOC again asserted that the selected finishes did not constitute a change to the contract. R4, Tab 326, at 2597. By the end of January 2006, Grunley had surveyed the existing windows and determined that, in the northwest quadrant of the USSC, eight first floor windows were “polished” and six windows had “statuary” finish; in the remaining quadrants, five windows had “bright finish” and the remaining windows had “statuary finish.” R4, Tab 329, at 2604; Tab 335, at 2636.

By early February 2006, MAI completed construction of a full-size T1-2 mockup window, which the contract required prior to construction and installation of the actual windows in order to verify performance and aesthetic requirements. See R4, Tab 15, at 411; Tab 337, at 2639; Tr. at 3200, 3295-96. Grunley and MAI both concede that there were numerous flaws and defects in the construction of the window--including gaps in the joints and between components, scratches, and problems with the latching mechanism--which rendered the window unacceptable. Tr. at 651-52, 809, 2146, 2357; Grunley Post-Trial Brief (June 18, 2012) at 60. AOC provided a list of the defects to Grunley in writing, and it met with Grunley and MAI to discuss the problems. R4, Tab 337, at 2639-41; Tab 340, at 2663; Tab 344, at 2672-73; Tab 347, at 2683-85.

Over the next 2 months, AOC rejected three more mockup windows due to poor construction, as documented in numerous field observation reports, meeting minutes, pictures, and written correspondence. E.g., R4, Tab 355, at 2746-47; Tab 364, at 2771; Tab 366, at 2773-87. After a total of four mockup attempts, there were still excessive gaps at joined metal pieces, poorly mitered joints, excessive gaps at the center stile, out-of-plane pieces, joints that were not perpendicular or flush, finish inconsistencies, poorly installed fasteners, and gaps in the flush bolt operator. R4, Tab 377, at 2866; Tab 366, at 2779.

On April 27, 2006, the parties met to discuss the problems with window construction. R4, Tab 377, at 2866-68. With regard to joints having excessive gaps, being out of plane, and not being square, AOC’s representative reminded Grunley that the contract required “tight, flush joints.” Id. at 2867. MAI’s representative requested that acceptable joints be evaluated to establish objective tolerances; as a result, Grunley’s senior project manager (Mr. Reeve) measured an acceptable joint and found it to have a gap of no more than 1/64 inch. Id.; Tr. at 1016-17. Using a 1/64-inch tolerance, MAI manufactured a fifth mockup window, which AOC approved with minor adjustments on June 6, 2006. R4, Tab 396, at 2918.

²³ MAI provided anchors in December 2005, and AOC was able to complete the testing by March 2, 2006. R4, Tab 318, at 2576; Tab 352, at 2701-41.

While the fifth mockup was under review, Grunley was demolishing the window surrounds so that MAI could install the full-size windows. During this demolition, Grunley discovered three issues behind the surrounds: (1) there were inconsistencies in the plane of the backside of the marble, referred to as “chamfering”; (2) there were void pockets in the marble at the lower corners of the window area; and (3) certain windows were adjacent to structural steel columns. R4, Tab 393, at 2913; Tab 394, at 2914; Tab 395, at 2915. The affected areas impacted MAI’s ability to attach the spring anchors to the surrounding wall. R4, Tab 393, at 2913; Tab 394, at 2914; Tab 395, at 2915; Tr. at 1023, 1042. In requests for information dated June 6, 2006, Grunley brought these matters to AOC’s attention and asked for direction. R4, Tab 393, at 2913; Tab 394, at 2914; Tab 395, at 2915. Three days later, Grunley formally advised AOC that the first of the issues (chamfered marble) constituted a differing site condition and a change to the contract. R4, Tab 398, at 2923. In back-and-forth correspondence in June and July 2006, AOC denied the existence of differing site conditions for all three matters, but authorized the use of Laticrete²⁴ to fill the chamfered marble; authorized the use of Laticrete to fill the void pockets and the use of revised anchors for the lower corners; and permitted MAI to bolt the window anchors to the adjacent steel column.²⁵ R4, Tab 394, at 2914; Tab 411, at 2997; Tab 413, at 3000-08; Tr. at 1043, 1044, 2100-01, 2414, 2518.

By early August 2006, MAI completed construction of a full-size T1-1 mockup window. See R4, Tab 421, at 3031-32. As with the T1-2 mockup, the T1-1 mockup had issues with alignment, gaps, installation hardware, screws, and scratches. Id. at 3032-48; Tab 437, at 3091-94. In addition, the trim did not fit because neither MAI nor Grunley had measured the existing trim prior to fabrication. Tr. at 694, 2222, 2488-89; R4, Tab 453, at 3177; see CAB No. 2007-3. In October 2006, MAI finally took the necessary trim measurements and began remanufacturing the windows with the correctly sized trim. R4, Tab 461, at 3221-22. MAI also continued to correct window defects into November 2006. R4, Tab 489, at 3425-26. Thereafter, all of the T1 windows were installed without significant incident.

Request for Contracting Officer’s Final Decision

In late September and through October 2006, Grunley exchanged numerous communications with AOC concerning the dimensions and shape of the T1-1 windows and trim. R4, Tab 448, at 3157-64; Tab 451, at 3173; Tab 453, at 3175-79; Tab 458, at 3197-99; Tab 459, at 3201-16; Tab 463, at 3228-35; Tab 464, at 3237-39. Grunley submitted a certified claim and a request for a contracting officer’s final decision in late December 2006 and supplemented this request in February 2007²⁶; the only issues that

²⁴ Laticrete is a kind of grout.

²⁵ In late November 2006, MAI submitted revised anchor details to address the steel columns at two locations, which AOC approved in early December 2006. R4, Tab 501, at 3485-86.

²⁶ Grunley initially requested a contracting officer’s final decision on the dimension and shape issues in November 2006. However, AOC did not act on the request because Grunley failed to certify a claim or identify the relief it sought. R4, Tab 499, at 3469.

Grunley raised pertained to the dimensions and shape of the windows and trim. R4, Tab 504, at 3507-16; Tab 508, at 3530-36. In March 2007, AOC's contracting officer issued a final decision denying Grunley's claim, and Grunley appealed that decision to the Board. R4, Tab 509, at 3537-44. We docketed the appeal as CAB No. 2007-3.²⁷ (That appeal is the subject of a separate decision, issued today.)

Three years into the development of that appeal, on March 1, 2010, Grunley submitted to the contracting officer a "Comprehensive Certified Claim for Window Changes, Delays and Impacts Related to the Windows" and requested a contracting officer's final decision.²⁸ R4, Tab 517, at 3592. The certified claim was for a total of \$15,963,188 and consisted of three parts:

1. Schedule delay analysis for the northwest quadrant of the USSC in the amount of \$12,538,176 (Part A).
2. MAI's delay and impact claim in the amount of \$2,155,078²⁹ (Part B).
3. Grunley's claim for costs associated with additional demolition at the windows in the amount of \$1,269,934 (Part C).

Id.

"Part A" of Grunley's claim (schedule delays) addressed multiple issues that arose during the USSC modernization project, the majority of which involved work unrelated to the windows. However, with regard to the blast windows, Grunley complained that AOC delayed exercising option 6, withheld the 2002 ARA blast test results from offerors, failed to timely address replacement window design criteria and installation parameters, and changed the scope of the contract with regard to the window design--all of which Grunley asserted caused delays in its performance of the contract. Id. at 3635-41. Part A was not addressed in the contracting officer's final decision for this appeal here, so we will not discuss it further.³⁰

²⁷ In November 2006, Grunley submitted to AOC a change order request and cost proposal for \$21,217, for work associated with the chamfered marble, void pockets, and steel columns. R4, Tab 492, at 3436-37. Grunley did not include this issue in its request for a contracting officer's final decision in connection with CAB No. 2007-3. See R4, Tab 504, at 3507-16.

²⁸ Grunley initially submitted the claim on February 2, 2010, but revised it on March 1, 2010. R4, Tab 517, at 3592. The contracting officer's final decision responded to the March 1, 2010 claim.

²⁹ In its complaint filed with the Board, Grunley revised this amount upwards to \$2,370,586. Complaint ¶ 22.

³⁰ The contracting officer addressed Part A of Grunley's claim in a separate decision, which has been appealed and docketed as CAB No. 2010-15. See R4, Tab 519, at 3865.

“Part B” of Grunley’s claim (MAI’s delay and impact) consisted of a letter from MAI describing window work that it believed was “changed, delayed, and otherwise impacted” by AOC. Id. at 3699. Specifically, MAI complained that AOC caused delays by not providing “any plans, specifications, or drawings for the replacement window,” thus requiring MAI to submit multiple design drawings and submittals for the new blast windows. Id. at 3700. MAI asserted that AOC delayed exercising option 6, failed to timely respond to MAI’s post-award requests for information, and failed to timely establish design criteria for the new blast windows. Id. at 3700, 3706-07. MAI also asserted that the new window design had to deviate from the retrofit design and appearance in order to meet the Level D blast requirement. Id. at 3700-01. MAI contended that AOC took too long to approve MAI’s interior finish samples and to test MAI’s anchors, and that AOC changed the finish requirements. Id. at 3701, 3707. MAI also complained that AOC required MAI to adopt “above normal standards” for fitting the joinery in the mockup windows. Id. at 3701, 3708-09. Additionally, MAI complained that it encountered differing site conditions with respect to the steel columns and marble. Id. at 3701, 3709.

“Part C” of Grunley’s claim (Grunley’s additional demolition) asserted Grunley’s position that MAI’s anchors, which differed from the contract anchors, required additional demolition of the window surrounds. Id. at 3725-28.

On June 11, 2010, the contracting officer issued a final decision addressing entitlement with regard to Parts B and C of Grunley’s claim (MAI’s delay and impact, and Grunley’s additional demolition). She denied each aspect of these parts of the claim. R4, Tab 519, at 3865.

Specifically, the contracting officer denied that AOC exercised option 6 “late,” and she further asserted that AOC timely responded to all requests for information. Id. at 3866-68. The contracting officer reminded Grunley that, if it had considered “any aspect of Option 6, including timing, to be a basis for additional consideration,” then Grunley failed to give timely notice to the government of the claim and, in any event, Grunley released AOC from all claims for option 6 work when it signed modification 90. Id. at 3867. The contracting officer rejected MAI’s contention that a lack of specifications required multiple design submittals, as well as MAI’s contention that the specifications were defective, on the basis that the new window specifications and option 6 were performance specifications for which MAI and Grunley, not AOC, had design responsibility. Id. at 3868-70.

With regard to the finishes, the contracting officer asserted that the substitution of #6 for #4 directional finish was requested by Grunley, and that Grunley did not notify AOC that additional costs would result when it made this request. Id. at 3869. Moreover, the contracting officer asserted, the contract required Grunley to match the existing finishes, which is all that AOC required. Id. As for tolerances and fit, the contracting officer pointed out multiple contract provisions setting forth quality requirements, and she recited the numerous defects in the mockup windows produced by Grunley and MAI. Id. a 3873-75.

With regard to the anchors and anchor testing, the contracting officer denied any delays in providing information. Id. at 3871-73. The contracting officer further noted that Grunley, not AOC, requested to change the anchors to MAI's custom design and that Grunley assured AOC that the custom anchors would, in fact, reduce the amount of demolition required to install the anchors. Id. at 3871. Also, the contracting officer found that Grunley failed to reasonably investigate the existing conditions surrounding the windows prior to finalizing its anchor design. Id. at 3877. Had it done so, the contracting officer asserted, Grunley would have discovered the steel columns, chamfered marble, and void pockets that it now asserts are differing site conditions. Id. at 3877.

On June 23, 2010, Grunley appealed the contracting officer's final decision to this Board, and we docketed the matter as CAB No. 2010-6. By agreement of the parties, we consolidated both appeals (CAB Nos. 2007-3 and 2010-6) for purposes of record development and trial. The parties submitted a consolidated Rule 4 file and pre-trial briefs. Trial was conducted in October and November 2011 and concluded after 19 days of testimony from 26 witnesses, including 8 expert witnesses.³¹ The parties filed multiple rounds of post-trial briefs. Briefing concluded on June 18, 2012. This decision resolves entitlement only with regard to those matters raised in CAB No. 2010-6.³²

ANALYSIS

Grunley advances multiple arguments in support of its request for equitable adjustment. Grunley contends that AOC's blast window design was defective and resulted in changes to the contract. Grunley also asserts that AOC changed the finish requirements, imposed unreasonable tolerances, and caused Grunley to incur extra costs for demolition. Grunley complains that it encountered differing site conditions with regard to the marble and the steel columns.

AOC denies the existence of defective specifications and changes, and it denies liability for the finishes, tolerances, demolition, and alleged differing site conditions. In further defense of the claims, AOC contends that Grunley fully released the government from claims concerning the new window requirements when it executed the release in modification 90. AOC also argues that Grunley failed to give timely notice to the contracting officer of its claims, and that Grunley failed to identify any government personnel with authority who directed any of the asserted changes.³³

³¹ Trial was initially scheduled for June 2011, but was delayed due to problems with the record production.

³² The Board is issuing a separate decision for CAB No. 2007-3 because the parties' avenues of appeal may differ for that case.

³³ To the extent that Grunley and AOC have raised arguments not addressed in their initial complaint and answer, we deem the pleadings to conform to the evidence pursuant to Rule 5(d)(2) of the Board's Rules of Procedure and Rule 15(b)(2) of the Federal Rules of Civil Procedure. See Net MoneyIN, Inc. v. VeriSign, Inc., 545 F.3d 1359, 1372 (Fed. Cir. 2008) (amendment is mandatory when issues, not pled, are tried by express or

Blast Design Issues

Grunley argues that the contract specifications were defective because the T1 windows were designed to open in response a blast event. Grunley asserts that the windows must stay closed in order to meet Level D blast requirements. Because it had to change the design from what was contemplated by the contract, Grunley argues, AOC is liable either due to a defective specifications theory or under the changes clause of the contract.³⁴

1. Design vs. Performance Specification

Grunley's claim for defective specifications rests on its argument that the contract provisions applicable to new windows are design specifications and not performance specifications.

When the government provides a design specification in a contract, it impliedly warrants that the specification is not defective and, if followed, will result in a satisfactory product. United States v. Spearin, 248 U.S. 132, 136 (1918). This implied warranty, however, applies only to a design specification; where a specification is a performance specification, as is the case here, a contractor cannot prevail on a claim for defective specification unless it can show that performance was objectively impossible or commercially impracticable. Intercontinental Mfg. Co. v. United States, 4 Cl. Ct. 591,

implied consent); Charles A. Wright & Arthur R. Miller, 6A Federal Practice & Procedure, §§ 1491-93 (3d ed. 2004).

³⁴ Grunley also contends that the specifications were defective in that Section 08545 misrepresented that the contract design was extensively tested and analyzed and met Level D. We find no merit to these allegations. Section 08545 stated only that the contract “[d]esign details . . . are based on extensive analysis and laboratory testing of a mock-up window. Intent of the design is to achieve GSA Level D blast protection without significantly altering the appearance of the existing windows.” R4, Tab 15, at 410. This provision does not state that the contract design was tested, only that the contract design was based on analysis and testing. In addition, the provision does not affirmatively represent that the test results showed that the design met Level D, only that the intent of the design was to achieve Level D.

Additionally, Grunley argues that the agency withheld its “superior knowledge” of the ARA blast test results by failing to provide the results to offerors with the solicitation. Where a contractor is placed on notice to inquire from the solicitation, or the information is reasonably available from another source, a claim for superior knowledge cannot succeed. See PCL Constr. Servs., Inc. v. United States, 47 Fed. Cl. 745, 792-93 (2000). Despite the clear reference to the test in the solicitation and the obvious absence of the results, Grunley failed to make any reasonable inquiries about the test results prior to submitting its proposal. Furthermore, the test results had been previously disclosed to MAI and, thus, were available from another source. Although Grunley contends that MAI failed to share this information with Grunley, Tr. at 2598-2600, 5950-51 (a fact which MAI disputes, Tr. at 1785), we find no basis to hold the government liable for the lack of communication between the firms.

595 (1984). A design specification describes in precise detail the materials to be employed and the manner in which the work is to be performed; the contractor has no discretion to deviate. Blake Constr. Co. v. United States, 987 F.2d 743, 745 (Fed. Cir. 1993). In contrast, a performance specification sets forth an objective or standard to be achieved, and the contractor is expected to exercise ingenuity in achieving that objective or standard of performance. Id.; Stuyvesant Dredging Co. v. United States, 834 F.2d 1576, 1582 (Fed. Cir. 1987). The key to distinguishing whether a specification is a design or performance specification is the level of discretion given to the contractor. Fru-Con Constr. Corp. v. United States, 42 Fed. Cl. 94, 96 (1998). Although a specification can contain both design and performance elements, the fact that a specification may include some details on how the work is to be performed does not convert what would otherwise be a performance specification into a design specification. PCL Constr. Serv., Inc. v. United States, 47 Fed. Cl. 745, 796 (2000).

Here, the new window requirement was governed by option 6, applicable specifications contained in section 08545, and applicable drawings. Section 08545 and the drawings provided some detailed instructions and material requirements for retrofitting the existing windows, but contained only a few general instructions for fabricating and installing new windows. These general instructions required the contractor to: (1) take “[f]ield [m]easurements for new windows”; (2) “[f]abricate windows to replicate existing windows exactly”³⁵; (3) “[p]rovide mullions of profile indicated”; (4) “[p]rovide silicon bronze, screw-applied glazing beads” that “match bronze finish of other interior window components”; (5) “[p]reglaze window units at the factory”; (6) “[m]atch existing window detailing and field conditions”; (7) “[i]nstall windows level, plumb, and true to line, without distortion”; (8) “[a]nchor securely to surrounding construction”; (9) “[s]et sill members in a bed of sealant” and “[s]eal exterior joints”; (10) “[r]estore abraded areas of bronze plating at embedded steel”; and (11) “[r]estore and polish areas of exposed bronze.” R4, Tab 15, at 412, 413, 415. Except for specifying the anchors and sealant to be used, the specifications applicable to new windows did not contain the kind of prescriptive details one would expect in a design specification.

Option 6 made applicable other provisions of section 08545 by requiring that the new windows and anchoring system “have the same alloy, characteristics, performance, profile, finish, and appearance” as the retrofit design. R4, Tab 11, at 378. This list, however, was a statement of performance objectives consistent with a performance specification. Strikingly, section 08545 did not contain detailed instructions for accomplishing these objectives; indeed, it barely addressed them. For example, with regard to performance, section 08545 stated only that the retrofit design was based on laboratory testing and that the “[i]ntent of the design is to achieve GSA Level D blast protection without significantly altering the appearance of the existing window”; it further referred to Level D compliance as a “performance goal[.]” R4, Tab 15, at 410.

³⁵ As noted above, the contract contained a number of provisions that deviated from the existing windows, so the windows could not be matched “exactly,” and the parties did not construe the provision to require the exact matching of every aspect of the existing 70-year-old windows. See Tr. at 1743, 1930, 3307.

Section 08545 did not address any window characteristics, and with regard to the profile and finish, only generally directed the contractor to “provide mullions of profile indicated” and “[m]atch the finish of the existing windows.” *Id.* at 413-14. Although some specific elements of section 08545 addressed appearance (such as, for example, the requirement to “carefully fit, cut, and miter new components to form tight, flush joints between window components,” *id.* at 413), these requirements generally lacked instructions about the means and methods to accomplish the work.

That option 6 was a performance specification is further supported by the parties’ contemporaneous interpretation of option 6 as leaving Grunley and MAI with some discretion to “innovate” with the fabrication of the windows, apparently recognizing that modern technology would enable a contractor to use different and better materials and methods to construct new windows. Tr. at 1743, 1930. From its initial proposal forward, and before any discussion of contract design defects ever occurred, MAI’s new window design contemplated deviations from the retrofit design. For example, in its initial proposal, MAI contemplated designing new windows with a larger profile than the retrofit design, and using lighter and stronger aluminum materials to replace the steel components in the window frames. R4, Tab 91, at 1183. At no point did MAI, Grunley, or AOC act as if the retrofit design in the contract was required to be followed exactly for the fabrication and construction of new windows.

As further evidence that the contractors construed option 6 as a performance specification, prior to proposal submission, MAI retained a window designer (Jerry Hogan) who provided a proposal to design new blast windows and perform a structural analysis of the new windows’ response to blast events. R4, Tab 100, at 1234. MAI’s initial proposal stated that the firm’s price for the option 6 work was based on its own design for blast windows, whereas its price for the retrofit work was based on the contract drawings and specifications. R4, Tab 91, at 1184. In correspondence drafted during the project, both MAI and Grunley referred to the specifications as performance specifications under which they had design responsibility. *E.g.*, R4, Tab 287, at 2370 (MAI’s project manager stated in October 2005 that the “primary focus of [MAI’s] blast window design is to ensure that the window and window components conform to the guidelines and requirements established for performance”); *id.* at 2371 (Grunley’s project manager acknowledged in October 2005 that “[t]his is our window design[,] not the architects”). All of these actions are inconsistent with the contractors’ now asserted claim that they believed that the new window requirements were design specifications.³⁶

³⁶ Grunley contrasts option 6 and section 08545 (which set forth performance requirements for blast windows) with section 08580 (which set forth performance requirements for ballistic windows). Grunley argues that the ballistic window section gave greater design discretion to the contractor than the blast window section and, thus, only the ballistic window section was a performance specification. We find that both sections afforded sufficient discretion to the contractor to constitute performance specifications. In fact, some provisions of the ballistic window section provided even more detailed requirements than the blast section, such as, for example, the identification of measurable installation tolerances for ballistic windows. R4, Tab 16, at 420.

Accordingly, we conclude that the new window specifications were performance specifications. We next address whether the contract specifications, which Grunley alleges were defective, rendered performance impossible or commercially impracticable. As discussed below, we find that the specifications were neither defective nor impossible or commercially impracticable to perform.

2. Defective Design

Grunley contends that the contract required it to build T1 windows that provided Level D blast protection, while matching the existing profile and using the contractually specified anchors. Grunley contends that this cannot be done because the windows would open in response to a blast event. Grunley insists that Level D requires the windows to remain closed in response to a blast, which requires a larger window profile and different anchors. Thus, Grunley argues, the contract design was defective and impossible to perform.

By way of background, the GSA security criteria provide a methodology for determining security and risk levels for federal buildings.³⁷ R4, Tab 524, at 3910. The criteria focus on detecting, deterring, and delaying terrorist and criminal attacks through planning, design, and engineering measures. Id. at 3909. The primary goal of the criteria is to save lives and prevent injury; secondarily, the goal is to protect federal buildings, functions, and assets. Id. The criteria take a balanced approach to security, considering cost effectiveness and acknowledging the acceptance of some risk so that federal buildings remain attractive and accessible and do not become fortresses. Id. An entire section of the GSA security criteria is devoted to structural engineering. The structural engineering criteria focus on protecting people and assets against explosive attacks.³⁸ Id. at 3941. The document explains that there are four levels of protection-- A, B, C, and, D, with A providing the lowest level of protection and D providing the highest. The definition of "Level D" as it relates to the structural damage following a blast is as follows:

HIGH LEVEL OF PROTECTION -- Minor damage. The building facility or protected space may globally sustain minor damage with local moderate damage possible. Occupants and assets may incur some injury or minor damage. Repair is advisable. Probability of limited casualties is low.

Id.

The structural engineering section of the GSA security document contains criteria specific to window systems--that is, the glazing (glass), frames, anchorage, and supporting walls. For window systems, the criteria state, "the exterior façade shall be designed to mitigate the potentially lethal effects of flying glass following an explosive

³⁷ The GSA security criteria were issued as a draft version in 1997. R4, Tab 524, at 3905. According to the parties, a final version of the GSA security criteria was never issued. Tr. at 5920.

³⁸ The criteria do not address ballistic protection. See R4, Tab 524, at 3949.

event.” Id. at 3946. Immediately thereafter, the window system section provides the design criteria applicable to each protection level--A, B, C, or D. For protection Level D, the window system design criteria state as follows:

The windows shall be designed to withstand the actual peak pressures and impulse from the design blast threat(s) acting on the building up to a maximum level of 10 psi and the corresponding impulse from the design threat. . . . The windows shall be designed to provide at least a high level of protection as defined in Table 4-1 (i.e., condition 1, 2 or 3 is acceptable). . . . The frames and anchors for the windows shall be designed to withstand the dynamic reaction loads imparted by the glazing.

. . .

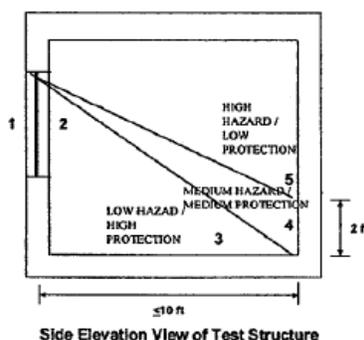
Id. at 3947. Table 4-1 (referenced in the quote above) defines performance conditions 1, 2, and 3 as a measure of glass breakage and how far into the room the glass fragments travel. As relevant here, performance condition 2 is defined as: “Glass may be cracked but is retained by the frame” and “No significant fragments. Dusting or very small fragments near sill or on floor acceptable.”³⁹ Id. at 3950.

The crux of the dispute here is whether the above definitions and criteria require the windows to remain closed in response to a blast event in order to achieve Level D blast protection.

Kirk Marchand, the lead blast engineer for ARA who helped design the retrofit windows, testified for AOC as a fact witness.⁴⁰ Mr. Marchand explained that he considered two

³⁹ The performance conditions are also depicted in the document as follows:

Table 4-1. Glazing protection levels based on fragment impact locations.



R4, Tab 524, at 3950. Performance condition 1 contemplates that the glass cracks but does not fail, and performance condition 3 contemplates that the glass fails but is projected no more than 10 feet from the window. Id. Performance conditions 4 and 5 are depicted but do not apply to Level D because the glass failures are too great.

⁴⁰ In unprompted testimony, MAI’s executive vice president, Kenneth Hayes, referred to Mr. Marchand and the ARA team as “one of the preeminent blast engineers” and “one of the more--most competent of the blast engineers.” Tr. at 1798-99. Mr. Hayes also

possible ways for the window design to meet GSA Level D: (1) a static approach of strengthening the window so that it could absorb energy and remain fixed in place, and (2) a dynamic approach of using controlled movement of the window to dissipate energy in a safe manner. Tr. at 3990-4002; R4, Tab 46, at 618. He chose the latter approach, although more novel than the more traditional static approach, because the windows needed to remain operable and because the static approach would require significant deviations to the existing windows' appearance--most notably, a thickening of the profile. Tr. at 3994-4002; see R4, Tab 46, at 618.

AOC presented expert witness testimony from renowned blast engineer, Dr. Eve Hinman.⁴¹ Dr. Hinman participated in reviewing an expert committee report and commentary on design security criteria in 2003. R4, Tab 526, at 3996. She also co-authored a chapter on building envelope and glazing in the 2010 Handbook for Blast Resistant Design of Buildings.⁴² Grunley Trial Exh. 9. She also helped to develop the GSA security criteria at issue here. Tr. at 5147.

According to Dr. Hinman, AOC's window design meets the Level D blast criteria. Tr. at 5210, 5344-45, 5367. As she explained, the GSA security criteria are silent on whether the windows can open or close, as this is not an issue of concern. Tr. at 6293, 6299, 6287. There is no requirement that the windows remain closed because blast windows are not intended to provide a barrier to outside objects during a blast event.⁴³ Tr. at 5316-17, 5386; see also Tr. at 4100-06. In fact, the GSA security criteria discuss "forced entry and/or ballistic protection" as requirements separate from and additional to blast protection. R4, Tab 524, at 3949.

The focus of the GSA security criteria as they relate to window systems, Dr. Hinman clarified, is whether the window components themselves break away during a blast and injure the occupants in the room. Tr. at 6293, 6299, 6304-07. This is the focus, Dr. Hinman contended, because the highest risk of injury during blast events occurs from the window shards themselves, and not from secondary debris from the outside. Tr. at 5157, 5224. Indeed, the GSA security criteria document emphasizes that window systems "shall be designed to mitigate the potentially lethal effects of flying glass following an explosive event," and it defines the level of protection necessary to meet

explained that ARA blast engineers "are the people who created the blast and glass fragmentation standards for the GSA." Id. at 1799; see also R4, Tab 525, at 3996.

⁴¹ One of Grunley's expert witnesses conceded Dr. Hinman's expertise as a blast engineer. Tr. at 5479.

⁴² In the handbook, Dr. Hinman opines that operable window designs are "conceptually viable" to provide blast protection, although she admitted at trial that she herself has never designed one. Grunley Trial Exh. 9 at 277; Tr. at 5312.

⁴³ Mr. Marchand explained that a blast window has a thin pane of glass that is not designed to stop projectiles. Tr. at 4100. This was something he considered as part of the vulnerability assessment he performed for the USSC in determining whether the Justices' chambers should have ballistic-resistant or blast-resistant glass. Id. at 4099-4100.

Level D by specific reference to the glazing response as defined by the performance conditions in Table 4-1.⁴⁴ R4, Tab 524, at 3946-47. With regard to the anchors and frames, Dr. Hinman explained, they need only stay attached to the wall and hold the glass so it does not break away and injure the occupants of the room. Tr. at 6304-07.

With regard to the contract design here, Dr. Hinman noted that the 2002 ARA blast test of a mockup window (on which the contract design was based) showed that the window opened in a controlled manner, did not break, and the glazing remained in the frame with only a few cracks. Tr. at 5237, 5350. Although two upper transom anchors detached from the wall during the blast test of the mockup window, the contract design modified and added anchors to address this failure. Id. These anchor changes were shown to meet the Level D blast criteria by one of Grunley's experts, John Duntemann, whose firm performed a computer modeling analysis called LS-Dyna of the contract window design. Tr. at 5238. This LS-Dyna analysis showed that, at a full Level D blast load, the contract window frame and glass would remain intact, and the contract anchors would remain attached to the wall.⁴⁵ R4, Tab 531, at 4259; Tr. at 5832-33. Based on this test, Dr. Hinman concluded, there is no doubt that the contract design meets Level D. Tr. at 5210, 5344-45.

Dr. Hinman further explained that allowing the windows to open in a controlled manner poses an acceptable risk of injury to the occupants of the room. Tr. at 5190, 6321. According to Dr. Hinman's interpretation of the 2002 ARA report, the "pressure pulse was gone by the time the windows opened," so there was little risk of injury to the occupants from blast pressure. Tr. at 5189-90. In addition, Dr. Hinman analyzed infill pressures and concluded that the pressures following a blast after the window opened would not be high; some temporary hearing loss and possibly eardrum rupture could occur, but the blast pressure would not cause lung damage, skull fracture, or body translation injuries. R4, Tab 536, at 4356-67. We find that Dr. Hinman's conclusions are consistent with the structural damage definition of Level D, quoted above, which contemplates that some injury to occupants may occur.

Grunley presented expert witness testimony from Jerry Hogan, a window designer who lacks an engineering degree⁴⁶ but who designed the window for MAI; James Cutts, a structural engineer who had never reviewed the GSA security criteria until after filing his expert report and giving his deposition in this matter, Tr. at 5088-90, 5100-02; John Duntemann, a structural engineer whose curriculum vitae shows general

⁴⁴ We reject Grunley's argument that the performance conditions are separate from and irrelevant to the Level D criteria, given that the criteria specifically refer to the performance conditions.

⁴⁵ Grunley raised numerous challenges to the validity of the ARA test, including that ARA did not use a full Level D blast load when conducting the test. In light of its expert's LS-Dyna analysis of the contract design showing that the glass, frames, and anchors would remain intact and attached to the supporting wall in response to a full Level D blast load, we find the challenges to the ARA test unavailing.

⁴⁶ Mr. Hogan took some night courses in civil engineering, but he did not complete an engineering program. Tr. at 1390, 1397.

experience with structural failures in buildings and roads, but no specific experience with window systems or blast design and analysis as it relates to windows,⁴⁷ R4, Tab 531, at 4272-82; Tr. at 4926-30; and Zafar Farooqi, who has over 30 years of general construction experience, but no structural engineering or blast window experience. R4, Tab 530, at 4212; Tr. at 5480.

These witnesses contended that the windows must remain closed in order to protect the occupants of the room from outside debris and blast pressure. Tr. at 2118, 4950-51, 5063-64, 5479, 5855, 6252, 6267. These experts relied primarily on their belief that common sense and sound engineering dictate that closed windows better protect room occupants from blast debris than open windows. Tr. at 5123, 5486, 5651. When pressed to explain what in the criteria requires the windows to remain closed, the first expert to testify (Mr. Hogan), conceded that the GSA security criteria do not address the window's response to secondary debris (*i.e.*, debris other than window fragments) or blast pressures other than the primary blast, which here dissipated before the window opened.⁴⁸ Tr. at 5600, 5651, 5654.

By the end of the trial, Mr. Duntemann and Mr. Cutts gave a different answer to the question. They both opined that the windows must remain closed because the Level D definition as it pertains to window systems requires the windows to "withstand" peak pressures and impulse from blast events. Tr. at 5068-69, 5126, 5883, 5911, 6327. In its post-trial brief, Grunley's lawyers explained that the word "withstand" means "to resist successfully," citing Webster's Online Dictionary for the definition of withstand in lieu of any written authority on blast design.⁴⁹ See Grunley Post-Trial Brief (Jan. 26, 2012)

⁴⁷ Mr. Duntemann's partner, who did not testify but contributed to the expert report, has experience with blast design and analysis. R4, Tab 531, at 4263-64; Tr. at 6240.

⁴⁸ The evidence shows that, at a full Level D load, the primary blast (*i.e.*, peak pressures and impulse) dissipated by 17.8 msec. R4, Tab 46, at 641; Tab 531, at 4246; Tr. at 3959, 5600. One of Grunley's experts (Mr. Duntemann) confirmed, through independent analysis, that the contract window would remain closed until approximately 20 msec when blasted with a full Level D load, and he reported this in his expert report. R4, Tab 531, at 4246. At trial, Mr. Duntemann attempted to argue that the window would open earlier than 17.8 seconds, based on testimony about a finding in the ARA report that the ARA-tested window had between 2.5 and 3.0 inches of "deflection" at 17.8 msec. Tr. at 5826; R4, Tab 46, at 641. However, Mr. Duntemann's LS-Dyna analysis contained an illustration showing that the contract window would still be closed at this level of deflection. R4, Tab 531, at 4260 (showing closed window at 2.8 inches of deflection). To the extent that Grunley contends that any displacement or deflection constitutes a window failure, we reject this argument. As another of Grunley's experts (Mr. Hogan) admitted, no window is airtight and some displacement or deflection is expected in response to a blast. Tr. at 5632. Indeed, MAI's blast window design anticipated a 5-inch displacement of the anchors, which is twice the deflection distance reported in the ARA report. *Id.*; R4, Tab 168, at 1757.

⁴⁹ Dr. Hinman explained that the word "withstand," when read in context of the surrounding text, means only that the performance conditions are met and the window

at 119. The lawyers also argued that closed windows are necessary to meet the “functional requirements” of Level D to protect occupants from injury. Id. at 34. Grunley’s lawyers and experts also relied on various commentary and reports that emphasize that blast events can seriously injure building occupants. See, e.g., R4, Tabs 526 and 527.

We first address Grunley’s allegations that the word “withstand” requires the windows to remain closed. The word withstand appears in two places in the Level D definition: (1) “The windows shall be designed to withstand the actual peak pressures and impulse from the design blast . . .”; and (2) “The frames and anchors for the windows shall be designed to withstand the dynamic reaction loads imparted by the glazing.” R4, Tab 524, at 3947. The first sentence above refers only to withstanding peak pressures and impulse, and not to withstanding rebound pressure, infill pressure, or any other type of pressure that could occur in a blast situation. Mr. Duntemann’s LS-Dyna analysis and the ARA report show, and Mr. Hogan concedes, that the peak pressures and impulse had a duration of 17.8 msec; according to Mr. Duntemann, the contract windows would not begin to open until 20 msec and would not fully open until 60 msec. Tr. at 5600; R4, Tab 46, at 641; Tab 531, at 4246. Thus, even if the windows are required to remain closed to withstand peak pressures and impulse, the evidence convincingly shows that the contract windows would remain closed through the crucial time. The second sentence containing the word withstand, Mr. Cutts concedes, means only that the “the frame has got to hold the glass in place.” Tr. at 5065. Mr. Duntemann’s LS-Dyna analysis and the ARA report show that both the contract window and the ARA-tested window retained the glass in the frame, thus meeting the criteria. Therefore, even adopting Grunley’s dictionary definition of the word withstand, Grunley has not shown that the windows failed to resist successfully as required here.

Moreover, we find Dr. Hinman a more credible source of interpreting the GSA design criteria than Grunley’s experts; she has far more relevant experience in blast engineering and her opinions are credibly supported by the record. We agree with Dr. Hinman that nothing in the GSA security criteria (including the word withstand) expressly or impliedly prohibits a blast window from opening in a controlled manner like the contract design here. While the criteria are intended to minimize injury, the criteria’s discussion of window systems seems to be focused on injuries caused by the glass and window fragments, not on injuries caused by external debris or other blast effects. As the GSA security criteria for window systems state, Level D can be satisfied by meeting performance condition 3, which allows the glazing to shatter and travel up to 10 feet into the room.⁵⁰ R4, Tab 524, at 3947, 3950. If the glass shatters, the window is necessarily open; thus, it cannot be said that the window must stay closed throughout

frames and anchors remain attached to the wall. Tr. at 6286, 6291-93; see also Tr. at 6321.

⁵⁰ Although the parties agreed (post-award) that the blast windows would meet performance condition 2, the contract did not specify which performance condition had to be met and stated only that the intent of the design was to meet Level D. As noted above, Level D blast protection can be met by satisfying performance conditions 1, 2, or 3. R4, Tab 524, at 3947.

the blast event. Moreover, we fail to see how shattered glass projecting 10 feet into a room during a blast is somehow safer than a window system that opens in a controlled manner and keeps the glass and window components intact.

We note that other authorities cited by Grunley support the conclusion that the GSA security criteria are focused primarily on injuries caused by glass fragments, and not on injuries caused by other than window debris. For example, a 2003 Federal Emergency Management Agency (FEMA) “Primer” for the design of buildings to mitigate terrorist attacks reaffirms that the GSA security criteria “ignore” the issue of external debris and focus on glass breakage. R4, Tab 527, at 4124, 4130. The Primer also discusses frame and anchor design as it relates to the breaking stress of the glass. *Id.* at 4127. The FEMA Primer contemplates that operable windows are “conceptually viable”⁵¹ and that mullion design can be accomplished through a “static” approach of resisting breakage (like MAI’s design) or a “dynamic” approach of using peak pressures and impulse values (like AOC’s design). *Id.*; see also R4, Tab 526, at 4037 (explaining static versus dynamic analysis).

We agree with Grunley and its experts that blast events can be potentially harmful to room occupants, and we acknowledge the numerous authorities cited by Grunley that demonstrate the potentially catastrophic consequences of a blast. We also recognize that Grunley believes that MAI’s design is safer than AOC’s, and that AOC’s design is novel and uncommon. However, these arguments do not mean that AOC’s design is defective. The question before the Board is whether the GSA security criteria for window systems--specifically the Level D criteria--require the windows to remain closed at all times in response to a blast event. We conclude that they do not. Accordingly, we find that AOC’s window design meets Level D, is not defective, and is not impossible or commercially impracticable to perform.⁵²

3. Constructive Change

Grunley next claims that, even if AOC’s window design is not defective, AOC nonetheless constructively changed the contract requirements during the February 1, 2005 meeting discussing the window design. In that meeting, Grunley argues, it was directed to build T1 windows that stay fully closed in response to a blast event, using a

⁵¹ By way of example, the FEMA Primer describes a window that opens outward and upward from a horizontal hinge, which will then swing shut during a blast event. R4, Tab 527, at 4127-28. However, the Primer does not suggest that a vertically open window, like the one here, cannot be blast resistant or that it must close in response to a blast. Neither MAI’s blast window nor the contract window was designed to close in response to a blast if those windows were open when the blast occurred.

⁵² In 2003, the Interagency Security Committee (ISC) issued a review and commentary on the design criteria, recommending that the design criteria be expanded to include information on how blasts affect buildings and people. R4, Tab 526, at 4003. Although these recommendations might address some of the concerns raised by Grunley about the more serious effects of blasts on buildings and people, to date, the ISC recommendations have not been adopted. Tr. at 5253.

larger profile and different anchors than were required by the contract. Grunley asserts that the directive for change was given by a “virtual ‘who’s who’ of government representatives” at the meeting: Pamela Talkin (USSC Marshal), Michael Turnbull (Assistant AOC), James Yellman (AOC project manager), and George Skarmeas (Hillier Architect). Grunley Post-Trial Brief (Apr. 23, 2012) at 96. Grunley contends that the directive was repeated in a letter to MAI dated February 2, 2005, which was issued on Hillier letterhead, authored by Mr. Skarmeas, and copied to Mr. Turnbull and Mr. Yellman. R4, Tab 168, at 1756-57.

To establish a constructive change, Grunley must prove that it was required to perform work beyond the scope of the original contract without a formal order under the changes clause, either through an informal order by an authorized government official or through government fault.⁵³ Clark Constr. Group, Inc., GAO CAB No. 2003-1, 05-1 BCA ¶ 32,843 at 162,600; Living Tree Care, Inc., CBCA Nos. 2008, 2204, 11-2 BCA ¶ 34,850 at 171,440. A constructive change pursuant to government direction contemplates both a “change” element and “order” element from a government actor with authority to direct the change. Miller Elevator Co. v. United States, 30 Fed. Cl. 662, 678 (1994); John Cibinic, Jr. & Ralph C. Nash, Administration of Government Contracts 428 (4th ed. 2006). A change directed by someone without authority generally is not compensable, unless the unauthorized act is later ratified or adopted by a government actor with authority to direct changes. Dan Rice Constr. Co. v. United States, 36 Fed. Cl. 1, 3 (1996). Work that is volunteered, or merely follows the advice or suggestions of government personnel, in the absence of a clear directive from someone in the government who has authority to direct a change, does not give rise to a compensable change. Clark Constr. Group, Inc., supra, at 162,600 and 162,609.

We first examine whether Grunley performed work that was beyond the scope of the original contract. As discussed above, the contract required that, if option 6 were exercised, Grunley would provide new windows that had the “same alloy, characteristics, performance, profile, finish and appearance” as the retrofit window design. R4, Tab 11, at 378. The retrofit window design permitted the windows to open during a blast, maintained a narrow profile, and required specified anchors. During the February 1, 2005 meeting, the attendees agreed that Grunley would proceed with a different approach--one that required the windows to remain closed, have a larger profile, and use different anchors. R4, Tab 168, at 1756-57. Arguably, this constituted a change to the new window requirement, which would apply if option 6 were exercised.

However, it is not at all clear that these “changes” to the new window design were directives by the government as much a concession to Grunley and MAI to proceed with their desired approach in the face of the MAI’s resistance to building windows that opened in response to a blast.⁵⁴ Indeed, it is difficult to view the February meeting as

⁵³ We have already determined that the government was not at fault because the specifications were not defective.

⁵⁴ Mr. Hogan (MAI’s window designer who was present at the February 2005 meeting) testified at trial that he would not agree to any criteria that would allow the windows to rotate open, and that he would refuse to work on the project if asked to design windows to remain open. Tr. at 1935; see also Tr. at 2979-80 (Grunley’s vice president and

providing anything other than suggestions or guidance, given that AOC had not yet exercised option 6 and thus had not committed to proceeding with the new window option.

In addition, even if we accept Grunley's position that it was directed at the February meeting to proceed with a design that differed from the contract, all of the government representatives at the meeting lacked the authority to direct such a change. Ms. Talkin and Mr. Skarmeas never had any authority to direct changes. At the time of the meeting, Mr. Turnbull had no change order authority, and Mr. Yellman had only \$50,000 change order authority. Two days later, on February 3, 2005, Mr. Yellman's authority was reduced to \$35,000 and Mr. Turnbull received change order authority up to \$100,000. These dollar amounts are well below the amount of Grunley's claim.⁵⁵ See AOC Post-Trial Brief (May 18, 2012) at 26; Grunley's Post-Trial Brief (May 18, 2012), Exhs. 10-16. Accordingly, none of the government representatives at the meeting had authority to direct the design changes of the magnitude at issue here.⁵⁶

4. Modification 90

We find that Grunley's execution of a release in modification 90 is fatal to all claims concerning the new blast windows that arose prior to September 26, 2005, the date upon which Grunley's senior project manager signed the modification.

A release is a contract whereby a party abandons a claim or relinquishes a right that could be asserted against another.⁵⁷ Holland v. United States, 621 F.3d 1366, 1377 (Fed. Cir. 2011). As a general matter, a contractor who executes a release is thereafter barred from maintaining a suit for damages or for additional compensation under the contract based upon events that occurred prior to execution of the release. Kenbridge Constr. Co. v. United States, 28 Fed. Cl. 762, 765 (1993). A contractor's execution of a

project executive confirmed that Grunley would have "pushed back hard" if AOC insisted on new windows without revisions).

⁵⁵ In addition, the contract stated that project managers for AOC "are without authority to alter the terms or conditions of this contract unless specifically authorized in writing to do so" and that their change order authority was limited "to the extent authorized by the Delegation of Authority." R4, Tab 7, at 123-24.

⁵⁶ Although Grunley contends that the Board may not consider lack of authority because AOC failed to raise it as an affirmative defense in its answer to the complaint, we need not resolve Grunley's objection. Even if we concluded that the issue of authority was not properly before us, Grunley is not entitled to additional compensation for design changes because it released its claims for blast window work under modification 90, as we discuss in the next section of this decision.

⁵⁷ In contrast, an accord and satisfaction discharges a claim because some performance other than that which was claimed to be due is accepted as full satisfaction of the claim. Holland, 621 F.3d at 1377. Although release and accord and satisfaction are distinct defenses, an agreement may constitute both a release and accord and satisfaction, either of which may bar future claims. Id.

release that is complete on its face reflects the contractor's unqualified acceptance and agreement with the terms, and it is binding on both parties absent vitiating circumstances such as duress, fraud, mutual mistake, lack of consideration, or other special and limited circumstances. Augustine Med. Inc. v. Progressive Dynamics, Inc., 194 F.3d 1367, 1373 (Fed. Cir. 1999); J.G. Watts Constr. Co. v. United States, 161 Ct. Cl. 801, 805-07 (1963); Imprimis Investors, LLC v. United States, 83 Fed. Cl. 46, 62 (2008); Kenbridge Constr. Co. v. United States, 28 Fed. Cl. at 765. Where a contractor fails to exercise its right to reserve claims from the operation of a release, it is neither improper nor unfair, absent some vitiating circumstance, to preclude the contractor from maintaining a suit based on events that occurred prior to the release. Kenbridge Constr. Co., 28 Fed. Cl. at 765. The fact that a contractor may be ignorant of its legal right to make a claim at the time it enters into the release is irrelevant; so long as the contractor knew of the facts bearing on the existence of an injury, it is bound by the release. J.G. Watts Constr. Co., 161 Ct. Cl. at 810.

Modification 90--executed by Grunley's senior project manager on September 26, 2005 and by the contracting officer on September 28, 2005--was a bilateral agreement between Grunley and AOC to exercise option 6. R4, Tab 279, at 2355-56. The bilateral nature of this agreement is significant because AOC had lost the right to unilaterally exercise the option because more than 180 days had passed since contract award. Thus, when presented with the option, Grunley was no longer bound to perform the option for the proposed price and could have renegotiated the price, or any other term, before its authorized representative signed the option binding Grunley to perform the new window work. Yet, Grunley's senior project manager executed modification 90, committing Grunley to perform the option 6 work for the originally proposed reduction in price of \$329,000. That modification contained the following release:

In consideration of the modification(s) agreed to herein as complete equitable adjustment, the contractor hereby releases the Government from any and all liability for all costs, both direct and indirect, under this contract for further equitable adjustments for work covered under this Modification. Except as provided herein all terms and conditions of the contract remain unchanged and in full force and effect.

R4, Tab 279, at 2356.

Grunley's senior project manager (Robert Reeve) and Grunley's vice president and project executive (John Greenwell) were the individuals who decided whether Grunley should agree to the release. Tr. at 2978. Mr. Greenwell and Mr. Reeve discussed the release among themselves and concluded that Grunley would not be releasing any claims for new window work if it agreed to the release. Tr. at 801, 975-78, 2979. However, nobody at Grunley advised AOC of Grunley's interpretation of the release. Tr. at 1324. As senior project manager for Grunley, Mr. Reeve had seen the same or similar release language "many times" in modifications and understood what release language typically meant. Tr. at 1311. In fact, Grunley had reserved claims when exercising other modifications to this contract that contained nearly identical release language. Tr. at 1311, 2980-81, 2984-86; R4, Tab 516, at 3586.

Prior to the execution of modification 90, all of the events that gave rise to Grunley's claims for defective design and constructive change had occurred. Grunley had been provided the 2002 ARA report and numerous clarifications concerning the contract design requirements, had disputed AOC's contention that the blast windows could open and still meet Level D, and had agreed at the February 2005 meeting to design parameters different from the ones contemplated by the contract in order to address Grunley's and MAI's concerns about meeting the blast requirement. MAI had submitted shop drawings and constructed a mockup based on its design, which AOC had approved. MAI had also entered into a subcontract with Grunley to build new windows based on this new design.

At trial, Mr. Greenwell and Mr. Reeveer conceded that, at the time of the modification, they believed that the contract design for blast windows was defective and that the blast window design had been changed. Tr. at 789, 791, 793, 801, 978, 981. Mr. Reeveer asserted that "everybody [by the time of the modification] knew that there were a bunch of changes to the contract documents." Tr. at 981. Mr. Greenwell contended that the modification was necessary to "memorialize the direction we'd been going for months." Tr. at 799. Mr. Greenwell admitted to renegotiating MAI's subcontract, prior to the execution of modification 90, to incorporate the design requirements discussed at the February 2005 meeting. Tr. at 595-98.

Notwithstanding this claimed belief that the design was defective and that changes had occurred, Mr. Greenwell contended at trial that he objected (3 months before receipt of the modification) to AOC's characterization of option 6 as a change to the contract. Tr. at 580. At most, this shows that he was ignorant of Grunley's legal right to assert a claim, perhaps believing that MAI's design development under a performance specification (which option 6 was) was not a change to the contract. When presented with a bilateral modification, nobody at Grunley opposed the inclusion of a release in the modification, and Mr. Reeveer agreed to the release (after discussing it with Mr. Greenwell) without reserving any claims for new window work covered by the modification. In fact, Grunley did not submit any claims for defective design or constructive change until 2010, which was 5 years after the parties' executed modification 90 with the release, when Grunley submitted its request for a contracting officer's final decision in connection with this appeal.

We find, based on all of the evidence, that Grunley's representative, with full knowledge of the facts giving rise to claims for defective specifications and new window design changes, and with authority to bind Grunley, executed an agreement that released AOC from these claims. We find that this release is enforceable, and we conclude that it operates as a bar to Grunley's defective design and constructive change arguments in this appeal.⁵⁸

⁵⁸ The release also bars Grunley's claims for superior knowledge and misrepresentation, as the facts giving rise to these claims (*i.e.*, Grunley's receipt of the 2002 ARA report) arose prior to the execution of modification 90.

a. Parole evidence

Grunley raises multiple arguments attacking the release based on extrinsic evidence. Grunley presented several witnesses at trial who testified that they did not intend to release any claims by signing the modification. These witnesses claimed that they thought the modification was a mere administrative formality to execute the option. They further claimed that there was no meeting of the minds, no negotiation, and no consideration for the release.

Because a release is contractual in nature, it is interpreted in the same manner as any other contract term or provision. Bell BCI Co. v. United States, 570 F.3d 1337, 1341 (Fed. Cir. 2009). The Board first looks to the plain meaning of the language of the release, considered in the context of the document as a whole, to ascertain the intent of the parties. See id. Where the release language is unambiguous, the Board must give the plain meaning effect and cannot consider parole evidence to establish a contrary intent of the parties. Id.; Whiting-Turner Contracting Co., ASBCA No. 56319, 10-1 BCA ¶ 34,436 at 169,951; see also Holland, 621 F.3d at 1378. A contractor's execution of a release that is complete on its face reflects the contractor's unqualified acceptance and agreement with the terms and is binding on both parties. Kenbridge Constr. Co., 28 Fed. Cl. at 765.

We find that the meaning of the modification and release at issue here is clear and unambiguous so as to establish a meeting of the minds: in exchange for the government's agreement to proceed with option 6, Grunley agreed to reduce its price and release the government from "any and all liability for all costs, both direct and indirect, under this contract for further equitable adjustments for work covered under this Modification." R4, Tab 279, at 2356 (emphasis added). Contrary to Grunley's argument, "work covered under this Modification" is not ambiguous and does not refer to the administrative act of signing the option "and nothing else." Grunley Post-Trial Brief (Apr. 23, 2012) at 67. The modification's stated purpose was to "exercise Option 6." R4, Tab 279, at 2356. The exercise of option 6 had meaning; it contractually required Grunley to "[p]rovide all work required to furnish and install new windows in lieu of" the retrofit windows. R4, Tab 11, at 378. Thus, the work covered under this modification unquestionably includes the work necessary to provide new windows in lieu of the retrofit windows.

We also find no ambiguity as to which claims Grunley was releasing under the modification. The release covers "any and all liability for all costs, both direct and indirect" for work performed to provide new windows, without exceptions or exclusions or a reservation of any claims. R4, Tab 279, at 2356. Grunley's claims for defective specifications and changes, which were based on events that occurred prior to the modification and were known to Grunley at the time it agreed to the release, are unequivocally encompassed within "any and all . . . costs."⁵⁹ Based on the plain language of the release, Grunley is barred from pursuing these claims here.

⁵⁹ Grunley's claims for misrepresentation and withholding superior knowledge, arising from disclosure of the ARA test results, are similarly barred by the release because the events giving rise to these claims occurred prior to the execution of modification 90.

Because we find the language of the release to be clear and unambiguous, we must rely on the plain meaning of the release and cannot consider parole evidence to establish a contrary intent of the parties. Bell BCI Co., 570 F.3d at 1341-42. Therefore, we decline to consider the testimony of the numerous Grunley witnesses who have attempted to argue that they did not intend to release Grunley's claims.

Grunley contends that, notwithstanding the law in Bell BCI Co., the Board should consider the testimony of the witnesses as evidence of "surrounding circumstances" to ascertain the "mutual intent" of the parties. Grunley Post-Trial Brief (May 18, 2012) at 45-51. In support of this proposition, Grunley cites Metric Constructors, Inc. v. NASA, 169 F.3d 747 (Fed. Cir. 1999). That case discusses the use of trade practice and custom in interpreting contract language, noting that trade practice and custom may illuminate the context of the parties' negotiations and agreements. Importantly, Grunley is not relying on trade practice and custom here to illuminate context. Rather, it is relying on self-serving testimony, years after the contractor agreed to a binding release, in an attempt to invalidate and render meaningless that release--the precise situation where parole evidence should not be considered. Bell BCI Co., 570 F.3d at 1341. Furthermore, to the extent that trade practice exists at all, it may have been to preserve claims by expressly reserving them under the release, as Grunley did when executing other modifications to this contract that contained a release. See R4, Tab 516, at 3586; Whiting-Turner Contracting Co., *supra*, at 169,952 (enforcing modification's release where no claims were reserved, contrasting contractor's actions in reserving claims under other modifications); see also United States v. William Cramp & Sons Ship & Engine Bldg. Co., 206 U.S. 118, 128 (1907) (noting that "[i]f parties intend to leave some things open and unsettled, their intent so to do should be made manifest"). Thus, we fail to see how trade practice and custom supports Grunley's arguments here.

The other cases cited by Grunley merely recite basic tenets of contract interpretation that reinforce the principle that the Board here should enforce the plain meaning of the unambiguous release. See, e.g., Foreman v. United States, 329 F.3d 837, 842 (Fed. Cir. 2003)⁶⁰; Imprimis Investors, LLC v. United States, 83 Fed. Cl. at 61; Enron Fed.

⁶⁰ Several cases cited by Grunley, including Foreman, recite the principle that the plain meaning of the contract's text controls, unless the parties mutually agreed otherwise. E.g., ACE Constructors, Inc. v. United States, 499 F.3d 1357, 1361 (Fed. Cir. 2007); Jowett v. United States, 234 F.3d 1365, 1368 (Fed. Cir. 2000); Massie v. United States, 166 F.3d 1184, 1189 (Fed. Cir. 1999). The parties have not mutually agreed to adopt the interpretation offered by Grunley; there is only Grunley's one-sided assertion that it believed the release to be meaningless.

Grunley sought to establish "mutual" intent through the testimony of James Beckett, a Hill International employee who served as AOC's quality control superintendent for the project. Mr. Beckett did not sign the modification and had no contractual authority to bind AOC, so his testimony has little relevance in establishing the contracting officer's intent in executing the modification. In any event, Mr. Beckett confirmed his belief that modification 90 "was to formally incorporate Option 6 into the contract" and that, by signing the release, Grunley was "in agreement that they have none or any issues with the subject of the contract modification." Tr. at 3364-66.

Solutions, Inc., v. United States, 80 Fed. Cl. 382, 393-94 (2008). None of the cases stand for the proposition that extrinsic evidence can be used to invalidate an otherwise unambiguous release. Although some of the cases suggest that the forum should consider the context in which a release is executed to determine whether an ambiguity exists, see, e.g., Enron Fed. Solutions, Inc., 80 Fed. Cl. at 393-94, we find no contextual support for an ambiguity here. To be ambiguous, a contract provision must be subject to more than one reasonable interpretation, each of which is consistent with the contract language. Id. Grunley's interpretation that the release has no meaning is not reasonable and runs afoul of a basic tenet of contract interpretation, which is to give reasonable meaning to all of the terms of a contract so that no provisions are rendered meaningless, inoperable, or void. Id. Here, Grunley's representatives admit to discussing the release and understanding its meaning, but they chose to stay silent and not object to the release or reserve any claims under the release. There is no ambiguity, only a course of action that Grunley now regrets.

b. Consideration

Grunley argues that the release is not supported by consideration. We disagree and find that modification 90, which contained the release, is supported by valid consideration.

Consideration is valid if there is a bargained-for exchange of promises. Restatement (Second) of Contracts §§ 71(1), 71(3), 79(a) (1981); Turner Constr. Co., GSBICA No. 15502, 05-1 BCA ¶ 32,924 at 163,097. The modification here reflected a mutual exchange of promises for AOC to accept new blast windows in lieu of retrofit windows, in return for Grunley's agreement to reduce its price and provide a release. These promises were made at a time when neither party had the right or obligation to proceed with option 6, and after Mr. Greenwell and Mr. Reeve thoughtfully discussed whether to execute the modification with the release. We cannot say that promises by authorized Grunley representatives made after thoughtful consideration are not bargained for, as Grunley argues.

The bargained-for and negotiated nature of the agreement is also reflected on the face of the modification. In this regard, the modification was executed as a supplemental agreement, which is defined in the contract as a "bilateral contract modification . . . which makes a negotiated equitable adjustment" as a result of a change to the contract.⁶¹ R4, Tab 7, at 159. The release itself referred to a "complete equitable adjustment" of claims for work covered under the modification. R4, Tab 279, at 2356. The fact that Grunley chose not to negotiate better terms for itself does not invalidate the consideration or eliminate the negotiated and bargained-for nature of the agreement. See Cieminski v. Flaughner, et al., No. 1:06-cv-568, 2008 U.S. Dist. LEXIS 12439, at *25 (S.D. Ohio Feb. 20, 2008).

To the extent that Grunley argues that a reduction in price for the new window work cannot constitute valid consideration, or that the release needs separate consideration

⁶¹ Contrary to Grunley's assertion, a supplemental agreement is considered to be a change to the contract. See R4, Tab 7, at 159.

from the modification, those arguments are baseless. Generally, boards and courts do not evaluate the adequacy of consideration, only the existence of consideration. Axion Corp. v. United States, 68 Fed. Cl. 468, 476 (2005); Green Mgmt. Corp. v. United States, 42 Fed. Cl. 411, 435 (1998). Had AOC not agreed to the new window option, then Grunley would have had no legal right to proceed with MAI's new window design and it would have had to start over with a retrofit approach, a fact which Mr. Grunley himself concedes. Tr. at 2603-04. For 17 months, Grunley and MAI had been focusing all of their efforts on designing and preparing to manufacture new windows; no work at all had been done to provide retrofit windows under the base contract. See Tr. at 1534, 1749, 1755-56, 2458; R4, Tab 108, at 1281. Had AOC declined to exercise the option, it is not clear that Grunley or MAI had any contractual right to recover the costs for their efforts in developing a new window design, and Grunley may very well have been liable to AOC for schedule delays for not making any progress with the retrofit windows for 17 months. Furthermore, proceeding with a retrofit approach rather than manufacturing new windows was not without risk because a retrofit approach provided MAI with less control over the schedule, materials, fabrication, and quality. Tr. at 1737-38, 1828-29. Therefore, we do not find credible Grunley's argument that it received no benefit from the execution of the option through modification 90. Accordingly, we find that valid consideration for modification 90 exists here. Cf. Yardney Technical Prods., Inc., ASBCA No. 53866, 09-2 BCA ¶ 34,277 at 169.334 (no consideration to support modification for contract change where contractor did not receive monetary compensation, where change was necessary to resolve government's "self-inflicted inconsistency" in requirements, and where change provided no benefit to the contractor).

c. Contracting officer's decision

Grunley argues that special circumstances exist that render the release null and void.⁶² Specifically, Grunley asserts that AOC waived the release by considering Grunley's claims on the merits in the contracting officer's final decision without sufficiently raising the release as a defense.

We recognize that courts have found releases to be unenforceable when the government's consideration of the claim, after the release has been executed, manifests an intent that the parties never construed the release as an abandonment of the claim. Sam Bonk Uniform & Civilian Cap Co., Inc. v. United States, 230 Ct. Cl. 926, 928 (1982); J.G. Watts Constr. Co., 161 Ct. Cl. at 807; Winn-Senter Constr. Co. v. United States, 110 Ct. Cl. 34, 66 (1948). However, the intent of the government not to be bound by the release must be clear. See, e.g., England v. Sherman R. Smoot Corp., 388 F.3d 844, 850 (Fed. Cir. 2004) (payment of claim manifests intent not to be bound by release). Courts have found that the government's consideration of a claim manifested an intent not to be bound by the release when the contractor submitted a claim before executing the release and the contracting officer considered the claim after

⁶² As noted above, duress, fraud, and mutual mistake are examples of vitiating circumstances that render an unambiguous release null and void. J.G. Watts Constr. Co., 161 Ct. Cl. at 806-07; Walsh/Davis JV, CBCA No. 1460, 12-1 BCA ¶ 34,968 at 171,904. Grunley has not argued that any of these vitiating circumstances exist here.

the release; that is, the contractor's filing of the claim and the government's consideration of the claim "straddled" the release. See Sam Bonk Uniform & Civilian Cap Co., Inc., 230 Ct. Cl. at 928-29; Winn-Senter Constr. Co., 110 Ct. Cl. at 66; A&K Plumbing & Mech., Inc. v. United States, 1 Cl. Ct. 716, 723 (1983). However, where a contractor submitted a claim for the first time years after signing the release, the contracting officer's discussion of the merits without mentioning the release has been found to "shed no light" on the parties' intention. Sam Bonk Uniform & Civilian Cap Co., Inc., 230 Ct. Cl. at 928-29; see also J.G. Watts Constr. Co., 161 Ct. Cl. at 807 (claim submitted 5 years after contract completion barred by release).

The record here does not show that AOC manifested an intent not to be bound by the release. At no point prior to submitting a claim in 2010 did Grunley advise AOC that it would be seeking additional compensation for the design and fabrication of new windows (except for claims relating to the dimensions and shape of the windows and trim, which it raised in 2007 and which are the subject of CAB No. 2007-3). Five years after the February 2005 meeting, Grunley presented a 3-part claim that was not the model of clarity and focused largely on delay issues. The government responded on the merits to the major issues raised and argued that the release in modification 90 barred recovery for "any aspect of Option 6, including timing."⁶³ R4, Tab 519, at 3867. On these facts, we cannot find that AOC intended not to be bound by the release in modification 90.

d. Affirmative defense

Grunley also argues that AOC waived the release by not raising it as an affirmative defense in answer to Grunley's complaint to the Board. Grunley contends that, in accordance with Federal Rules of Civil Procedure 8(c), this Board cannot consider affirmative defenses that are not raised in the answer.

This Board's rules of procedure require that the government's answer to a complaint contain "direct statements of the government's defenses to each claim asserted by the appellant." GAO CAB Rule 5(b); see also Fed. R. Civ. Proc. 8(c). However, where matters not raised in the complaint or answer are tried by the express or implied consent of the parties, our rules state that the Board "shall" treat the matters "in all respects as if they had been raised in the pleadings." GAO CAB Rule 5(d); see also Fed. R. Civ. Proc. 15(b)(2). A party impliedly consents to the trial of an issue not contained within the pleadings either by introducing evidence on the new issue or by failing to object when the opposing party introduces such evidence. Palasota v. Haggard Clothing Co., 499 F.3d 474, 487 n.10 (5th Cir. 2007); Koch, et al. v. Koch Indus., Inc.,

⁶³ Grunley's argument that the contracting officer only intended the release to bar claims for the late exercise of option 6 is wrong, based on the plain language in the contracting officer's final decision that the release applied to "any aspect of Option 6, including timing." R4, Tab 519, at 3867. The fact that the contracting officer placed her discussion of the release in the section of her decision titled "Late Award of Option 6" does not manifest a clear intent to abandon the release with regard to other allegations raised by Grunley, especially given her choice of wording in asserting the release as a defense to "any aspect of Option 6" and the lack of clarity of Grunley's claims.

203 F.3d 1202, 1217 (10th Cir. 2000); Rodriguez v. Doral Mortgage Corp., 57 F.3d 1168, 1172 (1st Cir. 1995). As shown below, Grunley tried the issue of enforceability of the release and thus the matter is properly before the Board.

In its complaint, Grunley asserted allegations of defective design and changes. Complaint ¶¶ 20, 33, 43-46, 96, 105. AOC never raised the release as an affirmative defense in its answer to Grunley's complaint. AOC first asserted the release as a defense in its pre-trial brief in May 2011. AOC Pre-Trial Brief (May 10, 2011) at 11, 25, 27. The Board held multiple conferences after the parties filed their pre-trial briefs and before the trial; the parties also filed corrected briefs before trial commenced. Grunley's lawyers never objected to AOC's assertion of the release as a defense.

Grunley's lawyers presented their case-in-chief by including testimony from several Grunley witnesses to explain their interpretation of the release and why they believed the release should not be enforced. Tr. at 582-89, 875-80, 974-84, 1337-40. Grunley's lawyers did not oppose AOC's cross-examination of Grunley witnesses about the release, or oppose AOC's examination of its own witness about the modification.⁶⁴ Tr. at 798-804, 1243-49, 1311, 1324, 2977-86, 3036-50. Grunley's lawyers also asked questions of one of AOC's witnesses about the release. Tr. at 3363-66. At no point during the trial did Grunley's lawyers object to the Board's consideration of the release, object to the inclusion of testimony or evidence about the release, or complain that the presentation of evidence about the release was improper given that AOC failed to timely raise the release as an affirmative defense in its answer.

Per the agreement of the parties, post-trial briefs were presented seriatim, in large part because Grunley's claims continued to develop throughout the litigation. Grunley filed its post-trial brief first. In that brief, Grunley devoted 9 pages to arguing why the release did not apply to the defective design and changes claims. Grunley argued that the release was administrative, ambiguous, not negotiated, not supported by consideration, and did not reflect a meeting of the minds. Grunley Post-Trial Brief (Jan. 26, 2012) at 134-42. Grunley asserted that the contracting officer's failure to rely on the release in her final decision (which is factually incorrect) and AOC's failure to rely on the release as a defense in its answer to the complaint showed that there was "no meeting of the minds" that the release would apply to Grunley's claims. Id. at 141. Grunley did not object to the Board's consideration of the release on the merits.

Post-trial briefing continued. Grunley's next brief contained 12 pages of substantive arguments discussing the merits of the release. Grunley expanded on arguments previously raised, and it responded to AOC arguments asserting enforceability and applicability of the release. In addressing the merits, Grunley again argued that AOC's failure to rely on the release in the contracting officer's final decision and in its answer to

⁶⁴ Grunley's lawyers raised no objections to AOC's cross-examination of two Grunley witnesses, and they raised only one objection during cross-examination of a third witness on the grounds that a question called for a legal conclusion. Tr. at 802. During AOC's examination of an AOC witness, Grunley raised more numerous objections, but only on the grounds that the questions were leading, called for a legal conclusion, or lacked foundation for the witness answer. Tr. at 3037, 3040-49.

the complaint showed that the parties did not intend the release to apply to Grunley's claims. Grunley Post-Trial Brief (Apr. 23, 2012) at 63-75. However, Grunley still did not object to the Board's consideration of the release on the merits.

The Board sought additional argument addressing the merits of the release, specifically asking the parties to address the application of Bell BCI Co. v. United States, 570 F.3d 1337 (Fed. Cir. 2009), to this case, and to address Grunley's argument that the contracting officer's consideration of the claim after execution of the release manifested an intent not to be bound by the release. Board E-Mail Order (Apr. 25, 2012) at 1. Grunley responded with 52 pages of argument addressing the interpretation and application of the release. However, for the first time, Grunley also asserted that the Board should not consider any aspect of the release because AOC failed to raise it as an affirmative defense in its answer. Grunley Post-Trial Brief (May 18, 2012) at 1. In its final two briefs, Grunley addressed the merits of the release and continued to contend that the Board was precluded from considering the release due to AOC's failure to timely plead it in the answer as an affirmative defense.⁶⁵ Grunley Post-Trial Brief (June 1, 2012) at 2-4; Grunley Post-Trial Brief (June 18, 2012) at 32-34.

As shown above, Grunley did not object to AOC's raising the defense of release in AOC's pre-trial brief. In addition, Grunley elicited trial testimony from its witnesses on the meaning of the release in its case-in-chief, and it did not object to either AOC or the Board asking any follow-up questions concerning the release. Grunley filed multiple briefs arguing the merits of the release before objecting to the Board's consideration of the release as a defense to Grunley's claims. On these facts, Grunley impliedly

⁶⁵ After questioning numerous witnesses about the release and filing more than 70 pages of argument advancing its interpretation of the release, Grunley's lawyers complained in their final post-trial brief that they were "surprised" to have to engage in questioning about the release at trial, and only did so after the Board began questioning Grunley's witnesses about the release. Grunley Post-Trial Brief (June 18, 2012) at 33. Grunley's claims are incredible. The trial transcripts show that Grunley's lawyers, on their own initiative, questioned their witnesses about the release; they were not prompted or encouraged by the Board to do so. The first witness to testify about the release was Mr. Greenwell. Grunley's lawyer asked several questions to elicit Mr. Greenwell's understanding of the purpose and intent of modification 90; Grunley's lawyer also asked Mr. Greenwell to describe conversations he had with AOC and others concerning the modification. Tr. at 580-87. Then Grunley's lawyer asked Mr. Greenwell the following question: "There is a contract statement of release [in the modification], all right? What was your understanding of this, if any?" Tr. at 587. After Mr. Greenwell responded, the Board asked only that he clarify who was involved in discussing and executing modification 90. Tr. at 588-89. Grunley's lawyers did not object to the question. During AOC's cross-examination of Mr. Greenwell on the issue of the release, Grunley's lawyers objected only once on the grounds that a question called for a legal conclusion. Tr. at 802. This type of exchange continued through multiple other witnesses, with Grunley's lawyers questioning the witnesses, the Board occasionally seeking clarification, and AOC cross-examining the witnesses--all without a single objection raised by Grunley's lawyers to the presentation of evidence addressing the merits of the release.

consented to trial of the issue. Thus, the Board amends the pleadings to conform to the evidence. GAO CAB Rule 5(d); Fed. R. Civ. Proc. 15(b)(2); Palasota v. Haggard Clothing Co., 499 F.3d 474, 487 n.10 (5th Cir. 2007) .

Additional Demolition

Grunley seeks additional compensation under the changes clause for demolition and restoration required to install the T1 windows, which Grunley argues exceeded what it anticipated at the time of contract award. Grunley contends that significantly more demolition and restoration was required because it had to use larger spring anchors to correct AOC's defective design, and because the windows were heavier than anticipated and each had to be installed as a single unit.

As we have determined above, AOC's window design was not defective and the anchors were shown (by a Grunley expert's LS-Dyna analysis) to perform satisfactorily during a Level D blast event. To the extent that Grunley's theory of recovery is AOC's allegedly defective design, its claim for demolition and restoration costs is denied.

To the extent Grunley claims that AOC is responsible for demolition resulting from AOC's agreement to allow MAI to use its spring anchors in lieu of the contract anchors, we are not persuaded that AOC is liable for Grunley's increased demolition costs. As noted above, MAI decided to use spring anchors in the fall of 2004, well before Grunley or MAI raised any concern about the contract window design, and, therefore, MAI's decision to use spring anchors cannot be said to be caused by AOC's allegedly faulty design. See R4, Tab 133, at 1434. Furthermore, during the February 2005 design meeting, MAI's window designer represented to AOC that MAI's spring anchors would result in less demolition because fewer anchors would be needed as compared to the contract design.⁶⁶ R4, Tab 163, at 1666; Tr. at 3389. As an expert witness explained during trial, the demolition required by MAI's design required less precision and was more efficient, which should have resulted in lower costs. Tr. at 4416. Although Grunley presented evidence at trial that it removed more materials than it anticipated, we fail to see how AOC is responsible, given that the decision to use spring anchors arose prior to the design dispute and the contractors led AOC to believe that the anchors would require less, not more, demolition.

We also find no merit to Grunley's argument that AOC is responsible for demolition and restoration costs because each window was heavy and had to be installed as a single unit. The new windows were built based on MAI's design under a performance specification for which MAI and Grunley, not AOC, had design responsibility. Thus, if MAI's design was heavier than anticipated, liability rests with the contractors and not with AOC. In any event, MAI's design incorporated aluminum structural members to make the windows lighter than the retrofit design because aluminum is approximately one-third the weight of steel. Tr. at 1418-19. As a result, even with a larger profile and different anchors than the retrofit design, Grunley has not shown that the MAI windows

⁶⁶ Grunley representatives present at this meeting did not correct MAI's representation, despite Grunley's claim now that it was "obvious" that MAI's anchors would result in more demolition. Tr. at 1321.

were heavier than the retrofit windows contemplated by the contract. In addition, the contract specified factory-installed glazing for new windows, which required that each window be installed in one piece and not in sections. R4, Tab 15, at 413; Tr. at 4416. To the extent that Grunley failed to take into account the weight of the windows and the requirement to install each window as a single unit, the fault lies with Grunley and not with AOC.

Finally, we find that Grunley released its claims relating to demolition and restoration when it executed modification 90. At that point in time (September 2005), Grunley knew that MAI was going to use its spring anchors in lieu of the contract anchors, and it should have reasonably investigated the impact of MAI's design on installation or reserved claims relating to installation under the release.

Finishes

Grunley next asserts that AOC changed the finish requirement for the T1 windows, thus entitling the firm to additional compensation under the changes clause. Grunley argues that AOC directed it to provide directional finish in lieu of statuary finish, which was more costly and labor intensive to produce. For purposes of the discussion here, directional finish is a polished finish created by manual or mechanical means, whereas statuary finish creates color tones by chemical means. NAAMM Metal Finishes Manual for Architectural and Metal Products, ch. 2, at 2-4, 2-7⁶⁷; Tr. at 2173, 4392-96.

The contract contained the following requirement for bronze finish:

Match the finish of existing windows. Existing bronze work will not be refinished; treat new bronze to match color of existing aged bronze.

R4, Tab 15, at 414. The parties are in agreement that the exterior of all existing T1 windows had statuary finish. Tr. at 1002, 4387. The parties also agree that the interior of existing T1 windows had a mix of #4 directional and statuary finishes, although they disagree (and the record does not clarify) as to which finish was on each of the windows. Complaint ¶ 63; R4, Tab 517, at 3707; Tr. at 1366, 2251-52, 2371-72, 3741; see also R4, Tabs 255, 329, 335; AOC Trial Exh. 3. Ultimately, Grunley was required to provide #6 directional finish on the interior of all T1 windows, except for seven windows that received statuary finish on the interior. R4, Tab 277, at 2347-48. The difference between #6 and #4 directional finish is that the higher number requires additional polishing to create a finer, brighter finish. Tr. at 2370.

Grunley contends that the contract required only one finish--statuary--on both the inside and outside of the windows. Grunley is incorrect. As quoted above, the contract required Grunley to "match the finish of existing windows" and to treat the new bronze to "match [the] color of existing aged bronze." R4, Tab 15, at 414. To interpret the meaning of these provisions, we must read the contract as a whole and in a manner that gives effect to all provisions and makes sense. New Valley Corp. v. United States,

⁶⁷ As noted above, the contract required that finish designations comply with the NAAMM manual. R4, Tab 15, at 414.

119 F.3d 1576, 1580 (Fed. Cir. 1997). Read in this manner, we find that the requirement to match the existing aged bronze means simply to match the existing finish of the old windows, which, as we noted above, was a mix of #4 directional and statuary finishes on the interior.

Grunley's assertion that the requirement to match the color of aged bronze is a directive to provide statuary finish on all windows is not reasonable, as it renders meaningless the requirement to match the finish of existing windows. Furthermore, the finish manual identified in the contract does not support Grunley's interpretation, as it refers to the word "aged" in the ordinary sense and not as a designation of a particular finish. See NAAMM Metal Finishes Manual for Architectural and Metal Products, ch. 2, at 2-7, 2-13. The manual describes statuary finish as a range of color tones created by chemical means, from a light golden color to black. Id. at 2-7. The manual does not use the words statuary and aged interchangeably as Grunley suggests here. To the extent that Grunley witnesses believed that those words were interchangeable, their beliefs were not reasonable given the unambiguous contract term that stated that finish designations were to comply with the NAAMM manual. R4, Tab 15, at 414.

Based on the record and testimony before us, we find that the interior of the T1 windows originally had a mix of statuary and #4 directional finishes. Accordingly, Grunley's request to be reimbursed for the difference in costs between providing statuary and #6 directional finish on the interior of all of the T1 windows is denied. However, we find that Grunley is entitled to recover the difference in costs between providing statuary and #6 directional finish on the limited number of T1 windows that originally contained statuary finish on the interior and for which Grunley was required to apply #6 directional finish. We further find that Grunley may also recover the difference in costs between providing #4 and #6 directional finish on those windows that originally contained #4 directional finish on the interior. Because evidence of quantum was not presented at trial, we make no findings as to how many of the windows originally contained either statuary or #4 directional finish on the interior.⁶⁸

Tolerances

Grunley complains that AOC unreasonably rejected multiple mockup windows due to gaps in the joinery and other flaws in construction. Grunley contends that the AOC-imposed tolerances for fitting window joinery were more restrictive than industry standards, inconsistent with MAI's prior work for the Department of State and the Pentagon, more restrictive than the tolerances required for new ballistic windows or the tolerances existing on the 70-year-old windows that were to be replaced, and unreasonable under the circumstances. Grunley complains that AOC failed to timely establish objective, mathematical tolerances to define the subjective requirement in the

⁶⁸ We note that Grunley's first change order request relating to the finishes was submitted on the same day that Grunley's authorized representative signed modification 90 and the release; Grunley did not, however, reserve the finish claims under the release. R4, Tabs 278-79, at 2349-56. Nevertheless, AOC admits that the finish claims are not covered by the release. AOC Post-Trial Brief (June 1, 2012) at 18.

contract, and it suggests that a more lenient objective standard should have been applied.

The contract required that Grunley “[c]arefully fit, cut, and miter new components to form tight, flush joints between window components.” R4, Tab 15, at 413. Grunley’s first four mockups did not contain “tight, flush joints” as required by the contract. Numerous construction flaws were documented in field observation reports, meeting minutes, pictures,⁶⁹ and written correspondence, and were described by witnesses at trial. These flaws included, among other things, excessive gaps at joined metal pieces, poorly mitered joints, out-of-plane pieces, and pieces that were not flush. R4, Tab 337, at 2639-41; Tab 340, at 2663; Tab 344, at 2672-73; Tab 347, at 2683-85; Tab 355, at 2746-47; Tab 364, at 2771; Tab 366, at 2773-87; Tab 377, at 2866; Tr. at 3168, 3189, 3196, 3515-16, 3700. After four mockup attempts, Grunley asked AOC to point out acceptable joints, and Grunley measured those gaps to be no greater than 1/64 inch. R4, Tab 377, at 2866-68; Tr. at 1017, 1368, 4142. Using a 1/64-inch tolerance, MAI manufactured a fifth mockup window, which AOC approved, and MAI fabricated the remaining windows using this tolerance.⁷⁰ Tr. at 1018, 1020.

We reject Grunley’s contention that AOC imposed an unreasonable standard for tolerances. The contract clearly required that joints be “tight” and “flush.” Gaps at the joints, out-of-plane components, and pieces that are not flush--as existed in Grunley’s first four mockups--do not meet this standard. In rejecting Grunley’s mockup windows, AOC did nothing more than reasonably insist on compliance with the contract. We further find that the tolerances imposed were reasonable under the circumstances. The USSC is a unique historic building, austere in nature, with unique monumental windows that will be viewed up close by the Justices and the public. Mr. Grunley himself conceded that, for this project, he expected AOC to have “exacting standards” and to demand “very high quality work.” Tr. at 3013. AOC’s insistence on tight tolerances is consistent with the austere nature of the building, was required by the contract, and is unobjectionable.⁷¹

Furthermore, Grunley has not shown that AOC’s insistence on tight, flush joints is inconsistent with industry standards. In this regard, Grunley concedes that there are no industry standards that address gap tolerances for historic windows like those at the

⁶⁹ Grunley and MAI complain that the pictures magnify the gaps because the pictures were taken a short distance from the window. Although the pictures may not be true to scale, they nonetheless depict significant gaps showing that the joints were neither tight nor flush. R4, Tab 366, at 2786-87; Tab 537, Pics 14-69.

⁷⁰ AOC did not insist on a 1/64-inch or “zero” tolerance, as Grunley contends. Rather, that tolerance was established by Grunley after measuring acceptable gaps. Tr. at 1017, 1368, 4142. In any event, a 1/64-inch tolerance is consistent with the contractual requirement for “tight, flush joints,” which contemplated no gaps or uneven planes. Tr. at 3380, 3527-28. Thus, even if AOC had insisted on no more than a 1/64-inch gap, such insistence would not have been objectionable.

⁷¹ In addition, available technology enables window manufacturers to make precise and exacting cuts in order to achieve the “perfect fit.” Tr. at 4399, 5773.

USSC. Grunley Post-Trial Brief (Apr. 23, 2012) at 141-42; Tr. at 806, 808, 1019, 2092-93, 2244; see also Tr. at 5773. Indeed, tolerances are known to vary from project to project. Tr. at 1767.

Grunley also has not shown that MAI's contracts with the Department of State and the Pentagon, the tolerance requirements for new ballistic windows, or the condition of the existing windows have any relevance here. There is no evidence in the record that the Department of State or Pentagon contracts required "tight, flush joints," like the contract here required for the T1 windows, or that the visual appearance of those windows was as important as it was for the USSC. Likewise, the AOC contract here specified tolerances for the T2 ballistic windows that were different from, and were more lenient than, the tolerances stated for the T1 blast windows. As for the fact that the existing 70-year-old windows, which have shifted over time, had gaps in the joinery, the contract did not require Grunley to match the gaps in the existing windows, but instead required Grunley to provide "tight, flush joints."

Finally, we find no basis to replace the subjective requirement for "tight, flush joints" with an objective, mathematical standard. Where the contract intended for more lenient, objective tolerances, the contract so stated. E.g., R4, Tab 16, at 420 (specifying mathematical construction tolerances for ballistic windows). However, with regard to the T1 windows, the contract specified "tight, flush joints," which contemplated no gaps or uneven planes. R4, Tab 15, at 413; Tr. at 3380, 3527-28. To the extent that Grunley believed the phrase to be ambiguous, the ambiguity was patent, and Grunley should have sought clarification prior to proposal submission. NVT Techs. Inc. v. United States, 370 F.3d 1153, 1162 (Fed. Cir. 2004); Interstate Gen. Gov't Contractors, Inc. v. Stone, 980 F.2d 1433, 1435 (Fed. Cir. 1992). Its failure to seek clarification did not require AOC to apply a more lenient standard during performance.

In sum, we find that AOC's rejection of Grunley's mockup windows was reasonable and consistent with the contract.

Differing Site Conditions

Grunley contends that, when it installed the windows, it encountered differing site conditions with regard to inconsistent surfaces on the back of the marble, and with regard to the placement of steel columns adjacent to some windows. Grunley contends that the conditions discovered were materially different from those indicated in the contract, and that they interfered with Grunley and MAI's ability to attach the spring anchors to the surrounding walls. To the extent discussed below, we find that Grunley is entitled to recover for these conditions.

The differing site conditions clause in the contract, FAR § 52.236-2 (Apr. 1984), distinguishes between two types of differing site conditions: (1) subsurface or latent physical conditions at the site which differ materially from those indicated in the contract (Type I differing site condition), or (2) an unknown physical condition at the site, of an unusual nature, which differs materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract (Type II differing site condition). R4, Tab 7, at 148. Although Grunley does not identify which

type of condition it seeks relief for, the firm did not argue or present evidence to support the existence of a Type II differing site condition. Rather, Grunley's arguments and the witness testimony focused on the contract documents and what these documents do, or do not, reveal. Accordingly, we interpret Grunley as asserting the existence of a Type I differing site condition.

To prevail on a Type I differing site condition claim, Grunley must prove, by a preponderance of the evidence, that: (1) the contract documents indicate the site conditions which form the basis of the claim; (2) the contractor reasonably interpreted the contract documents and reasonably relied on the indicated site conditions; (3) the site conditions actually encountered differed materially from those indicated in the contract; (4) the site conditions encountered were not reasonably foreseeable from all the information available at the time of proposal submission; and (5) the contractor suffered damages as a result of the materially different site conditions. Renda Marine, Inc. v. United States, 509 F.3d 1372, 1376 (Fed. Cir. 2007); Randa/Madison JV III, ASBCA No. 49452, 99-2 BCA ¶ 30,553 at 150,877.

1. Marble

With regard to the marble, Grunley discovered two conditions during demolition--chamfering and void pockets on the back of the marble of some windows. The chamfering, according to Grunley, affected the T1-1 windows and required correction through the use of Laticrete to fill in the uneven surface of the marble. Grunley Post-Trial Brief (Apr. 23, 2012), at 111; Tr. at 1043, 2518, 2520-21. The void pockets, Grunley argues, existed near the lower sill of the T1-2 windows and required the use of Laticrete and revisions to the spring anchor design. Grunley Post-Trial Brief (Apr. 23, 2012) at 111; Tr. at 1058, 2413-14.

AOC concedes that the contract drawings depict the interior marble surfaces as straight lines, thus indicating that the back of the marble surfaces was flat and uniform without chamfering or void pockets. AOC Post-Trial Brief (Mar. 30, 2012) at 142. Indeed, multiple details reflect even surfaces on the back of the marble. R4, Tab 18, Dwgs A551, A552. Multiple Grunley witnesses testified that they interpreted and relied on the drawings as depicting even surfaces. Tr. at 1034, 1038, 1042, 2060-61, 2075-78. We find Grunley's interpretation of and reliance on the contract documents to be reasonable.

AOC presented an expert witness who claimed that the drawing details should not be read to suggest precise details of the state of the marble. Tr. at 4522; AOC Post-Trial Brief (Mar. 30, 2012) at 143. We are not persuaded by this testimony. To demonstrate the existence of a Type I differing site condition, Grunley need not prove that the contract drawings reflect each and every detail of the marble, only that the contract sufficiently indicated the condition to be encountered. See Foster Constr. C.A. and Williams Bros. Co., JV v. United States, 193 Ct. Cl. 587, 603 (1970) (indication sufficient to establish a Type I differing site condition claim need not be explicit, but may be implied from the specifications or other design features); Randa/Madison JV III, ASBCA No. 49452, 99-2 BCA ¶ 30,553 at 150,877 (same). As noted above, numerous details indicated that the back of the marble was flat and uniform. Based on this information,

we find that Grunley could not reasonably have expected to encounter chamfering or void pockets.

AOC contends that Grunley should have expected the back of the marble to vary. In support of this argument, AOC notes the testimony of Grunley's senior project manager, who acknowledged during trial that different conditions can exist on different buildings. Tr. at 1307; AOC Post-Trial Brief (Mar. 30, 2012) at 142-43. This acknowledgment does not negate the fact that the condition represented on the contract drawings here was that the back of the marble was flat and uniform. A contractor may reasonably rely on the contract documents provided to it, and it need not assume that the conditions depicted are inaccurate. Foster Constr. C.A. and Williams Bros. Co., JV, 193 Ct. Cl. at 610.

AOC argues that, even if the actual conditions differed from the contract, such differences were not material because a minor correction (Laticrete in most cases) easily fixed the conditions encountered. Proof that the correction significantly increased Grunley's costs or time expended is not essential to demonstrate that the conditions differed materially. Rosco-Ajax Constr. Co. v. United States, 198 Ct. Cl. 133, 133 (1972). Damages are only one element of a differing site condition claim. Here, the testimony revealed that all of the T1-1 windows involved chamfered marble, and all of the T1-2 windows involved void pockets. Tr. at 1042, 2417-18, 2525; see also R4, Tab 393, at 2913; Tab 395, at 2915. Based on the volume of uneven surfaces encountered, we find that the conditions encountered were materially different from the smooth surfaces depicted in the contract.

In sum, we conclude that Grunley has satisfied each of the elements of a Type I differing site condition with respect to the marble, and it is entitled to recover its damages as a result of the actual conditions encountered.

2. Steel Columns

Grunley contends that steel columns in eight locations were closer to the window openings than anticipated, which interfered with Grunley and MAI's ability to install the window anchors. To address the problem, the firms were allowed to attach the anchors directly to the steel columns, and MAI may have also modified the anchor design. R4, Tab 394, at 2914; Tab 501, at 3486-3501.

A contract drawing of the floor plan for the first floor depicted a small distance between steel columns and the windows throughout the USSC--less than 1/8 inch on the full size drawings for the locations in question. According to the scale on the drawings, 1/8 inch constitutes 1 foot of space, so less than 1/8 inch indicates that the columns are located less than 1 foot away from the jamb. R4, Tab 18, Dwg A122NW. One Grunley witness testified that, according to the scale, the distance appeared to be "at least 8 inches." Tr. at 5942. However, it is not possible to measure the distance with precision. For this reason, the contract prohibited the use of scaling to determine dimensions, especially for purposes of laying out the work. R4, Tab 10, at 226, 312. Grunley witnesses admitted that the firm did not investigate how much distance was between the columns and windows until the problem arose during demolition. Tr. at 1309-10, 2088-89, 5946.

During demolition, Grunley discovered that some columns were closer to the window openings than anticipated. Tr. at 1023, 1040, 1049-51; R4, Tab 394, at 2914; Tab 501, at 3486; Tab 538, Pic 118. Witness testimony and a contemporaneous photograph of room 151 show that the steel column in this room was directly adjacent to the window jamb. R4, Tab 538, Pic 118; Tr. at 1023, 1040. Correspondence and drawings created by MAI during construction reveal that a steel column in room 150 was 8.625 inches away from the window jamb, and a steel column in a northwest quadrant corridor was 11.0 inches from the window jamb.⁷² R4, Tab 501, at 3490, 3496; see also R4, Tab 410, at 2996. Multiple witnesses described the condition of room 151 as having a column adjacent to the window jamb; some witnesses recalled that the northwest stairwell column also had a column close to the window; and one witness generally claimed without further explanation that “there were eight columns that created an issue with the installation of the anchor.” Tr. at 1023, 1040, 1050-51, 2392. There is no testimony or documentary evidence in the record to demonstrate the actual steel column placement in any location other than room 150, room 151, and the northwest quadrant stairwell.

In evaluating whether the above constitutes a Type 1 differing site condition, we note that the contract drawing depicted a small gap (approximately 8 inches, according to one Grunley witness) between certain windows and the steel columns. Tr. at 5942. The actual conditions discovered in room 150 and the stairwell showed a gap of 8.625 and 11.0 inches according to MAI’s contemporaneous drawings, which is consistent with the contract drawing. R4, Tab 501, at 3490, 3496. Because the actual conditions were not materially different from the contract drawing, Grunley cannot prevail for alleged differing site conditions with regard to room 150 and the stairwell. With regard to room 151, however, we find that the position of the steel column directly adjacent to the window jamb is materially different from what was depicted in the contract drawing, that this condition was not foreseeable, and that a Type I differing site condition exists. With regard to all other locations, Grunley has failed to meet its burden of proof as to the existence of a differing site condition. Specifically, we find the testimony from the MAI witness that “eight columns . . . created an issue” unpersuasive, Tr. at 2392; this witness offered no details concerning the location or conditions observed, no other witness contended that eight windows were affected, and there is no documentation in the record evidencing problems with the steel columns in other than the specific locations discussed above.

In sum, we find that a Type I differing site condition exists with regard to room 151 only. Grunley may recover the costs of addressing the problem at this location.

⁷² An AOC witness speculated that MAI may have mislabeled room 151 as room 150 in its contemporaneous correspondence and drawings, suggesting that the drawings (which show a gap between the column and window) refute the actual photograph of room 151. Tr. at 5972-73. There is insufficient evidence in the record to establish that MAI erred in its drawings. We find that the picture of room 151, which was properly authenticated, reflects a true and accurate portrayal of room 151 as having a steel column directly adjacent to the window jamb. Tr. at 6180-81; R4, Tab 538, Pic 118.

CONCLUSION

Based on the forgoing, Grunley's appeal is denied in part and granted in part. We remand to the parties to resolve the remaining issues of this appeal. The parties shall advise the Board within 90 days of this decision whether further proceedings are required.

November 26, 2012



Sharon L. Larkin, Presiding Judge

We concur:



James A. Spangenberg, Chairman



David A. Ashen, Vice-Chairman