

Construction Contract Damages: A Critical Analysis of the "Total Cost" Method of Valuing Damages for "Extra Work"

KARL SILVERBERG, P.E.¹

I. INTRODUCTION: BASIC PRINCIPLES OF THE "TOTAL COST" METHOD

It has been said that for every wrong there is a remedy. However, when a construction contractor performs "extra work" and a dispute arises over the reasonableness of the claimed costs, the contract law requirement that damages must be proven to a reasonable certainty can become a significant hurdle for the contractor in obtaining a remedy. This occurs when the "extra work" performed is so unique and so enmeshed with the original contract work that it is impossible to independently verify the reasonableness of the contractor's claimed damages. To account for the special nature of the construction industry the "total cost" method has evolved²; in such cases the fact of damages is certain, but the amount is less certain.³

The "total cost" method is not a formula but a set of legal safeguards designed to protect the party in breach from a runaway damage claim. It is used hesitantly by the courts⁴ but used nonetheless due to the difficulties the non-breaching party faces in proving damages to a reasonable certainty.⁵ These difficulties arise because most construction contracts are unique in that the end product is a custom made product and the conditions of

¹ J.D. Candidate, June 2003; B.S.M.E., Rensselaer Polytechnic Institute, M.S.C.E., Rutgers University. The author worked as a structural engineer for seven years prior to attending law school and is a licensed Professional Engineer in the state of New York.

² See Bernhard A. Aaen, *The Total Cost Method of Calculating Damages in Construction Cases*, 22 PAC. L.J. 1185, 1186 (1991) (commenting: "Although not unique to cases involving construction projects, the total cost method of calculating damages is most often used in these construction cases"); see also Thomas C. Galligan, Jr., *Extra Work in Construction Cases: Restitution, Relationship, and Revision*, 63 TUL. L. REV. 799, 800-01 (1989) (noting that disputes involving claims for "extra work" are prevalent in construction contracts); Mark P. Gergen, *Restitution as a Bridge Over Troubled Contractual Waters*, 71 FORDHAM L. REV. 709, 715 (2002) (remarking on flexibility of "[m]odern rules of contract law" and "'total cost' method of calculating damages under a construction contract when a defendant hinders a contractor's performance").

³ See *Bagwell Coatings, Inc. v. Middle S. Energy, Inc.*, 797 F.2d 1298, 1307 (5th Cir. 1986) (noting "total cost" is used where actual cost is unavailable); see also *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 862 (Fed. Cir. 1991) (pointing out that "total cost" method should only be used "in those extraordinary circumstances where no other way to compute damages was feasible"); *McKie v. Huntley*, 2000 SD 160, P22 (2000) (arguing that "total cost" is appropriate where it is difficult to determine losses from changed conditions).

⁴ See *Bagwell*, 797 F.2d at 1307 (noting direct cost analysis not applicable); see also *Servidone*, 931 F.2d at 862 (positing when no other way to determine damages exists, use "total cost" method). See generally *McKie*, 2000 SD 160 at P22 (arguing where it is difficult to determine losses use "total cost").

⁵ See *Bagwell*, 797 F.2d at 1308-09 (describing problem in proving damages when work made more difficult and cannot be compared to other work); see also *Servidone*, 931 F.2d at 862 (condoning "total cost" for differing site condition which led to difficulty in damage measurement). See generally *McKie*, 2000 SD 160 at P3 (discussing owner caused difficulties encountered with performance of contract).

performance are singular to a particular place and time.⁶ Consequently, when the performance is made more difficult, there is often no exact and ideal model with which to compare the damages in order to confirm the reasonableness of the claim.⁷ In these situations the non-breaching party can only look to its cost overrun for the completed job as a measure of its damages, that is, its total cost of performance less the contract price; this being the method of calculating damages under the "total cost" method. This "cost overrun" as a measure of the damages will be deemed acceptable when the four prong safeguards of the "total cost" method are satisfied. These safeguards require the non-breaching party/contractor to show: (1) the impracticability of proving the cost of the "extra work" by other means; (2) the reasonableness of the contract price; (3) the reasonableness of the actual costs; and (4) the lack of responsibility for the increased cost of performance.

A note on terminology needs to be made here. In the context of construction disputes the parties are usually postured as an owner versus a contractor, where the contractor is the performing party; but the parties can also be a contractor versus a sub-contractor, where the sub-contractor is the performing party. For purposes of this paper the issue will generally be presented in terms of owners and contractors.

Additionally, it is important to note that proving liability is not the same as proving damages, and that issues of liability must be resolved first. It is only after the contractor has won on the merits of its underlying claim that the contractor enters into the realm of proving the quantum of its damages, and it is at this point the "total cost" method may surface.⁸ Furthermore, causation, in the form of tying the breach to an actual increase in the cost of performance is a separate issue from determining the amount of increased cost due to the breach once causation has been accepted. The two

⁶ See Adam B. Brotman, Note, *The Ties of Natural Justice: Restoring Quantum Meruit for Contractors in Washington*, 69 WASH. L. REV. 431, 435 (1994) (highlighting difficulty in preparing bid for custom-built structure). See generally Gene Ming Lee, *A Case for Fairness in Public Works Contracting*, 65 FORDHAM L. REV. 1075, 1079 (1996) (indicating difficulties faced in obtaining reliable bids); Kai-Niklas A. Schneider, *Maryland's Application of Promissory Estoppel in Construction Industry Bidding Disputes: Eliminating Further Confusion*, 30 U. BALT. L. REV. 171, 171 (2000) (noting parties' reliance on estimates in order to accurately submit bids).

⁷ See Aaen, *supra* note 1, at 1186 (discussing difficulty of proving construction damages); see also Lynn Hawkins Patton & Cheri Turnage Gatlin, *Claims for Lost Labor Productivity*, CONSTRUCTION LAWYER, April 2000, at 21 (discussing difficulty of proving labor productivity damages to required certainty); Stuart Sobel, *The Modified Total Cost Method of Determining Damages*, CONSTRUCTION LAWYER, Fall 2001, at 5 (analogizing "individual impacts to a construction project" to a "stone that causes the waves on a pond," however pointing out that "in most construction projects, the pond is not perfectly round, and many stones of different sizes are dropped and thrown randomly and repeatedly from different sources, at different angles, and at different times into a pond whose surface is being whipped by swirling winds, landing geese, and diving frogs").

⁸ See *Bagwell*, 797 F.2d at 1309 (stating breaching party's argument that even if claim is meritorious damages not yet proven); see also *McKie*, 2000 SD 160 at P22 (noting: "Once liability is established by a preponderance of the evidence, the total cost method of calculating damages may be appropriate for those disputes where it is difficult or impractical to quantify losses from changed conditions"); Aaen, *supra* note 1, at 1190-91 (commenting: "The total cost method is not a substitute for proof of causation but rather a method for calculating the amount of damages").

are related only in that both can be difficult to prove when it comes to construction claims.⁹

In almost all construction projects, especially large complex ones, "extra work" is inevitable.¹⁰ "Extra work" can be defined as work that the contractor performs which it believes is outside the scope of the original contract and for which it believes extra compensation is warranted.¹¹ Generally "extra work" can take the form of either extra end product and/or an increased level of difficulty in performing the contract.¹² Construction contracts provide for such changes through contract clauses such as "change order clauses," "extra work clauses," and "differing site condition clauses."¹³ These clauses allow the job to progress when work is required outside the scope of the original contract, requiring both that the contractor perform the work, and the owner pay the fair value of such work.¹⁴

Problems arise, though, when the owner claims the "extra work" at issue was part of the original contract,¹⁵ thereby expecting the contractor to absorb the cost of the work in dispute as part of its cost of performance —

⁹ See *Bagwell*, 797 F.2d at 1307 (stating "Middle South's next claim is that even if Bechtel breached the contract by obstructing the structural steel, Bagwell was nevertheless not entitled to damages because it failed to sufficiently prove that Bechtel's actions caused any specific damage, or the amount thereof"); see also *Aaen*, *supra* note 1, at 1186 (noting difficulty of proving construction damages); *Patton*, *supra* note 6, at 21 (addressing difficulty of proving labor productivity damages to required certainty); *Sobel*, *supra* note 6, at 5 (discussing effects of impact in one part of project on cost of overall project).

¹⁰ See *Galligan*, *supra* note 1, at 835 (commenting on need for extra work clauses generally); see also *Aaen*, *supra* note 1, at 1186 (noting many reasons exist for adjusting contract price). See generally *Bagwell*, 797 F.2d at 1302-06 (analyzing change and extra work clause of contract).

¹¹ See *Galligan*, *supra* note 1, at 801 (defining extra work as "any work beyond the scope of the original contract which, as a result, is not compensable thereunder [sic]"); see also *Boyajian v. United States*, 191 Ct. Cl. 233, 248 (1970) (describing cost of extra work resulting from change orders or changed conditions). See generally *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 861 (Fed. Cir. 1991) (discussing costs resulting from differing site conditions).

¹² See *Galligan*, *supra* note 1, at 802 (describing extra work occurring "(1) When work beyond that provided for in the contract is performed, resulting in an additional structure or end-product; (2) when an assumed method of performance is changed, thereby rendering performance more difficult and more expensive; or (3) when the owner breaches his contract, thereby rendering performance more burdensome"); see also *Bagwell*, 797 F.2d at 1302-06 (discussing increased costs resulting from interference by owner with contractor's performance). See generally *Servidone*, 931 F.2d at 861 (discussing claim for problems from differing site condition).

¹³ See *Bagwell*, 797 F.2d at 1302-06 (noting change and extra work clause of contract); see also *Great Lakes Dredge & Dock Co. v. United States*, 119 Ct. Cl. 504, 507-08 (1951) (discussing various contract clauses for changed conditions and extra work). See generally *Galligan*, *supra* note 1, at 813 (explaining that vehicles for change are often incorporated).

¹⁴ See *Bagwell*, 797 F.2d at 1302-06 (addressing change and extra work clause of contract); see also *Aaen*, *supra* note 1, at 1186 (discussing extra costs on construction projects); *Galligan*, *supra* note 1, at 800 (noting factors that make pre-contract predictions of extra work difficult).

¹⁵ See *Concrete Placing Co. v. United States*, 25 Cl. Ct. 369, 372 (1992) (claiming extra work was due to contractor misusing product); see also *Baldi Bros. Constructors v. United States*, 50 Fed. Cl. 74, 79 (2001) (stating disagreement over soil condition as differing site condition); *Youngdale & Sons Constr. Co., Inc. v. United States*, 27 Fed. Cl. 516, 541 (1993) (noting disagreement over presence of rock being differing site condition).

with the contractor taking the opposite view.¹⁶ In terms of construction projects, the type of "extra work" that results in more difficult performance of the contract and which then tends to lead to the eventual use of the "total cost" method usually arises in one of two ways, either the existence of differing site conditions,¹⁷ or an owner interference with the contractor's performance.¹⁸ Differing site conditions generally include those changes that are beyond the power of any party to control. The classic example is a differing soil condition,¹⁹ but can also include conditions of a different nature such as changes in an allowable sequence of road closures that have an impact on performance.²⁰ Examples of owner interference include failure to schedule site access for the contractor²¹ or not preparing the site for the expected work.²² Owner interference can also include "actual" or "constructive" acceleration of the work, which occurs when the owner forces the contractor to complete work at a faster pace than required.²³ If the

¹⁶ See *Binks Mfg. Co. v. Bedwell Co.*, No. 96-2554, 1997 U.S. Dist. Lexis 11661, at *4 (E.D. Pa. July 29, 1997) (stating: "Both parties acknowledge that the redesign significantly modified the original scope of work and the subcontract between them, [but t]hey contest, however, the effect the redesign had on cost"); see also *Neal & Co. Inc. v. United States*, 945 F.2d 385, 389 (Fed. Cir. 1991) (noting argument over costs of extra work); *Youngdale*, 27 Fed. Cl. at 541 (discussing argument over how to value extra work).

¹⁷ See *Baldi Bros.*, 50 Fed. Cl. at 79 (noting issue involves differing site conditions); see also *Youngdale*, 27 Fed. Cl. at 541 (asserting claim of differing site condition). See generally *Great Lakes* 119 Ct. Cl. at 539-40 (discussing extensive problems and dispute involving differing soil conditions).

¹⁸ See *Bagwell*, 797 F.2d at 1308-09 (describing difficulty of proving damages when work made more difficult by owner); see also *McKie v. Huntley*, 2000 SD 160, P3 (2000) (discussing owner caused difficulties encountered with performance of contract). See generally Galligan, *supra* note 1, at 802 (describing extra work occurring "when an assumed method of performance is changed . . . or when the owner breaches his contract").

¹⁹ See *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 861 (Fed. Cir. 1991) (discussing claim for problems from differing site condition); see also *Baldi Bros.*, 50 Fed. Cl. at 79 (noting issue involves differing site conditions); *Youngdale*, 27 Fed. Cl. at 541 (asserting claim of differing site condition).

²⁰ See *Mergentime Corp. v. Wash. Metro. Area Transit Auth.*, No. 89-1055 (HHG), 1997 U.S. Dist. LEXIS 23408, at *9 (D.D.C. July 22, 1997) (discussing claim for reliance on traffic plan when calculating bid); see also *Gerhardt F. Meyne Co. v. United States*, 110 Ct. Cl. 527, 545-46 (1948) (indicating that additional costs result from road closures). See generally Hazel Glenn Beh, *Allocating the Risk of the Unforeseen, Subsurface and Latent Conditions in Construction Contracts: Is There Room for the Common Law?*, 46 KAN. L. REV. 115, 132 (1997) (noting primary purpose of differing site condition clause).

²¹ See *McKie*, 2000 SD 160 at P3 (discussing owner caused difficulties including "inadequate access to the site, improper excavation, difficulty in obtaining necessary elevations and dimensions, and numerous changes to the blueprints"); see also *Bagwell*, 797 F.2d at 1301 (noting that contractor was not authorized to perform work in any area without issuance of work release by owner). See generally Galligan, *supra* note 1, at 800 (listing various factors that may lead to owner delay, including human error).

²² See *Bagwell*, 797 F.2d at 1301 (describing difficulties due to "obstructions in the areas it was to fireproof, including some installed heating, ventilating, and air conditioning equipment"); Maria R. Lamari, Note, *The Role of Alternative Dispute Resolution in Government Construction Contract Disputes*, 23 HOFSTRA L. REV. 205, 209 (1994) (explaining option recommended by government that owner prepare Geotechnical Design Summary Report ("GDSR") for all construction projects, which would provide contractor with written summary setting forth "baseline" for all anticipated conditions contractor can expect, so that if "conditions are materially different from those depicted in the baseline, and the contractor is unable to perform the contract for the price agreed upon, the contractor is entitled to an increase in the contract price," thus clearly placing, upon owner, responsibility that site be prepared according to GDSR). See generally Galligan, *supra* note 1, at 800 (noting importance of pre-construction plans to ensure expected site conditions).

²³ See *Azure v. United States*, No. 96-5054, 1997 U.S. App. LEXIS 29365, at *7 (Fed. Cir. Oct. 24, 1997) (defining "actual" acceleration as an express order by the owner to accelerate work, allowable under the standard changes clause of the contract, with an expected concomitant equitable adjustment for the

contractor is successful in proving the merits of the underlying claim, thus entitling it to extra compensation for "extra work," then the contractor moves to the next hurdle, proof of the quantum of the compensation due, and here it may have to resort to the "total cost" method in presenting those damages.²⁴

"Total cost" measures the value of the "extra work" by subtracting the "contract price" from the total cost of performance,²⁵ with the difference representing the increased cost of performance that is being claimed as the damages. Though this might seem simple and logical, it is often challenged as producing results that are merely "speculative."²⁶ Damages measured this way will be inherently "speculative" for two reasons: first the contractor's increased cost of performance could be partially due to its own inefficiency. Second, the original contract could have been priced too low so that part of the claimed damages is the contractor making up for a losing contract. If the owner breaches the contract, the owner is obligated to pay *only* for the "extra work" caused by its breach, and is not responsible for making up a loss that a contractor suffers from underbidding a job. For these reasons using merely the contractor's claim of its increased cost of performance may not yield the

contractor, "[h]owever, if the contractor was entitled to an extension of time due to excusable delays and, therefore, an adjusted contract completion date, an instruction to complete the project according to the original contract completion date is a [c]onstructive [a]cceleration and therefore within the changes clause of the contract"); *see also* *Norair Eng'g Corp. v. United States*, 229 Ct. Cl. 160, 164 (1981) (listing three factors to be established by plaintiff to recover for increased costs of acceleration); Stuart A. Weinstein-Bacal & Dennis B. Parces-Enriquez, *Construction in Puerto Rico: Navigating the Legal Quagmire*, 71 REV. JUR. U.P.R. 29, 99 (2002) (discussing circumstances under which contractor is entitled to additional compensation as a result of acceleration of work).

²⁴ *See McKie*, 2000 SD 160 at P22 ("Once liability is established by a preponderance of the evidence, the total cost method of calculating damages may be appropriate for those disputes where it is difficult or impractical to quantify losses from changed conditions"); *see also* *United States ex rel. Gray-Bar Electric Co. v. J. H. Copeland & Sons Constr., Inc.* 568 F.2d 1159, 1161-62 (5th Cir. 1978) (stating that party seeking to collect damages has burden of proving extra costs incurred); Weinstein-Bacal, *supra* note 22, at 100 (describing situation where claims may be made on total cost basis).

²⁵ *See Servidone Constr. Corp. v. United States*, 931 F.2d 860, 861 (Fed. Cir. 1991) (explaining "total cost method derives damages as the difference between a contractor's actual costs and its original bid");

Bagwell, 797 F.2d at 1307 (noting courts employ "total cost" method when "contract price is subtracted from the total cost of performance and the difference is considered the amount of the change");

see also Aaen, *supra* note 1, at 1186 (stating "'total cost method' . . . is accepted as determining the amount of the change by subtracting the contract amount from the total cost of performance").

²⁶ *See McKie*, 2000 SD 160 at P16 (noting circuit court's order which "granted McKie's motion for summary judgment, concluding that Huntley's damage calculations were speculative."); *see also* *Servidone*, 931 F.2d at 862 (discussing how "inaccuracies and inefficiencies can thus skew accurate computation of damages" when using "total cost" analysis); *Ross v. Deposit Guar. Nat'l Bank of Jackson, Miss.*, 400 F. Supp. 45, 52 (S.D. Miss. 1974) (commenting that "[a]lthough under Mississippi Law the lack of a perfect measure of damages does not preclude recovery, nonetheless they must be proved with reasonable certainty and may not be speculative or conjectural").

increased cost *exclusively* due to the "extra work."²⁷ To obtain with certainty the true value of what is exclusively the cost of the "extra work" requires determining the "ideal cost" for the original contract and the "ideal cost" for the contract with the "extra work."²⁸ The difference between these two amounts will yield the true value of exclusively the "extra work." The problem is that no one knows what the "ideal costs" actually are, which is why the "total cost" method exists.

In order to ensure the least speculative damage claim by the contractor, and acceptability by courts when inherent proof limitations exist, the four-part test known as the "total cost" method has developed.²⁹ Stated again, under the "total cost" method the performing party must show: (1) the impracticability of proving the cost of the "extra work" by other means; (2) the reasonableness of the contract price; (3) the reasonableness of the actual costs; and (4) the lack of responsibility for the increased cost of performance.³⁰ The "total cost" method does not solve the problem of determining the true value of the "extra work" but rather serves to mitigate the risk of over valuing the claimed cost of the "extra work" performed by the contractor.³¹ Even with the four-prong "safeguards," some courts are nonetheless hesitant about using it; courts choose between either dismissing the contractor's measure of damages as speculative or allowing use of the "total cost" method. For this reason courts continue to shroud the "total cost"

²⁷ See *McKie*, 2000 SD 160 at P21 (noting that "method impermissibly assumes that the contractor flawlessly performed its work, and that the contractor accurately and precisely estimated the cost of the work to be performed"); see also *Servidone*, 931 F.2d at 862 (emphasizing that under the "total cost" method, "bidding inaccuracies can unjustifiably reduce the contractor's estimated costs"); *Bagwell*, 797 F.2d at 1307 (commenting that under "total cost" method, non-breaching party's own inefficiencies and problems are not taken into account when determining increased costs).

²⁸ See *Koehring Co. v. Hyde Constr. Co.*, 178 So. 2d 838, 853 (Sup. Ct. Miss. 1965) (stating a party who has breached his contract "will not be permitted to escape liability because of the lack of a perfect measure of damages . . . [t]herefore, a reasonable basis for computation and the best evidence which is obtainable under the circumstances . . . and which will enable the trier to arrive at a fair approximate estimate of loss is sufficient proof"). See generally Major Nathanael Causey et al., *1994 Contract Law Developments — The Year in Review* 1995 ARMY LAW. 3, 56 (1995) (implying that finding of interference resulting in extra work entitles contractor to award of damages); Candace S. Kovacic, *A Proposal to Simplify Quantum Meruit Litigation*, 35 AM. U. L. REV. 547, 582 (1986) (suggesting that in extra work cases courts usually award reasonable value of plaintiff's services as opposed to defendant's gain).

²⁹ See *Bagwell*, 797 F.2d at 1307 (accepting "total cost" when alternate methods are unavailable); *McKie*, 2000 SD 160 at P22 (stating: "Once liability is established by a preponderance of the evidence, the total cost method of calculating damages may be appropriate for those disputes where it is difficult or impractical to quantify losses from changed conditions"); see also *Collins Elec. Co. v. Simplex Time Recorder Co.*, No. 35945-2-I, 1997 Wash. App. LEXIS 708, at *11 (May 5, 1997) (commenting claimant has "burden of fully substantiating the reliability of proof for each element").

³⁰ See *Servidone*, 931 F.2d at 861 (noting "total cost" four-part test must be met to show damages); *Youngdale & Sons Constr. Co., Inc. v. United States*, 27 Fed. Cl. 516, 541 (1993) (enumerating "set of criteria which the plaintiff must establish in order to secure a recovery of damages under" four part "total cost" test); *WRB Corp. v. United States*, 183 Ct. Cl. 409, 426 (1968) (pointing out that "acceptability of the ['total cost'] method hinges on proof that (1) the nature of the particular losses make it impossible or highly impracticable to determine them with a reasonable degree of accuracy; (2) the plaintiff's bid or estimate was realistic; (3) its actual costs were reasonable; and (4) it was not responsible for the added expenses").

³¹ See *McKie*, 2000 SD 160 at P21 (stating that "total cost" is not proof of damages but method of calculating damages); see also Aaen, *supra* note 1, at 1190-91 (positing that "total cost" does not substitute for proof of causation); Sobel, *supra* note 6, at 5 (arguing that "total cost" runs contrary to preferred methods of measuring damages due to proof of causation problems).

method in language such as "[use] with caution and as a last resort,"³² and only use in "extraordinary circumstances."³³ Albeit reluctantly, courts do accept the "total cost" method because as one court noted: "Although the method used in obtaining the measure of damages [(total cost)] is not entirely without fault, . . . as a general rule, a party who has broken his contract will not be permitted to escape liability because of the lack of a perfect measure of damages caused by his breach."³⁴

A note needs to be made on the use of the term "actual cost" in the third prong. Actual cost refers to the total cost of performance of the contract, meaning the contract price plus the cost overrun, including overhead and profit.

This article will discuss the "total cost" method of valuing damages. Part I discusses a general overview of the problem. First, a hypothetical example is presented showing the conditions that give rise to the "total cost" method and highlighting why courts "reluctantly" use this method. Second, a hypothetical example is presented that shows the application of the four prong method and discusses the method's drawbacks for the contractor. Those more experienced with these issues may find these examples overly simplistic, but for the person engaging this subject for the first time it may be useful. Third, a discussion of the alternate methods for calculating damages is presented. Fourth, the "total cost" method is compared to recovery for restitution. Part II discusses the historical basis of the current "certainty" standard for damages and the development of the "total cost" method through the 1950's and 1960's. Finally, Part III discusses the application of the four prongs as shown through case examples.

It should also be noted that some courts differentiate between the so-called "modified total cost method" and the plain "total cost method."³⁵ This differentiation seems unwarranted; when courts do differentiate, the court is assuming "total cost" to be a straight subtraction of total cost of performance from the contract price without any adjustment for the non-breaching party's/contractor's fault or liability, while the "modified" method apportions this straight "total cost" claim by accounting for the faults of the

³² *Servidone*, 931 F.2d at 861.

³³ *Youngdale*, 27 Fed. Cl. at 541.

³⁴ *Koehring Co. v. Hyde Constr. Co.*, 178 So. 2d 838, 853 (Sup. Ct. Miss. 1965).

³⁵ *See Youngdale*, 27 Fed. Cl. at 541 (explaining: "The modified total cost method is simply the total cost method modified or adjusted for any deficiencies in the plaintiff's proof in satisfying the four requirements of said method"); *see also Servidone*, 931 F.2d at 862 (noting "modified total cost" method as alternative to "total cost" method); Aaen, *supra* note 1, at 1187-88 (positing "Many courts have used what has been termed a modified total cost approach . . .").

contractor.³⁶ This paper makes no such differentiation; from the earliest cases, a straight "total cost" was only intended to be the "starting point,"³⁷ and adjustments made as deemed necessary to account for liability of the performing party,³⁸ and further, it is a fundamental tenet of legal remedies that the breaching party is not responsible for cost attributable to the non-breaching party.³⁹

II. DISCUSSION OF PROBLEM

A. *Hypothetical: Statement of Problem*

To highlight the kind of situation that calls for the "total cost" method and the reasons courts are concerned with using it, consider the following example.

A painter contracts with an owner to paint a room for a fixed price believing it will take eight hours to complete the work. Let us assume that this eight-hour estimate was based on a contractual agreement that the painter would have the room to himself so he could work in an undisturbed setting. Now suppose upon starting work the painter finds out that there are other workers in the room such as electricians and carpenters that the painter has to work around, forcing the painter to expend more time performing the contract. The painter paints the room but to complete the job it now takes fifteen hours instead of eight hours as planned. First an assumption has to be made that the presence of the additional workers in the room actually made painting the room more difficult resulting in some amount of "extra work"; this first assumption is actually a causation problem and is not the same problem as quantifying the *amount* of "extra work." For purposes of this example let us accept that the presence of other workers in the room did cause "extra work" for the painter, and that the owner is responsible for compensating the painter for the "extra work." The next problem is to determine to a reasonable certainty the cost of the "extra work";

³⁶ See *Servidone* 931 F.2d at 862 (discussing "total cost" as only a "starting point" to reach "modified total cost"); *Youngdale*, 27 Fed. Cl. at 541 (noting: "In other words, to the extent that the court modifies any of the four-prongs of the total cost test, the court has, in actuality, utilized the modified total cost method as opposed to the total cost method."); Aaen, *supra* note 1, at 1187-88 (commenting that "modified total cost" "adjusts the contract amount for mistakes the contractor may have made in his or her estimate, and adjusts the total cost for problems attributable to the contractor").

³⁷ *Boyajian v. United States*, 191 Ct. Cl. 233, 247 (1970).

³⁸ See *Id.* at 247 (stating "total cost" is only "starting point" with adjustments to be made thereafter to obtain accurate measure of increased cost); see also *MacDougald Constr. Co. v. United States*, 122 Ct. Cl. 210, 261 (1952) (examining bid to account for mistakes and verifying reasonableness of actual costs); *Great Lakes Dredge & Dock Co. v. United States*, 119 Ct. Cl. 504, 559 (1951) (adjusting bid to average of other bids and verifying reasonableness of actual costs).

³⁹ See RESTATEMENT (SECOND) OF CONTRACTS § 350 (1981) (commenting that "damages are not recoverable for loss that the injured party could have avoided"); see also E. ALLEN FARNSWORTH, FARNSWORTH ON CONTRACTS § 12.12 (2d ed. 2000) (stating: "A court ordinarily will not compensate an injured party for losses that party could have avoided . . ."); Michael B. Kelly, *Living Without the Avoidable Consequences Doctrine in Contract Remedies*, 33 SAN DIEGO L. REV. 175, 176 (1996) (explaining that "avoidable consequences doctrine" disallows plaintiffs from recovering for damages that they could have reasonably prevented).

that is, the cost due to *exclusively* the painter having to work around the other people.

One problem in determining this value is how does the owner know that if the painter had actually had the room to himself it would not have taken for example twelve hours to complete the work, representing only three hours ($15-12=3$) of additional work due *exclusively* to the presence of the other workers? The twelve hours here would represent the "ideal contract price"⁴⁰ for this contractor, and it is important to know because the contractor is not allowed to turn a losing contract into a winning one. To say this another way, if the painter had mistakenly bid a price representing eight hours of work when the painter *should have* bid a price representing twelve hours of work, the painter is not allowed to use the owner's breach to make up the difference; that difference being what the painter will lose by his own fault of underbidding.

A second problem is even if the painter had just finished painting ten rooms that were each the same size and shape and each of those only took eight hours it would still not end the dilemma, for the owner would still not know if the presence of the other workers, while causing seven hours ($15-8=7$) of additional work for this painter, may have only caused for example four extra hours for the "average painter." How does the owner know that it is not dealing with a painter who is exceptionally slow around other people? Is it fair to the owner to have to pay for seven additional hours of work when the "average painter" would have only charged an additional four hours of work?

The problem is that only one room was actually painted here, so no one knows how much time it would have taken the "average painter" to paint the room with and without the presence of the other workers. To obtain the "ideal time" for the "average painter" the owner would have to hire ten other painters and have them paint the room under circumstances of similar interference to obtain the "ideal cost with interference." Also, the "ideal contract price" for the "average painter" painting the room as intended would need to be determined, meaning ten painters would have to be hired to paint the room with no one else present in order to determine the ideal time of performance as originally planned to get the "ideal contract price." Once the "ideal contract price" is known and the "ideal actual cost" is known, the effect of *exclusively* the presence of the other workers on performance of the contract can be determined to near certainty (ideal "actual cost" minus ideal "contract price" equals cost of "extra work," where "actual cost" equals the

⁴⁰ "Ideal contract price" being the price it would have cost the contractor to perform the work had the owner not breached the contract by making performance more difficult. Since this "ideal contract price" is often impossible to determine, courts will use the "reasonable contract price"; often measure by the average of the bids received for the job. See discussion *infra* Part III.C.

total cost of performance).⁴¹ But to do all this just to get an accurate damage claim would be akin to spending one hundred dollars to get back one dollar; this leaves all involved in the realm of the unknown. Therefore no practical independent method exists to measure the value of *exclusively* the "extra work" other than what this painter says is the cost of the "extra work," and the painter's only method to value that cost is by claiming the difference between his total cost of performance and the contract price. This problem of uncertainty as to the damages is what courts face when deciding whether to allow a party to use the "total cost" method rather than force a damage claim to be dismissed as speculative, and when courts do use it they go out on a limb with respect to the reasonableness of both the contractor's "actual cost" and its "contract price."⁴² Satisfaction of the four-prong test though mitigates the risk of an inaccurate valuation of this "extra work."⁴³

B. *"Total Cost" Example*

The "total cost" method forces the courts to balance the owner's concern regarding a run-away damage claim, with the right of the contractor to relief.⁴⁴ Courts are satisfied that the proper balance is met when the applicable four-prong safeguards are satisfied.⁴⁵ At the same time this test

⁴¹ See generally *Azure v. United States*, No. 96-5054, 1997 U.S. App. LEXIS 29365, at *6 (Fed. Cir. Oct. 24, 1997) (stating that "total cost" method awards contractor difference between total costs and contractor's bid); *Ralph L. Jones Co. v. United States*, 33 Fed. Cl. 327, 331-32 (1995) (commenting that contractor possesses burden of proving that increased costs arose from additional work); *Glasgow, Inc. v. Commonwealth, Dep't of Transp.*, 529 A.2d 576, 579 (Pa. Commw. Ct. 1987) (stating that under "total cost" method, damages are calculated by subtracting estimated costs from actual costs).

⁴² As will be discussed later the ideal contract price can be determined to the satisfaction of the court by comparing it to other bids for the same job. See *infra* Part III, Sec. C.

⁴³ See *Fairbanks N. Star Borough v. Kandik Constr., Inc. & Assoc.*, 795 P.2d 793, 798-99 (Alaska 1990), *vacated in part on reh'g*, 823 P.2d 632 (Alaska 1991) (stating that "total cost" method assumes plaintiff's contract costs were reasonable and that plaintiff was not responsible for any increases in cost, both of which are not always accurate assumptions); see also *Larry Armbruster & Sons, Inc. v. State Pub. Sch. Bldg. Auth.*, 505 A.2d 395, 397 (Pa. Commw. Ct. 1986) (advising caution with use of "total cost" method because determining damages accurately under method is difficult). See generally *J.D. Hedin Constr. Co. v. United States*, 171 Ct. Cl. 70, 86 (1965) (admitting that "total cost" method is used only when there is no other alternative way to prove damages).

⁴⁴ See *Hedin*, 171 Ct. Cl. at 86-87 (condoning use of "total cost" where no alternative means of measuring damages exists); see also *Bagwell Coatings, Inc. v. Middle S. Energy, Inc.*, 797 F.2d 1298, 1307 (5th Cir. 1986) (taking note of appellant's contention that "'total cost' method is not well defined, but it typically involves a comparison of the bid amount and actual costs"); *McKie v. Huntley*, 2000 SD 160, P22 (2000) (opining: "Once liability is established by a preponderance of the evidence, the total cost method of calculating damages may be appropriate for those disputes where it is difficult or impractical to quantify losses from changed conditions").

⁴⁵ See *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 861 (Fed. Cir. 1991) (noting "total cost" four-part test must be met to show damages); *Youngdale & Sons Constr. Co., Inc. v. United States*, 27 Fed. Cl. 516, 541 (1993) (describing four-part test as prerequisite for recovery under "total cost" theory); *WRB Corp. v. United States*, 183 Ct. Cl. 409, 426 (1968) (enumerating four-part test which requires impracticality of proof, reasonable bid, actual cost, and owner fault).

satisfies the certainty requirement for proof of damages.⁴⁶ In the long run this balance should work to the benefit of both parties because as one court noted: "This will ensure that future contractors are willing to bid at the lowest possible price while providing the highest possible quality by preventing bidders from increasing their bid prices to protect against misfortunes resulting from unforeseen developments."⁴⁷

Another note of terminology needs to be made here regarding the term "bid." Instead of reasonable "contract price" in the second prong of the "total cost" method many courts use the term "bid" or "estimate."⁴⁸ Since the estimate for the job includes the estimated cost of performance, plus profits and overhead, this estimate then becomes the bid price and if the contractor wins the job the bid price then becomes the contract price. When courts look at the reasonableness of the "contract price" they have to look at what the "contract price" is based on, which is the bid or the estimate, so many times the term "bid" or "estimate" is used.⁴⁹

How the required four elements are used can be illustrated by the following example that deals with the common problem of a differing site condition.

Assume a contractor bids an excavation job for \$2 million, basing its bid on the soil condition shown in the contract documents. Assume when the contractor wins the job it turns out that the soil is much different than expected because the soil contains intermittent boulders when it was supposed to be pure sand. Now suppose the contractor's overall cost ("actual cost as total cost of performance") to excavate the soil with the boulders is \$3 million. If the contractor's interpretation of the contract documents was reasonable, meaning it was entitled to expect pure sand, then the contractor will win on the merits of its claim for an equitable adjustment due to a differing site condition. The next step is to prove the quantum of damages. In this example, assume the presence of the boulders in the soil resulted in a loss of productivity so where one dump truck could be loaded every hour with the expected soil it now took an average of an hour and a half to load one truck. This loss of productivity may be hard to document because the

⁴⁶ See *Hedin*, 171 Ct. Cl. at 86 (recognizing "that the lack of certainty as to the amount of damages should not preclude recovery" and finding that in cases where "responsibility for damages was clearly established" and "there is no other alternative," use of "total cost" method, "under proper safeguards" allows for "comput[ation of] reasonable damages where no other method was available"); see also *Bagwell*, 797 F.2d at 1307 (accepting "total cost" when alternate methods are unavailable).

⁴⁷ *Jack L. Olsen, Inc. v. Espy*, No. 93-1324, 1994 U.S. App. LEXIS 11840, at *8 (Fed. Cir. May 19, 1994).

⁴⁸ See *Hedin*, 171 Ct. Cl. at 87 (noting: "The closeness of the bids gives support to the reasonableness of the estimate"); see also *Servidone* 931 F.2d at 861 (stating second prong requires "reasonableness of bid"); *McKie* 2000 SD 160 at P22 (pointing out second prong requirement that "bid or estimate was realistic").

⁴⁹ See *Baldi Bros. Constructors v. United States*, 50 Fed. Cl. 74, 79 (2001) (stating that under "total cost" method, court assumes that original bid price reasonably reflected cost to perform under contract); see also *Cavalier Clothes, Inc. v. United States*, 51 Fed. Cl. 399, 421-22 (2001) (discussing reasonableness of bidding price to recover under "total cost" method); *Biemann & Rowell Co. v. Donohoe Cos. Inc.*, 556 S.E.2d 1, 5 (N.C. Ct. App. 2001) (using term "bid" in "total cost" method analysis).

contractor is slowed down by the need to remove the boulders at random intervals,⁵⁰ so as a practical matter for this example let us assume that documenting the loss of productivity is not possible.⁵¹

Under the "total cost" method of calculating damages, the \$3 million total cost of performance (actual cost) will be subtracted from the \$2 million contract price to obtain a damage claim of \$1 million. For a court to award this amount the contractor must satisfy the four prong safeguards of the "total cost" method.⁵² These are analyzed as follows: The first prong requires that no alternative methods exist for measuring damages other than by taking the contractor's claimed actual cost and subtracting it from the contract price.⁵³ In this example the cost of performance is not like the sale of goods, where changes can be accounted for with certainty. The soil here contains *intermittent* boulders, meaning no industry "estimate book" will give the value of the work because the number of boulders will be randomly encountered, and additionally no means exist to segregate out the cost for purely the "extra work." Therefore, the first prong of the "total cost" is satisfied because no alternate method exists for determining the value of the "extra work." The second prong requires that the original estimate must be reasonable.⁵⁴ The original estimate can be compared to other estimates that the owner received and the owner's own estimate; the contractor's estimate can also be checked for mistakes and any deficiencies can be adjusted for in the calculations; therefore, after all adjustments are made to the bid price the second prong is satisfied. The third prong requires the actual cost to be

⁵⁰ See *Aetna Cas. & Sur. Co. v. George Hyman Constr. Co.*, No. 93-CV-4750, 1998 U.S. Dist. LEXIS 22627, at *267 (E.D. Pa. May 15, 1998) (stating "Under the 'measured mile' approach, claimant compares the costs of installing work not subject to delay or impact with the costs of installing similar work during the period subject to the alleged impact"); see also J. Avery Kirst, Jr., *FLORIDA CONSTRUCTION LAW AND PRACTICE* § 11.27 Inefficiency or Loss of Productivity (1999) (determining normal production rate by using "measured mile" approach); Theodore J. Trauner & Angela M. Sist, *Identifying, Proving and Quantifying Damages*, 425 PLI/REAL 167, 182 (1998) (stating that "measured mile" approach is "preferred" method when measuring inefficiency).

⁵¹ See Thomas E. Shea, *Searching for the Standard of Productivity: Loss of Efficiency Damages in Construction Cases*, 15 OHIO N.U. L. REV. 225 (1988) (noting that "complex loss of productivity claims often sneak up on a contractor"); see also Patton, *supra* note 6, at 21 (stating that contractor must quantify, with reasonable accuracy, amount of damages due to owner); Trauner, *supra* note 49, at 182 (commenting that plaintiff can establish such proof of damages by use of daily work reports, payroll records and schedule updates).

⁵² See Reginald M. Jones, *Lost Productivity: Claims for the Cumulative Impact of Multiple Change Orders*, 31 PUB. CONT. L.J. 1, 31 (2001) (delineating four-part test of "total cost" method: 1) proving actual losses directly is impractical; 2) reasonableness of bid; 3) reasonableness of project's actual costs; and 4) contractor's lack of responsibility for added costs); see also *Raytheon Co. v. White*, 305 F.3d 1354, 1365 (Fed. Cir. 2002) (noting in examining cases, that four-part test ensures, to extent possible, burden of paying excess expenditure falls on responsible party); *Amelco Elec. v. Thousand Oaks*, 38 P.3d 1120, 1129 (Cal. 2002) (stating that contractor must satisfy four prongs of "total cost" method test).

⁵³ See Jones, *supra* note 51, at 31 (highlighting that under first prong, no other methods are practicable in determining damages); see also *Raytheon*, 305 F.3d at 1366 (observing that nature of losses make it impossible or impractical to quantify them with reasonable accuracy); *Amelco*, 38 P.3d at 1129 (stating that proving losses directly is impractical).

⁵⁴ See *WRB Corp. v. United States*, 183 Ct. Cl. 409, 426 (1968) (noting that contractor's bid estimate must have been realistic); see also *Raytheon*, 305 F.3d at 1366 (commenting bid estimate must be realistic); *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 861 (Fed. Cir. 1991) (pointing out bid's reasonableness is second factor).

reasonable.⁵⁵ The contractor can adjust its cost accordingly to satisfy the requirement of reasonableness. If for example the contractor used the wrong equipment at first, the contractor will have to subtract such costs due to its own fault from the actual cost. After all adjustments are made to the actual cost and the amount is deemed reasonable, based on expert opinion if needed, then the third prong is satisfied. The fourth prong requires that the contractor is not responsible for the extra cost.⁵⁶ This is satisfied once the contractor wins on the merits of its underlying claim and proves its interpretation of the contract's soils provision was reasonable. When all four prongs are satisfied the courts will allow the "total cost" damage claim over the objections of the owner that the damages are uncertain.⁵⁷

To determine the fairness of this method to the owner, one must look at the drawbacks to the contractor. First the contractor legitimately performed "extra work" and had to fight its way through a court trial just to win on the merits of the claim; therefore, at this point fairness would dictate that the contractor not go home empty handed. In addition, the "total cost" does not even protect the benefit of the bargain for the contractor. Consider the contractor who went into the job with a winning plan that would have yielded a generous profit; not only does the contractor lose any benefits of being able to perform the original work in an efficient and profitable manner, it will lose the benefit of performing the "extra work" in a highly efficient manner.

Take the example above. Assume the contractor was the low bidder at \$2 million. Now assume the contractor had also just performed several similar jobs and so had learned to perform the task in a highly efficient manner, plus it has an experienced labor crew and all the proper machinery readily available. If the site conditions are as planned it is not unreasonable to assume the work can be performed for \$1.5 million dollars, representing a profit of \$500,000; much more than the roughly standard 10 percent profit margin on a cost-plus job. But assume the contractor experiences a differing soil condition as in the example above. Assume as a result of the differing soil conditions the total cost of performance under the changed conditions for this experienced contractor is \$2.2 million, including a 10 percent profit margin; but now consider that for an average contractor who lacks the special

⁵⁵ See *Bagwell Coatings, Inc. v. Middle S. Energy, Inc.*, 797 F.2d 1298, 1309 (5th Cir. 1986) (discussing third prong of "total cost" method).

⁵⁶ See *Amelco*, 38 P.3d at 1129 (stating that requirement of test is that contractor not be responsible for added cost); see also *Raytheon*, 305 F.3d at 1366 (agreeing that contractor not be responsible for added cost as fourth part of test); *Servidone*, 931 F.2d at 861 (applying fourth prong, contractor's lack of responsibility, as requirement).

⁵⁷ See Howard M. Turner et al., *Trial Practice: Proof of Selected Issues*, in ILL. INST. FOR CONTINUING LEGAL EDUC. § 9.4 Delay Claims by the Contractor (2000) (stating that premise of "total cost" method is that defendant should not be relieved from liability merely because contractor cannot prove damages to exact certainty); see also Sobel, *supra* note 6, at 7 (claiming that accepted bid is some proof of reasonableness). See generally Aaen *supra* note 1, at 1202 (finding that this requirement works most clearly in two-party contracts and can break down in complex contracts involving multiple contractors and subcontractors).

experience to perform the contract and the "extra work" so efficiently, its total cost of performance may be \$3 million. Under the "total cost" method the efficient contractor at best will see a profit of only \$220,000 (10% of \$2.2 million), representing a standard "time and materials" or "cost-plus" profit margin of around 10 percent; meanwhile the inefficient contractor can make a "total cost" claim of \$1 million (\$3 million minus \$2 million equals \$1 million, with a 10% profit margin equaling \$300,000). The efficient contractor loses the benefit of the bargain, namely the chance to use its experience to achieve a 25 percent profit margin of \$500,000. On top of this consider that the efficient contractor in such a situation actually has no incentive to perform the "extra work" in an efficient manner because the cheaper it performs the work the less money it will make – it is forced into a cost-plus situation with a profit margin capped at 10%. An even more extreme case occurs when the contractor performs "extra work" but its total cost does not exceed the contract price. There may be no adequate solution to this dilemma of lost profits⁵⁸; it only exposes yet another minefield in the never-ending drama of owner versus contractor.

Another point needs to be made regarding "total cost" in relation to complex multi task projects. In the examples presented above, where the owner's breach *only affects one item of work*, for example, painting or excavation, courts will more easily accept a damage claim using "total cost" and find the "total cost" safeguards easily met.⁵⁹ But the "total cost" method itself becomes more difficult to accept on larger and more complex multi task projects where many areas of the project are affected by the owner's breach. It seems that the "total cost" safeguards as applied to these situations may not yield acceptable results because it is difficult to pinpoint the cause and effect nature of the breach and the damages⁶⁰; this has created a reluctance by courts to accept the "total cost" method itself for all situations whether or not the project is a single task job or a multitask job. These types of claims on complex multi task projects have been termed "ripple effect" claims because the owner's breach has a ripple effect on all the individual tasks taking

⁵⁸ See *McKie v. Huntley*, 2000 SD 160, P13-15 (2000) (discussing "breach of the covenant of good faith and fair dealing as an independent tort" and its relation to "efficient breach principle").

⁵⁹ Aaen, *supra* note 1, at 1188 (stating: "Since the late 1970s, the courts have generally accepted the total cost method where the four part test has been met.").

⁶⁰ See *Wolff & Munier, Inc. v. Whiting-Turner Contracting Co.*, 946 F.2d 1003, 1010 (2d Cir. 1991) (noting "New York law does not countenance damage awards based on 'speculation or conjecture'"); *Fattore Co. v. Metro. Sewerage Comm'n of Milwaukee*, 505 F.2d 1, 4 (7th Cir. 1974) (quoting *Story Parchment Co. v. Paterson Parchment Paper Co.*, 282 U.S. 555, 562-63 (1931) (commenting on rule precluding recovery which refers to damages that "are not the certain result of the wrong, not to those damages which are definitely attributable to the wrong and only uncertain in respect of their amount" and stating "it will be enough if the evidence shows the extent of the damages as a matter of just and reasonable inference, although the result be only approximate").

place.⁶¹ A ripple effect claim affects the way courts view "total cost." The first prong is still satisfied because no independent means of measuring damages exists. The second prong also stays the same because here the "reasonableness of the bid" is easily satisfied if other bids exist. However the third prong relating to the reasonableness of the actual cost and the fourth prong of the lack of the contractor's fault become more problematic. When the owner's breach has an effect on multiple aspects of the project that lead to a general loss of productivity creating a "ripple effect" on all project tasks, in order to truly show proof of damages the contractor would have to show its loss individually on each one of its maybe hundreds or even thousands of tasks, unfortunately this is next to impossible.⁶²

To highlight this problem take for example the building of a subway station. Assume the owner wrongfully accelerates the project and does not administer the contract properly thus creating delays and inefficiencies for the contractor.⁶³ Here the building of a subway station includes thousands of detailed tasks,⁶⁴ these can be grouped into categories such as excavation of soil, support of excavation, relocation of utilities, temporary decking, foundation concrete, forming the subway walls, pouring concrete for the walls, forming the roof, pouring concrete for the roof, street restoration, etc, with each of these having their own many smaller tasks which add up to create thousands of small tasks. On such a multi task project, with thousands of tasks, if the contractor thinks the owner has hurt its productivity, it becomes very problematic to show *direct proof* of how each one of the thousand of tasks was affected and its attendant quantum of increased cost — each of the thousand tasks would have to become a separate claim.⁶⁵ Since it is not practical to measure loss on each of the thousands of individual

⁶¹ See DONALD BARRIE & BOYD PAULSON, PROFESSIONAL CONSTRUCTION MANAGEMENT 467 (3d ed. 1992) (stating that "ripple effect claims represent the most difficult claims to adjudicate. . . [and] the resultant effect of the delays on the work can be subject to considerable disagreement."); Sobel, *supra* note 6, at 5 (analogizing "individual impacts to a construction project" to a "stone that causes the waves on a pond," however pointing out that "in most construction projects, the pond is not perfectly round, and many stones of different sizes are dropped and thrown randomly and repeatedly from different sources, at different angles, and at different times into a pond whose surface is being whipped by swirling winds, landing geese, and diving frogs").

⁶² See *Aetna Cas. & Sur. Co. v. George Hyman Constr. Co.*, No. 93-CV-4750, 1998 U.S. Dist. LEXIS 22627, at *258 (E.D. Pa. May 15, 1998) (describing effect acceleration has on costs and loss of productivity); Sobel, *supra* note 6, at 5.

⁶³ For an example of such a case see *Mergentime Corp.*, 1997 U.S. Dist. LEXIS 23408.

⁶⁴ See *Mergentime Corp. v. Wash. Metro. Area Transit Auth.*, No. 89-1055 (HHG), 1997 U.S. Dist. LEXIS 23408, at *16 (D.D.C. July 22, 1997) (listing activities involved in subway station construction); see also *East 63rd St. Ass'n v. Coleman*, 414 F. Supp. 1318, 1323 (S.D.N.Y. 1976) (reciting actions that were taken in construction of subway station).

⁶⁵ See Patton, *supra* note 6, at 21 (suggesting that proving loss of productivity damages to required certainty is difficult task); see also *Performance Abatement Servs. Inc. v. Lansing Bd. of Water & Light*, 168 F. Supp. 2d 720, 741 (W.D. Mich. 2001) (intimating that loss of productivity damages must be pled and proven); *Walter Kidde Constructors, Inc. v. Conn.*, 434 A.2d 962, 977-78 (Conn. Super. Ct. 1981) (noting that for loss of productivity damages, contractor "carefully followed the method of proof expressly approved").

tasks,⁶⁶ the contractor often comes to court with only its quantum of damages based on the overall cost for the entire job; basically saying to the court: "These are my actual costs, this was my bid, now I would like the difference please." In these types of cases use of the "total cost" method is most "suspect" because even the safeguards provide little comfort against the possibility that the contractor's own inefficiency in performing its many tasks may have caused some part of the increased cost. In this case the concern that using the "total cost" method "wrongfully assumes" that the contractor "flawlessly performed its work" is more of concern for courts than when one task is performed, because an owner can determine if the contractor's total cost of performance is reasonable more precisely when only one task is performed than when say hundreds of tasks are performed; the greater the number of tasks, the harder it will be for an owner, or a court of law, to determine if each task was performed within a reasonable cost or even if the net effect of all the tasks results in a reasonable cost.⁶⁷ In response, the contractor will be forced to argue that when the owner's breach is clear, some measure of damages is warranted; and that the safeguards provided by the "total cost" method still ensure some fair measure of reasonableness to the claim.

Unfortunately, in these ripple effect cases the courts seem to wrongfully focus their negativity on the "total cost" method *itself*, as if in every case a "total cost" claim is suspect, instead of focusing on the real issue in "ripple effect" claims, which is the difficulty of proving causation. "The total cost method is not a substitute for proof of causation but rather a method for calculating the amount of damages."⁶⁸ For a contractor who suffers such a ripple effect claim no easy answers exist. The only suggestions are preventative ones. Contractors should try and discover if an owner's past course of dealings with other contractors have led to problems and factor in a contingency if warranted. Contractors should also make a general evaluation of the quality of the contract drawings, this can be accomplished as the bid is prepared from those drawings, and then factor in a contingency if the contractor feels the drawings are less than complete.

C. *Alternative Methods of Proving Damages*

There are actually three main ways in which courts measure damages regarding construction contract disputes the "actual cost" method, the "total

⁶⁶ See *Luria Brothers & Co. v. United States*, 177 Ct. Cl. 676, 696 (1966) (commenting that loss of productivity cannot be proven merely by books and records); *Williams v. Wichita*, 374 P.2d 578, 581 (Kan. 1962) (indicating that loss of productivity claims are complex and long-term).

⁶⁷ See *McKie v. Huntley*, 2000 SD 160, P21 (2000) (quoting WILLIAM SCHWARTZKOPF ET AL., CALCULATING CONSTRUCTION DAMAGES § 1.6 (1997 Supp.)); see also *Raytheon Co. v. White*, 305 F.3d 1354, 1365-66 (Fed. Cir. 2002) (remarking that performance inefficiencies can inflate contractor's cost under "total cost" method); *Youngdale & Sons Constr. Co. v. United States*, 27 Fed. Cl. 516, 541 (1993) (noting overall consensus that "[u]se of [total cost] method is highly disfavored by the courts, because it blandly assumes — that every penny of the plaintiff's costs are prima facie reasonable, that the bid was accurately and reasonably computed, and that the plaintiff is not responsible for any increases in cost").

⁶⁸ Aaen, *supra* note 1, at 1190-91.

cost" method, and the "jury verdict" method.⁶⁹ Basically these are not so much methods of proof as they are characterizations of the evidence. The line demarcating these characterizations is not always clear, and the level of documentation that the contractor or owner can produce on the costs of the "extra work," along with any independent proof of damages, will control where on the spectrum the evidence is characterized.

Care needs to be taken to avoid confusion here, "actual cost" as a particular method of proving damages is distinct from actual cost as used the third prong of the "total cost" method to represent the total cost of performance.

Ideally the "actual cost" method is based on full documentation of the expenses of purely the "extra work" along with an independent means of evaluating the reasonableness of those expenses. It is considered the most precise method of calculating damages, and as such is most preferred by the courts, with the "jury verdict" method least preferred, and the "total cost" method somewhere in the middle.⁷⁰ Whether a case will proceed on the "actual cost" method or the "total cost" method is a threshold question answered by the outcome of the first prong of the "total cost" method – that no alternative methods exist for measuring damages.⁷¹ Here the owner may claim it can calculate damages by an "actual cost" method that results in lower damages than the contractor's claim using the "total cost" method, while the contractor will argue the reverse that its claim is actually an "actual cost" claim and not a "total cost" calculation.⁷²

⁶⁹ See *Azure v. United States*, No. 96-5054, 1997 U.S. App. LEXIS 29365, at *15-16 (Fed. Cir. Oct. 24, 1997) (noting that three methods of damage calculation exist: "actual cost" method, "total cost" method, and "jury verdict"); *Jack L. Olsen, Inc. v. Espy*, No. 93-1324, 1994 U.S. App. LEXIS 11840, at *4-6 (Fed. Cir. May 19, 1994) (discussing use of three alternate methods of damage calculation); *Mergentime*, 1997 U.S. Dist. LEXIS 23408, at *4-6 (positing three alternatives to calculation of damages "actual cost" method, "total cost" method, and "jury verdict").

⁷⁰ See *Azure*, 1997 U.S. App. LEXIS 29365, at *15-16 (noting "actual cost" method most preferred because of detailed documentation); *Dawco Constr., Inc. v. United States*, 930 F.2d 872, 882 (Fed. Cir. 1991) (stating preference for "actual cost" method because it accurately documents costs); *Mergentime*, 1997 U.S. Dist. LEXIS 23408, at *6-7 (arguing preference for "actual cost" method where applicable).

⁷¹ See *Aetna Cas. & Sur. Co. v. George Hyman Constr. Co.*, No. 93-CV-4750, 1998 U.S. Dist. LEXIS 22627, at *256-57 (E.D. Pa. May 15, 1998) (listing two considerations used in conjunction with first prong as "direct cost of performing the changed work itself" and "cost impact of the changes on the unchanged work"); *Cavalier Clothes, Inc. v. United States*, 51 Fed. Cl. 399, 418 (2001) (interpreting first prong to mean that contractor must "demonstrate that proving actual losses is impossible or highly impractical"); *WRB Corp. v. United States*, 183 Ct. Cl. 409, 426 (1968) (noting first prong of four-prong test for determining whether to use "total cost" method).

⁷² See *Dawco*, 930 F.2d at 876 (commenting: "Claims Court adopted the 'jury verdict method,' . . . [and] concluded that Dawco was unable, despite Edmunson's testimony, to 'prove actual damages' . . ."); see also *Mergentime*, 1997 U.S. Dist. LEXIS 23408, at *6 (discussing dispute over how to categorize damage claim); *Anchorage v. Frank Coluccio Constr. Co.*, 826 P.2d 316, 326 (Alaska 1992) (noting: "Before a contractor may rely on a total cost method, it must show that such a method is the only one available under the circumstances" and that defendant "points out that its own expert was able to make an actual cost estimation of damages . . . [and that plaintiff] made no attempt to relate its claim for specific increased costs . . . to the differing site condition").

For example, in *Mergentime Corp. v. WMATA*,⁷³ a contractor was hired to construct a \$100 million dollar subway complex. The contractor claimed it was owed an equitable adjustment for multiple changes and for acceleration of the job.⁷⁴ In response to the contractor's request to use either the "total cost" method, or the "jury verdict" method, the court said those methods would not be appropriate "in this case because there is a more reliable means of proving damages: direct or 'actual costs,' based upon expert testimony, contemporaneous records, and [the owner's] cost audits."⁷⁵ The court also declined to accept the contractor's damage claim as "actual cost," stating: "Although Mergentime labels its methodology 'documented/actual cost,' not all of its computations meet the standard for the 'actual cost' method."⁷⁶ It quoted from another decision the standard for "actual cost" proof as: "The 'actual cost' method . . . requires the contractor to submit . . . detailed documentation regarding the 'extra' costs it incurred due to modification in performance. . . . The method requires cumbersome segregation of those costs incurred due to the original contractual obligations from those associated with the modification."⁷⁷ The court then proceeded to measure damages according to the owner's calculation of damages, finding "the testimony of [owner's] expert . . . to be the most reliable evidence of the direct costs incurred" ⁷⁸

The final and least favored way courts measure damages is the "jury verdict" method. As the name says, the trier of fact decides the damages with this method.⁷⁹ The "jury verdict" method "requires the court to arrive at a reasonable equitable adjustment after receiving evidence from the parties,"⁸⁰ and is "most often employed when damages cannot be ascertained by any reasonable computation from actual figures."⁸¹ As stated earlier, it does not seem to be so much a method as it is a characterization of the evidence. Courts seem to characterize a damage claim as "jury verdict" when proof of

⁷³ 1997 U.S. Dist. LEXIS 23408.

⁷⁴ *Id.* at *8-12 (discussing basis for dispute); *see also* *Mergentime Corp. v. Wash. Metro. Area Transit Auth.*, 775 F. Supp. 14, 16-17 (D.D.C. 1991) (explaining terms of contracts and foundations of claims). *See generally* *Zahrán v. Cleary Bldg. Corp.*, Nos. 97-3813 & 98-2122, 1999 U.S. App. LEXIS 14103, at *7 (7th Cir. June 1, 1999), *cert. denied*, No. 99-1237, 2000 U.S. LEXIS 1950 (March 20, 2000) (reviewing procedural history of *Mergentime*).

⁷⁵ *Mergentime*, 1997 U.S. Dist. LEXIS 23408, at *6 (explaining that "actual cost" method was applicable because of sufficient testimonial evidence available in case regarding specific costs incurred).

⁷⁶ *Id.* (stating "actual cost" method was inapplicable to contractor's damage claim notwithstanding its definition as such by plaintiff contractor).

⁷⁷ *Id.*

⁷⁸ *Id.* at *14-15.

⁷⁹ *See* *Jack L. Olsen, Inc. v. Espy*, 1994 U.S. App. LEXIS 11840, at *8 (Fed. Cir. 1994) (stating preference for modified "total cost" over "jury verdict" method); *see also* *Azure v. United States*, 1997 U.S. App. LEXIS 29365, at *16 (Fed. Cir. Oct. 24, 1997) ("The third method - the 'jury verdict' method - requires the court to arrive at a reasonable equitable adjustment after receiving evidence from the parties."); *Aaen*, *supra* note 1, at 1189 (describing "jury verdict" method of proving damages).

⁸⁰ *Azure*, 1997 U.S. App. LEXIS 29365, at *16.

⁸¹ *Dawco Constr., Inc. v. United States*, 930 F.2d 872, 880 (Fed. Cir. 1991).

damages are least certain; one court referred to it as the "guesstimate" method.⁸² Courts allow such a method when *clear proof of fault exists* but the amount is not certain; such relief seems to be a matter of fairness so as not to deny to a party clearly injured some reasonable compensation. As with the "total cost" method, it is used when the more preferred "actual cost" method is not available, and seems to be used when issues of apportionment of fault exist that cannot be fully resolved by the use of "total cost" method.⁸³ The courts have developed a three prong test for when it is appropriate to use the "jury verdict" method, 1) when clear proof of injury exists, 2) when there is no more reliable method for computing damages; and 3) when the evidence is sufficient for a court to make a fair and reasonable approximation of the damages.⁸⁴ Of the three methods for calculating damages, courts are most concerned with the "jury verdict" method because as one court put it: "Its primary peril, as evidenced in this case, is the risk that unrealistic assumptions will be adopted and extrapolated, greatly multiplying an award beyond reason, and rewarding preparers of imprecise claims based on undocumented costs with unjustified windfalls."⁸⁵

For example, in *Azure v. United States*,⁸⁶ the contractor was hired for construction of an erosion control works.⁸⁷ Working through the three prongs, the court found first, that "clear proof of injury exists."⁸⁸ Second, it found it impossible to directly measure the cost because "the adverse weather conditions during the extended period in which the excavations remained open caused a myriad of problems. . . . [and the] extreme muddy conditions caused difficulties and slowed down performance."⁸⁹ Third, it found a reasonable approximation could be made between the two extremes that represent the calculated damages so as to justify the use of the "jury verdict" method; the two extremes were \$1,616 and \$18,904.⁹⁰

⁸² *Dawco*, 930 F.2d at 881.

⁸³ See *Olsen*, 1994 U.S. App. LEXIS 11840, at *8 (asserting that "jury verdict" method should be reserved for when modified "total cost" is not applicable); see also *Azure*, 1997 U.S. App. LEXIS 29365, at *18-20 (discussing difficulty in measuring damages).

⁸⁴ *WRB Corp. v. United States*, 183 Ct. Cl. 409, 425 (1968) ("[W]e have allowed so-called 'jury verdicts' if there was clear proof that the contractor was injured and there was no more reliable method for computing damages — but only where 'the evidence adduced [was] sufficient to enable a court or jury to make a fair and reasonable approximation.'"); *Dawco*, 930 F.2d at 882 (stating three prong test for "jury verdict" method developed from *WRB*); *Azure*, 1997 U.S. App. LEXIS 29365, at *16 (noting three prong test for "jury verdict" as stated in *Dawco*).

⁸⁵ *Mergentime*, 1997 U.S. Dist. LEXIS 23408, at *5.

⁸⁶ 1997 U.S. App. LEXIS 29365 (Fed. Cir. 1997).

⁸⁷ *Id.* at *1.

⁸⁸ *Id.* at *17.

⁸⁹ *Id.* at *18.

⁹⁰ *Id.* at *20.

D. *Comparison with Restitution Claims*

Restitution, as measured in value by *quantum meruit*, meaning "as much as is merited,"⁹¹ entitles a party, in an implied-in-law contract or quasi-contract, to recover the "reasonable value" of its services to avoid unjust enrichment.⁹² To measure the value one court stated:

The measure of recovery for *quantum meruit* is the reasonable value of the performance . . . and recovery is undiminished by any loss which would have been incurred by complete performance. . . . [T]he standard for measuring the reasonable value of the services rendered is the amount for which such services could have been purchased from one in the plaintiff's position at the time and place the services were rendered.⁹³

Generally restitution is reserved for a material breach of the contract that in effect rescinds the original contract or when no contract exists at all. By contrast "total cost" is used for recovery under the contract when the contract is fully performed. Like restitution the "total cost" method has a similar "reasonableness" standard for measuring its quantum of the damages requiring both the "actual cost" and the bid to be "reasonable." Generally the same issues of proof arise for both restitution recovery and "total cost," and in both cases courts find themselves taking a hard look at complex facts to insure certainty and apportionment of fault.⁹⁴

For example, in *Northeast Drilling, Inc. v. Inner Space Services*,⁹⁵ an underwater dredging and construction project,⁹⁶ disputes arose over the quality of the work and the resulting damages.⁹⁷ The court commented that the facts of the underlying claims were difficult to sort out due to the nature

⁹¹ BLACK'S LAW DICTIONARY 576 (7th ed. 1999).

⁹² See RESTATEMENT (SECOND) OF CONTRACTS § 371 (1981) (stating: "If a sum of money is awarded to protect a party's restitution interest, it may as justice requires be measured by . . . the reasonable value to the other party **of what he received**"); see also Deborah A. Ballam, *Exploding the Original Myth Regarding Employment-At-Will: The True Origins of the Doctrine*, 17 BERKELEY J. EMP. & LAB. L. 91, 103 (1996) (explaining *quantum meruit* as "a theory designed to allow recovery for unjust enrichment in cases where no contract existed between the parties"); Candace S. Kovacic, *A Proposal to Simplify Quantum Meruit Litigation*, 35 AM. U. L. REV. 547, 553 (1986) (pointing out quantum meruit's application in quasi-contracts).

⁹³ *United States v. Algernon Blair, Inc.*, 479 F.2d 638, 641 (4th Cir. 1973) (citations omitted).

⁹⁴ See generally Galligan, *supra* note 1, at 809-10 (arguing courts grant restitution recovery in construction cases primarily based on plaintiff's estimated losses rather than on defendant's actual gains); Aaen *supra* note 1, at 1186 (noting complexity and variety of factors involved in construction cases that lead to difficulty in determining actual costs); Patton, *supra* note 6, at 25 (discussing "special factors" courts will consider in applying "total cost" method to determine recovery in construction cases).

⁹⁵ No. 99-173-P-H, 2000 U.S. Dist. LEXIS 20254 (D. Me. Mar. 31, 2000).

⁹⁶ *Id.* at *1-11 (outlining background, scope and performance of contract).

⁹⁷ *Id.* at *8-12 (describing issues in dispute).

of underwater dredging, and further noted that this task was made more arduous by expert testimony at polar extremes.⁹⁸ It commented that defendant's proof of its counterclaim "rests on an unrealistic and unjustified premise as to what equipment . . . [defendant] needed for dredging, and it fails to account for other factors – for which . . . [plaintiff] was not responsible – that contributed to the damage."⁹⁹ The court stated that proof is not required to a mathematical certainty,¹⁰⁰ thus illustrating that issues of certainty and apportionment of fault are the same for restitution claims as they are for those under the "total cost" method.

Another issue is whether the "total cost" method is reserved only for damages under the contract as opposed to restitutionary relief for unjust enrichment. If the contract is rescinded, abandoned, or the owner is found to have materially breached the contract, then the non-breaching party recovers the *quantum meruit* of its work and is not limited by the contract, so no matter how low the original estimate, all that has to be proven is that the actual costs are reasonable, and no consideration is given to how much unintended gain the contractor receives.¹⁰¹ Under "total cost" by contrast, the bid is normally adjusted upwards to avoid turning a losing contract into a winning one. In *C. Norman Peterson v. Container Corp. of America*,¹⁰² the court concluded that the plaintiff was "entitled to recover the unpaid reasonable costs of its work" under *quantum meruit* because of abandonment of the contract,¹⁰³ and stated that: "Under the facts of this case, it was appropriate for the trial court to award damages based on the total cost method."¹⁰⁴ The court used "total cost" to determine *quantum meruit* noticing it is just another way of obtaining the "reasonable value" of the work.¹⁰⁵ In addition, in the context of "extra work," recent courts have stated that although normally *quantum meruit* is reserved for cases with no express contract, recovery on a *quantum meruit* basis is acceptable when "extra work" is performed outside the scope of the express contract.¹⁰⁶

⁹⁸ *Id.* at *21-23 (stating: "Calculation of damages and proof of causation here are complex" and that "it is a factfinder's conclusion of what the approximately correct number is when the parties have presented damage numbers at the polar extremes in a factual setting of great uncertainty and difficulties of proof (*i.e.*, what happened underwater and why)").

⁹⁹ *Id.* at *21 n.9 (referencing Findings of Fact).

¹⁰⁰ *Id.* at *23 n.10 (quoting *Down E. Energy Corp. v. RMR, Inc.*, 1997 ME 148, P7 (1997) (holding that "reasonableness, not mathematical certainty, is the criterion for determining whether damages were awarded appropriately").

¹⁰¹ Aaen, *supra* note 1, 1193 (describing that in abandonment situation "[n]o need exists to show the accuracy of the original estimate since there is no contract or bargain under which the parties are entitled to benefit").

¹⁰² 172 Cal. App. 3d 628 (1985).

¹⁰³ *Id.* at 645.

¹⁰⁴ *Id.* at 647.

¹⁰⁵ *See Id.*; Aaen, *supra* note 1, 1193 ("Absent other factors, the total cost, including overhead and profit, is usually accepted as the reasonable value of the work.").

¹⁰⁶ *See* *BB&B Constr., Inc. v. Hogan*, Nos. 99-7142 & 00-7015, 2001 U.S. App. LEXIS 18706, at *4 (10th Cir. Aug. 17, 2001) (stating: "[A] contract does not necessarily bar the pursuit of a quantum meruit claim,

III. HISTORICAL DEVELOPMENT

A. *The Certainty Requirement*

Common contract doctrine states that damages cannot be speculative,¹⁰⁷ but at the same time, damages do not have to be proven to a mathematical exactitude.¹⁰⁸ The United States Supreme Court recognized the limitations on proving damages in its 1927 ruling in *Eastman Kodak Co. of New York v. Southern Photo Materials Co.*¹⁰⁹ This anti-trust case involved a photographic company, Southern Photo Materials ("Southern"), that suffered lost profits when it refused to sell the part of its business that competed with Eastman Kodak Co. ("Kodak") to Kodak.¹¹⁰ Kodak was trying to monopolize the industry, and when Southern declined to sell Kodak that part of its business that competed with Kodak, Kodak retaliated by refusing to sell to Southern various wholesale products at reasonable prices that were required by Southern for other parts of its business.¹¹¹ Southern claimed damages in lost profits from the sale of goods it could no longer obtain from

[and] [r]elief under a quantum meruit theory may be permitted as long as it involves obligations outside the scope of the express contract"); *see also* ABC Elec., Inc. v. Neb. Beef, Ltd., 249 F.3d 762, 765 (8th Cir. 2001) ("[A] quantum meruit claim may supplement an express contract by seeking reasonable compensation for work not covered by the contract"); United States *ex rel.* Coastal Steel Erectors, Inc., v. Algernon Blair, Inc., 479 F.2d 638, 641 (4th Cir. 1973) (citing N. Am. Graphite Corp. v. Allan, 184 F.2d 387, 389 (D.C. Cir. 1950)); 12 WILLISTON ON CONTRACTS § 1469 (3d ed. 1970) ("A plaintiff may join a claim for quantum meruit with a claim for damages from breach of contract"); Galligan, *supra* note 1, at 803 (remarking: "Courts use implied contract and restitution in manners that defy their traditional definitions, suggesting that such use of doctrine is one of the malleable tools that neoclassical courts have employed to satisfy the need for flexibility in complex contractual relationships").

¹⁰⁷ *See* RESTATEMENT (SECOND) OF CONTRACTS § 352 (1981) (stating: "Damages are not recoverable for loss beyond an amount that the evidence permits to be established with reasonable certainty"); *see also* RESTATEMENT (SECOND) OF CONTRACTS § 360 (1981) ("determining whether the remedy in damages would be adequate" by considering "the difficulty of proving damages with reasonable certainty, the difficulty of procuring a suitable substitute performance by means of money awarded as damages, and THE LIKELIHOOD THAT AN AWARD OF damages could not be collected").

¹⁰⁸ *See* *Eastman Kodak Co. of N.Y. v. S. Photo Materials Co.*, 273 U.S. 359, 369 (1927) (citing *Hetzel v. Baltimore & Ohio R.R.*, 169 U.S. 26, 39 (1898) (noting "defendant whose wrongful conduct has rendered difficult the ascertainment of the precise damages suffered by the plaintiff, is not entitled to complain that they cannot be measured with the same exactness and precision as would otherwise be possible")); *see also* *N.E. Drilling, Inc. v. Inner Space Servs.*, No. 99-173-P-H, 2000 U.S. Dist. LEXIS 20254, at *23 n.10 (D.C. Me. Mar. 31, 2000) (quoting *Down E. Energy Corp. v. RMR, Inc.*, 1997 ME 148, P7 (1997) (stating: "The Maine Law Court has 'made clear . . . that reasonableness, not mathematical certainty, is the criterion for determining whether damages were awarded appropriately'")); *Mergentime Corp. v. Wash. Metro. Area Transit Auth.*, No. 89-1055 (HHG), 1997 U.S. Dist. LEXIS 23408, at *7 (D.D.C. July 22, 1997) (proposing that damages need not be proven to mathematical certainty).

¹⁰⁹ 273 U.S. 359. *See* Stephen Calkins, *Summary Judgment, Motions to Dismiss, and Other Examples of Equilibrating Tendencies in the Antitrust System*, 74 GEO. L.J. 1065, 1089 (1986) (pointing out Court's award of treble damages in *Kodak*); *Zeller v. Bogue Elec. Mfg.*, 476 F.2d 795, 803 (2d Cir. 1973) (distinguishing facts of instant case in which plaintiff seeks consequential damages, and declining to apply liberal principles used by Supreme Court in *Kodak*).

¹¹⁰ *Kodak*, 273 U.S. at 368-69 (noting plaintiff's allegations). *See* *Eastman Kodak Co. v. S. Photo Material Co.*, 295 F. 98, 101 (5th Cir. 1923), *aff'd*, 273 U.S. 359 (1927) (commenting on defendant's exclusive production of goods and plaintiffs inability to buy them); *see also* Charles N. Charnas, *Segregation of Antitrust Damages: An Excessive Burden on Private Plaintiffs*, 72 CAL. L. REV. 403, 403 n.3 (1984) (describing *Kodak's* monopoly).

¹¹¹ *Kodak*, 273 U.S. at 376 (remarking on *Kodak's* failure to sell to Southern).

Kodak at a fair price.¹¹² The only proof of damages Southern had were "expected sales" based on the sales from previous years.¹¹³ Kodak claimed, among other things, that it is a mere "assumption" that such future sales as claimed would occur.¹¹⁴ The Court disagreed, quoting the earlier decision from the Court of Appeals: "Damages are not rendered uncertain because they cannot be calculated with absolute exactness. It is sufficient if a reasonable basis of computation is afforded, although the result be only approximate."¹¹⁵ The Court went on to state that: "[A] defendant whose wrongful conduct has rendered difficult the ascertainment of the precise damages suffered by the plaintiff, is not entitled to complain that they cannot be measured with the same exactness and precision as would otherwise be possible."¹¹⁶

These views were again repeated and expanded upon in the 1931 Supreme Court case of *Story Parchment Co. v. Paterson Parchment Paper Co.*¹¹⁷ This was also an anti-trust case, and the Court again had to deal with a contention that the lost profits claimed were speculative.¹¹⁸ The Court of Appeals had denied recovery, but the Supreme Court reversed, and affirmed the judgment of the district court, noting that the standard of proof is not the same when proving the *fact* of damages as it is when proving the *amount* of damages.¹¹⁹

¹¹² *Kodak*, 273 U.S. at 376 (discussing Southern's lost business due to Kodak's refusal to sell at fair price); see *Kodak*, 295 F. at 101 (stating Southern's claimed damages were lost profits from particular goods); see also Roger D. Blair & Jeffrey L. Harrison, *Reexamining the Role of Illinois Brick in Modern Antitrust Standing Analysis*, 68 GEO. WASH. L. REV. 1, 5 (1999) (discussing use of Southern's previous sales as basis for damage claim).

¹¹³ *Kodak*, 273 U.S. at 376 (remarking Southern's basis for sales was taken from previous years); see *Kodak*, 295 F. at 101 (stating Southern's method of proving damages was their gross profit before, and immediately after, Kodak's failure to deal); see also Blair, *supra* note 111, at 5 (summarizing Southern's method "[i]n calculating damages," and noting "the plaintiff relied on a four-year period before the violation to estimate its lost sales and then subtracted its operating costs from the gross revenue it would have earned").

¹¹⁴ *Kodak*, 273 U.S. at 378 (explaining Kodak's assertion that these particular sales are too speculative). See Blair, *supra* note 111, at 5 (reiterating Kodak's argument that "damages were 'purely speculative'").

¹¹⁵ *Kodak*, 273 U.S. at 379.

¹¹⁶ *Id.* (citing *Hetzl v. Baltimore & Ohio R.R.*, 169 U.S. 26, 39 (1898)).

¹¹⁷ *Story Parchment Co. v. Paterson Parchment Paper Co.*, 282 U.S. 555, 562 (1931) (holding "uncertainty as to the extent of the damage" does not preclude recovery). *Accord* *Price Waterhouse v. Hopkins*, 490 U.S. 228, 253 (1989) (citing *Story Parchment*, 282 U.S. at 562) (acknowledging Court has found "clear distinction between the measure of proof necessary to establish the fact that petitioner had sustained some damage and the measure of proof necessary to enable the jury to fix the amount"); *Del. Valley Marine Supply Co. v. Am. Tobacco Co.*, 184 F. Supp. 440, 444 (E.D. Pa. 1960) (citing *Story Parchment*, 282 U.S. at 562) (analyzing process for assessment of damages and noting *Story Parchment* "seemingly affirmed the rule that although the fact of damage must be shown, without any element of uncertainty, to be definitely attributable to the wrong, a dollar value may be assigned to an injury even if some uncertainty exists as to its amount").

¹¹⁸ *Story Parchment*, 282 U.S. at 561-63 (refusing to "accept the view of [the Court of Appeals] that the verdict of the jury . . . cannot stand because it was based upon mere speculation and conjecture).

¹¹⁹ *Id.* at 562 (discussing difference between fact of damages and amount of damages); see James R. McCall, *The Disaggregation of Damages Requirement in Private Monopolization Actions*, 62 NOTRE DAME L. REV. 643, 652 (1987) (pointing out Supreme Court's adjustment, in *Story Parchment*, of "burden of proof on the issue of the amount of damage suffered by the plaintiff" and noting that Court stated it "would be

To prove the *amount* of damages the burden is lower because fairness demands that an injured party receive a remedy when in fact he is harmed.¹²⁰ Commenting as to proof of the amount of damages, the Court stated: "[I]t will be enough if the evidence shows the extent of the damages as a matter of just and reasonable inference, although the result be only approximate."¹²¹ The Court also noted the following:

It is true that there was uncertainty as to the extent of the damage, but there was none as to the fact of damage The rule which precludes the recovery of uncertain damages applies to such as are not the certain result of the wrong, not to those damages which are definitely attributable to the wrong and only uncertain in respect of their amount.¹²²

This holding is in consonance with the fourth prong of the "total cost" method which requires liability on the part of the owner before a court will be satisfied with the contractor's claim for damages.¹²³

B. *Development of "Total Cost"*

These concepts were first used to justify recovery of damages for construction contracts starting in the 1950's. It was used when the *fact* of damages was certain but the *amount* of the damages was less certain, which is the classic "total cost" example. The first case to address the issue of claiming damages as the total cost of performance minus the contract price in the context of a construction claim when it was difficult to measure damages with certainty was the 1951 Court of Claims case of *Great Lakes Dredge and*

less rigorous than the standard of proof required on the issue of whether the plaintiff sustained *some* injury"); *see also* Spencer Weber Waller, *The Antitrust Philosophy of Justice Holmes*, 18 S. ILL. U. L.J. 283, 312 n.163 (1994) (remarking on Supreme Court's acknowledgment in *Story Parchment* "that a precise damage calculation may be impossible and that a plaintiff must only come forward with a just and reasonable estimate of liability once proof of fact of injury from unlawful conduct has been established").

¹²⁰ *Story Parchment*, 282 U.S. at 563 (declaring: "[I]t would be a perversion of fundamental principles of justice to deny all relief to the injured person, and thereby relieve the wrongdoer from making any amend for his acts"). *See* *Bigelow v. RKO Radio Pictures, Inc.*, 327 U.S. 251, 264 (1946) (opining: "Any other rule would enable the wrongdoer to profit by his wrongdoing at the expense of his victim"); *see also* Roger D. Blair & William H. Page, *"Speculative" Antitrust Damages*, 70 WASH. L. REV. 423, 425-26 (1995) (explaining: "The Supreme Court has justified the more relaxed standard for proving the amount of damages by reasoning that the wrongdoer should bear the costs associated with uncertainty in proving damages").

¹²¹ *Story Parchment*, 282 U.S. at 563.

¹²² *Id.* at 562 (citing *Taylor v. Bradley*, 39 N.Y. 129, 140-46 (1868)).

¹²³ *See* *WRB Corp. v. United States*, 183 Ct. Cl. 409, 426 (1968) (listing four prongs of "total cost" method, as set forth in prior cases, including requirement of fourth prong that plaintiff was not responsible for additional expense); *see also* *J.D. Hedin Constr. Co. v. United States*, 171 Ct. Cl. 70, 87 (1965) ("Plaintiff has established the fact that it performed additional work [and] the responsibility of defendant for these damages is clear, [so] [t]he only possible method by which these damages can be computed is by resort to the 'total cost' method").

Dock Co. v. United States.¹²⁴ The case involved a differing site condition dispute. The plaintiff was hired to construct a river lock, and the plans did not reveal the presence of a layer of clay in the soil.¹²⁵ As a result of the clay, when a sheet-pile earth retaining system was installed, an unexpected hydrostatic pressure built up because the water was expected to drain through the supposedly sandy soil; this caused the system to fail.¹²⁶

The government's representative in charge of the contract and in charge of processing claims for "extra work," the contracting officer, claimed the contractor should have expected the condition. The court found otherwise and said it was a breach of the contract not to have made an equitable adjustment under the contract's "changed condition" clause.¹²⁷ The plaintiff then presented its extra cost as the difference between its actual costs and its contract price, adjusting its actual costs for its own errors.¹²⁸ In order to allow this calculation the court inquired into whether the original contract price represented an accurate reflection of the original as-planned costs, which the court found it did not, concluding the contract was underestimated.¹²⁹ To overcome this the court held it "fair" to use the average of the four other bidders along with the government's own estimate to obtain the reasonable cost estimate for the job.¹³⁰ The defendant argued that some of the actual costs incurred were due to the plaintiff's own inefficiencies, but the court found no evidence to support this.¹³¹ This was the start of the "total cost" method and shows the outline of the method starting to take shape. It is worthwhile to note that up until the 1970's the "total cost" concept basically remained in the Court of Claims arena.

¹²⁴ 119 Ct. Cl. 504, 555-60 (1951) (delineating steps taken by court to calculate damages); see Sobel, *supra* note 6, at 5 (noting *Great Lakes* was first "reported application of the total cost measure of damages").

¹²⁵ *Great Lakes*, 119 Ct. Cl. at 513-14 (discussing plaintiff's unexpected discovery of clay). See also *Boyajian v. United States*, 191 Ct. Cl. 233, 247-48 (1970) (commenting *Great Lakes* "involved an equitable adjustment to which the court held the contractor to be entitled as a result of a changed condition").

¹²⁶ *Great Lakes*, 119 Ct. Cl. at 519-20 (discussing facts that led to failure of system).

¹²⁷ *Id.* at 555.

¹²⁸ *Id.* at 558 (explaining plaintiff's formulation of extra costs). See *Boyajian*, 191 Ct. Cl. at 247 (discussing cost determination in *Great Lakes*); *John F. Harkins Co. v. Sch. Dist. of Philadelphia*, 460 A.2d 260, 263 (Pa. Super. Ct. 1983) (detailing calculation of damages in *Great Lakes*).

¹²⁹ *Great Lakes*, 119 Ct. Cl. at 558 (disallowing cost estimate). See *Boyajian*, 191 Ct. Cl. at 247 (noting how court in *Great Lakes* rejected plaintiff's damage determination); *Harkins*, 460 A.2d at 263 (commenting on disallowance of original contract price due to underestimation by contractor in *Great Lakes*).

¹³⁰ *Great Lakes*, 119 Ct. Cl. at 559 (proposing use of four estimates as fair method of determination). See *Youngdale & Sons Constr. Co., Inc. v. United States*, 27 Fed. Cl. 516, 543 (1993) (accepting *Great Lakes*' rationale of using average of all losing bids); *Boyajian*, 191 Ct. Cl. at 247 (discussing determination of correct formula in *Great Lakes*).

¹³¹ *Great Lakes*, 119 Ct. Cl. at 558-59 (rejecting defendant's argument for lack of evidentiary support). See generally *Raytheon Co. v. White*, 305 F.3d 1354, 1365 (Fed. Cir. 2002) (noting that performance inefficiencies can inflate actual expenditures); *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 862 (Fed. Cir. 1991) (stating that inefficiencies in performance could inflate contractor costs).

In 1952 case of *MacDougald Construction Co. v. United States*,¹³² the issue of showing damages this way was again presented to the court. The court relied on *Great Lakes* in making its decision.¹³³ Here a contractor was hired to construct airfield runways; the contractor performed additional grading work and was forced to work around airfield operations.¹³⁴ The contractor won on the merits of the "extra work" claim, and presented its damages as the difference between its actual cost and its original estimate.¹³⁵ The court stated that this method "assumes the [contractor's] original cost estimates were correct."¹³⁶ To account for this concern the court used an average of twelve other bids along with the government's own estimate to determine the reasonable contract price, and deducted that value from the actual costs.¹³⁷ The court made a note that it reviewed the "record carefully to determine whether or not any portion of such excess costs were attributable to circumstances which would not entitle plaintiff to equitable adjustment" ¹³⁸ Here again the outline of the "total cost" method continues to be formed.

In the 1955 case of *F.H. McGraw and Co. v. United States*,¹³⁹ the court showed deep concern with the use of this method.¹⁴⁰ Here the plaintiff entered into a contract for construction of an addition to a veterans' hospital.¹⁴¹ Due to changes in wage controls at the end of World War II, combined with delays and disruptions by the Veterans Administration, the plaintiff claimed it was forced to suffer significant losses; the court found for

¹³² 122 Ct. Cl. 210 (1952).

¹³³ *Id.* at 261 (citing *Great Lakes*). See generally *T L James & Co. v. Traylor Bros Inc.*, 294 F.3d 743, 754 (5th Cir. 2002); *Roberts & Schaefer Co. v. Hardaway Co.*, 152 F.3d 1283, 1299-1300 (11th Cir. 1998).

¹³⁴ *MacDougald*, 122 Ct. Cl. at 245 (noting plaintiff's claim arises over a contract "whereby plaintiff agreed to furnish the material and perform the work for the clearing, grubbing, grading, draining, and paving of runways," however, plaintiff argues that "increased cost . . . which . . . amounted to a change in the contract plans and specifications" occurred and was "allegedly caused by interruptions in the work occasioned by defendant's continued operation of the existing runways . . . amounting to 'unknown conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the plans and specifications'").

¹³⁵ *Id.* at 259-61 (holding "conversations summarized in the memorandum gave assurances that the time for completing the contract work would be extended if the use of the airfield by the military caused delays, and that any increased costs to the contractor actually occasioned by such operations would be reimbursed" and noting that plaintiff's claim for damages "represents the difference between plaintiff's actual costs . . . and the amounts paid by the Government").

¹³⁶ *Id.* at 261.

¹³⁷ *Id.* at 243 (comparing actual cost to bidding estimates of twelve other companies and Government engineers to derive integrity of contractor's claimed costs). See generally *Cavalier Clothes, Inc. v. United States*, 51 Fed. Cl. 399, 417-18 (2001); *Am. Line Builders, Inc. v. United States*, 26 Cl. Ct. 1155, 1181 (1992).

¹³⁸ *MacDougald*, 122 Ct. Cl. at 261.

¹³⁹ 131 Ct. Cl. 501 (1955).

¹⁴⁰ *Id.* at 503-04.

¹⁴¹ *Id.* (detailing parties' contract involving additions to Veterans' Hospital).

the plaintiff on the merits,¹⁴² but took issue with its method of damage calculation. First the court stated the need to show damages to a "reasonable certainty"; then in response to the plaintiff relying on *Great Lakes* and claiming its actual cost less its estimated cost, the court said:

This method of proving damage is by no means satisfactory, because, among other things, [(prong 3)] it assumes plaintiff's costs were reasonable and [(prong 4)] that plaintiff was not responsible for any increases in cost, and [(prong 2)] because it assumes plaintiff's bid was accurately computed, which is not always the case, by any means. Our opinion in *Great Lakes* . . . was not intended to give approval to this method of proving damage, except in an extreme case and under proper safeguards.¹⁴³

This language would be repeated often in future cases.¹⁴⁴ The court went on to recognize that this method was used in *Great Lakes* because of the "lack of other proof."¹⁴⁵ Here the court found that "[prong 1)] there is proof of these damages more reliable than the difference in plaintiff's estimate and its actual costs."¹⁴⁶ The proof was the cost calculated by the contracting officer, which the court, without going into much detail, said was "done in the way required" and that there are no "serious" contentions to the contrary.¹⁴⁷ Here already we all four basic elements that would become the standard for the "total cost" method.

In the 1960's, the Court of Claims continued to explicate the conditions under which this method could be used. In 1960, in *Oliver-Finnie Co. v. United States*,¹⁴⁸ the court repeated the concerns expressed in *F.H.*

¹⁴² *Id.* at 506 (explaining how court came to agree with plaintiff's plea).

¹⁴³ *Id.* at 511.

¹⁴⁴ *See, e.g.*, *Boyajian v. United States*, 191 Ct. Cl. 233, 249 (1970) (reiterating *McGraw* court's statement that "[t]his [total cost] method of proving damage is by no means satisfactory, because, among other things, it assumes plaintiff's costs were reasonable and that plaintiff was not responsible for any increases in cost, and because it assumes plaintiff's bid was accurately computed, which is not always the case, by any means" and further pointing out court's cautionary advice "that its opinion in *Great Lakes* was not intended to give approval to this method of proving damage, except in an extreme case and under proper safeguards"); *Urban Plumbing & Heating Co. v. United States*, 187 Ct. Cl. 15, 36 (1969) (pointing out no determination had been made as to amount of plaintiff's damages and citing to *McGraw* court's reference to decision in *Great Lakes* and quoting that it "was not intended to give approval to this method of proving damage, except in an extreme case and under proper safeguards."); *Phillips Constr. Co. v. United States*, 184 Ct. Cl. 249, 260-61 (1968) (noting that "total cost" method is "not preferred by the courts" and only will be used in "instances where, for lack of an alternative, the court deemed it necessary to compute the amount of recovery" in this way and further noting "[as] explained by the court in a much-quoted excerpt from its opinion in *McGraw* . . . '[o]ur opinion in *Great Lakes* was not intended to give approval to this method of proving damage, except in an extreme case and under proper safeguards'").

¹⁴⁵ *F.H. McGraw*, 131 Ct. Cl. at 511.

¹⁴⁶ *Id.* at 512.

¹⁴⁷ *Id.*

¹⁴⁸ 150 Ct. Cl. 189 (1960).

McGraw, but nonetheless still allowed the plaintiff to use the "total cost" method.¹⁴⁹ Noting that an "[(1)] accurate determination of such increased labor costs is not possible,"¹⁵⁰ and that defendant's argument of the plaintiff "magnify[ing] the difficulties" was not borne out by the record,¹⁵¹ the court held for the plaintiff stating: "[(2)] [W]here there is nothing in the record to show that plaintiff's bid was too low, and [(3)] when it has not been proved that plaintiff's costs were unreasonable, or [(4)] that plaintiff was itself responsible for any increased costs, we have no alternative [but to grant relief]."¹⁵² So here the court mentions all four future "total cost" method requirements. In 1962, in *River Construction Corp. v. United States*,¹⁵³ the court disallowed damages because plaintiff did not prove its underlying claim, but the court did look at the issue of proving damages.¹⁵⁴ It also repeated the concerns expressed in *F.H. McGraw*, and in dicta noted that extra "costs must be tied in to fault on the defendant's part."¹⁵⁵ In 1965, in *J.D. Hedin Constr. Co. v. United States*,¹⁵⁶ the method was actually called "total cost" by the court.¹⁵⁷ The court stated how the "total cost" had been viewed with dislike, that it was not here establishing its validity, but under proper "safeguards" and when no alternative exists, it may be used so that lack of certainty does not "preclude recovery."¹⁵⁸ Finally in 1968 in *WRB*

¹⁴⁹ *Id.* at 200 (reminding parties that method used to prove damages was not satisfactory because it assumed plaintiff's costs were reasonable, plaintiff was accurate, and plaintiff was not responsible for any increased costs). See generally *Raytheon Co. v. White*, 305 F.3d 1354, 1365 (Fed. Cir. 2002) (stating that actual expenditures would be increased by performance inefficiency); *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 862 (Fed. Cir. 1991) (extrapolating that inefficient performance of contractor would lead to increased costs for adverse party).

¹⁵⁰ *Oliver-Finnie*, 150 Ct. Cl. at 199-200. See generally Geoffrey Creyke, Jr. & H. Randall Bixler, *Constructive Acceleration Under Government Contracts*, 29 LAW & CONTEMP. PROBS. 137, 154-55 (1964) (quoting courts' exegeses of situations in which application of "total cost" method is appropriate); Capt. Gilbert J. Ginsburg, *The Measure of Equitable Adjustments for Change Orders Under Fixed-Price Contracts*, 14 MIL. L. REV. 123, 133 (1961) (citing *Oliver-Finnie* as illustrative of courts' analysis of "total cost" method for equitable adjustment of damages).

¹⁵¹ *Oliver-Finnie*, 150 Ct. Cl. at 200. See Creyke, *supra* note 149, at 155 (quoting court's rationale for determining that increase in cost was not due to actions of plaintiff); see also Ginsburg, *supra* note 149, at 133-34 (noting requirement that plaintiff's actions did not cause increase in damages).

¹⁵² *Oliver-Finnie*, 150 Ct. Cl. at 200. See *Bruce Constr. Corp. v. United States*, 163 Ct. Cl. 97, 103 (1963) (quoting court's analysis); Creyke, *supra* note 149, at 155 (quoting same language from court).

¹⁵³ 159 Ct. Cl. 254 (1962).

¹⁵⁴ *Id.* at 295-301 (providing court's detailed analysis of damages claimed and inadequacies of cause of action). See *Massman Constr. Co. v. Tenn. Valley Auth.*, 769 F.2d 1114, 1123 (6th Cir. 1985) (citing to *River Constr.* when noting that "leniency as to the actual mechanics of computation does not relieve the contractor of his essential burden of establishing the fundamental facts of liability, causation, and resultant injury).

¹⁵⁵ *River Constr.*, 159 Ct. Cl. at 270-71; see *Boyajian v. United States*, 191 Ct. Cl. 233, 239 (1970) (citing language of *River Constr.*); see also Aaen, *supra* note 1, at 1190 n.19 (quoting same language of court).

¹⁵⁶ 171 Ct. Cl. 70 (1965), *overruled on other grounds by Wilner v. United States*, 24 F.3d 1397 (Fed. Cir. 1994).

¹⁵⁷ *Id.* at 86. See Ralph C. Nash, Jr. & John Cibinic, Jr., *The Changes Clause in Federal Construction Contracts*, 35 GEO. WASH. L. REV. 908, 934-35 (1967) (citing court's use of term "total cost" in its analysis).

¹⁵⁸ *Hedin*, 171 Ct. Cl. at 86. See Nash, *supra* note 156, at 934-35 (citing court's detailing of limited applicability of "total cost" method).

Corp. v. United States,¹⁵⁹ the four-prong test, as it is known today, was spelled out as such by the court:

The acceptability of the method hinges on proof that (1) the nature of the particular losses make it impossible or highly impracticable to determine them with a reasonable degree of accuracy; (2) the plaintiff's bid or estimate was realistic; (3) its actual costs were reasonable; and (4) it was not responsible for the added expenses.¹⁶⁰

In 1970 in *Boyajian v. United States*,¹⁶¹ the court gave an extensive analysis of the issue including a complete case history of the issue up to that point.¹⁶² The court, rejecting the plaintiffs use of the "total cost" method, said that "total cost" is only a "starting point,"¹⁶³ meaning one cannot just come into court and claim: "These are my costs and this was my bid," without something more.¹⁶⁴ In this case the "total cost" method was rejected because the plaintiff merely showed an accountant's testimony of the actual cost, its costs were not segregated to show any increased cost due to its own inefficiency, it made no satisfactory attempt to show the original bid was reasonable, nor did it adjust its actual cost for costs attributable to itself.¹⁶⁵

IV. APPLICATION OF THE "TOTAL COST" METHOD

A. *First Prong: Impracticality of Proving Actual Losses Directly*

The first prong of the total cost method requires that it be impractical to prove the cost of the "extra work" by any other means than through the

¹⁵⁹ 183 Ct. Cl. 409 (1968).

¹⁶⁰ *Id.* at 426. See Aaen, *supra* note 1, at 1195-96 (quoting court's four-part test and discussing its elements); Gergen, *supra* note 1, at 715 n.33 (indicating four-prong test utilized by court).

¹⁶¹ 191 Ct. Cl. 233 (1970).

¹⁶² *Id.* at 247-54. See Thomas H. Asselin & M. Catherine Harris Helms, *How to Recognize, Preserve, Present, and Prosecute Construction Contractors' Delay Claims*, 40 S.C. L. REV. 943, 955 (1989) (indicating importance of *Boyajian* in determining feasibility of "total cost" claims for damages).

¹⁶³ *Boyajian*, 191 Ct. Cl. at 247. See *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 862 (Fed. Cir. 1991) (citing language from *Boyajian*); Aaen, *supra* note 1, at 1190 n.19 (noting court's indications that "total cost" method does not allow recovery "unless acceptable evidence demonstrates that the damages claimed resulted from and were caused by the breach").

¹⁶⁴ *Boyajian*, 191 Ct. Cl. at 247. See *Seeger v. United States*, 199 Ct. Cl. 766, 786-87 (1972) (holding "Ascertainment of increased costs that are directly attributable to delay that results from changes ordered by the [plaintiff] normally are measurable with a reasonable degree of accuracy"). See generally Aaen, *supra* note 1, at 1190-91 (indicating proof required to utilize "total cost method").

¹⁶⁵ *Boyajian*, 191 Ct. Cl. at 246-47. See Ian A.L. Strogatz et al., *Pricing the Delay: Whom Do I Sue and What Do I Get?*, CONSTRUCTION LAWYER, Oct. 1997, at 4 (illustrating various inadequacies of plaintiff's claims in *Boyajian*); see also Kenneth M. Cushman & Joyce K. Hackenbrach, *Delays & Disruptions*, 357 PLI/REAL 11, 59 (1990) (commenting: "Although [*Boyajian*] court cited numerous cases involving 'situations similar to the instant one' where the total cost theory had been rejected, it is significant that the court stopped short of rejecting the theory per se, and holding it universally invalid").

"total cost" method.¹⁶⁶ Contractors generally "cost a job" by making estimates on production cost based on past experience of productivity; these estimates are used when bidding for contracts. In heavy construction where projects are very singular and unique it is not uncommon to have up to a 50% difference between the low bidder and the high bidder. This reflects the difficulty in estimating the "ideal costs" for these jobs. This is the situation being addressed with the "total cost" method. This would lead to the conclusion that actual production losses on all contracts for unique construction services are *per se* impractical to prove independently of the actual costs expended by a particular contractor in actually performing the work, and this seems to be the case.¹⁶⁷ Industry estimating books give a fair approximation of costs for many construction projects, but this prong is intended to make sure that the contractor is in a situation where it is outside of the realm of the estimating book so that no independent means of proof exist.

This prong also seems to get tangled up with issues of causation. The owner's classic argument is that the contractor has not shown that its excess costs flow directly from owner's breach, and that the contractor has only

¹⁶⁶ See Aaen, *supra* note 1, at 1196 (defining lack of feasibility to determine damages otherwise as first criterion for applying "total cost" method); Jones, *supra* note 51, at 31 (noting, under first prong, it must be established that no other methods are practicable in determining damages); see also Gergen, *supra* note 1, at 715 n.33 (indicating requirements of first prong of test to determine applicability of "total cost" method).

¹⁶⁷ See *Seeger*, 199 Ct. Cl. at 770-71 (maintaining that "substantial evidence" must be shown by contractor "of proof of time and costs claimed to be due" when seeking "additional compensation for extra work on changes and for [] standby and delay costs"); *Highland Constr. Co. v. Union Pacific R.R.*, 683 P.2d 1042, 1044 (Utah 1984) (noting plaintiff's failure to prove causal link between its increased costs and breach of contract by any particular defendant); Aaen, *supra* note 1, at 1190-91 (indicating necessity of showing causation of final cost before applying "total cost" method).

shown its final production costs.¹⁶⁸ What then is the standard of proof required? If the contractor merely measures the cost overruns from the entire job by summing losses from each individual task, the contractor is not showing proof that the costs flowed from the breach; it is merely breaking the losses into smaller components.¹⁶⁹ Unless it can show some "measured mile" effect for each individual task there is no proof that the cost overrun stems from a particular breach.¹⁷⁰ When a court says that it is impractical to prove losses directly it is really saying, among other things, that no "measured mile" method exists so as to insure the claim is reasonably certain. With respect to proof of causation, the casual connection that the overrun stems from a particular breach seems to be implied by many courts because of the difficulty of actual proof.

This prong further seems to be tangled up with documenting the cost of the "extra work." Some courts are satisfied that proof of the cost for the "extra work" exists when the cost of purely the "extra work" is segregated from the cost of the original contract.¹⁷¹ This is different than what was discussed above where impracticality of proof meant it was impossible to independently verify the reasonableness of the claim. Some combinations of these two factors go into the analysis of the first prong. As mentioned earlier, in the recent case of *Mergentime*,¹⁷² the court said that proof of the damages exists "based upon expert testimony, contemporaneous records, and [the owner's] cost audits."¹⁷³ In the older case of *F.H. McGraw*,¹⁷⁴ the court said

¹⁶⁸ See *Seeger*, 199 Ct. Cl. at 770-71 (maintaining that "substantial evidence" must be shown by contractor "of proof of time and costs claimed to be due" when seeking "additional compensation for extra work on changes and for [] standby and delay costs"); *Highland*, 683 P.2d at 1044 (noting plaintiff's failure to prove causal link between its increased costs and breach of contract by any particular defendant); Aaen, *supra* note 1, at 1190-91 (indicating necessity of showing causation of final cost before applying "total cost" method).

¹⁶⁹ See Aaen, *supra* note 1, at 1198 (indicating that use of "total cost" method should be restricted to smallest portion of project in which cost determination is impractical); Brotman, *supra* note 5, at 449-50 (arguing for unrestricted applicability of "total cost" method to construction contracts).

¹⁷⁰ Where the contractor alleges a loss of productivity, the preferred method of computation is the 'measured mile' . . . Under the 'measured mile' approach, claimant compares the costs of installing work not subject to delay or impact with the costs of installing similar work during the period subject to the alleged impact. . . . The additional cost of installing the work during the period of impact or delay then serves as a measure of the damages arising from the delay or impact, assuming that the contractor can also demonstrate causation and liability.

Aetna Cas. & Sur. Co. v. George Hyman Constr. Co., No. 93-CV-4750, 1998 U.S. Dist. LEXIS 22627, at *266-67 (E.D. Pa. May 15, 1998) (citing *U.S. Indus. v. Blake Constr. Co.*, 671 F.2d 539, 546 (D.C. Circ. 1982); WILLIAM J. SCHWARTZKOPF, *CALCULATING CONSTRUCTION DAMAGES* 26-27 (Wiley Law Publications 1992)); see Steven C. Bennett, *Construction Contract Damages: The "Measured Mile" Methodology*, 16 *TOURO L. REV.* 77, 82 (1999) (defining method as comparison of work accomplished during disrupted and undisrupted periods); Patton, *supra* note 6, at 21 (describing method as comparison of productivity during disrupted periods and undisrupted periods on same or similar projects).

¹⁷¹ See *Mergentime Corp. v. Wash. Metro. Area Transit Auth.*, No. 89-1055 (HHG), 1997 U.S. Dist. LEXIS 23408, at *6 (D.D.C. July 22, 1997); *Concrete Placing Co. v. United States*, 25 Cl. Ct. 369, 378 (1992); *F.H. McGraw & Co. v. United States*, 131 Ct. Cl. 511, 512 (1955).

¹⁷² *Mergentime*, 1997 U.S. Dist. LEXIS 23408.

¹⁷³ *Id.* at *6 (explaining that "actual cost" method was applicable because of sufficient testimonial evidence available in case regarding specific costs incurred).

¹⁷⁴ *F.H. McGraw*, 131 Ct. Cl. 501 (1955).

proof was the cost calculated by the contracting officer.¹⁷⁵ Both these courts denied the contractor the chance to use the "total cost" method because they felt that it was practical to calculate the cost of the "extra work" without resort to "total cost." This does not change the analysis of determining whether an independent means of verification of the costs exists; the ability to segregate the cost for the "extra work" is just a factor in the analysis of this prong.

*Concrete Placing Co. v. United States*¹⁷⁶ highlights a situation where it was impractical to prove damages directly. The contractor here was hired to replace joint seals on a concrete aircraft-parking apron.¹⁷⁷ The plaintiff sought an equitable adjustment to the contract after it incurred extra labor and material costs due to site conditions that did not match the requirements of the specifications.¹⁷⁸ The actual condition contained many spalled¹⁷⁹ and deteriorated joints that required use of an alternate repair specification that was more expensive than originally planned; additionally, unanticipated pockets beneath the slabs were found that required installation of "backing rods" before placing the joint sealer.¹⁸⁰ In assessing the total cost claim the court found the first prong the most difficult to grapple with.¹⁸¹ The court resolved its concern in favor of the plaintiff contractor because it was convinced by the plaintiff's evidence that the spalls were *intermittent* with non-spalled areas so that segregation of the costs between spalled and non-spalled areas could not be accomplished. The court said:

Based on the fact that the spalled joints were spread *intermittently* throughout the project, the court cannot conceive of a method of distinguishing between those costs solely incurred as a result of the government's defective specifications and those only covered by the original bid which would be both credible and reasonable.¹⁸²

¹⁷⁵ *Id.* at 512.

¹⁷⁶ 25 Cl. Ct. 369 (1992).

¹⁷⁷ *Id.* at 370.

¹⁷⁸ *Id.* at 374 (noting plaintiff contractor's allegations that it was "put to additional expense as a result of defective or impossible government specifications [and] it is entitled to an equitable adjustment").

¹⁷⁹ A spall is loose or chipped piece of concrete that has broken away from the larger mass of concrete.

¹⁸⁰ *Concrete Placing*, 25 Cl. Ct. at 372 (noting: "Central to the dispute between the parties is the condition of the joints prior to contract performance and how that condition affected application of the sealant").

¹⁸¹ *Id.* at 378 (stating: "Whether plaintiff has satisfied the first criteria is a more difficult inquiry"). *See generally* *Thalle Constr. Co. v. Whiting-Turner Contracting Co.*, 39 F.3d 412, 417 (2d Cir. 1994) (noting even most precise methods of calculating damages often are prohibitively speculative or too difficult to prove); *Doninger Metal Prods. Corp. v. United States*, 50 Fed. Cl. 110, 125 (2001) (suggesting exact computation of damages in complex contract cases can be extremely difficult).

¹⁸² *Concrete Placing*, 25 Cl. Ct. at 378.

(Emphasis added.) The court noted "that the evidence showed that the estimated 16,300 linear feet of spalled joint encountered was *staggered* throughout the 120,000 linear feet project" (emphasis added).¹⁸³

Had the spalled areas been completely separate from the non-spalled areas instead of staggered or intermittent then a "measured mile" analysis might have been done, meaning the contractor could have measured productivity in the spalled area versus the non-spalled area. This would represent a segregation of the costs, something courts look to in evaluating this first prong. The "measured mile" often requires proactive steps though, requiring the contractor to take it upon itself to analyze its productivity purely for the sake of some possible lawsuit in the future. This can be impractical because a test sample of ideal conditions may not exist or the contractor may not foresee the need for such measures. Courts, though, have noted that this first prong of the test requires contractors to be at least minimally proactive.¹⁸⁴ Contractors that make claims with no proof other than the final cost when it would have been reasonable to collect documentation on the effects of the owner's breach have been denied recovery.¹⁸⁵ One court noted "the reason why the total cost method is viewed with a 'jaundiced eye' is 'rooted in the desire to encourage contractors to maintain accurate cost records.'"¹⁸⁶ One court actually denied relief in part because the contractor failed to use a "measured mile" method when it could have, it said: "On this Project, the 'measured mile' approach could have been effectively employed given the repeated construction activity in similar locations at differing times."¹⁸⁷ Basically this prong requires some combination of the impossibility of "segregating" the owner caused delay from the original cost of performance along with a showing of a lack of an independent means of determining the reasonableness of contractor's expended costs.

B. *Second Prong: Reasonableness of the Bid*

The Court of Claims in *Baldi Brothers Constructors v. United States*¹⁸⁸ presents the best and most in-depth example of a detailed bid

¹⁸³ *Id.*

¹⁸⁴ *Cavalier Clothes, Inc. v. United States*, 2001 U.S. Claims LEXIS 193, at *66-67 (Fed. Cl. Sept. 24, 2001) ("Plaintiff's lack of diligence in preserving and safeguarding these vital records does not justify use of the total cost approach in this case."); *WRB Corp. v. United States*, 183 Ct. Cl. 409, 426 (1968) ("A large measure of our present uncertainty is due to the plaintiff's complete failure to maintain accurate cost records during performance."); *Youngdale & Sons Constr. Co. v. United States*, 27 Fed. Cl. 516, 542 (1993) (stating that "plausible explanation was not proffered for such failure" to maintain accurate records).

¹⁸⁵ *See Cavalier Clothes*, 2001 U.S. Claims LEXIS 193, at *66-67 (noting lack of documentation fatal to claim); *see also WRB*, 183 Ct. Cl. at 426 (discussing claimants own fault in not documenting costs); *Youngdale*, 27 Fed. Cl. at 542 (stating that accurate records must be maintained by the claimant).

¹⁸⁶ *Cavalier Clothes*, 2001 U.S. Claims LEXIS 193, at *67.

¹⁸⁷ *Aetna Cas. & Sur. Co. v. The George Hyman Constr. Co.*, No. 93-CV-4750, 1998 U.S. Dist. LEXIS 22627, at *268 (E.D. Pa. May 15, 1998).

¹⁸⁸ 50 Fed. Cl. 74 (2001).

analysis. Plaintiff was contracted to construct a Marine Corp training facility, and subsequently encountered differing soil and site conditions that increased its cost of work.¹⁸⁹ The court found in favor of the contractor on the differing site condition claim entitling the contractor to damages.¹⁹⁰ The court analyzed plaintiff's "total cost" claim, focusing intently on the reasonableness of the bid. It looked at how the numbers in the estimate were derived, and adjusted the calculations in the estimate for a wrong production rate factor in the contractor's earth moving equipment. The factor was used on a chart to determine the volume of soil that the given equipment could move in a day; the court noted that the factor was based on the best soil conditions, which the plaintiff should have known did not exist because it had visited the site.¹⁹¹ This level of scrutiny seems like the ideal method of determining a bid's reasonableness, and owners should take it upon themselves to "back check" the contractor's estimate for mistakes and deficiencies. For as this case shows, where the court mentioned the many years of experience the estimator had, experience does not preclude the occasional mistake.¹⁹² This shows how "total cost" is about modifying the assumptions that the contract was based on to achieve an equitable outcome after the contract was breached.¹⁹³ When adjustments to a contractor's bid is not a practical option courts have defined the "reasonable bid" as the average of the higher bids for the job¹⁹⁴; in the original "total cost" case of *Great Lakes* the court used this method.¹⁹⁵

As stated back in the early case of *F.H. McGraw*, the courts are hesitant about "total cost" because it assumes the bid is accurate.¹⁹⁶ These concerns are reduced by using the average of higher bids and "back checking" the original bid. Still courts remain concerned that contractors may try to turn a dispute over a contract adjustment into a gain when a contractor has underbid a job. One court stated that: "[P]laintiff should not 'get the benefit of

¹⁸⁹ *Id.* at 75-77.

¹⁹⁰ *Id.* at 79.

¹⁹¹ *Id.* at 82-83.

¹⁹² *Id.* at 82 ("Although Pat Baldi has been working in this business since he was 'old enough to pick up a shovel,' and has been doing earthwork estimates since he was 16, his daily production rates for Camp Lejeune were optimistic, to say the least.").

¹⁹³ *See* Bagwell Coatings, Inc. v. Middle S. Energy, Inc., 797 F.2d 1298, 1308-09 (5th Cir. 1986) (noting that that breaching party should not escape liability because amount of damages are difficult to prove); *see also Baldi Bros. Constructors*, 50 Fed. Cl. at 80 ("The modified total cost method allows the court to adjust a claim when a contractor's initial bid is found unreasonable by substituting a reasonable bid amount into the calculations.").

¹⁹⁴ *Youngdale & Sons Constr. Co. v. United States*, 27 Fed. Cl. 516, 543 (1993) ("Moreover, upon reviewing the other 11 contractors' bids, in addition to the government's bid, the court was able to determine that Youngdale's bid was approximately 17% lower than the average of the 12 other bids."); *J.D. Hiedin Const. Co., Inc. v. The United States*, 171 Ct. Cl. 70, 87 (1965) (noting "closeness of the [other contractors'] bids gives support to the reasonableness of the estimate.").

¹⁹⁵ *Great Lakes Dredge & Dock Co. v. United States*, 119 Ct. Cl. 504, 559 (1951) (adjusting bid to average of other bids and verifying reasonableness of actual costs).

¹⁹⁶ *F.H. McGraw & Co. v. United States*, 131 Ct. Cl. 511 (1955).

its own failure to anticipate that level of difficulty that a reasonable contractor should have expected."¹⁹⁷ Though this concern is valid, in reality it is easily addressed by the court's ability and willingness to adjust a bid upwards.

C. *Third Prong: Reasonableness of Actual Costs*

The definition of this prong says it all: "reasonableness of actual costs." One court has described the proof needed as follows: "[A] reasonable basis for computation and the best evidence which is obtainable under the circumstances of the case, and which will enable the trier to arrive at a fair approximate estimate of loss is sufficient proof."¹⁹⁸ As stated earlier, damages from loss of productivity may be difficult to prove, and therefore it may be difficult to establish the reasonableness of the actual costs. For example, in *Aetna Casualty and Surety Co. v. George Hyman Construction Co.*,¹⁹⁹ the subcontractor, represented in this case by the surety, was contracted to perform electrical work on an Amtrak rail station. The plaintiff claimed loss of productivity under the "cumulative impact" theory,²⁰⁰ but the court rejected the plaintiff's claim because the current state of research in the area of lost productivity due to cumulative impact changes was just too limited to meet acceptable standards.²⁰¹ The court stated that: "[T]he mere expression of an estimate as to the amount of productivity loss by an expert witness with nothing to support it will not establish the fundamental fact of resultant injury nor provide a sufficient basis for making a reasonable approximation of damages."²⁰²

D. *Fourth Prong: Lack of Responsibility for Added Costs*

The "lack of responsibility" prong is often interpreted as a mandate to apportion fault in the "total cost" analysis,²⁰³ but it also seems to have a

¹⁹⁷ *Youngdale*, 27 Fed. Cl. at 542.

¹⁹⁸ *Bagwell Coatings*, 797 F.2d at 1309.

¹⁹⁹ 1998 U.S. Dist. LEXIS 22627 (E.D. Pa. May 15, 1998).

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The term 'cumulative impact' has come to mean in a generic sense, the impact on unchanged work which is not attributable to any one change but flows from the synergy of the number and scope of changes issued on a project. The underlying theory is that numerous changes cause a cascading ripple-type of impact on performance time and efficiency which is too uncertain or diffuse to be readily discernible at the time of pricing each individual change.

Id. at 259-60 (quoting *McMillin Bros. Constructors, Inc.*, No. 328-10-84, 1990 EBCA LEXIS 10, at *32 (Dep't of Energy B.C.A. Aug. 31, 1990)); see *Pittman Constr. Co. v. United States*, 2 Cl. Ct. 211, 216 (1983) (defining "cumulative impact" costs as those that "addressed the inefficiencies and disruptions associated with changes which, when viewed cumulatively (i.e., retrospectively), were so large in number and/or magnitude as to give rise to a separately compensable impact claim").

²⁰¹ See *Aetna*, 1998 U.S. Dist. LEXIS 22627, at 260-65 (discussing basis of expert analysis of productivity loss).

²⁰² *Id.* at 262.

²⁰³ *Youngdale & Sons Constr. Co. v. United States*, 27 Fed. Cl. 516, 549-50 (1993) (noting defendants liability for causing problem that led to overruns).

more fundamental purpose, and that is to assure the court of the equity of the matter that the non-breaching party receive a remedy when fault is clear.²⁰⁴ One court has stated both these concerns concurrently, first it stated that: "With respect to the fourth prong of the total cost method . . . we award to plaintiff only that percentage of the adjusted total costs for which defendant is solely responsible."²⁰⁵ It then went on to say: "We have found significant liability on the part of the government and conclude that modified total cost is the only method of proof available considering the nature and effect of the government's delay and disruption."²⁰⁶ Although this prong has been dealt with in terms of "lack of responsibility" and "apportionment of fault," if this prong is more than mere redundancy of the merits of the underlying claim and apportionment of fault from the third prong, then it probably stands as justification for a recovery when fault is clear even though proof of the amount of damages is not as clear.

V. CONCLUSION

The "total cost" method is way of solving the problem of proving damages to a reasonable certainty, a problem to which the construction industry is particularly susceptible. It works because the courts have accepted that when fault is certain a non-breaching party should receive a recovery, while at the same time it protects the party in breach from runaway a damage claim. While courts continue to be somewhat hesitant about its use, it seems clear that the "total cost" method is an effective tool for achieving an equitable outcome for complicated construction disputes involving "extra work" claims.

²⁰⁴ See *Bagwell Coatings*, 797 F.2d at 1309 (arguing where fault exists that non-breaching party must receive a remedy).

²⁰⁵ *Amertex Enters., LTD v. United States*, 1995 U.S. Claims LEXIS 259, at *219 (Fed. Cl. December 15, 1995).

²⁰⁶ *Id.* at *221.