

AMERICAN UNIVERSITY OF BEIRUT

DYNAMICS OF THE CONTRACTOR'S UNITS IN THE
PREPARATION AND EVOLVEMENT OF CLAIMS'
DOCUMENTATION

by
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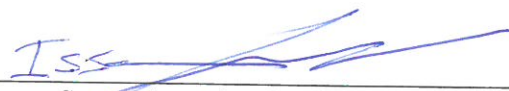
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AN ABSTRACT OF THE THESIS OF

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The resolution process of claims is regulated by the International Federation of Consulting Engineers FIDIC in its standard contract conditions, where we can track the key milestones along the timeline of a claim(1) starting with the incident giving rise to a claim and submittal of particulars by the contractor, (2) passing through Engineer's determination and, subsequently, Dispute Adjudication Board (DAB)'s decision, (3) going through amicable settlement process, and (4) ending with arbitration. The FIDIC conditions of contract clearly include in several of its clauses procedures for the administration and resolution of claims. The implication is that there has to be an adequate management setup to deal with claims, and a great level of skill and effort shed on the Contractor's that determines the success or failure of a claim. Problems with claims management are most profound in the areas of claims justification, quantification and acute with respect to retrieval and generation of supporting relevant information.

This suggests the need for complementary research into the claims management process and requires a change in management strategy linked to quality management systems that initiate remedial action on the basis of the monitoring of actual compliance with procedures. The general aim of the research reported in this paper is to attempt to bridge this gap. The challenge under these circumstances is to provide a conceptualized model for the most important aspects of the evolvement of supporting documentation pertaining to a claim, and enhancing communication and information flow within the contractor's management setup involved in the claim preparation process.

This research outcomes include (1) a comprehensive reading of the Claim-Dispute timeline, highlighting (a) the nature of the burden of proof and substantiation that the contractor has to attain and (b) the acceptable standards of presentation and documentation of claims; (2) a clear understanding of, and conceptualization for, the evolvement of claim documentation along the Claim-Dispute timeline along with the factors governing such evolvement, and (3) a conceptualized model which reveals the dynamics of the contractor's units and corresponding team members involved in the process of claim management.

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CHAPTER I

INTRODUCTION

1.1. Preamble

In the construction industry, contract documents formally define rights, obligations, and procedures, and legally bind the several parties involved including the Owner, Architect/ Engineer, and Contractor under a detailed agreement and contractual provisions. The Owner, initiating the project, normally enters into a design services and construction supervision agreement with an Architect and a separate contract with a Contractor to construct the project. Such contracts serve to state the responsibilities and liabilities of each party, with the mutual objective of successfully completing the project.

This is defined as a project that has been constructed in accordance with the plans and specifications, within the time and cost originally anticipated. The success of a project depends on a number of variables, not the least of which is how the organizations approach problems and conflicts.

The parties of a construction contract, specifically the owner and contractor, have a complex set of interrelated relationships often requiring high collaboration and cooperation to manage and coordinate time, resources, and communication. The parties' diverging opinions concerning the various aspects of design and construction, and the complexity of construction projects, disclose the extensive presence of conflicts on all construction projects (Pinnell 1999; Carsmen 2000; Abdul-Malak et al. 2002). Such conflicts are caused by the size and duration of the project, the complexity of the contract

documents and construction processes, changed conditions, poor communication, lack of coordination among the contracting parties, limited resources, financial deficiencies, inadequate design, poor management practices, increase in scope of work, varying site conditions, and force majeure events. (Chester 2005; Yousefi 2010)

The owner, with control over resources will attempt to exploit those with limited resources, namely the contractor (Ritzer 2000), this is prevalent in construction and is manifested by the owner's actions, the ever more adversarial environment between the two parties, and the contract signed by contractors before commencement of the project. These contracts often do not take into consideration the complexity of the projects designs, and enforce an inflexible price constraints that do not permit the contractor to absorb of unanticipated additional costs, and pledge all financial risks or exposure on the contractor (Levin 1998) making claims an unavoidable consequences of the construction processes.

Quoted in Levin (1998), the American Institute of Architects defines a claim as “a demand or assertion by one of the contracting parties seeking, as a matter of right, adjustment or interpretation of the contract terms, payment of money, extension of time, or other relief with respect to the terms of a contract”.

Claims are utilized either by contractors to recuperate the unlawful extra costs incurred during any construction project or by owners to recover the extra costs incurred due to the poor execution of a contractor. Management of construction claims is one of the biggest challenges facing contractors and owners in today's vacillating business environment (Kalalunga et al. 2001; Ren et al. 2001).

Construction claims are mainly related to the size and duration of the project, complexity of contract documents, poor communication, change orders, limited resources,

financial constraints, inadequate design, labor issues, and force majeure events (Harmon 2003). All of these factors explain the substantial increase in the volume of claims in the previous 30 years (El-adaway and Kandil 2010).

The increase in of claims and disputes is dramatic and the biggest challenge facing contractors is the issue of claim management (Abdul-Malak 2002). All project participants are susceptible at one point or another to become involved in claim. Suppliers, sub-contractors, trades, consultants, and owners alike, are mainly concerned with the issue of claim management, given the high associated costs and lengthy resolution process; an overview of the statistics for the United States and Canada alone are staggering, where (1) 50% of claims constituted an additional 30% of the original contract price, (2) 33% of claims amounted to at least 60% of the original contract price, and (3) in some cases, the claim values were as high as the original contract price (Cheeks 2003), Another example, a large size project for seismic retrofitting of a 5.5 mile bridge ended with a cost increase of \$283 million (a 58% increase over the contract amount). This was due to 555 change orders and 59 claims (Menassa et al. 2008).

The resolution process of claims is regulated by the International Federation of Consulting Engineers (FIDIC) in its standard contract conditions, where we can track the key milestones along the timeline of a claim, (1) starting with the incident giving rise to a claim, (2) passing through Engineer's determination and Dispute Adjudication Board (DAB)'s decision, (3) and ending with arbitration.

The procedures a contractor must follow when pursuing a claim, is initiated by submitting a notice to claim to the Engineer within twenty eight days of the incident's occurrence, followed by detailed supporting particulars of the amount claimed and the

grounds upon which the claim is based (Fawzy, 2012), after forty - two days the statement of claim has to be filed and the Engineer shall respond with approval or disapproval on the principle of the claim and provide detailed comments. The contractor can contest the Engineer's determination opting for a DAB's decision. The later will be given after an eighty four days period, upon the board's analysis of the statement of the case, and a set of particulars that might be needed to provide by the conflicted parties. If both parties (Owner and Contractor) agree to and accept the Engineer's determination, this signals the end of the claim (Abdul-Malak, 2002). Otherwise, the party dissatisfied with the Engineer's decision could choose to issue a notice of dissatisfaction and intention to seek arbitration after a twenty eight days period, and reassemble its case to be presented for arbitration within a fifty six days period (FIDIC Clause 20 and Clause 20.1).

Claim management and administration functions undertaken by the contractor involve these main stages: ensuring compliance with provisions of contract, justification of the claim in principle, and quantification of claim. To elaborate a contractor would often go through the following when preparing a claim: (1) an event occurs which causes or is likely to cause the contractor to incur loss and/or expense for which he would otherwise not be reimbursed under the contract. The contractor complies with the contractual provisions on what has happened, e.g., giving notices, estimates of likely impact of time and costs, and responding appropriately to the request of the contract administrator for information; (2) the contractor establishes entitlement to reimbursement by showing that under the provisions of contract he is entitled; (3) the contractor quantifies the claims and assembles supporting documentation for submission in the contract administrator; (4) the contractor

draws up the formal claims document with supporting information for presentation to the contract administrator. (Vidogah 1998)

The preparation of claims relies heavily on proper project activity documentation (Hammad 2001) and complex communication between the parties involved, and within the contractor's management setup (Charoenngam 2003).

1.2. Research Statement

The essence of good claims management is not to lodge a heavy document at the end of a project and call it "request for additional expenses" while scrupulously avoiding the term "claim." Instead it should always be ensured that the claimant's fullest entitlements are identified on a regular basis, with adequate detail to ensure that appropriate sums are paid through interim payment mechanisms. This approach to claims-management practice is the exception and not the rule. The contractor preparing for a claim, relies on document-based information to help them reconstruct the circumstances or "story" under which the events giving rise to the claim occurred, and help them prove that these events were in fact acts caused by the other party in this case the client, or by external events. The document-based information (Factual documentation), in addition to the story (Rationale) in which the documents were presented, enable the Engineer to give determination on the principle of the claim, and in case of a dispute, enable the DAB and arbitrators to evaluate the merits of each case presented and to determine which party, if any, deserves an award. Thus, without adequate documentation, and presentation of evidence, a claimant or

respondent will have a difficult time proving the standing of his or her case to any panel (ICC, DAB, and Arbitrators).

The implication is that there has to be an adequate management setup to deal with claims, irrespective of the contract terms or the balance of risk allocation in order to avoid disputes. Unfortunately, there has been no report in the public domain of such an investigation. The general aim of the research reported in this paper is to attempt to bridge this gap. The challenge under these circumstances is to find efficient ways of preparing, evaluating, and settling claims. This should begin with an investigation of aspects of the claims-management process that hinder their preparation and evaluation in an expeditious and transparent manner, with a focus on the most timely and cost consuming factors: proper documentation and internal communication.

1.3. Research Objective

The objectives of the thesis is, first to provide guidance on the most important aspects of the evolvement of documentation pertaining to a claim, and second to enhance communication and information flow within the contractor's management setup involved in the claim preparation process, which necessitates the examination of these four main claim management areas:

The claims preparation aspects that hinder the contractor, roles and responsibility for the claims management function in the contractor's management setup, problems with claims documentation; aspects of quantification and justification likely to result in disputes.

The thesis will examine how the contractor manages the preparation of the claim documents (i.e. particulars, notices, estimates, etc.) using the documentation of construction operations; this includes the storage and retrieval of contemporaneous construction documents, how are the relevant information identified, evolved and presented along the timeline of the claim, which of the contractor's offices are involved or called for assistance in an ad hoc basis, and what are the aspects in which better synergy and wider communications can be established to ensure the flow of information needed isn't hindered.

1.4. Methodology

The methodology followed in this thesis will consist of the following:

1. Carry out a thorough literature review about:
 - a. Construction Claims: management and preparation
 - b. Roles and responsibility for the claims management function
 - c. Communication within the contractor's management setup
 - d. Project activity documentation and Claims documentation

2. Conduct a comprehensive reading of the Claim/ Dispute timeline (of both 1987 and 1999 FIDIC), and illustrate the contractual provisions the contractor must follow in the claim procedure, the communication patterns in between the parties involved in the claim determination and the documentation of this communication, highlight the nature of the burden of proof and substantiation that the claimant has to attain to be

successful, and the acceptable standards of presentation and documentation of claims.

3. Present case study conceptualized models that map out the communication patterns among the contractor's offices and the evolution of documentation along the timeline of the claim. The case-based review has to consider several current construction projects of various scope, program, location, and contract type, and different organizational structures, describe and analyze the major issues contractors faced when preparing for a claim, and reflect on the measure used to solve them.
4. Provide guidance as to the proper documentation of construction operations and claims needed for different claims scenarios. Identify and specify the optimal solutions for selecting the clerks and experts involved in preparing the claim, and the drivers that interplay for their interference along the timeline of the claim. Resolve bottlenecks and poor communications matters between the contractor's management setup and improve synergy among the teams involved.

1.5. Research Contribution

There is high incidence of disputes arising from construction contract claims. Even with the most expert understanding of construction contract clauses and the most equitable risk-allocation regime, claims will continue to present problems if they are poorly managed in practice. The investigation reported in the thesis is aimed at identifying shortcomings related to documentation and poor communication, and their causes, in claims-management practice. It consisted of a comprehensive review of literature on the subject, practical case

studies of claims on projects. The outcome of which will provide a detailed map for the contractor to better manage the documentation of construction operations and resolve the factors hindering the successful preparation of claims.

CHAPTER II

LITERATURE REVIEW

2.1. Preamble

Where construction projects of various scope and complexity are concerned, conflicts, claims, and disputes will occur almost inevitably. If construction conflicts are not effectively addressed and managed, they can result in claims that, in turn, might evolve into serious disputes. Claims management is not treated as a management function on the same footing as estimating, planning, scheduling, and cost control. It is poorly resourced and performed in an ad hoc manner. As a consequence claims-related issues are too often put in aside until project completion when necessary resources are released from recognized functions. The proper management of claims and disputes is essential to the success of any project.

As a result of this realization, two main strands of research and commentary about claims management have evolved. The first examines in detail the legal implications of common construction contract clauses. Such analyses – notably by Thomas et al. (1994), Terry (2003), Yates and Epstein, (2006) - generally agree that where a party making a claim can demonstrate that the terms of contract have been breached, cost items (or heads of claims) such as on-site costs, cost of disruption, head-office overheads, and loss of profit

are recoverable. They also go to great lengths to illustrate quantification methods, stressing the need for the contractor to substantiate every claim properly. The second has focused on the allocation of risk under construction contracts suggesting that the way risk is allocated determines the likely occurrence of claims and disputes on a project. The approach in this analysis has often been to identify the potential causes of claims (Semple et al. 1993; Jergeas and Hartman 1994) followed by the evaluation of the terms imposed by contract provisions.

Although these strands are legitimate areas of investigation, there has been very little investigation of the reasons why, in the light of the solutions offered by such research, claims and disputes continue to escalate (Kangari 1995). Research reported in several journals and commentaries by consultants (Diekmann and Gerard 1995, Kangari, R. 1995, Vidogah and Ndegurki 1998) suggest a need for complementary research into the claims-management process and a change in management strategies applied by construction organizations to the function of claims management.

This research through the literature review will provide an analysis of the contractual provisions of FIDIC in the administration of claims and the roles of the parties involved, and describe the claims-disputes administration process, the level of skill and effort the Contractor's management setup attains to successfully manage claims, and when and how documentation for claims evolves. It will also explore numerous solutions for tracking the claim and solutions for managing information pertaining to the claim.

2.2. Difficulties with Claims

Disputes over the right to compensation as well as over the amount of time and/or money to be given often necessitate a resort to litigation, arbitration, or other forms of dispute resolution methods for settlement (Muller 1990, Steen 1994, Keith 1997, Schumacher 1997). Claims and disputes arise from a number of cases, namely defective specifications (Thomas et al. 1994, 1995), differing site conditions (Thomas et al. 1992), increase in scope of work, restricted access to site, owner-caused disruptions or delays (De La Garza et al. 1991), disagreement as to what constitutes a substantial completion, interpretation of site instructions, and enforcement of liquidated damages, among others. It is important for the owner, when analyzing a claim presented by the contractor, to ask the following questions (Bubbers and Christian 1992, FIDIC 1992): Were the contract requirements met (Thomas et al. 1990)? Did the contractor refer to the proper clauses in the contract? Does the owner or consultant bear part of the responsibility? Was the situation predictable at the time the contract was signed? Were the specifications defective? Was the contract misinterpreted? And, if so, which competing interpretation will rule?

The aforementioned highlights the burden of claims management on the part of the Contractor's organization. A recent survey of arbitrators by Kangari (1995) found that proper project activity documentation influences dispute resolution. The recent Construction Industry Institute (CII) sponsored research in the United States reported by Diekmann and Girard (1995) suggest that apart from personnel, the management process was more important than project characteristics (defined to include the nature of the

contract signed) as a reason for disputes. Commentary by Brewer (1993), a director of a leading U.K. construction contract consulting firm, puts the claims management issue into its proper perspective. In the view of that writer, the essence of good claims management is not to lodge a heavy document at the end of a project and call it “request for additional expenses” while avoiding the term “claim”. Instead it should always be ensured that the claimant's fullest entitlements are identified on a regular basis, with adequate detail to ensure that appropriate sums are paid through interim payment mechanisms. This approach to claims management practice is the exception and not the rule.

The importance of an adequate management setup to deal with claims cannot be more emphasized, irrespective of the contract terms or the balance of risk allocation in order to avoid disputes. The contractor needs to have the proper management setup to justify, quantify, and present claims for events under the control of the owner or his agents then chances of protracted disputes are reduced (Bubshait and Cunningham 1998, Finke 1999). Virtually all the standard forms of contract recognize this reality by having express provisions that entitle the contractor to monetary compensation and time extension. The term "claim" in the proper context therefore needs not carry any pejorative overtones. What should be discouraged is the attitude to claims management described by Zack (1993) where it becomes the art or practice of making and winning claims by questionable expedients without actually violating the rules or, even worse, an attempt to turn a marginally profitable project into a more profitable one. The reality is that events the owner or his agents are responsible for will always cause construction delays and extra costs. The challenge under these circumstances is to find efficient ways of preparing, evaluating, and

settling claims. This should begin with an investigation of aspects of the claims-management process that hinder their preparation and evaluation in an expeditious and transparent manner.

2.2.1. Common Issues Facing Contractors Administering Claims

An extensive review of the claims management literature and case law by Vidogah and Ndegurki (1998) was undertaken to identify the basic issues common to construction contract claims and the disputes arising from them. This required establishing the nature of the burden of proof that the claimant has to attain to be successful and the acceptable standards of presentation and documentation of claims. Based on this review a postal questionnaire survey was designed to identify the practical management problems associated with the justification, preparation, and assessment of claims. This necessitated investigation of four main areas of claims management (1) aspects of claims preparation that hinder the contractor; (2) responsibility for the claims-management function in the contractor's management setup; (3) problems with claims documentation; and (4) aspects of quantification likely to result in disputes. The postal survey was followed by interviews with 10 contracting and consulting firms and case studies of claims on five projects aimed at clarifying some of the issues raised by the findings of the literature review and the survey. Contractor's responses for 200 questionnaires sent out to U.K. contractors. The smaller construction organizations with turnover less than U.S. \$15,000,000 were least represented. More than 80% of the responses were from organizations that may be described as medium to large. Since this category of contractors are more likely to be

involved in large and complex projects, the response gives some corroborative evidence for the commonly held view that claims are problem on such projects.

2.2.2. Responsibilities for the Claims-Management Function:

The results on the “responsibility for the claims-management function in the contractor's management setup” implied two main findings that claims preparation is not yet regarded in most construction organizations as a specialized project management function requiring the assignment of specific personnel, and that most organizations are reluctant to use the title for fear of being branded as "claims conscious." Furthermore, contractor’s expressed that internal preparation of claims is favored over the use of external claims consultants. The case studies and interviews confirmed unequivocally that in most cases fully detailed claims submittals are not made until the project is substantially complete.

2.2.3. Time Involved in Preparing Claims:

Preparing claims takes time. In order to overcome the problem of contractors leaving claims until project completion, the aspects of claims preparation that delay or hinder the process must be identified for the design of appropriate remedial strategies. With this in mind contractors were asked to rate eight aspects of the claims preparation process in terms of the time involved. The analysis of the contractors' responses, summarized in Table 1, shows that the most time-consuming aspects of claims preparation are preparing

the claims documents, identifying relevant information, claim quantification, claim justification, and retrieval of information, in that order. Archiving project information takes the least time. This suggests that this task is not given the importance it deserves because casual archiving is likely to result in insufficient records long after project staff has dispersed.

Ranking of most time involved in aspects of Claims Preparation	
Aspects of Claims preparation	Rank
Prepare claims documents for presentation	1
Identifying relevant information	2
Quantifying claims	3
Interpretation of contracts and justifying claims	4
Retrieving relevant information	5
Identifying sources of information	6
Response to architect/engineer's request for information	7
Archiving relevant information	8

Table 1.1: Ranking of most time involved in aspects of Claims Preparation (Vidogah and Ndekurgi 1998)

2.2.4. Cost Involved in Preparing Claims

The contractors were also asked to indicate which aspects of the claims-preparation process entailed the most cost. The aim, as in the case of the time involved in claims preparation, is to identify the reasons for the lack of enthusiasm on the part of contractors in preparing fully documented claims soon after the occurrence of the relevant

events. Their response (Table 2) suggests that preparing the claim documents, quantifying the claim, retrieving information, and identifying claims relevant information, in that order, are the most expensive.

Ranking of most Cost involved in aspects of Claims Preparation	
Aspects of Claims preparation	Rank
Prepare claims documents for presentation	1
Quantifying claims	2
Retrieving relevant information	3
Identifying relevant information	4
Response to architect/engineer's request for information	5
Interpretation of contracts and justifying claims	6
Identifying sources of information	7
Archiving relevant information	8

Table 1.2: Ranking of most cost involved in aspects of claims preparation (Vidogah and Ndekurgi 1998):

2.2.5. Heads of Claims Likely to Be Disputed

The most common cost headings of construction claims are on-site overheads, head-office overheads, loss of profit, inflation of costs, interest and finance charges, cost of disruption, and cost of preparing claims. A lot of attention has been devoted to ways of quantifying them and their justification in law. The literature suggests that each item of cost presents its own special difficulties. However, differences of opinion exist as to reasons for these difficulties. To gain an indication of which aspect of the quantification of these costs require special effort or attention, the contractors were asked to rate the extent to which

recovery of each element is disputed in practice. The results of the analysis indicate that the cost of preparing claims, loss of profit, and disruption costs are most likely to be disputed in practice.

2.3. Construction Claims

Projects with complex designs and contract conditions are likely to result in significant extra costs and/or delays for the Contractor, which may cause claims to arise. Contractors resort to construction claims to recuperate the unlawful additional costs incurred during any construction project, and tend to argue that owners are not always fair when judging their entitlement to compensation. Owners may also resort to claims in order to recover extra costs incurred due to the poor quality of execution and/or delayed completion of the project by a Contractor (Fawzy and El-adaway 2012). Owners tend to argue that Contractors are not always reasonable when determining and quantifying the alleged entitlement. Claims may involve various parties: Owners and General Contractors, Owners and Trade Contractors, Owners and Suppliers, General Contractors and Subcontractors, among others. Expecting all claims on a project to be avoided or properly resolved can be unrealistic. However, understanding the nature of these claims and the causes that give rise to them, as well as conducting an effective risk management analysis early on in the project can allow the project participants to better deal with claims if and when they arise.

2.3.1. Definition

A construction claim can be defined as a legitimate request for additional compensation in terms of cost and/or time on account of a change in the terms of the contract or damages incurred by any party to a contract (Semple et al. 1993). Claims can be classified into several types, and may arise under various forms of construction contracts. Various delay and cost analysis methods are usually used for the validation of claims. The entitlement of any claim is dependent on the contract documents that define the rights, obligations, and procedures that govern the project, which is why it is important to be aware of and clearly understand these conditions. Today, there are few contracts where no claims, negotiations, or settlements arise before the contract is finally closed out (Jergeas and Hartman 1994).

2.3.2. Types of Claims

All claims on construction projects relate to either additional costs incurred or extensions of time, or both. Most claims are made by the Contractor and may be claims for an extension of time for the completion of the works and/or the reimbursement of costs. Claims for additional time frequently result in a claim for additional payments. If the owner considers himself to be entitled to any payment under any clause of the contract, then the engineer shall give notice and particulars to the Contractor (Owen 2003). In general, there are two main types of claims: The “incident-based” claim and the “global” claim. When the event that gave rise to the claim can be clearly traced and identified, and the resulting

impacts this incident had in terms of time, cost, or both, can be evaluated and quantified, the claim is said to be an “incident-based” claim. Gathering the necessary documentation and performing a cost/delay analysis in order to present a fully detailed claim to the Engineer should, in this type of claim, be a feasible task. When the specific cause(s) giving rise to claim(s) cannot be individually identified, the claims are grouped into a “global” claim, and their effects, in terms of delays and extra cost incurred, are combined altogether. When two or more events occur in such a way that makes it difficult to break down or attribute impacts of time or cost (or both) to specific causes, the Contractor names these incidents and claims for a total sum of the losses and expenses incurred. In such cases, it is usually difficult to separate the causes and incidents that resulted in various effects and claims.

2.3.3. Causes of Claims

The construction industry is subject to an increasing number of claims, which can contribute to delaying a project and/or increasing its costs (Zaneldin 2006). Construction claims mainly arise due to organizational, planning and contractual problems (Mitropoulos and Howell 2001). Over the years, numerous studies focusing on determining the main causes of claims in an attempt to avoid them or at least reduce them have been made. The different factors that may cause claims and disputes to surface include varying site conditions, inadequate site- related information, poor communication and lack of coordination among the contracting parties, late possession of site, restricted access to site by owner or other third parties. Other factors include inadequate resources, insufficient

design/design errors and omissions, unreliable specifications, increase in scope of work, variation orders, complexity of contract documents, size and duration of the project, labor issues and unforeseeable circumstances (Yousefi 2010). A questionnaire survey conducted by Essam Zaneldin collected and analyzed data related to the types, causes, and frequency of claims on different projects in Dubai and Abu Dhabi. The information for the 124 claims considered under this study was obtained from owners, consultants, and contractor's claims database (Zaneldin 2006). One part of the study concentrated on the causes of construction claims. It found that there are 26 potential causes of claims. The participating firms were presented with these causes and asked to evaluate their frequency as: never, rare, average, frequent, and very frequent. An importance index percentage was then established for these causes. Table 1, which displays these causes ranked in order of importance, shows that "change orders" are ranked most frequent cause of claims, followed by delays caused by owners.

Table 1.3: Ranking of each cause of claims based on their frequencies (Zaneldin 2006)

Ranking of each cause of claims based on their frequencies		
Causes of claims	Importance index (%)	Rank
Change or variation orders	55.0	1
Delay caused by owner	52.5	2
Oral change orders by owner	51.4	3
Delay in payments by owner	48.9	4
Low price of contract due to high competition	48.6	5
Changes in material and labor costs	46.1	6
Owner personality	45.1	7
Variations in quantities	44.7	8
Subcontracting problems	44.0	9
Delay caused by contractor	43.7	10
Contractor is not well organized	43.7	10
Contractor financial problems	43.7	10
Bad quality of contractor's work	42.6	13
Government regulations	40.1	14
Estimating errors	39.1	15
Scheduling errors	39.1	15
Design errors or omissions	38.4	17
Execution errors	37.7	18
Bad communication between parties	37.7	18
Subsurface problems	37.0	20
Specifications and drawings inconsistencies	35.6	21
Termination of work	35.6	21
Poorly written contracts	33.8	23
Suspension of work	33.8	23
Accidents	33.1	25
Planning errors	32.7	26

2.3.4. *Effects of Claims*

When studying claims and their effects, the incidents causing the delays and losses are identified. After clarifying the cause(s), the worth of the claim should be evaluated by trying to quantify the delays and losses resulting from the cause(s). In many situations, as

illustrated in Figure 1, one ‘effect’ may prove to be “cause” for the subsequent “effect” (Iyer, Chaphalkar and Joshi 2008).

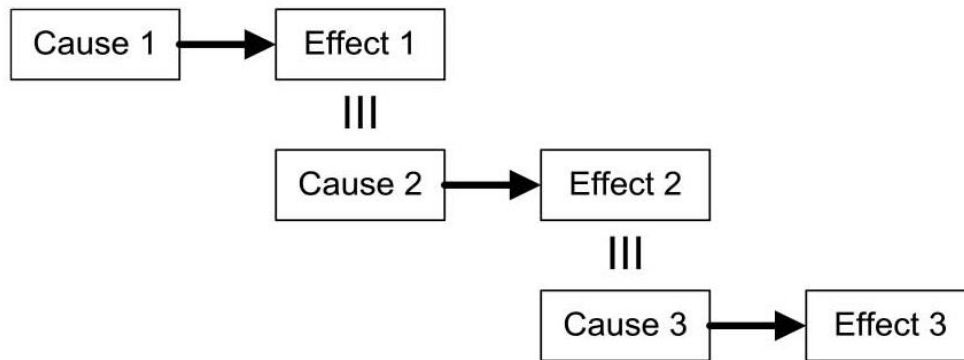


Figure 1.1: Cause and Effect relationship of disputes (Iyer 2008)

Complex and difficult contract forms may cause an increase in the number and frequency of claims and disputes. It is important for contract administrators to understand and evaluate the worth of their claims prior to resorting to litigation. Claims can have several detrimental effects on a project. In addition to the costly and time-consuming process of their resolution, claims might cause an adversarial relationship to develop between the involved project participants, whose image could be tarnished during the process.

2.3.5. Delay and Cost Analysis

It is the responsibility of the Contractor to substantiate, defend, and prove the validity of any claim presented by him. A Contractor can claim for an extension of the delivery dates initially agreed to in the contract, for extra costs incurred, or a combination of these two interrelated categories. Several quantification methods to substantiate and analyze time and cost overruns on construction projects are used by both parties submitting and resolving the claim (Abdul-Malak, Saadi, and Abou-Zeid 2002).

Examining the incidents that caused delay to a certain project in order to determine the financial accountabilities of the parties involved is known as delay analysis. As such, a detailed schedule analysis is needed in order to inspect the events that have caused the project to overrun. Delay analysis methods are used to identify the components of delay and studying the overall impacts on other activities and the overall project schedule. These methods include: as-planned vs. as-built, impacted as-planned, collapsed as-built, window analysis, and time impact analysis (Ndekugri, Smith, and Hughes 2007).

These differing techniques use various programming information sources. As such, the suitability of a method is related to the availability and accuracy of the project records at hand. Various programming software for analyzing delays are characterized by different aptitudes and functionalities, which is why the claimants and defendants may in some cases arrive at different delay claim results (if different methods were used). This difference in results and opinion could make it more difficult for the parties to settle the dispute amicably. As such, and in order to ensure more reliable delay analysis results, it is

important for the disputing parties to agree on a common technique for analyzing the delays.

The cost-estimation process is a multi-stage, lengthy process. Where cost overruns are concerned, additional expenses incurred can be divided into two categories: direct and indirect costs. While direct costs are easy to quantify, indirect costs are not so easily quantifiable. When substantiating claims, increased labor costs, increased equipment and material costs, increased financing costs, and increased overhead costs are all accounted for (directly and indirectly) by the estimation of the costs of work items based on information presented in the bidding documents (Abdul-Malak, Saadi, and Abou-Zeid 2002).

2.3.6. Avoiding/Minimizing Claims

Avoiding and minimizing claims can be achieved in many ways, and this must be addressed from the onset of the project. The various provisions included in the contract must allow for realistic expectations for the project. According to Cheeks (2003), dispute avoidance and loss prevention is a mutual attitude and effort among parties to work together in an attempt to minimize claims, complete the project on time and within budget, prevent disputes, and resolve them in a timely manner if and when they occur. While the people involved in the project do not cause disputes, the quality of people can greatly impact these disputes. Good communication and interpersonal skills, as well as capable management and ideal responsibility structures are all factors that influence project success (Diekmann and Girard 1995).

2.4. Claims-Disputes Administration Process

Project participants are becoming more concerned about claims and disputes and more aware of their costly and lengthy resolution process. This is why it is very important to properly track and manage claims that may arise on construction projects; Better administration of these claims-disputes can allow for a better chance at resolving them more successfully. The basis of entitlement to any claim depends on the specific terms of the contract governing the execution of the given project. In order to increase the chances of success of the claim, Contractors must follow the steps stipulated in these conditions. Providing timely notice in writing is essential to the success of a construction claim (FIDIC 1999). The notice should include: details of the disputed item or issue, the circumstances which gave rise to the claim, and what a party is claiming for. In addition, an analysis of the alleged additional costs and time along with necessary documentation should be presented. Owners, on the other hand, should follow an all-inclusive procedure for tracking and managing the claim(s) submitted by Contractors (Zaneldin 2006). In the following part, the 1999 FIDIC conditions of contract shall be reviewed.

2.4.1. Filing for a Claim

The 1999 FIDIC conditions of contract states that “If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment [...] then the Contractor shall give notice to the Engineer, describing the event or

circumstance giving rise to the claim.” When submitting a claim, the Contractor must closely follow the steps dictated in the contract conditions. The additional costs and/or time being claimed for should be sufficiently documented and accounted for. After a claim-triggering event has occurred, it is the Contractor’s responsibility to carefully analyze the situation and consider the various options at hand. In some cases, maintaining a good relationship with the owner could be of more importance to the Contractor than filing for the claim, especially when the issue can be handled informally (Abdul-Malak, Saadi, and Abou-Zeid 2002).

If the Contractor decides to go ahead and submit the claim, he must give notice to the Engineer, mentioning the circumstance or occurrence that gave rise to the claim. This notification is to clearly state the contract clause(s) by which the time or cost compensation is requested, and must be given *“as soon as practicable, and not later than 28 days after the Contractor became aware or should have become aware of the event or circumstance”* (FIDIC 1999). If the Contractor does not submit this aforementioned notification within due time, he risks losing his right to claim any time and/or money under the contract. Next, the Contractor substantiates the claim case by preparing and submitting to the Engineer a detailed claim with the needed supporting particulars within 42 days (of becoming aware of the event giving rise to the claim), as per Sub-Clause 20.1. Contractors must establish and maintain a good record-keeping system that documents job progress and problems as they occur. This will allow them to quantify and validate claims from a position of strength (Jergeas and Hartman 1994). As described by Owen (2003), the sequence of procedures for

the submission of claims as stated in several clauses of the 1999 FIDIC conditions of contract can be summarized as follows:

1. The Contractor reports that he is aware of a situation that may involve potential problems that might entitle him to additional time and/or payment.
2. The Contractor gives notice when he actually suffers delay or additional costs.
3. The Contractor keeps contemporary records.
4. The Contractor submits his fully detailed claim with supporting particulars.
5. The Engineer responds to approve or disapprove the claim.
6. The Engineer proceeds in accordance with clause 3.5 to determine any extension of time or additional payments.
7. If the Contractor does not agree with the Engineer the claim becomes a dispute.

2.4.2. Engineer's Determination

Different standards and general conditions express different roles and responsibilities for the Engineer. It is important to distinguish when and how the design professional's determination of a dispute is to be considered final and binding, and this depends on the contract conditions. For example, the AIA and EJCDC specify the Engineer's decisions to be "initial and appealable to an arbitrator under the dispute resolution provisions set forth in the contract. However, if the Owner or Contractor does not timely appeal the decision, it is final and binding on the other parties" (Stein and Hiss 2003). If a party is not satisfied with the Engineer's final decision, they (either the Owner

or the Contractor) can contest the design professional's conclusion and seek relief through binding adjudication (Cheeks 2003).

2.4.3. Claims Preparation and Documentation

Compared to other management functions of construction organizations, claims management has benefited much less from information technology and quality management. The problems with claims management are most profound in the areas of claims justification, quantification and acute with respect to retrieval of supporting information and adequacy of information. The basic management functions recognized in most construction contracting organizations are: (1) planning, the process of choosing method and sequence of works to be used on project from all the alternatives and sequences possible; (2) estimating, the process of collecting and calculating cost data, selecting resources and output rates and combining cost and resource usage to determine the likely cost of works; (3) cash flow forecasting, the assessment of the anticipated cost of work in progress at periods or stages for which reimbursement is expected; (4) valuation, the process of determining the amount of payment for work done to date; (5) control and monitoring, reconciliation of projected cost of works with actual cost and accounting—the process of identifying, measuring, recording and communicating the transactions of the organization. The analysis of information flow in construction companies shows clearly that each of these functions depend on information generated by the other. (Vidogah and Nedkugri 1998)

The overall performance of the contracting organization therefore depends on how well these functions communicate from bidding to practical completion. The reality is one of a communication process that is paper-based, with data structured for the need of each function. The result is that a lot of manipulations have to be carried out with further time-consuming contacts for clarification or amplification. A consequence of the poor functional communication is the emergence of experts in each functional area managing islands of information aided by sophisticated software.

This dependence is ever more important in the management of claims where, apart from the need to access internal sources, information generated from external sources such as design information has to be dealt with as well. While there are experts within the contracting organization devoted simply to the undertaking planning, estimating, valuation and cost control functions, there are no such recognized experts that exist for claims management.

2.4.4. Claims Process Framework

A “Claims Process Framework” can be identified as the methodology that can help construction managers to assess the level of effectiveness for their construction claim process. The need for such a structured instrument for auditing construction contractors’ claim process cannot be overemphasized for the purpose of reducing time and cost increases (Kululanga et al. 2001). The construction industry is widely perceived as being slow to innovate and has trailed many manufacturing industries in process innovation

(Veshosky 1998). One of the characteristics that have significantly contributed to business processes improvement within manufacturing organizations is the methodology of mapping and measuring their business processes (Garvin 1991). This is also the level where the implementation of total quality management plan is achieved. Thus, the objective of modeling and developing a claim process framework was to provide an instrument that construction managers can employ to audit their organizations' construction claim process capabilities. Such a construction claim process framework assessment should provide a rational basis for addressing improvement from the challenges of their evolving construction business environment. The Egan (1998) report has equally advocated the development of such management-measuring instruments that should help assessment of construction organizations' capabilities as one of the means toward modernizing business processes of companies in construction industry.

In previous research by Kululanga (2001), a framework for measuring construction claim process was presented. It sets a methodology for assessing whether construction claim processes are in place and the degree to which the best practices are achieved, and the basis for a detailed audit of the current practice that characterizes successful approaches to construction claim management. The paper outlined how a construction contractor can self- or third party-audit its construction claim process. It also tested the measurement of the framework and the results showed a low awareness of such a construction claim process-measuring instrument. The modeled construction claim process was developed based on a literature review on the following variables (Easton 1989, European 1996, Kartam 1999): Claim identification, Claim notification, Claim

examination, Claim documentation, Claim presentation, Claim negotiation, and Use of total quality management tools to prevent claims.

2.4.5. Claims-Tracking Process Model

A need for an overall step-by-step procedure for claims analysis and administration is crucial, previous research by Abdul-Malak et al. (2002), presented a model aimed at addressing the stages through which construction claims evolve. The model is characterized by a number of major stations of tracking and analysis. These include satisfying notice requirements, claims' degree of substantiation and adopted methods of analysis and documentation, and the integration of developed, structured approaches for achieving decisions along four technical grounds. Although the model is general to an extent, the nodes, showing the sequence of events and procedures any claim would have to pass through before being resolved, can be further developed and detailed depending on the particularities of each claim and project.

CHAPTER III

CLAIMS PROCEDURE IN FIDIC 1999, SUB-CLAUSE 20.1[CONTRACTOR’S CLAIMS]

3.1. Preamble

The resolution process of claims is regulated by the International Federation of Consulting Engineers (FIDIC 1999) in its standard contract conditions; under Sub-Clause 20.1 [Contractor’s Claims], the detailed procedure a contractor must follow is explained when he considers himself to be entitled to an extension of time or additional payment, or both. This procedure follows a strict timeline; each milestone includes specific submittals delivered by the contractor on accordance with the contractual requirement in accordance with this Sub-Clause. The claim procedure is initiated by submitting a notice to claim to the Engineer within twenty eight days of the incident’s occurrence, followed by detailed supporting particulars of the amount claimed and the grounds upon which the claim is based (Fawzy, 2012), after forty - two days the statement of claim has to be filed and the Engineer shall respond with approval or disapproval on the principle of the claim and provide detailed comments. The contractor can contest the Engineer’s determination opting for a DAB’s decision. The later will be given after an eighty four days period, upon the board’s analysis of the statement of the case, and a set of particulars that might be needed to provide by the conflicted parties. If both parties (Owner and Contractor) agree to and

accept the Engineer's determination, this signals the end of the claim (Abdul-Malak, 2002). Otherwise, the party dissatisfied with the Engineer's decision could choose to issue a notice of dissatisfaction and intention to seek arbitration after a twenty eight days period, and reassemble its case to be presented for arbitration within a fifty six days period, FIDIC 1999, Clause 20 and Sub-Clause 20.1.

3.2. Construction Claims

Sub-Clause 20.1 in FIDIC 1987 further provides in part that: "If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim..." Thus, the extension of time or additional payment is required to take account of any damage the Employer may have suffered as the result of the Contractor's failure to comply with the claims procedure in the contract. However in the new FIDIC 1999, failure to issue a notice within and not later than twenty –eight days after the contractor became aware or should have become aware of the event of circumstance, stated in the second paragraph of Sub-Clause 20.1, thereof if the Contractor fails to give such notice of claim within 28 days: "The Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim.". This highlights a critically important first ingredient in the claim process, namely the accurate and timely identification of a construction claim.

Along the Claim-dispute timeline as per 1999 FIDIC Sub-Clause 20.1 [Contractor's Claims] we can track key milestones: (1) starting with an “incident, event or circumstances” giving rise to a claim and submittal of particulars by the contractor, (2) passing through Engineer’s determination and, subsequently, Dispute Adjudication Board (DAB)’s decision, (3) going through amicable settlement process, and (4) ending with arbitration.

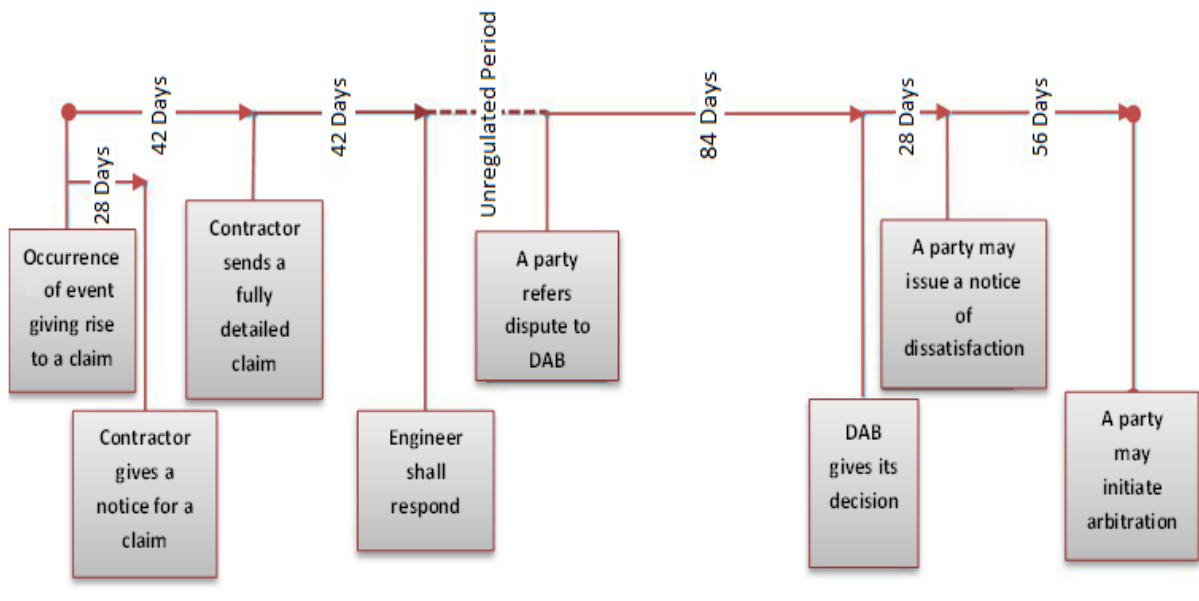


Figure 3.1: Claim – Dispute Timeline as per 1999 FIDIC

3.2.1. Events Giving Rise to Claim

The events or circumstances giving rise to claim, giving the contractor the entitlement to claim, can be traced by seeking incidents in the Contract's conditions where Sub-Clause 20.1 is referred to: "The requirement of this Sub-Clause [Sub-Clause 20.1] are in addition to those of any other Sub-Clause which may apply to a claim", FIDIC 1999. The Contractor must be well aware of these events in order to timely and accurately identify and trigger them, and the contractual provisions that need to be met under the direct Sub-Clause entitling to claim in addition to the contractual provisions of Sub-Clause 20.1.

Such events are found in fifteen Sub-Clauses of the FIDIC 1999 specifying events should they occur, will entitle the Contractor to claim from the Employer. These clauses are related to various aspects of the works in a construction project. Table 3.1: Events giving rise to claim.

Sub-Clause Title	Works' Relevant Aspects	Contractor's Entitlement	Context / Reason as stated in the Contract
1.9 [Delayed Drawings or Instructions]	Design	Contractor may claim extension of time, Cost and reasonable profit if Engineer fails to issue a notified instruction or drawing within a reasonable time	"Whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable, ..."
2.1 [Right of Access to the Site]	Site Accessibility	Contractor may claim extension of time, Cost and reasonable profit if Employer fails to give right of access to Site within time stated in the Contract	<p>"The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Appendix to Tender.</p> <p>If no such time is stated in the Appendix to Tender, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as may be required to enable the Contractor to proceed in accordance with the programme submitted under Sub-Clause 8.3 [Programme].</p> <p>If the Contractor suffers delay and/or incurs Cost as a result of this failure to give any such right or possession within such time, ..."</p>

<p>4.7 [Setting Out]</p>	<p>Site – Execution of Works</p>	<p>Contractor may claim extension of time, Cost and reasonable profit for errors in original setting-out points and levels of reference</p>	<p>“The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract, ... If Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, ...”</p>
<p>4.12 [Unforeseeable Physical Conditions]</p>	<p>Site Conditions</p>	<p>Contractor may claim extension of time and Cost if he encounters physical conditions which are Unforeseeable</p>	<p>“If Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, ... If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incur Cost due to these conditions, ...”</p>
<p>4.24 [Fossils]</p>	<p>Site Conditions</p>	<p>Contractor may claim extension of time and Cost attributable to an instruction to Contractor to deal with an encountered archaeological finding</p>	<p>“All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.”</p>
<p>7.4 [Testing]</p>	<p>Site Inspection/ Tests</p>	<p>Contractor may claim extension of time, Cost and reasonable profit if testing is delayed by (or on behalf of) the Employer</p>	<p>“The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works... If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of delay for which the Employer is responsible, ...”</p>

<p>8.4</p> <p>[Extension of Time for Completion]</p>	<p>Multiple</p>	<p>Contractor may claim extension of time if completion Sub-Clauses 8.2 & 10.1) is or will be delayed by a listed cause.</p>	<p>“The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purpose of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:</p> <p>(a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3) or other substantial change in the quantity of an item of work included in the Contract,</p> <p>(b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,</p> <p>(c) exceptionally adverse climatic conditions,</p> <p>(d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or</p> <p>(e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site.”</p>
<p>8.9</p> <p>[Consequences of Suspension]</p>	<p>Work scheduling</p>	<p>Contractor may claim extension of time and Cost if Engineer instructs a suspension of progress</p>	<p>“If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, ...”</p>
<p>10.2</p>	<p>Site - Inspections/</p>	<p>Contractor may claim Cost and reasonable profit</p>	<p>“The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the</p>

[Taking Over of Parts of the Works]	Tests	attributable to the taking over of a part of the Works	Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. (...) If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, ...”
10.3 [Interference with Tests on Completion]	Site - Inspections/ Tests	Contractor may claim extension of time, Cost and reasonable profit if Employer delays a Test on Completion	If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Employer shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed. The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period.... If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, ...”
13.7 [Adjustments for Changes in Legislation]	Contractual	Contractor ,may claim extension of time, Cost attributable to a change in the Laws of the Country	“The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

			If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, ...”
16.1 [Contractor’s Entitlement to Suspend Work]	Financial	Contractor may claim extension of time, Cost and reasonable profit if Engineer fails to certify or if Employer fails to pay amount certified or fails to evidence his financial arrangements, and Contractor suspends work	If the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or the Employer fails to comply with Sub-Clause 2.4 [Employer's Financial Arrangements] or Sub-Clause 14.7 [Payment], ... If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, ...”
17.4 [Consequences of Employer's Risks]	Site – Execution of Works	Contractor may claim extension of time, Cost and (in some cases) reasonable profit if Works, Goods or Contractor’s Documents are damaged by an Employer’s risk as listed in Sub-Clause 17.3	“If and to the extent that any of the risks listed in Sub-Clause 17.3 [Employer's Risks] results in loss or damage to the Works, Goods or Contractor's Documents, ... If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, ...”
18.1 [General]	Financial	Contractor may claim cost of premiums if Employer fails to effect	“If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and

Requirements for Insurances]		insurance for which he is the “insuring Party”	<p>copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.</p> <p>If the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party..”</p>
19.4 [Consequences of Force Majeure]	Site - Execution of Works	Contractor may claim extension of time and (in some cases) Cost if Force Majeure prevents him from performing obligations	“If the Contractor is prevented from performing any of his obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure.”

Table 3.1: Events giving rise to claim

These fifteen sub-clauses give the contractor contractual entitlement to claim for suffered delay and/or incurred cost as a result from encountering the event described. Seven sub-clauses describe events occurring on site.

3.2.2. Notice' Requirements

The notice of claim alerts the Engineer to the fact that the Employer may have to pay the Contractor additional money or grant him an extension of time by reason of a specified event or circumstance. Time limit requirements are very crucial and critical, a typical contract provision: “The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance”. An initial letter of a claim notice to the other party should be short, clear, simple, conciliatory, and cooperative. It should indicate the problem and alert the other party of the potential increase in time or cost, “the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim”.

The requirement to keep contemporary records is intended to ensure that there will be contemporary documentary evidence to support the claim. Once a notice of claim has been given, the parties can then agree on the particular contemporary records the contractor must keep in order to avoid future argument, and there may still be time for the Engineer to instruct alternative measures to reduce the effects of the claim. When claims are notified early, they may be resolved early, in the interests of both parties. The production and submittal of a claim notice is regulated by a 28 days period, this is intended to give the

contractor the needed time to carefully examine the decision to file for a claim, going into a claim has detrimental effects on the Parties involved and the project at hand, among which are: deviation of attention from other project priorities, developing an adversarial relationship, high cost of resolution, loss of momentum, and Parties' tarnished image. Thus, several factors must be considered in such a decision and the contractor is encouraged to make the full assessment of the legal and factual grounds on which the claim is to be based, this should also involve the estimate of the potential recovery, for the purpose of decision making, although, the contractual requirements of issuing a notice in accordance with Sub-Clause 20.1, do not state the need to incorporate such assessment.

Sub- Clause 20.1 [Contractor's Claims] provides for the following procedure: (1) If the Contractor considers himself to be entitled to an extension of the Time for Completion and/or additional payment under any clause of the Conditions or otherwise, the Contractor must give notice to the Engineer as soon as practicable and "not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance" giving rise to the claim.

The Contractor has merely to give a bare notice of claim within 28 days. A one- or two-sentence letter will do. The Contractor does not need to state the amount or time claimed nor the contractual basis of the claim nor provide any supporting documents.

If the Contractor fails to give such notice of claim within 28 days: "the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim" [Sub-Clause 20.1].

Each notice of claim under Sub-Clause 20.1 must be in writing and properly delivered as stated in Sub-Clause 1.3 [Communications]. In addition, it must be listed in the monthly progress reports which are required to accompany the Contractor's applications for interim payment certificates pursuant to Sub-Clause 14.3 [Application for Interim Payment certificates].

(2) When the Contractor gives such a notice under the new Sub-Clause, he is required, to "keep such contemporary records as may be necessary to substantiate any claim" and the Engineer is authorized to monitor the Contractor's record-keeping and/or instruct the Contractor to keep additional contemporary records [Sub-Clause 20.1].

An extensive reading of the detailed requirements of issuing notice in accordance with Sub-Clause 20.1 show the need to issue one notice not later than twenty-eight days of the incident's occurrence. This notice initiates the claim timeline. However, there are six incidents where the contractor is required to issue a notice in accordance with the direct sub-clause as a conditions precedent before issuing the notice in accordance with Sub-Clause 20.1, and there is one case where the notice in accordance with the relevant Sub-Clause and in accordance with Sub-Clause 20.1 can be compounded. Table 3.2: Notice' Requirements.

Sub- Clause Title	Notice/s	Notice requirements	Time Bar
<p>1.9 Delayed Drawings or Instructions</p>	<p>Two Separate Notices:</p> <p>Notice of Needed Additional Drawings or Instruction in accordance with Sub-Clause 1.9</p> <p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“The contractor shall give notice to the Engineer. The notice shall include details of the necessary drawing or instruction, details of why & by when it should be issued, and details of the nature and amount of the delay or disruption likely to be suffered if it is late.”</p> <p>“..., the Contractor shall give a <i>further notice</i> to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and</p> <p>(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.”</p>	<p>Not specified – notice is given when needed.</p> <p>As soon as practicable and ≤ 28 days</p>

<p>2.1 Right of Access to the Site</p>	<p>One notice:</p> <p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“..., the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and</p> <p>(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.”</p>	<p>As soon as practicable and ≤ 28 days</p>
<p>4.7 Setting Out</p>	<p>One notice:</p> <p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“..., the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and</p> <p>(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.”</p>	<p>As soon as practicable and ≤ 28 days</p>

<p>4.12 Unforeseeable Physical Conditions</p>	<p>Two separate notices /or one compounded notice:</p> <p>Notice alerting the Engineer of encountering adverse physical conditions in accordance with Sub-Clause 4.12</p> <p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“The Contractor shall give notice to the Engineer as soon as practicable. This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable.”</p> <p>“.., the contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under Sub- Clause 8.4 [Extension of Time for Completion], and</p> <p>(b) payment of any such Cost, which shall be included in the Contract Price.”</p>	<p>As soon as practicable</p> <p>As soon as practicable and ≤ 28 days</p>
<p>4.24 Fossils</p>	<p>Two separate notices:</p> <p>Notice alerting the Engineer of archaeological findings in accordance with Sub-Clause 4.24.</p>	<p>“The Contractor shall give notice to the Engineer as soon as practicable. This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the</p>	<p>Promptly</p>

	<p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>Contractor considers them to be Unforeseeable.</p> <p>“If Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claim] to:</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and</p> <p>(b) payment of any such Cost, which shall be included in the Contract Price.”</p>	<p>As soon as practicable and ≤ 28 days</p>
<p>7.4 Testing</p>	<p>One notice:</p> <p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“..., the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-clause 20.1 [Contractor's Claims] to:</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and</p> <p>(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.”</p>	<p>As soon as practicable and ≤ 28 days</p>

<p>8.4 Extension of Time for Completion</p>	<p>One notice: Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [Contractor's Claims].”</p>	<p>As soon as practicable and ≤ 28 days</p>
<p>8.9 Consequences of Suspension</p>	<p>One notice: Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“..., the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to: (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and (b) payment of any such Cost, which shall be included in the Contract Price.”</p>	<p>As soon as practicable and ≤ 28 days</p>
<p>10.2 Taking Over of Parts of the</p>	<p>One notice: Notice of intention to claim for extension of time, Cost and reasonable profit in</p>	<p>“..., the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p>	<p>As soon as practicable and ≤ 28</p>

Works	accordance with Sub-Clause 20.1	(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and (b) payment of any such Cost, which shall be included in the Contract Price.”	days
10.3 Interference with Tests on Completion 13.7	One notice: Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1	“..., the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to: (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and (b) payment of any such Cost, which shall be included in the Contract Price.”	As soon as practicable and ≤ 28 days
16.1 Contractor’s Entitlement to Suspend the Works	Two separate notices: Notice of suspension to the Employer as a result of a failure by the Engineer to certify within 28- days duration stipulated under	“..., the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as	Not specified

	<p>Sub-Clause 14.6, failure by the Employer to show evidence of financial arrangements within the 28-days duration stipulated under Sub-Clause 2.4, or failure by the Employer to pay the amount certified within 56-days duration stipulated under Sub-Clause 14.7</p> <p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>the case may be and as described in the notice.</p> <p>The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2 [Termination by Contractor]."</p> <p>"..., the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and</p> <p>(b) payment of any such Cost, which shall be included in the Contract Price."</p>	<p>As soon as practicable and ≤ 28 days</p>
<p>17.4 Consequences of Employer's Risks</p>	<p>Two separate notices:</p> <p>Notice of Loss or Damage from Employer's Risks</p>	<p>"..., the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to the extent required by the Engineer."</p>	<p>Promptly</p>

	<p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“..., the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and</p> <p>(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.”</p>	<p>As soon as practicable and ≤ 28 days</p>
<p>18.1 General Requirements for Insurances</p>	<p>One notice:</p> <p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“..., Sub-Clause 20.1 [Contractor's Claims], as applicable.”</p>	<p>As soon as practicable and ≤ 28 days</p>
<p>19.4 Consequences of Force Majeure</p>	<p>Two separate notices:</p> <p>Notice alerting the Engineer of encountering an event or circumstances constituting the a force majeure as identified in paragraph (i) and (iv) of Sub-Clause 19.1 [Definition of</p>	<p>“If a party is or will be prevented from performing any of its obligations under the Contract by Force Majeure, the it shall give notice to the other party of the event or circumstances constituting the force majeure and shall specify the obligations, the performance of which is or will be prevented.”</p>	<p>As soon as practicable and ≤ 14 days</p>

	<p>Force Majeure], Notice is issued in accordance with Sub-Clause 19.2 [Notice of Force Majeure]</p> <p>Notice of intention to claim for extension of time, Cost and reasonable profit in accordance with Sub-Clause 20.1</p>	<p>“..., the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p> <p>(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and</p> <p>(b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in the case of sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost.</p>	<p>As soon as practicable and ≤ 28 days</p>
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Table 3.2: Notice requirements

In Summary these are the contractual requirements for issuing notice under the 15 sub-clauses giving entitlement for the Contractor to claim. Table 3.3: Summary of notice requirements, and Figure 3.2: Requirements of issuing notices in relation to claim related sub-clauses.

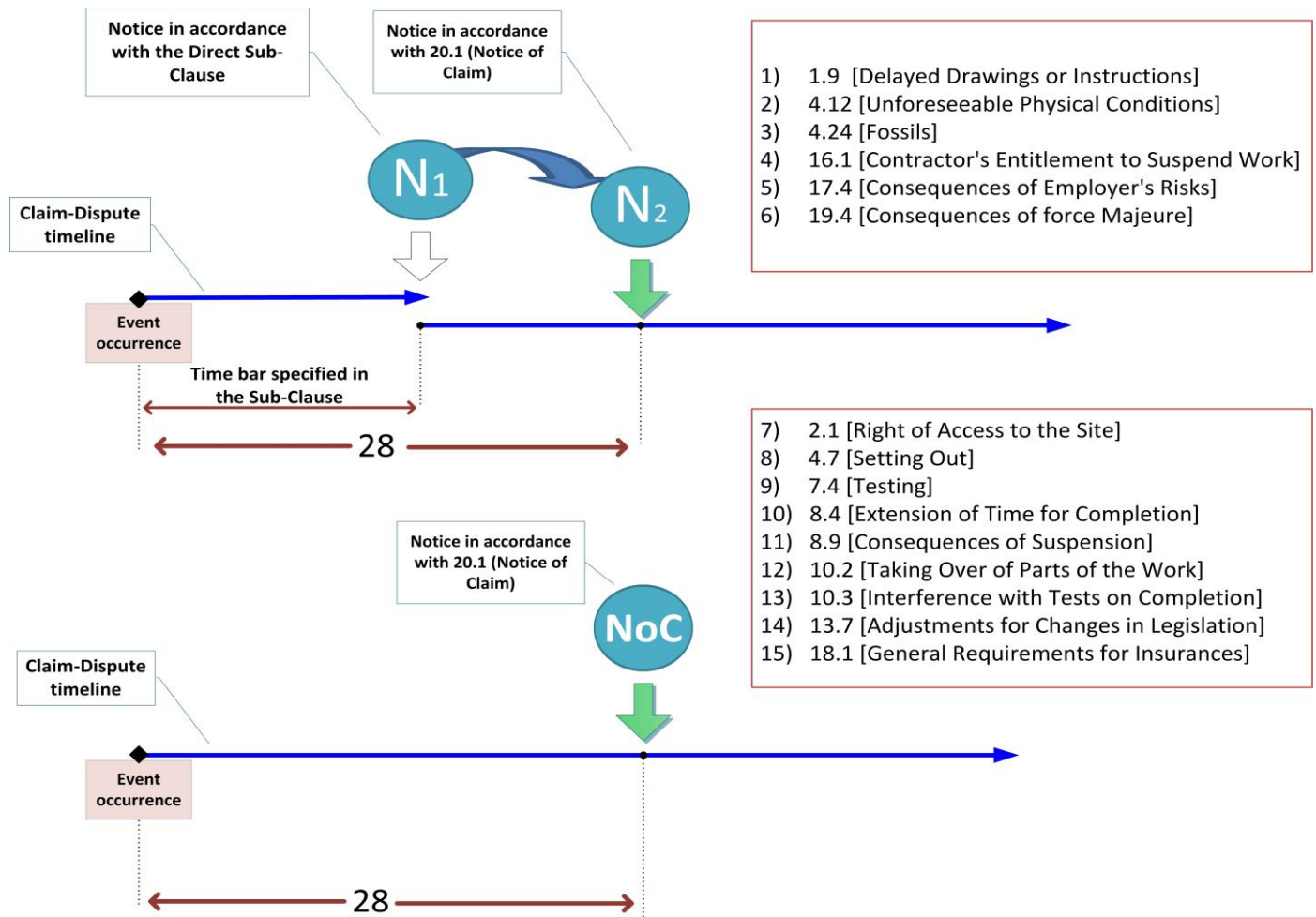


Figure 3.2: Requirements of issuing notices in relation to claim related sub-clauses

3.2.3 Detailed Particulars:

(3) Within 42 days after the Contractor became aware, or should have become aware, of the event or circumstance giving rise to the claim, or within such other period as the Engineer may approve, the Contractor is required to send to the Engineer “a fully detailed claim” which includes “full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed”. If the event or circumstance giving rise to the claim has “a continuing effect”, further procedures need to be complied with.

After 42 days a fully detailed claim has been presented, it is the Engineer’s role (as per sub-clause 3.5) to consult with both Parties involved in the conflict (Owner and Contractor) to try and reach an agreement. If the agreement of both parties cannot be achieved within a reasonable time, the Engineer shall then “make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances” (FIDIC 1999). In accordance with clause 1.3, determinations shall be in writing and not be unreasonably withheld or delayed. The Engineer is then required to notify both parties of his determination, which is binding until and unless it is revised under the dispute procedure mentioned in clause 20.2

3.2.4. Further Particulars and Contemporary Records

(4) Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer must respond “with approval, or with disapproval

and detailed comments”. He may also request any necessary further particulars “but shall nevertheless give his response on the principles of the claim within such time”.

Sub-clause 20.1 clearly requires the Engineer to respond at least on the principles of the Contractor claim of within a given time period and in a given manner.

In practice, the Engineer may first express an interim determination or an initial determination on the principles of the claim, and revise it after further particulars have been submitted (Owen 2003).

The examination of sub-clause 20.1 in regards to the Engineer requesting further particulars returns the following:

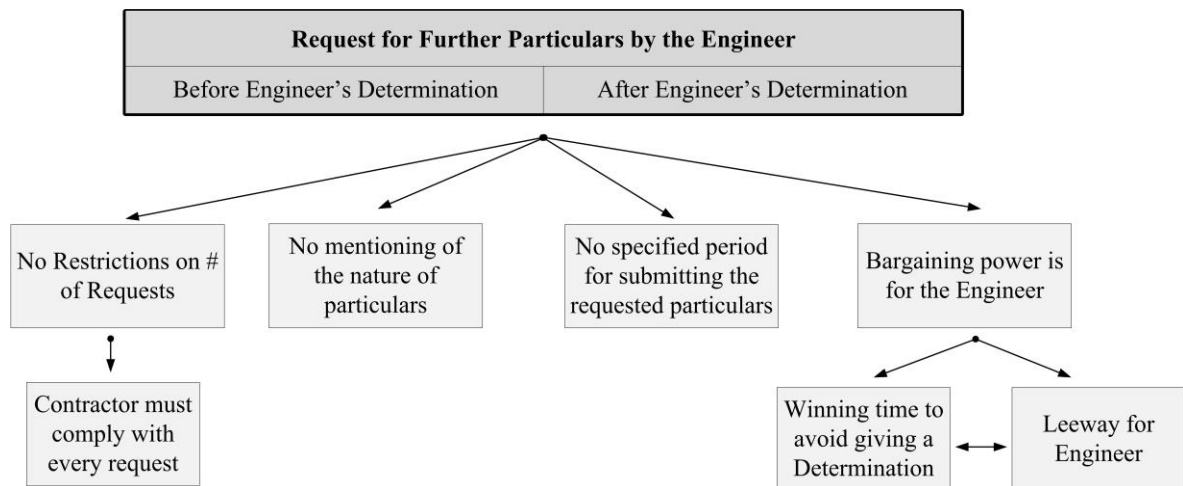


Figure 3.3: Engineer’s request for further particulars (sub-clause 20.1)

(5) The contractor upon issuing notice of claims shall keep such records as may reasonably be necessary to support any claim he may subsequently wish to make. “The Contractor shall keep any contemporary records as may be necessary to substantiate any claim either on site or at any other location acceptable to the Engineer.” Sub-clause 20.1.

Typically the generation of contemporary records a result of instruction by the Engineer or the DAB, with the purpose of use in substantiating the Quantum of the claim: “The Engineer may, after receiving any notice of this sub-clause, monitor the records-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all the records, and shall (if instructed) submit copies to the Engineer.”

As stated in sub-clause 20.1 it is the contractor who is responsible to keep the records. The clause neither discusses the purpose of these contemporary records nor from whom they are necessarily to be sourced. The main factor discussed is that contemporary records belonging to either the contractor or employer, are records that help motivate and quantify a contractors entitlement to claim regardless of how they were created or from whom they are received at the time of the event in question giving rise to the claim as well as how or by whom they were created. The engineer inspects such records that the contractor has kept readily available. In regards to the insufficient reports affecting your claim, “Failure by a contractor to keep such records does not prevent recovery on the claim but is to be taken into account in its assessment insofar as it may have prejudiced or prevented a proper investigation of the claim”. Therefore the lack of contemporary records in itself does not cause the claim to fail.

3.2.5. Statement of Claim

Sub-clause 3.5 further provides that the decision of the Engineer is binding on the parties “Each Party shall give effect to each agreement or determination...” unless later revised by the DAB pursuant to sub-clause 20.4: “If a dispute (of any kind whatsoever)

arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion, valuation of the Engineer, either Party may refer the dispute in writing to the DAB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this sub-clause.”

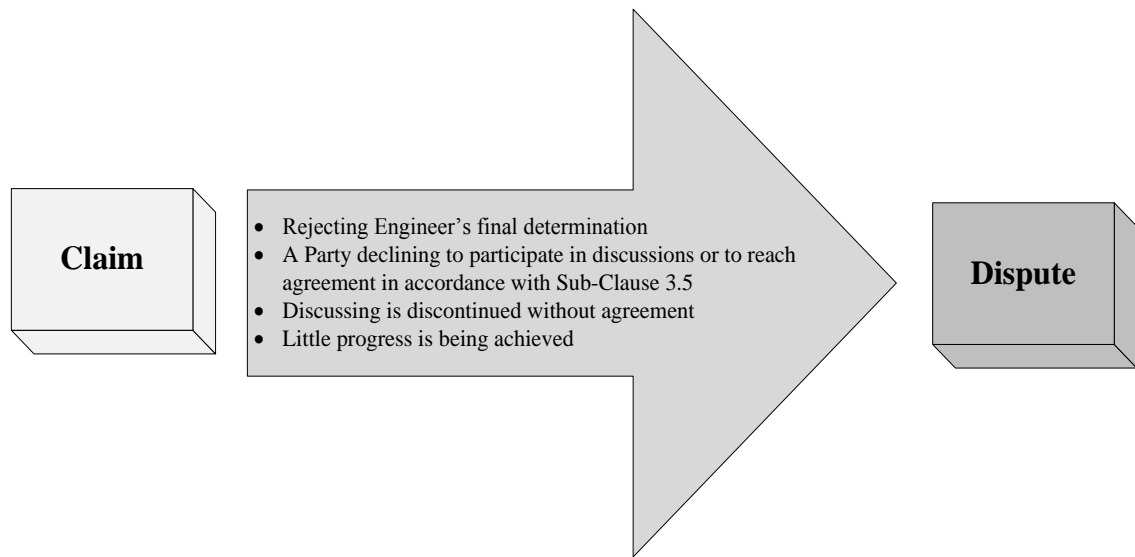


Figure 3.4: The Referral to DAB (sub-clause 20.4)

In the 1999 FIDIC claim-dispute resolution timeline the period following the Engineer's response and preceding the calling for a DAB's decision can be said of to be unregulated (time wise), and it is left up to either of the concerned parties to decide when to allow a claim to escalate to the level of a dispute, by referring it to the Dispute Adjudication Board.

In the current FIDIC contracts, the Engineer is no longer empowered to render a pre-arbitral decision. Instead, this task has devolved upon the DAB.

3.2.6. Further Particulars Requested by DAB

The Adjudication period is 84 days initiated by the referral and ending with the DAB's decision, during which the DAB might request any further particulars necessary from either party. The Contractor might be requested to keep or make available any contemporary records or information as necessary for the purposes of decision making by the DAB: "Both parties shall promptly make available to the DAB all such additional information, further access to the site, and appropriate facilities, as the DAB may require for the purposes of making a decision on such dispute." The decision of the DAB is binding: "The decision shall be binding on both parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement of an arbitral award."

3.2.7. Notice of Dissatisfaction

If either party is dissatisfied with the DAB decision it might refer the dispute to arbitration by issuing a Notice of dissatisfaction within a 28 days period in accordance with sub-clause 20.4: "If either party is dissatisfied with the DAB's decision, then either Party may, within 28 days after receiving the decision, give notice to the other party of its dissatisfaction." The notice of dissatisfaction requirements are stated in the same sub-clause: "..., this notice of dissatisfaction shall state that it is given under this sub-clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction."

This notice is a prerequisite for entering arbitration: "..., neither party shall be entitled to commence arbitration of a dispute unless a notice of dissatisfaction has been given in accordance with this sub-clause."

The notice must be issued within and not later than a 28 days period: "If the DAB has given its decision as to a matter in dispute to both parties, and no notice of dissatisfaction has been given by either parties within 28 days after it received the DAB's decision, then the decision shall become final and binding upon both parties."

3.2.8. Particulars presented in Amicable Settlement

Depending on the contract conditions and the needs of the project participants, several methods can be adopted in dealing with disputes going into amicable settlement period. Parties wishing to go into amicable settlement might resort to methods of Alternative dispute resolution (ADR), which could include and are not limited to: (1) Negotiation, a process by which parties attempt to reach a mutually satisfactory agreement through informal and unstructured discussions. (2) Facilitation, a method of Alternative Dispute Resolution that is centered at finding new solutions and resolving difficulties, thus helping the parties accomplish their goals. (3) Conciliation, a process that involves a neutral third-party to communicate with the parties in the exchange of information and settlement options. (4) Mediation, a form of "assisted negotiation", is considered a consensual process of resolving conflicts through settlement conferences, wherein an impartial third-party, the "mediator", facilitates negotiations between the disputants. It is

currently the most popular of the different ADR methods, and is conducted privately and confidentially, and usually results in a nonbinding resolution. The mediator attempts to understand the issues and desires of each party, and adopts a strategic approach to facilitate the settlement and reach a win-win agreement, thus bridging the gap between the disputants. Throughout this process, the parties remain in control over the decision to settle and the terms of any settlement, and the mediator has no power to impose a settlement on the parties but rather facilitates the parties' negotiations. These methods require the Contractor to revisit the case.

CHAPTER IV

CLAIM DOCUMENTATION EVOVLEMENT ALONG THE TIMELINE

4.1. Preamble:

Claim management and administration functions undertaken by the contractor involve these main stages: ensuring compliance with provisions of contract, justification of the claim in principle, and quantification of claim. To elaborate, a contractor would often go through the following when preparing a claim: (1) an event occurs which causes or is likely to cause the contractor to incur loss and/or expense for which he would otherwise not be reimbursed under the contract. The contractor complies with the contractual provisions on what has happened, e.g., giving notices, estimates of likely impact of time and costs, and responding appropriately to the request of the contract administrator for information; (2) the contractor establishes entitlement to reimbursement by showing that under the provisions of contract he is entitled; (3) the contractor quantifies the claims and assembles supporting documentation for submission in the contract administrator; (4) the contractor draws up the formal claims document with supporting information for presentation to the contract administrator (Vidogah 1998).

In summary, the claims management stages involve:

- ensuring compliance with provisions of contract,
- justification of the claim in principle,
- quantification of claim.

The contractor preparing for a claim, relies on document-based information to reconstruct the circumstances or "history" under which the events giving rise to the claim occurred, and the "story" that establishes that these events were in fact acts caused by the other party, or by external events. The proper presentation and preparation of the document-based information "Factual documentation", in addition to the story upon which the claim is based "Rationale" play a crucial role in the Engineer's making determination, and in case of a dispute, the DAB and Arbitrators' evaluation of the merits of each case presented and deciding which party, if any, deserves an award. Thus, without adequate documentation, and presentation of evidence, a claimant or respondent will have a difficult time proving the standing of his or her case to any panel.

4.2. Claim Documentation

A claim is a demand by the contractor for an "alleged right", therefore evidences must be provided and backed up with exhibits to sustain that right. Claim documentation is the collection of the hard facts that give the actual history of a construction claim. A well-prepared defendant quickly demolishes evidence and claim costs that are not supported by accurate records. For example, minute inaccuracies can be seized upon to cast doubt on the entire claim. The documented facts are the glue that holds the legal framework together. If these are insufficient the claim will not stick (Kulunanga et al. 2001). The purpose of such evidence is proving beyond reasonable doubt two main aspects:

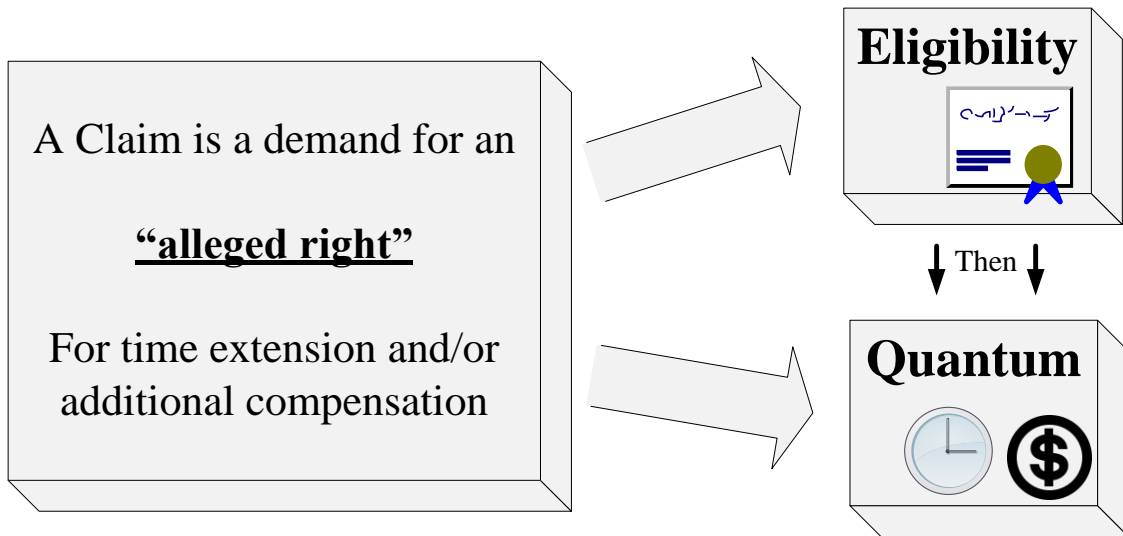


Figure 4.1: Purpose of Claim Evidence

Typically generated evidences for the purpose of supporting the claim include: Correspondence (letters), QA/QC report, marked design drawings, marked shop drawing, As-built drawings, field inspection request, field instruction, request for information, request for clarification, daily reports, price analysis, supplier quotations, contract conditions, bill of quantities, minutes of meetings (showing progress, Technical/Installation, and consultation and/or negotiation), monthly reports, baseline schedule, schedule updates, As-built schedule, Time-Impact Analysis (Forensic Schedule Analysis), site studies (Topography, Geotechnical, etc. and existing utilities), Photos/Videos/Time-lapse Studies, accident reports. (The list of evidences is further elaborated below).

4.2.1. Establishing Entitlement

Eligibility can be defined as the qualification or entitlement of the contractor, such eligibility, referred to as the “basis of the claim” in sub-clause 20.1, is described and established in the construction contract FIDIC 1999 in the fifteen sub-clauses mentioned in chapter 3. Establishing eligibility requires adequate understanding of the conditions of contract, construction law in general and good site management practice, in order to (1) make correct referral to the pursuant clauses of the contract that indeed cover the “cause” of the claim “event giving rise to a claim”, (2) prove the contractor’s entitlement to claim for cost (with or without profit) and/or extension of time (as stated in the pursuant sub-clause), and (3) ensure that a claim fulfills the contractual provisions of contract, which means ensuring the claims validity.

4.2.2. Claims Quantification

Quantum is the amount of time extension and/or cost reimbursement claimed. The contract clauses specify the entitlement to claim for cost without profit, extension. However, the struggle is in determination and quantification of the actual “effect” of the cause of the claim, and then substantiation of this determination with the proper documents and the quantification with the agreed methods.

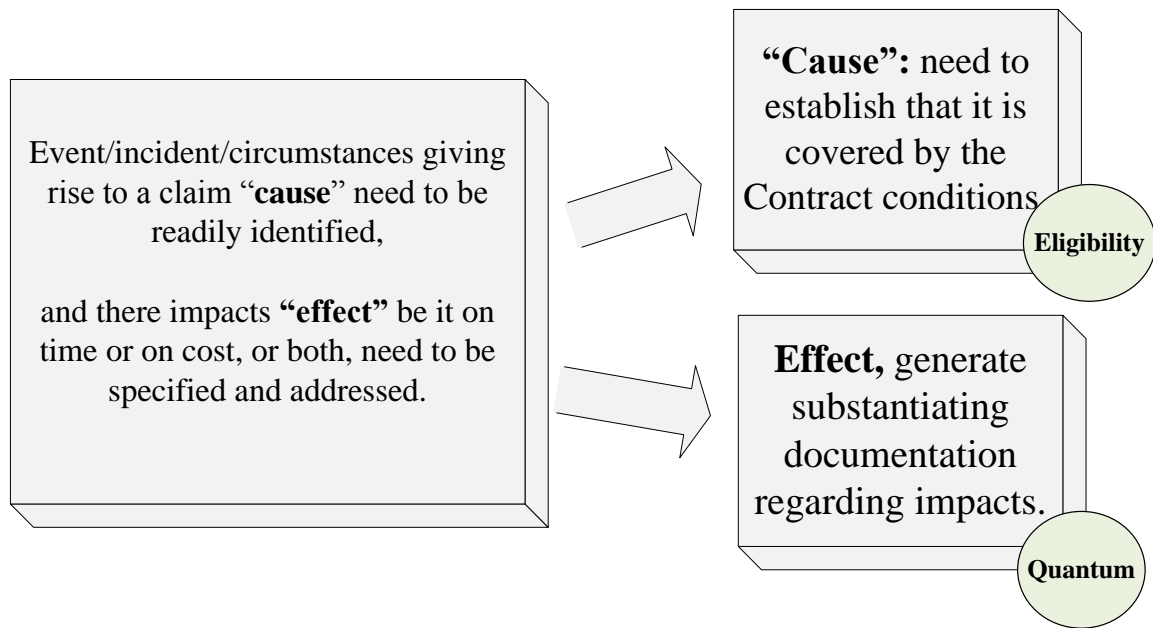


Figure 4.2: Evidence in Respect to Cause and Effect of a claim

The main problem with quantification tends to arise in the area of the supporting evidence. For example, if a contractor successfully makes a case in principle for loss of profit and recovery of overhead costs, there is the further burden of producing evidence that, for the cause of the claim, the profit would have been made and the overhead costs recovered. The common practice for contractors faced with the costly task of producing such evidence is to opt for the use of one of the following: estimating profit as a percentage of alleged additional cost or using one of general formulae, i.e., Hudson’s or Emden’s formula (UK) and Eichleay’s formula (US), etc.

- Uses of spreadsheets: These are one of the most common IT tools employed in the construction industry. They are useful tool for the number crunching part of the claims preparation.

- Uses of project management software: The common use of this category of software is in the analysis of the effect of delays on the contract completion date. This involves imposing the delaying event and carrying out of a critical analysis to determine the new completion date. By performing a number of “what-if” analysis and storing the results, the contractor can prove the effect of a series of delaying events. These tools are also applied as forensic tools to construct as-built project to illustrate the impact of event on the original program. Some of the more sophisticated project management products can be customized to support claims management more directly by (1) applying the concept of hammock activity. This is a fictional activity, the start and finish of which are linked to specific activities. If there is delay, its duration is automatically extended. This can be used to monitor the effect of delays on the project preliminaries. (2) Information requirements of the contractor can be programed into the system, the end-product being an annotated program with accompanying schedules of information requirements. The issue of such a schedule can constitute an application for instructions. This capability is very useful. (3) Some correspondence can be generated upon the happening of defined events. The central difficulty of knowing where the information is available for access across functions to retrieve documents and data remains unaddressed. Fortunately, recent developments in the area of electronic document management would, if adopted, enable access and relieve substantially the burden of information retrieval.
- Document management systems: a document management system is a tool for the storage and retrieval of unstructured information. These can include faxes,

scanned images or documents, drawings, word processed documents, spreadsheets, database reports, letters, specifications, and in fact, any kind of document. If one considers that, on a major construction project, the main contractor has to be able to assimilate paper-based documentation from, say, a dozen subcontractors as well as the design team and manage subsequent changes, it is no surprise that vital evidence required to substantiate claims takes ages to identify, retrieve and assemble. Electronic document environment supports, in most cases, a data storage component that can integrate documents from outside the contracting organization into a document management system. Photographs, drawings and site reports can therefore be available within such a system. If implemented, it will remove a major obstacle to the preparation of well substantiated claims less likely to be disputed.

Supporting documentation need to be available, demonstrating the impact of event on site in terms of time and cost is supported by the use of traditional packages such as project management and database systems. A review of the causes of claims demonstrates that main information pertaining to them is all noted in the “Project’s Archives” by different contractor’s personnel and units.

4.2.3. Claim Rationale

The rationale is the reconstruction of facts, and it is built around the breach in contract. It should be logically built up, well organized, and factually convincing. Thus, a claim should be written in a format that emphasizes the fact that a contract requirement was breached. A contractor must then demonstrate the resulting harm was caused by the owner's acts. The rationale presentation is best separated into two, the entitlement and the quantum. The former section should have the legal and factual basis while the latter should provide the estimated recovery of the claim.

4.2.4. Factual Documentation:

The Factual documents used in supporting the claim are hard facts that give the actual history of a construction claim and the input of the contractor "Site Office" (i.e. the contractor's units directly running and managing the everyday activities of a project), which include, Contract documents, Project Activity documents, and Contemporary records .

4.2.4.1. Project activity documents:

For a contractor, the management of project information begins the day the decision is made to bid on the contract and continues until well after the project's close-out phase. The contractor daily project documentation is a process of documenting

transactions (project activity), communicating, and maintaining information by a consistent and ordered method, and is bound by contracts, the language of which will shape, amongst various things, the following:

- Project organizational structure.
- Contract valuation or remuneration system (e.g. cost-plus, unit Price, and stipulated).
- Claims Management, documentation and workflow, which include: (1) Rules of documentation, (2) cost reimbursement method, (3) Entitlement, (4) Dispute resolution mechanism.

Main information on site is recorded in the following list of factual documents existing in the Project's archives:

(1) Construction Schedules: The construction schedule indicates the contractor's timing, sequence, and coordination of the construction process and his or her overall approach to building project. The importance of the schedule in the arbitration process depends on the nature of the claim. In cases dealing with delays, acceleration or other time-sensitive issues the construction schedule is the critical piece of evidence examined by the arbitrators. Several arbitrators surveyed suggested that, if the nature of the claim suggests that the construction schedule is expected to play a central role. The Contractor involved in a claim presents four separate schedules:

- As-planned or original schedule.
- As-built schedule.

- Modified as-built schedule, reflecting all delays-owner, contractor, and excusable.
- Adjusted schedule, to establish completion of the project absent of owner delays.

At a minimum, the Contractor should be able to present the as-planned and as-built schedules with a clear narrative describing how the schedule impacted the claim.

(2) Videos and Photos: Video and photographic evidence serves as a visual means for recording the effects of actual job progress and provides a foundation from which to establish the status of the project at a specific point in time. Video and photographic evidence is also important in case-specific issues such as lack of compliance, workmanship, and damage claims. The usefulness of video and photographic evidence is highly dependent on how well the photo or video program was done during the project. A contractors' onsite unit attempting to record projects with video and photographs, should take into consideration:

- Timing: start obtaining photos or videos before construction starts; take photos periodically (weekly, monthly) in sync with progress payments; and if an incident occurs, get it when it happens to record whatever it is.
- Control: sign and date each photo; note the photo with respect to location and pointer; and control location and storage of the negative.
- Scope: record specific items in reference to a specific purpose or incident; and get full job views.

(3) Raw data: Raw data include the basic information that furnishes factual support for technical information; for example, building codes, test data, and topographical surveys. (4) Fundamental documents: Fundamental documents in the form

of written material establishing essential criteria for the project; for example, contract documents and agreements, project manual, and master schedule. (5) Transaction documents: Transaction documents are documents that have as their fundamental purpose the documentation of a specific project activity; for example, request for proposal, request for information, change orders, field reports, and meeting minutes. (6) Transaction files: Transaction files are the method by which transactions are recorded through their progression with the project; for example, RFI log, shop-drawing/submittal log, and bid tabulation forms. (7) Technical products: Technical products are documented results of a technical or analytical effort on the project; for example, estimates, cost records, quantity take-offs, as-built schedules, and value engineering studies.

4.2.4.2. Contract Documents:

These documents form part of the contract, and are listed below based on priority of documents: (1) Contract Agreement: The Contract Agreement is one of the Contract Documents, which contains the signature page of the Contract among other items; (2) Letter of acceptance: The Letter of Acceptance is one of the Contract Documents, which states the Contract Price; means the formal acceptance of the Tender by the Employer; (3) Tender and Appendix to Tender (as submitted by the Contractor in the Tender): The Tender documents are part of the contract documents, means the Contractor's priced offer to the Employer for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by the Letter of Acceptance. Depending upon the context, "Tender" may designate:

- Either one of the tender documents, the executed and signed Form of Tender, which becomes one of the Contract Documents, called “The Tender”, or
- The Contractor’s detailed offer in a complete set of tender documents as defined in the Tender.

(4) Particular Conditions of Contract, Conditions Part II (part of Tender Documents): The particular or special conditions are considered as additions or amendments that interpret, add, or amend some of the clauses of the general conditions. The clauses of the general conditions that are added to or amended are the following: Contract parties; Subcontracting; Safety, Security and protection of the environment; Insurances; Labor; Materials, Plant and workmanship; Taking-over certificate; Procedure for claims; Contractor's equipment, temporary works and materials; Measurement; Certificates and payment; and Increase or decrease of cost.

(5) General Conditions of Contract, Conditions: One of the critical elements in a construction contract is the conditions of contract dealing with the legal aspects of construction work while the engineering documents such as plans and specifications take care of the technical side of the works. Practically, general contract conditions are the most important and also the most controversial part of all contract documents. If written without recognizing the contractor's perspectives, contract conditions could easily be biased and focus too much on the owner's interest. For example, the contract conditions transfer some risks not under the contractors' control to them such as site access and necessary right-of-way, changes initiated by the owner, and unforeseeable and undisclosed conditions. These are the potential sources of claims and disputes in many construction projects.

(6) Specifications (part of Tender Documents): The “Specifications” is one of the Contract Documents; means the specifications of the Works included in the Contract and any modification thereof or addition thereto, or submitted by the Contractor and approved by the Engineer; (7) Drawings (part of Tender Documents): Drawings are part of the Contract Documents; means all drawings, calculations and technical documents of a like nature provided by the Engineer to the Contractor under the Contract and all drawings, calculations, samples, patterns, models, operation and maintenance manuals and other technical documents of a like nature submitted by the Contractor and approved by the Engineer. (8) Priced Bill of Quantities (part of Tender Documents): The priced BOQ is one of the Contract Documents; means the priced and completed Bill of Quantities, abbreviated as BOQ, submitted along with the Contractor’s Tender to the Employer; (9) Other Documents, as listed in the Appendix to Tender (part of Tender Documents).

4.2.4.3. Contemporary Records

Contemporary records are the written or permanent form of knowledge and information which has been recorded contemporaneously with the events giving rise to the claim. Such records are kept for the purpose of substantiating for the claim; they could include daily records and the contractor’s transactions and financial expenses upon which the analysis of quantum is made. The Contractor might be reluctant to share such records with the other party, but will have no other choice further along the claim-dispute timeline, as instructions from the Engineer and the DAB demands it.

4.3. Theory of Claim Documentation' Evolvement

The examination of the claim documentation further along the Claim-Dispute timeline reports the use and generation of “Factual documents” supporting the claim’s rationale, these documents include: Contract documents, Project Activity documents, and Contemporary records. The use of generation of this type of documentation reaches a saturation point, as all documentation needed to describe the events giving rise to the claim and supporting analysis have been made, and the circumstances become known to all parties. Further along the Claim-Dispute timeline it is the building and recasting of claim rationale that become eminent, as the focus shifts on highlighting the superior evidences that will provide solid argument and withstand the other’ parties slander.

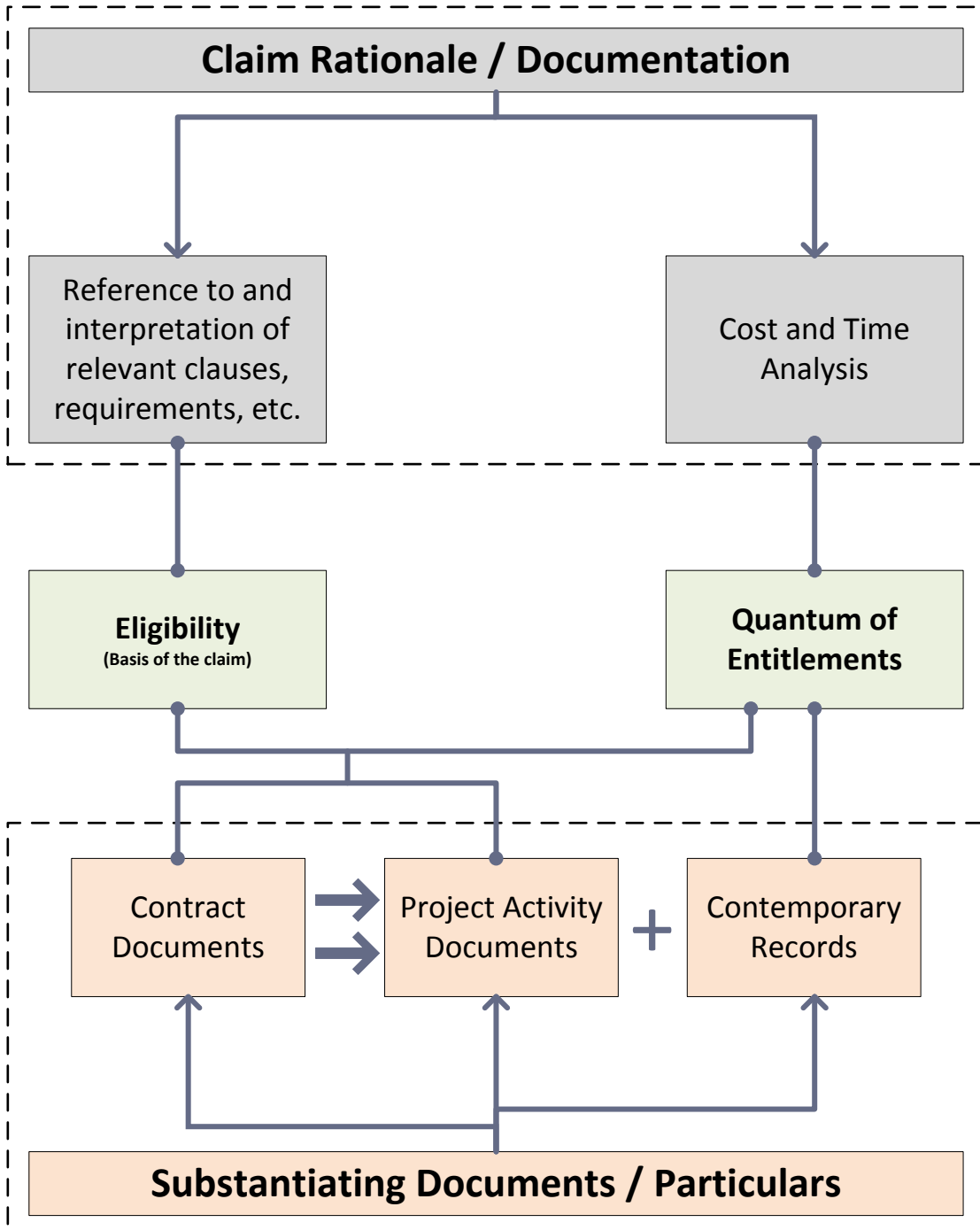


Figure 4.3: Types of Documentation supporting the claim rationale

4.3.1. Tracking the Evolvement of Documentation along the Claim-Dispute Timeline

The Claim-Dispute timeline distinguishes key milestones for the Contractor to make major submittals within specified time-bars. (Figure 4.3: Evolvement and growth of documentation along the claim timeline, and figure 4.4: Types of documentation along the claim timeline)

4.3.1.1 Claim Identification and Notification

The first submittal the contractor has to attain is a “Notice of claim” (NoC). This submittal has to be issued to the Engineer not later than 28 days after the indent’s occurrence. Although, the contractual provisions do not require this submittal to include any elaboration on the part of the contractor, nor the statement of the contractual basis for the claim and amount claimed or, the Contractor units must invest the period to undergo an initial assessment to successfully be able to identify the cause and its approximate effect for the purpose of deciding whether or not to file for a claim. At that stage, the Contractor draws on site information, technical assessment and general estimation from the technical units on site, and on Contract documents for the purpose of interpretation of the relevant clauses covering the cause of the claim and making the correct referral; an effort made by the Contract administration unit when drafting the notice.

4.3.1.2. Claim Documentation and presentation by the Contractor

The period starts from the incident’s occurrence and ends not later than 42 days with a major submittal, the “Detailed Particulars of the Claim” (PoC). The preparation of

the pertaining documents, to justify and quantify the claim, requires quite an effort on the part of the Contractor. Deciding on relevant information, retrieving and generating these evidences are the mains tasks of claim documentation. Factual documents that support the entitlement of the contractor such as contract documents that support the previous agreement and breach, an analysis of the suffered delay and incurred cost for the quantum claimed for is made. The particulars will include an organized display of events, of two parts, the first part contains the rationale on the contractor's eligibility, which is the result of reading and interpreting the relevant contract clauses, and the use of contract documents to elaborate previous agreements and the breach and of factual documents to reconstruct the events occurrence removing an liability on the part of the Contractor. The second part includes the analysis of quantum claimed for, this analysis might be a refined analysis, or an initial analysis based on the estimation of delay and daily unit rates. This effort will be led by the CA unit, assisted by Project Controls unit (PC) for the time/cost impact analysis, and drawing on documentation from different contractor's units.

4.3.1.3. Analysis, Consultation, and Determination by the Engineer

After submitting the detailed particulars of the claim, or any particulars pertaining to a previous claim, it is the Engineer's role (as per sub-clause 3.5) to consult with both Parties involved in the conflict (Owner and Contractor) to try and reach an agreement. If the agreement of both parties cannot be achieved within a reasonable time, the Engineer shall then "make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances" (FIDIC 1999). In practice, the Engineer may first express an interim determination, and revise it after further particulars have

been submitted (Owen 2003). The Engineer's determination, be it interim or final, states one of these options: the approval of the claim, the approval of the claim and request for further particulars, or the disapproval of the claim and detailed comments. The Engineer might request any number of further particulars but must "nevertheless" give his response on the "principles of the Claim" within 42 days of receiving the further particulars. The Engineer's requests for further particulars before giving his final determination (Det_{fin}) might be a questioning of the Contractor's eligibility or of entitlement, which would require the contractor to draw further on factual documents to prove his merits. Thus, the Contractor submitting further particulars might have to provide further contract documents elaborating on previous agreements, refine his analysis making a more accurate estimation, or using new methods if instructed to, and draw on further project activity documentation, e.g. schedules and transactions, that substantiate this analysis. The Engineer might, as well, instruct the contractor to keep any contemporary records that substantiate this analysis.

4.3.1.3. Unregulated period:

The Engineer's requests for further particulars (RfP) made with each determination initiate new 42 days periods, and the contractor will require some time to prepare the requested particulars, this stretches the claim-dispute timeline. the period following the Engineer's response and preceding the calling for a DAB's decision can be said of to be unregulated (time wise), and it is left up to either of the concerned parties to decide when to allow a claim to escalate to the level of a dispute, by referring it to the Dispute Adjudication Board. Although no formal notice of dispute is required, no matter can be referred to the DAB unless it is considered to be in dispute. After the Engineer has

given a final determination under sub-clause 3.5, and in case this determination has been rejected by either of the parties involved, the matter can then be referred to a DAB for a decision.

4.3.1.4. Dispute Adjudication Period

The 84 days period starts with the submittal of the “Statement of Claim” (SoC), which entails deciding on a core bundle of evidence to be presented to a 3rd party. Before making that submittal the contractor will have to revisit the case to decide on referring the matter into a dispute, and to reconstruct the case to withstand the other party’s slander previously received in the Engineer’s response. Thus, the contractor needs to revisit the claim rationale based on the selected core evidence and in response to the arguments made by the Engineer and refine the analysis to the best degree possible backed up with the necessary exhibits and evidence from project activity documents and contemporary records as requested by the DAB. Midway through this period, the use of contract documents and project activity documentation will be exhausted, as the contractor has refined the analysis using all the methods possible and evidence retrieved and generated from the project’s archives.

4.3.1.5. Period after DAB’s Decision

The DAB’s decision is bringing to both parties, unless a “Notice of dissatisfaction” is issued (NoDis) by either parties, not later than 28 days after receiving the decision. The claim rationale will undergo some growth in that period; as the

Contractor might be urged to crunch the numbers and require assistance from advisors for the purpose of deciding to refer the case to arbitration. Outsourced advisors will revisit the claim's rationale, and review the analysis and judge the merits of evidence.

4.3.1.6. Amicable Settlement Period

Once the Case has been referred to arbitration, a period of 56 days is initiated giving the parties a window for attempting to resolve the dispute amicably. Most common alternative dispute resolution methods involve a 3rd party's engagement, facilitator or a mediator. The discussions become of legal aspects, discussing the legal grounds of the disputed matters. The core demands are negotiated and major submittals could be requested by a mediator, the growth in the documentation is in the claim's rationale being revised by legal experts and recast, and the decision by the contractor to reveal additional contemporary records such as financial records and statements.

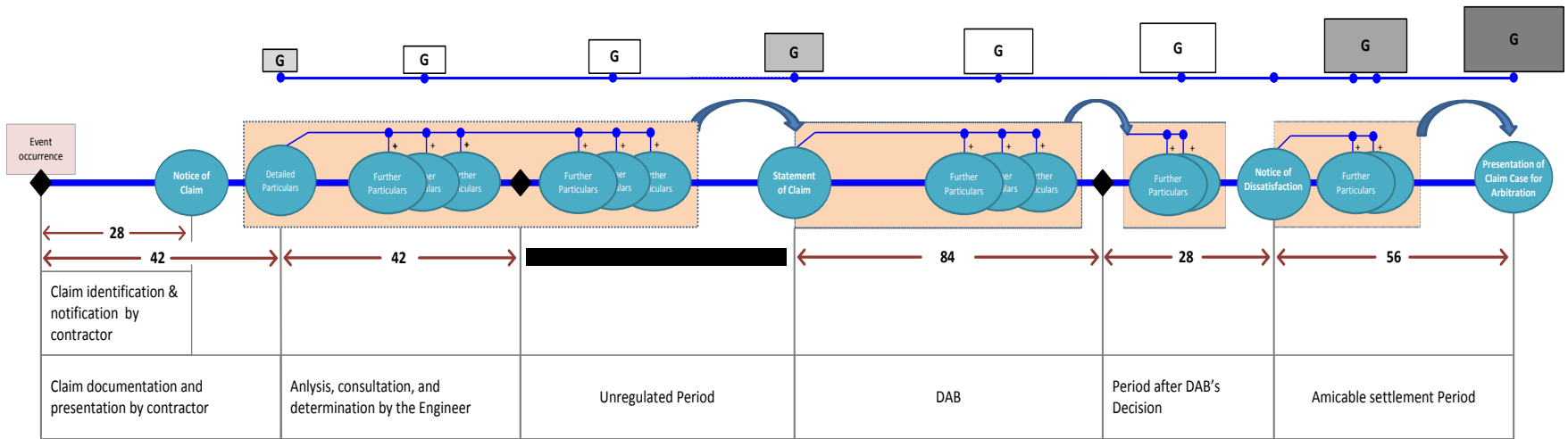


Figure 4.4: Growth of Claim documentation along the claim timeline

Interpretation	
Analysis	
Contract Documents	
Project Activity Documents	
Contemporary Records	

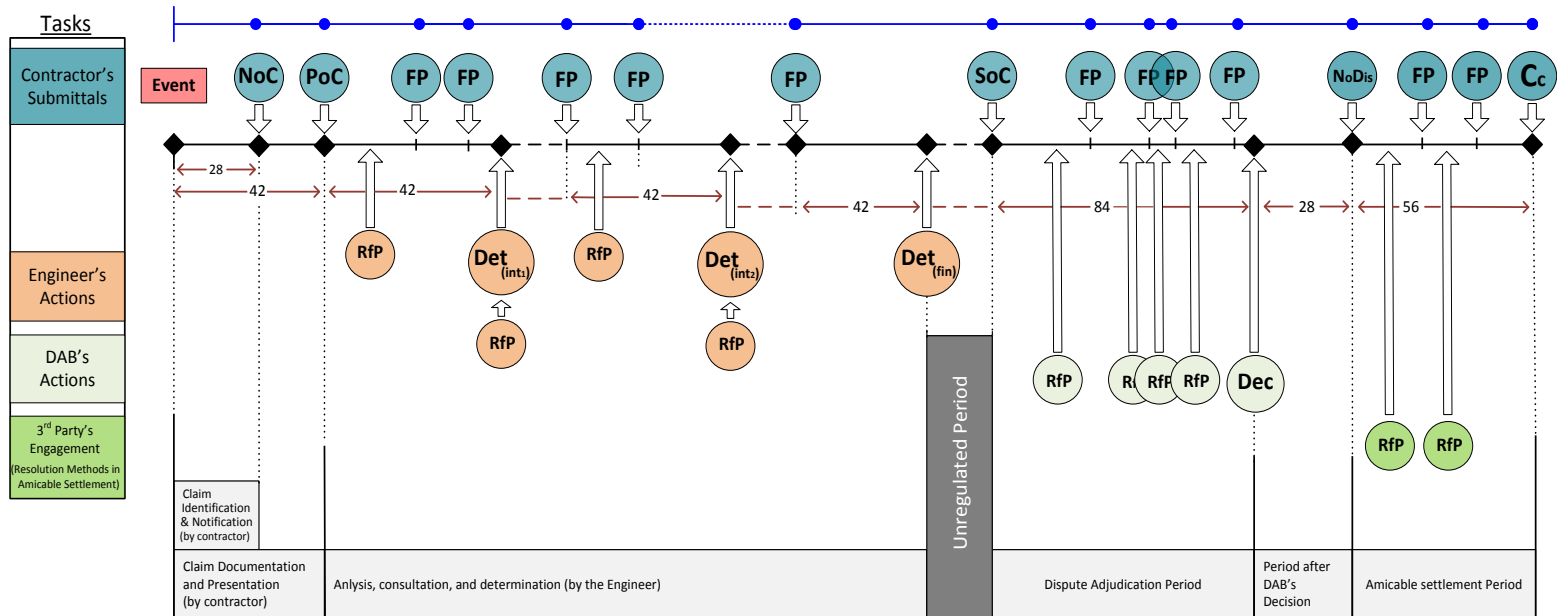


Figure 4.5: Evolution of documentation along the claim timeline

CHAPTER V

FRAMEWORKS OF THE INTERPLAY OF CONTRACTOR'S UNITS IN THE PREPERATION OF CLAIMS

5.1. Preamble

The concept of a construction claim is not new, but what has been lacking is the methodology that can help construction managers to assess the level of effectiveness for their construction claim process. The need for such a structured instrument for auditing construction contractors' claim process cannot be overemphasized for the purpose of reducing time and cost increases. The interplay of the Contractor's units on site and team members of different specialties with their counter parts at the head office follows procedures that ensure successful management of daily tasks. In that context, communication and cooperation among these units are essential dynamics in the claim process. The contractor's different units play different roles and have complementary responsibilities along the Claim-Dispute timeline. The dynamics for this interplay is clarified in the following framework which offers a management strategy cook-book for the collaborative work that can be a methodology linked to quality management systems for assessing whether construction claim processes are in place and the degree to which the best practices are achieved.

5.2. Contractor's Units

Timely and accurate "Day-to-day project information" is the corner stone of successful claim resolutions in today's fast-paced, information-intensive project (Hammad 2001). Daily project information, or time generated documents, is the input of the contractor's "Site Office", also known as the "Project Office", the contractor's

unit directly running and managing the everyday activities of the project, which typically consists of the following personnel for different trades: Construction manager, Engineering, Logistics and warehousing, Labor officer, Quality control and assessment, Contract/Subcontracts manager, Material procurement, and Planning and control engineering. The contractor's team typically follows the illustrated management setup in Figure 5.1.

Whilst the function of administrating a claim and following the contractual provisions relies mainly the Contract Administration unit, the process of claim preparation requires input from different trades to justify evidence and quantify the claim value (Kangari 1995), such input includes: triggering the event giving rise to the claim, analysis of all schedules and changes, analysis of project cost records, monitor development of damages, collecting documents necessary to the analysis and reconstruction of facts, etc.

The Project office referred to as the "Site Office", gets on board once the Contract agreement is signed. It is composed from different trades units; which report to their senior functional managers in the senior office and requests clearances and technical advice. The relation between the head office and the senior office differs from one organization to another depending on the given level of autonomy within an organization. Such level of autonomy and authority is controlled by the project size, geographical expenditure, budget and resources, the organization complexity and governance systems.

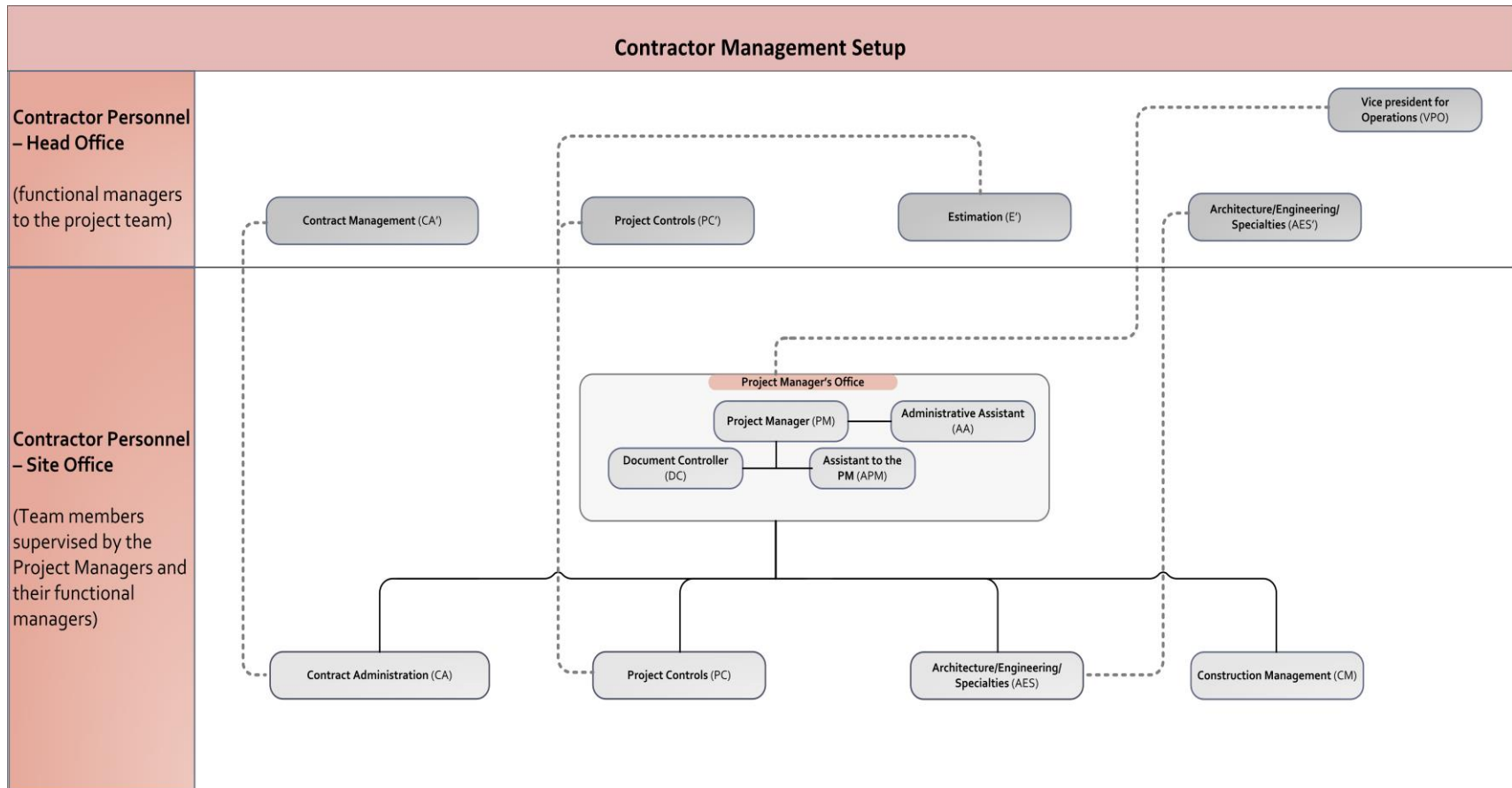


Figure 5.1: Contractor's Management setup

These units' main functions are explained in depth in the following:

5.2.1. Project Manager's office (PM)

Project management can be defined as the process of controlling the achievement of the project objectives (i.e. deliver the project within budget, on time, and to the specified quality). Utilizing the existing organizational structures and resources, it seeks to manage the project by applying a collection of tools and techniques, without adversely disturbing the routine operation of the company (AK Munns 1996).

The function of project management includes defining the requirement of work, establishing the extent of work, allocating the resources required, planning the execution of the work, monitoring the progress of the work and adjusting deviations from the plan. (Cash and Fox 1995)

The Project manager administers these functions during the project life cycle, which includes the following stages:

- Conception phase: the idea for the project is birthed within the client organization and its feasibility determined.
- Planning phase: the method to achieve the original idea is planned and designed.
- Production: the plans are converted into physical reality.
- Handover: the finished project is handed over to the client for use.
- Utilization: the client makes use of the finished project.
- Closedown: the project is dismantled and disposed of at the end of its useful life.

To achieve these functions, the Project Manager is aided by a number of personnel in the same office: an Assistant to Project Manager (APM), a Document Controller (DC), and an Administrative Assistant (AA).

5.2.2. Construction Management unit (CM)

Construction management consists of that group of management activities that is distinct from normal architectural and engineering services and is related to a construction program. Such services contribute to the control of time, cost, safety, and quality in the construction of a facility (Tatum 1983). The Construction manager is in charge of supervision of labors and materials and oversees the volume of the works and execution on site.

5.2.3. Project Controls unit (PC)

Project controls are the personnel responsible for the data gathering, management and analytical processes used to predict, understand and constructively influence the time and cost outcomes of a project or program; through the communication of information in formats that assist effective management and decision making. This definition encompasses all stages of a project or program's lifecycle from the initial estimating needed to 'size' a proposed project, through to reflective learning (lessons learned) and the forensic analysis needed to understand the causes of failure and arising of claims. (Globerson and Zwickel 2002). In other words, Project Controls encompass the people, processes and tools used to plan, manage and mitigate cost and schedule issues and any risk events that may impact a project. (Shtub et al. 2005).

5.2.4. Architectural, specialties, and Engineering unit (AES)

Responsible for all engineering and technical disciplines that construction projects involve, including managing all the technical activities aiming at assuring project accuracy and quality from conception to completion, monitoring the assigned technical solutions and correction of errors, monitor compliance to applicable codes, practices, QA/QC policies, performance standards and specifications, Interacting daily with the client's representative on site to interpret their needs and requirements and represent them in the field, Cooperate and communicate effectively with project manager and other project participants to provide assistance and technical support, Review engineering deliverables and initiate appropriate corrective actions

5.2.5. Contract Administration unit (CA)

The Contract Administrator is responsible for preparing, examining, analyzing, negotiating, and revising contracts, contracts with sub-contractors or with employer, that involve the purchase or sale of goods or services such as equipment, materials, supplies, or products. The contract administration functions entails:

- Overseeing proposal planning and administration of contracts.
- Preparing contract briefs and revisions summarizing contractual requirements and budgets.
- Tracking authorizations and correspondence.
- Maintaining and monitoring detailed and organized files, specifically notices and contract documents.
- Drafting and clearing contract change notices, monitor contractor's and sub-contractor's performance, including the reporting and status of contractor - owner deliverables.

- Maintain an audit file for each contract which will include original contract, all correspondence, changes/deviations, amendments, clarifications, payment schedules.
- Prepare and disseminate information to the contractor's teams and seniors regarding contract status, and facilitate contractor meetings.
- Ensure that contractor is in compliance with legal requirements, owner specifications and government regulations.
- Perform closing activities as needed.
- Track payments and deadlines.
- Analyze and mitigate risk.
- Provide contract summaries and ensure contract execution in accordance with company policy.

5.3. Issuance of Notice

As mentioned in Chapter 3, there are fifteen sub-clauses where the contractor might claim. Upon the event's occurrence the contractor's units will have to cooperate in issuing a notice within a stipulated time-bar. Each clause specifies issuing one notice in accordance with 20.1, or the need to issue a notice under the relevant sub-clause as a condition precedent to issuing notice directly under 20.1. Thus, the Contractor units will have to cooperate and interact following certain dynamics for the process of issuing notice. The following statement can be found in sub-clauses related to claims: (1) The Contractor is entitled "subject to sub-clause 20.1 [Contractor's Claims]" to an extension of time and additional payment and that (2) after receiving the notice, the Engineer "shall proceed in accordance with sub-clause 3.5 [Determinations] to agree or determine these matters".

Six sub-clauses require the issuance of a notice (N_1) in accordance with the direct sub-clause before issuing a notice in accordance with sub-clause 20.1, this process of initial assessment and preparation for issuing such notice is referred to as “Stage 1” of the dynamics. Figure 5.2: Issuing a notice in accordance with the direct sub-clause (Stage 1).

The cycle of dynamics for the purpose of proceeding in issuing a second notice (N_2), the notice of claim in accordance with 20.1 and in connection with the aforementioned six sub-clauses, and the cycle of dynamics of issuing a notice in accordance with the other nine sub-clauses is “Stage 2” of the dynamics. Figure 5.3: Issuing a second notice in accordance with 20.1., in connection with the direct sub-clause (Stage 2), and Figure 5.4: Issuing a notice in accordance with 20.1., in connection with the direct sub-clause (Stage 2).

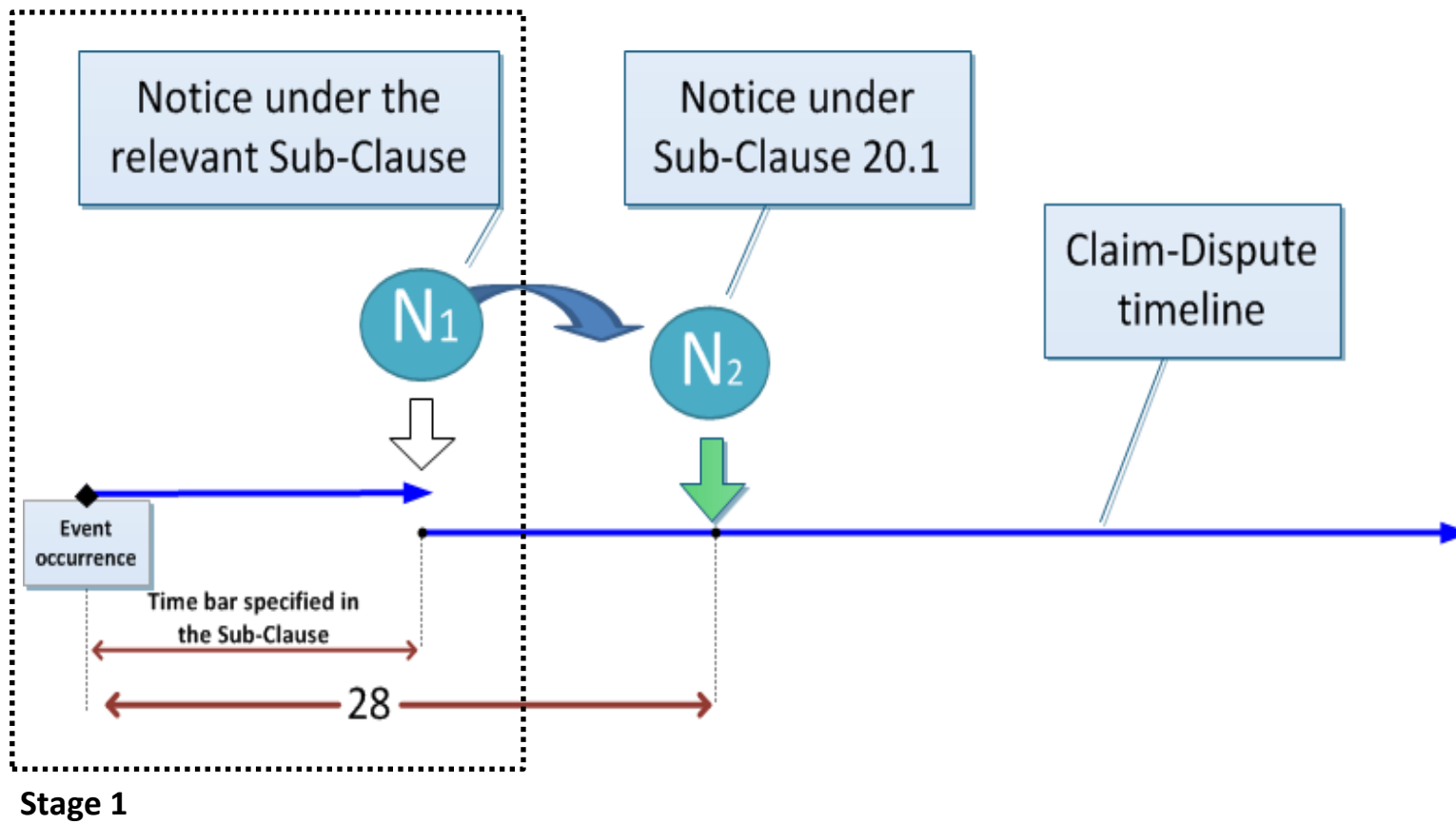


Figure 5.2: Issuing notice in accordance with the direct sub-clause (stage 1)

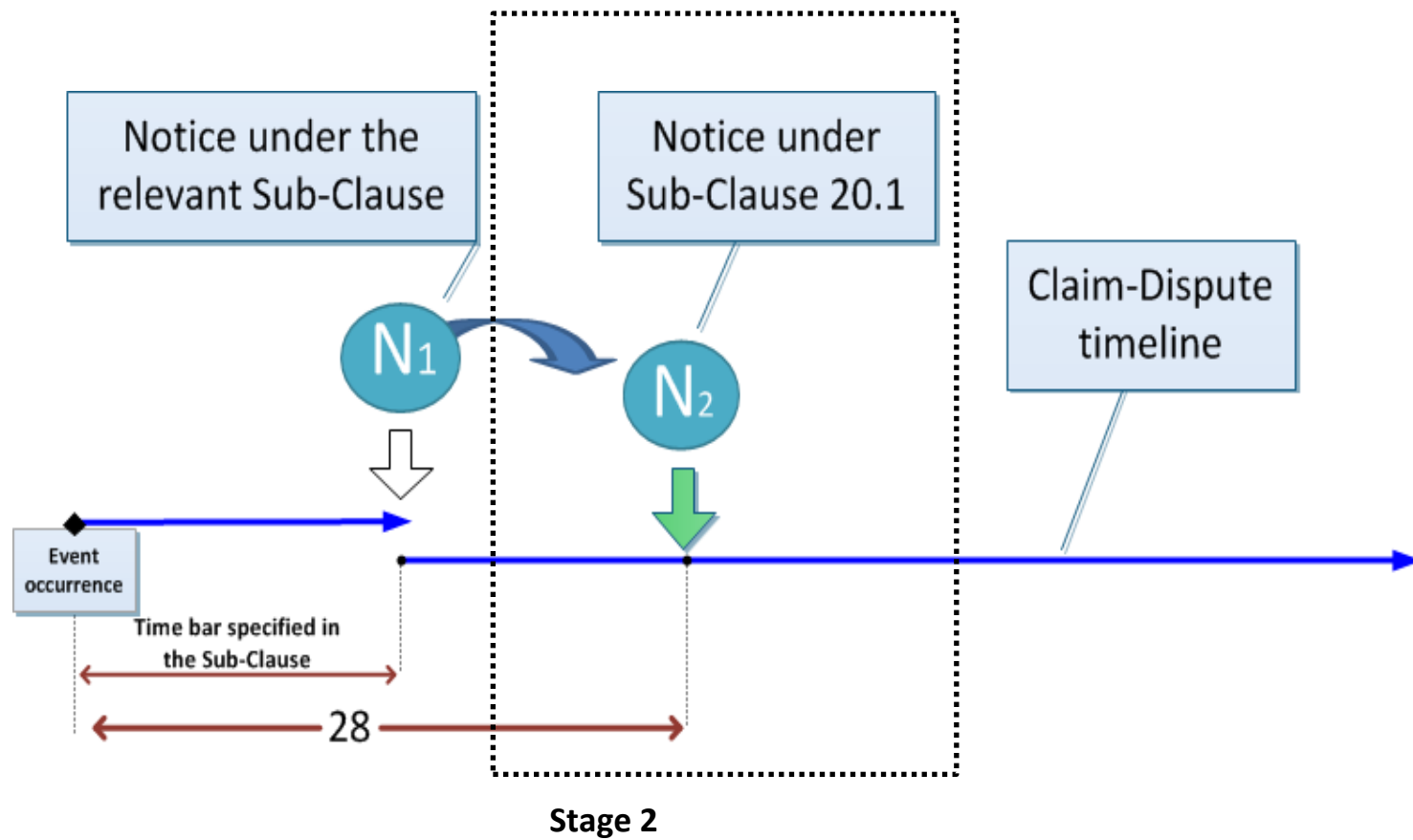


Figure 5.3: Issuing a second Notice in accordance with 20.1, in connection with the direct Sub-Clause (stage 2)

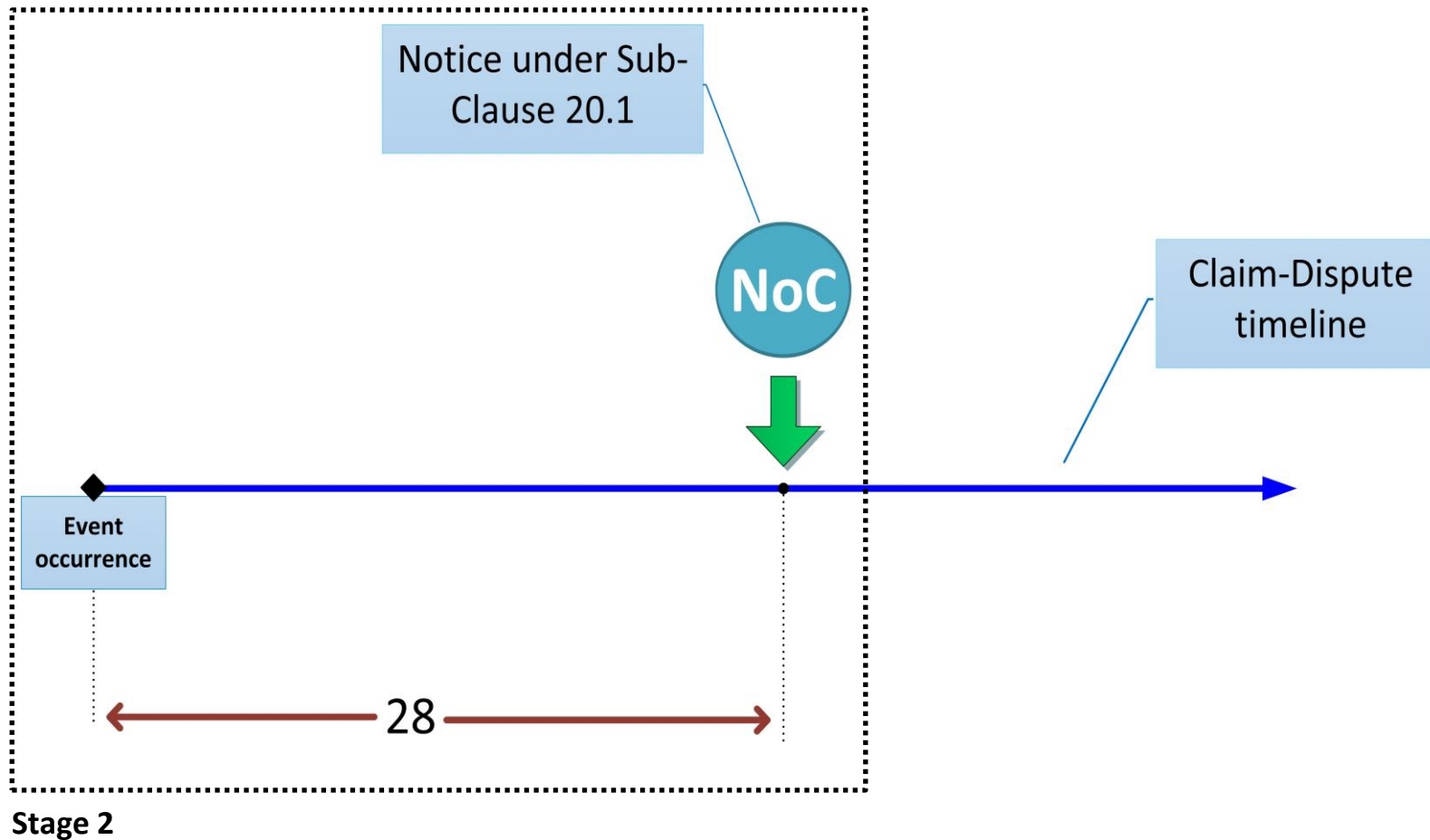


Figure 5.4: Issuing Notice in accordance with 20.1, in connection with the direct Sub-Clause (stage 2)

5.3.1. Roles and Responsibilities

The Contractor's units involved in the issuance of notice will take different functions, be it in the issuance of notice in accordance with the relevant Sub-clause or in accordance with 20.1. The task is split among different units cooperating in order to successfully identify, justify and assess the claims' merit and issue the notice within a 28 days stipulated time-bar.

1- The main functions in the process of issuance of notice are:

- **“Triggering”**: The process of timely and accurately triggering an event or circumstances giving rise to a claim and providing initial details and description of such event.
- **“Requesting further feedback”**: The administration of collecting documents and information from the Contractor's units of different functions.
- **“Deliberating”**: The process of exchange and generation of information required for assessment between the contractor's units.
- **“Requesting review and clearance”**: The process of reporting between each unit on site and its senior functional manager in the head office, for the purpose of acquiring technical advice, review and solutions, and decisions and clearance on proceeding with an action.
- **“Assimilating and assessing”**: The process of providing an assessment for the event giving merit to claim, from the documents and information collected from different units, which is the basis for the decision to issue a notice.

2- Units playing taking the lead in the dynamics of issuing notice:

The Contractor's units' cooperation will be facilitated by the PM's office following a protocol of distributing and gathering information for the purpose of decision making. Document controls and archives within the PM's office are responsible for the classification of assessment and monitoring updates. The Concepts of a "primary lead unit" and a "secondary lead" unit are visible in the dynamics of assessment for every notice in stage 1 and in stage 2. The primary lead unit: is the unit playing the major role of engaging other units to initiate the assessment and collecting or creating the information and assessment pertaining to the issuance of notice in time. The secondary lead unit: is the second most contributing unit in the dynamics of issuing notice.

To illustrate how these different functions operate, and the frameworks of dynamics let us examine the dynamics of the contractor's units involved in the process of issuing notice (N_1) in accordance with the relevant Sub-Clause (Stage 1), and then compare with the dynamics of issuing notice in accordance with sub-clause 20.1 (N_2) in connection with the same Sub-Clause (Stage 2).

5.3.1.1. Stage (1): Frameworks for issuing notice in accordance with a claim related Sub-Clause

Example (1): Issuance of notice in accordance with Sub-Clause 4.12

[Unforeseeable Physical Conditions]:

Sub-Clause 4.12 provides that if the Contractor encounters adverse physical, gives notice describing these conditions as soon as practicable, suffers delay and/or incurs costs as a result of these conditions or as a result of complying with the Engineer's instructions on dealing with the conditions¹, the Contractor shall give notice to the Engineer and shall be entitled, subject to Sub-Clause 20.1, to an extension of time and its additional cost². After

receiving this notice, the Engineer is then required to proceed in accordance with Sub-Clause 3.5.

-
- 1 The Contractor must comply with the Engineer's instructions, however if the instructions on dealing with the conditions require a change in the volume of the Works or scope agreed in the Contract the instructions constitute a Variation and must be settled in accordance with Sub-Clause 13.7 [Variations and Adjustments]. If such instructions are not settled under 13.7 the Contractor is entitled to claim for these changes.
 - 2 Sub-Clause 4.12 provides, in relevant part, as follows: "If and to the extent of which the Contractor encounters physical conditions which are unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
 - (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - (b) payment of any such Cost, which shall be included in the Contract Price.

The issuance of the first notice, pursuant to Sub-Clause 4.12 is in the purpose of alerting the Engineer of encountering physical conditions on site which are unforeseeable by an experienced contractor, and providing descriptions of the conditions so that they can be inspected by the Engineer. Normally, the unit triggering the event's occurrence to the PM is the CM on site, through the generation of a field report describing the obstruction. Once the PM became aware of an "event" he must acquire further feedback and inform the technical units to assess the obstruction to the execution of works. The PM will distribute the report to AES, PC, CA, and request further feedback. The contractor's units will need to begin conducting deliberations for the initial assessment of the conditions: the extent of which the conditions are unforeseeable which could necessitate deliberating with the senior estimation unit involved in the bidding, looking into contract documents and tender documents; the impact and technical solutions for resolving the conditions; and the needed inspection by the engineer. The unit taking the primary lead in assimilating and assessing the aforementioned is the PC as the larger part of this assessment is related to the estimation of obstruction to the execution of works. The secondary lead is for the CA unit gathering information that fulfil the issuance of notice in accordance with Sub-Clause 4.12 [Unforeseeable Physical Conditions] (Figure 5.5: Dynamics of issuing notice in accordance with 4.12)³.

3 Similar frameworks can be found in Appendix (a): issuance of notice in accordance with the direct Sub-Clause.

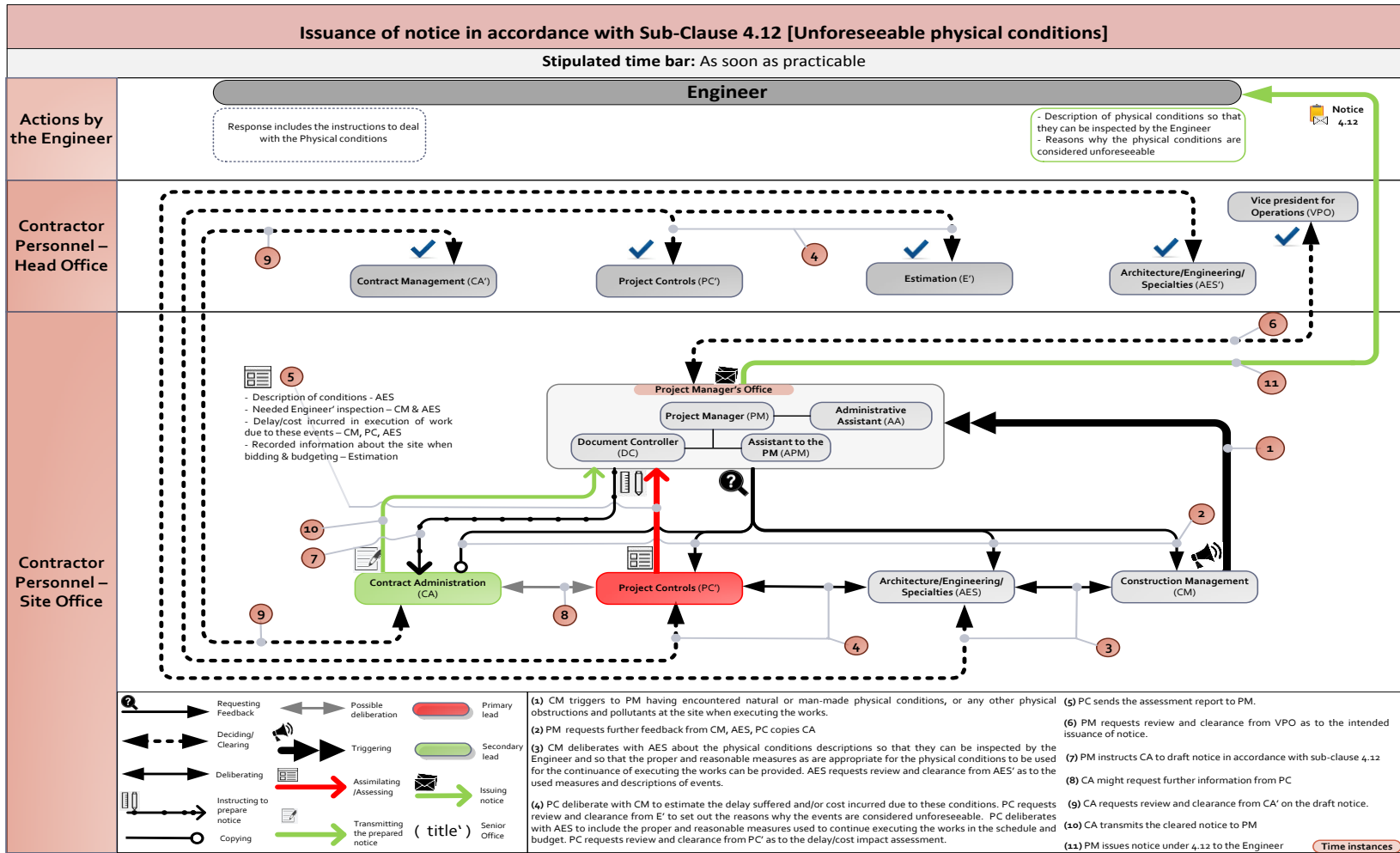


Figure 5.5: Dynamics of issuing notice in accordance with 4.12 (Stage 1)

5.3.1.2. Stage (2): Frameworks for Issuing notice of claim following the issuance of a notice in accordance with a claim related Sub-clause

Example (1): Issuance of notice in accordance 20.1 [Contractor's Claims] in connection with Sub-Clause 4.12 [Unforeseeable Physical Conditions]:

The issuance of the second notice, the claim notice, pursuant to Sub-Clause 20.1, takes different dynamics (stage 2) illustrated in Figure 5.6. The unit triggering the event giving rise to claim is the unit deciding that the Engineer's instructions on dealing with the conditions are out of the volume of the works and scope. Thus, the unit triggering the event is either the AES or the CM on site, both of which could embark in such assessment depending on the characteristics of each case. The primary lead is for the CA keeping track of the 28 days stipulated time-bar of issuing a notice to claim, and urging deliberations. The Secondary lead is for the PC preparing time impact analysis, collecting proof of cost overruns, clearing with the senior controls and estimation units, and sending that cleared assessment to the CA. (Figure 5.6: Dynamics of issuing notice in accordance with 20.1, in accordance with 4.12 [Unforeseeable Physical Conditions]).⁴

4 Similar frameworks can be found in Appendix (b): issuance of notice in accordance with 20.1, in connection with the direct Sub-Clause.

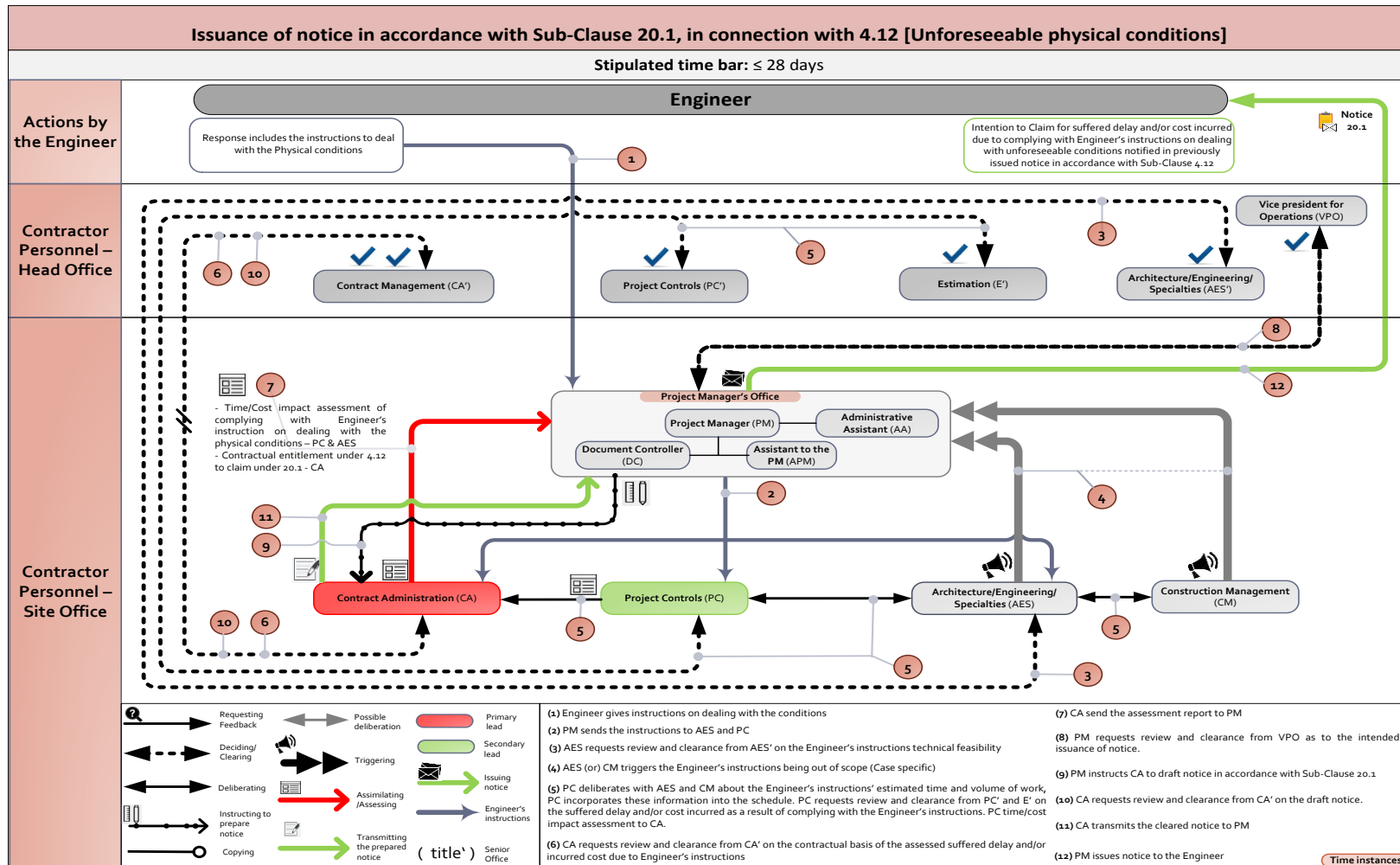


Figure 5.6: Dynamics of issuing notice in accordance with 20.1, in connection with 4.12

5.3.1.3. Stage (2): Framework for issuing of notice directly in accordance with Sub-Clause 20.1

Nine out of fifteen sub-clauses giving entitlement to claim, provide that the contractor must directly issue a notice of claim within 28 days of the event occurrence.

Figure 5.7: Issuing Notice directly in accordance with 20.1.

Example (2): Issuance of notice in accordance 20.1 [Contractor's Claims] in connection with Sub-Clause 2.1 [Right of Access to site]: Sub-Clause 2.1 provides that if the Contractor suffers delay and/or incurs costs as a result of failure by the Employer to give access to, or possession of, the site within the time agreed, the Contractor shall give notice to the Engineer and shall be entitled, subject to Sub-Clause 20.1, to an extension of time and its additional cost inclusive of reasonable profit.⁵ After receiving this notice, the Engineer is then required to proceed in accordance with Sub-Clause 3.5⁶.

5 While the Contractor is normally only entitled, under a claims clause, to recover its additional costs and/or additional time, where the Employer fails to give timely access to the site, the Employer is in breach of contract and, consequently, the Contractor is entitled to recover "reasonable profit" on its additional costs as well.

6 Sub-Clause 2.1 provides, in relevant part, as follows: "If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right [of access] or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters."

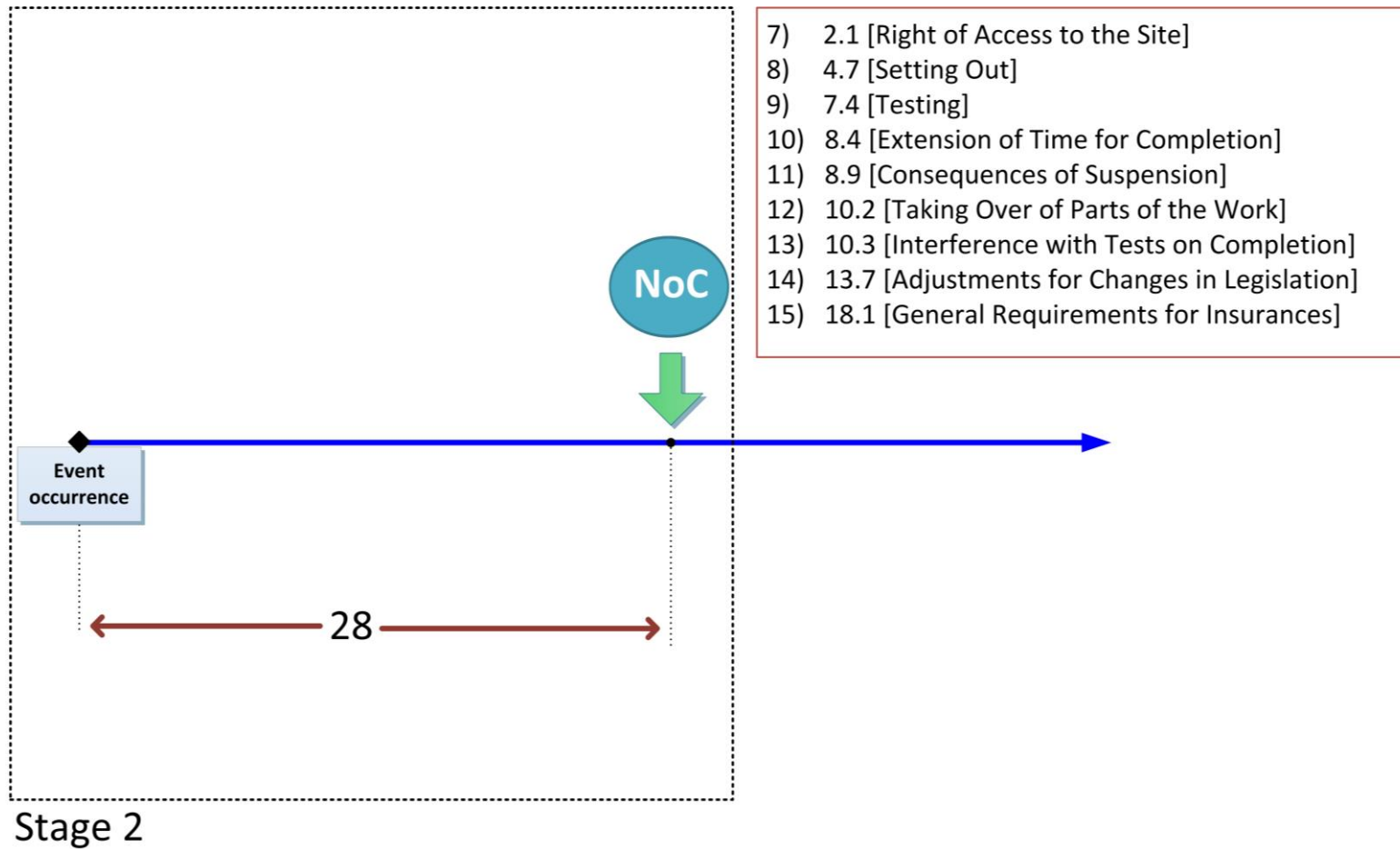


Figure 5.7: Issuing notice directly in accordance with 20.1

The Contract Administration unit on site is the unit triggering the incident's occurrence, as the set date of commencement date is specified in the contract. Once the PM becomes informed of the delay, it will be the responsibility of the APM to organize the communication and request further feedback from the units in contact with the matter to put together the necessary assessment going to the PM to assist his decision on filing for a claim. Since the notice, in case of a claim, has to be issued within a 28 days period, the unit taking the lead in assimilating this assessment from other units is the CA. The CA will urge deliberations and ensure compliance with provisions. The project controls unit plays an important role as well, in the assessment of the claim, as they provide the time/cost impact assessment report for the suffered delay and/or cost incurred as a result to the late possession of site. (Figure 5.4: Dynamics of issuing notice in accordance with 20.1, in connection with 2.1)⁷.

7 The similar frameworks of dynamics for the issuance of notice under 20.1 [Contractor's Claims] can found in the Appendix (b)

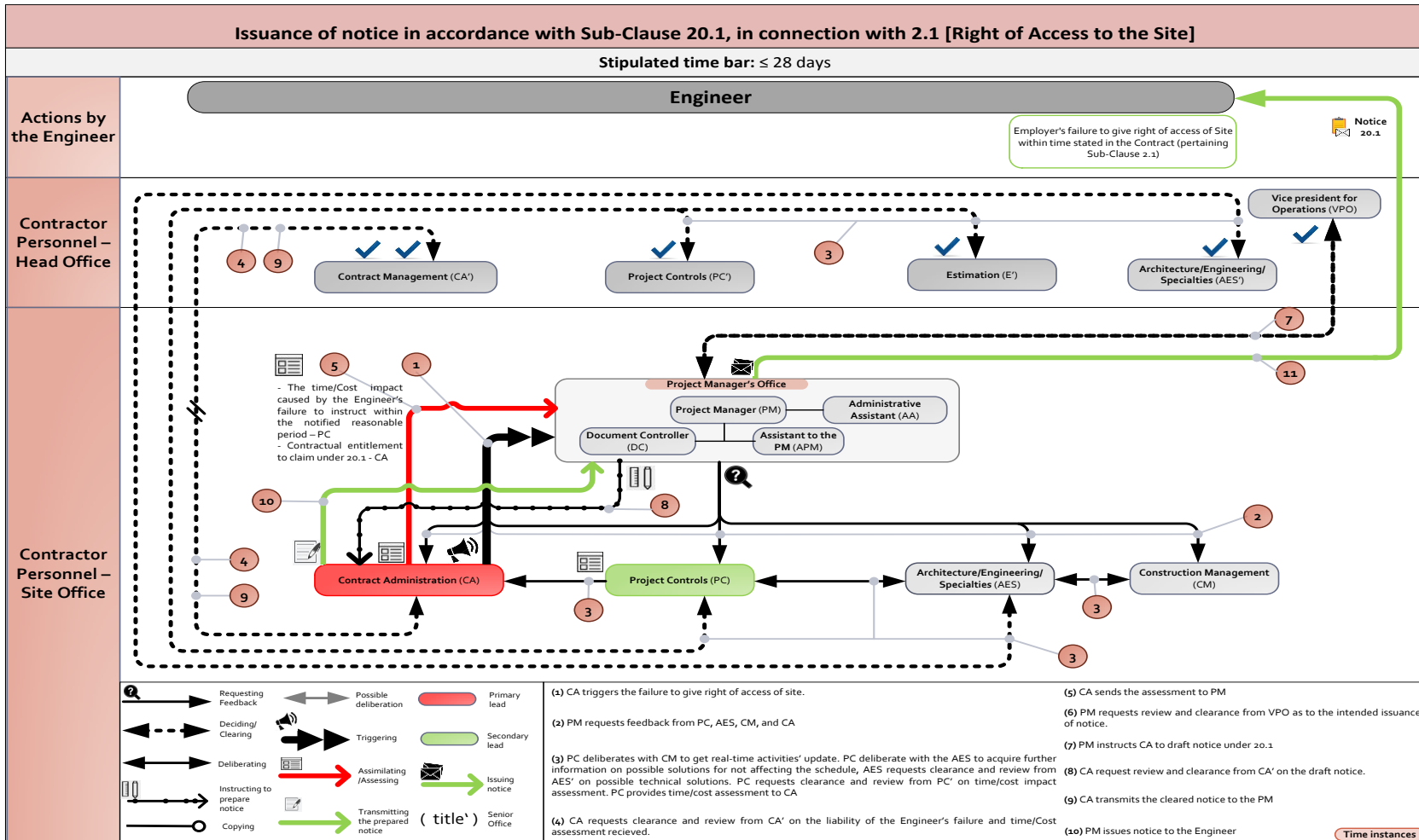


Figure 5.8: Dynamics of issuing notice in accordance with 20.1, in connection with the direct sub-clause

5.3.2. Statistics and Interpretation

5.3.2.1. Analysis from Stage (1):

The conclusions that can be drawn from the statistics of the 7 dynamics of issuing notice under six Sub-Clauses related to claims, Table 5.1: Issuance of Notice under the pertaining Sub-Clauses (Stage 1), are:

1. The events giving rise to a claim in Stage 1 are triggered by the technical units on site in five out of six times, the Contract Administrator triggers only one event, and will only become aware of the occurrence of such an event if a technical unit successfully identifies and triggers it. Table 5.1: Issuance of Notice under the pertaining Sub-Clauses (Stage1), and table 5.2:

2. The Lead in assessing the information in stage 1 is split evenly between AES and PC, as the matter of which the notice is issued upon requires a huge deal of technical assessment and not necessarily contractual entitlement assessment.

No .	Notices pertaining to Sub-Clauses	Works Relevant Aspects	Triggering	Deliberating	Assimilating (PL)	Drafting Notice (SL)	No. of deliberating units	No. of Site to head communications
1	1.9 [Delayed Drawings or Instructions]	Design	AES	CM, AES, PC	PC	CA	3	5
2	4.12 [Unforeseeable Physical Conditions]	Site conditions	CM	CM, AES, PC	PC	CA	3	4
3	4.24 [Fossils]	Site Conditions	CM	AES, CM	AES	CA	2	3
4	16.1 [Contractor's Entitlement to Suspend Work]	Site - Execution of Works	CA	0	CA	CA	0	3
5 (1)	17.4 (Risk g) [Consequences of Employer's Risks]	Site - Execution of Works	AES	AES, PC, CA	AES	CA	3	6
5 (2)	17.4 (Risks a,b,c,d,e,f,h) [Consequences of Employer's Risks]	Site - Execution of Works	CM	AES, PC, CA	PC	CA	3	6
6	19.2 [Notice of Force Majeure]	Site - Execution of Works	CM	CM, AES, PC, CA	PC	CA	4	6

Total no. of deliberations	18
Total no. of clearances	33

Table 5.1: Issuing notice under the pertaining sub-clause (Stage 1)

5.3.2.2. Analysis from Comparing Stage (1) vs. Stage (2):

Comparing the dynamics of the notices issued in accordance with the relevant sub-clause (Stage 1), with the dynamics of the notices issued in accordance with 20.1 (Stage 2) shows the changing functions of the contractor's units, Table 5.2, 5.3, 5.4, and figures 5.9, 5.10, 5.11, :

1. The AES unit is the unit most involved in deliberations for the purpose of initial assessment in stage 1 and the second most involved in deliberations in stage 2 after the PC and CA unit, which is proof of the technical nature of the causes of claims, requiring the opinion of the engineering disciplines on site.

2. The CA and PC units are the most involved in stage 2 of deliberations for the purpose of assessment before issuing notice in accordance with sub-clause 20.1, which is related to the burden of establishing the contractual entitlement and time/Cost impact analysis at this stage.

No	Notices pertaining to Sub-Clauses	Work's relevant aspects	Triggering	Deliberating	Time/Cost Assessment	Assimilating & Drafting Notice (PL)	No. of deliberating units	No. of Site to head communications
1	1.9 [Delayed Drawings or Instructions]	Design	CA	CA, AES, PC, CM	PC	CA	4	6
2	4.12 [Unforeseeable Physical Conditions]	Site conditions	AES / CM	CA, AES, PC, CM	PC	CA	4	6
3	4.24 [Fossils]	Site Conditions	AES / CM	CA, AES, PC, CM	PC	CA	4	6
4	16.1 [Contractor's Entitlement to Suspend Work]	Site - Execution of Works	PC	CA, PC	PC	CA	2	5
5	17.4 [Consequences of Employer's Risks]	Site - Execution of Works	AES / CM	CA, AES, PC, CM	PC	CA	4	6
6	19.4 [Consequences of Force Majeure]	Site - Execution of Works	CM	CA, PC, AES, CM	PC	CA	4	6

Total no. of deliberations	22
Tot no. of clearances	35

Table 5.2: Issuing notice under 20.1, in connection with the pertaining sub-clause (Stage 2)

Units involved in deliberations	Unit	Stage 1	Stage 2
	AES	6	5
	CM	4	5
	PC	5	6
	CA	3	6

Table 5.3: Units involvement in deliberation (Stage1 vs. Stage 2)

Sub-Clause	Unit	CA	PC	AES	CM	Number of deliberating units
1.9 [Delayed Drawings or Instructions]		-	X	X	X	3
4.12 [Unforeseeable Physical Conditions]		-	X	X	X	3
4.24 [Fossils]		-	-	X	X	2
16.1 [Contractor's Entitlement to Suspend Work]		T	-	-	-	-
17.4 [Consequences of Employer's Risks]		X	X	X	-	3
19.4 [Consequences of Force Majeure]		X	X	X	X	4

No input is needed from CA in assessing the event.
CA won't become aware of the incidence unless PM copies CA.
Once CA becomes aware, CA could initiate the deliberations among the technical units.

CA will be aware of the incident once PM requests his feedback, and will contribute or initiate deliberations for the purpose of assessment.

CA triggers the event and conducts the assessment as the cause is related to an issue in making payment.

Table 5.4: CA's level of involvement in triggering and deliberating

No.	Notices pertaining to Sub-Clauses	Stage (1)		Stage (2)	
		Primary Lead	Secondary Lead	Primary Lead	Secondary Lead
1	1.9 [Delayed Drawings or Instructions]	PC	CA	CA	PC
2	4.12 [Unforeseeable Physical Conditions]	PC	CA	CA	PC
3	4.24 [Fossils]	AES	CA	CA	PC
4	16.1 [Contractor's Entitlement to Suspend Work]	CA	PC	CA	PC
5	17.4 (Risk g) [Consequences of Employer's Risks]	PC	CA	CA	PC
6	17.4 (Risks a,b,c,d,e,f,h) [Consequences of Employer's Risks]	AES	CA		
7	19.2 [Notice of Force Majeure]	PC	CA	CA	PC

Primary lead unit in Stage (1)	AES	2	Primary lead unit in Stage (2)	AES	0
	CM	0		CM	0
	PC	4		PC	0
	CA	1		CA	6

Table 5.5: Primary lead unit in (Stage 1 vs. Stage 2)

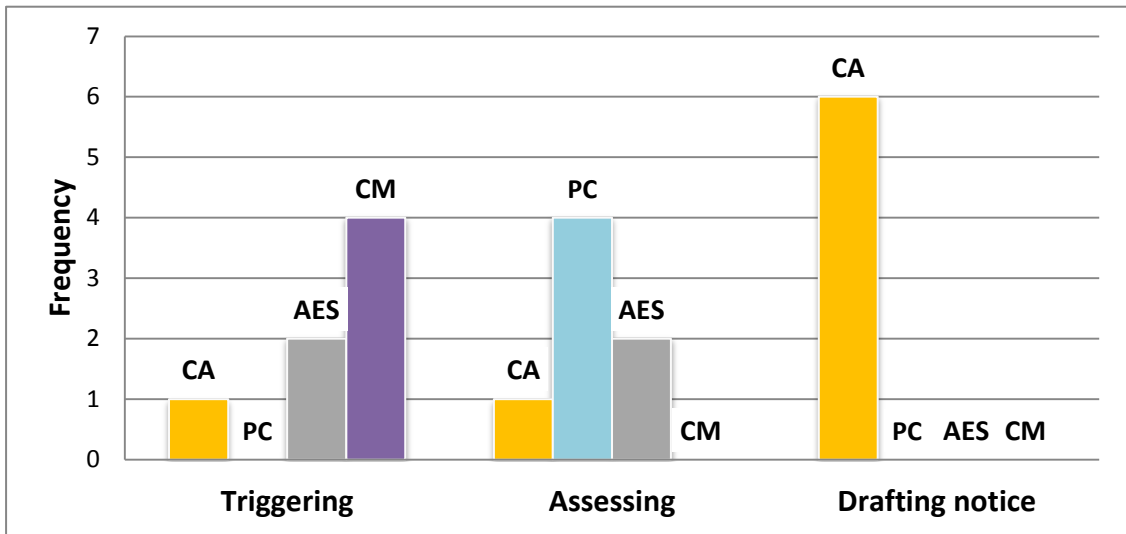


Figure 5.9 (a): Dynamics of the contractor's units for issuing notice under the pertaining Sub-Clauses (Stage 1)

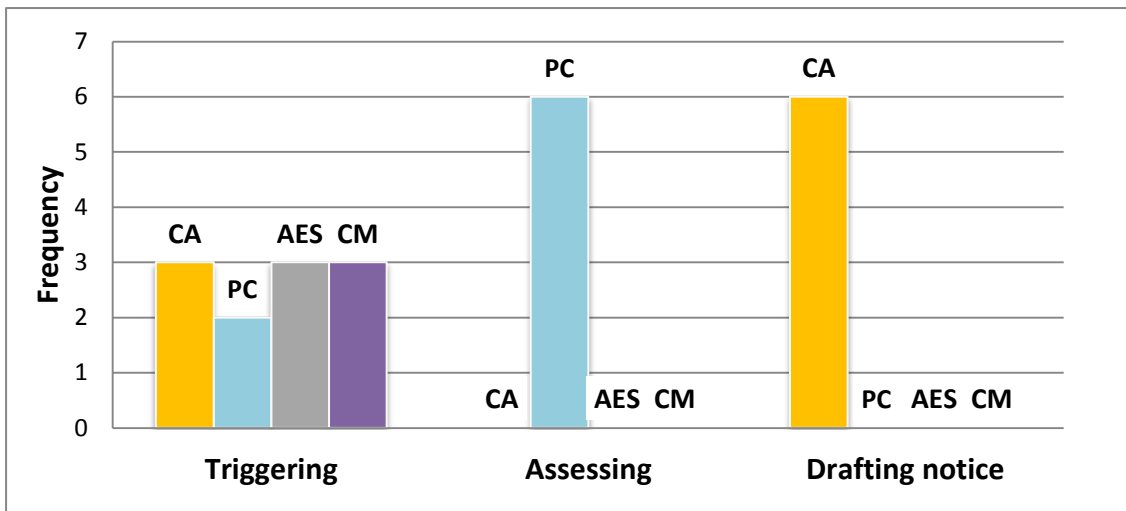


Figure 5.9 (b): Dynamics of the contractor's units for issuing notice under 20.1, in connection with the relevant sub-clauses (Stage 2)

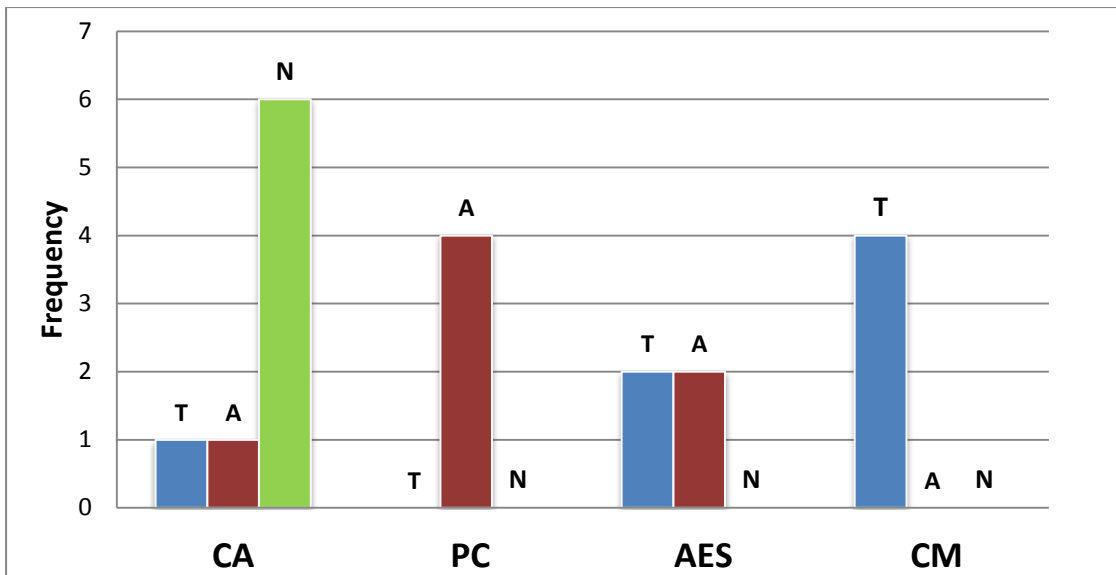


Figure 5.10 (a): Dynamics of the contractor's units/by role (Stage 1)

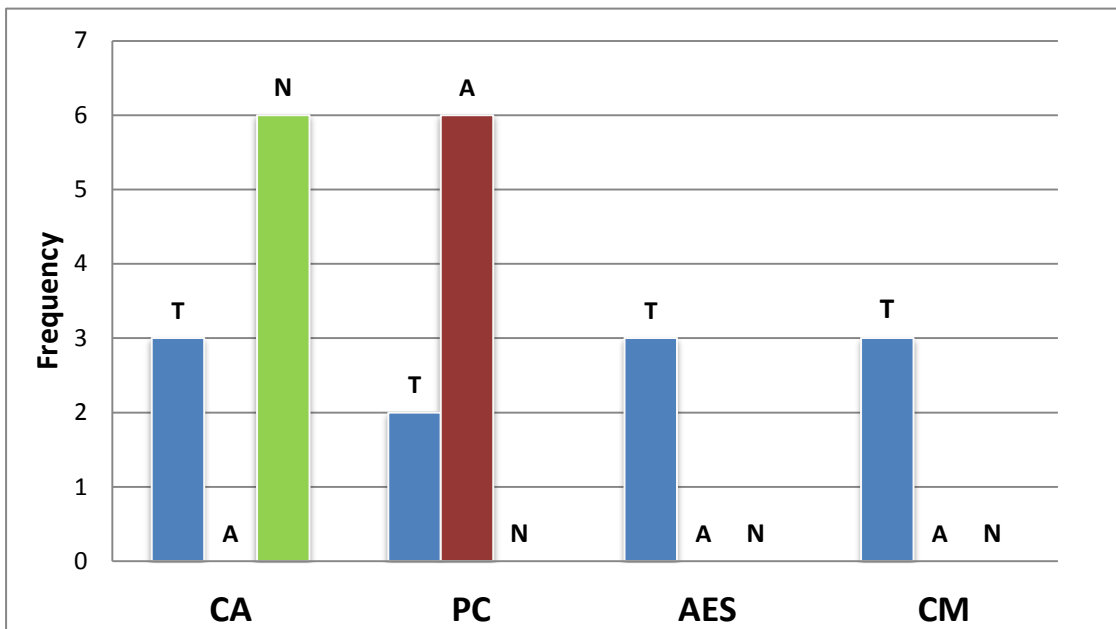


Figure 5.10 (b): Dynamics of the contractor's units/by role (Stage 2)

T: Triggering
 A: Assessing
 N: Drafting Notice
 CM: Construction Manager
 AES: Architecture/Engineering /Specialties
 PC: Project Controls
 CA: Contract Administrator

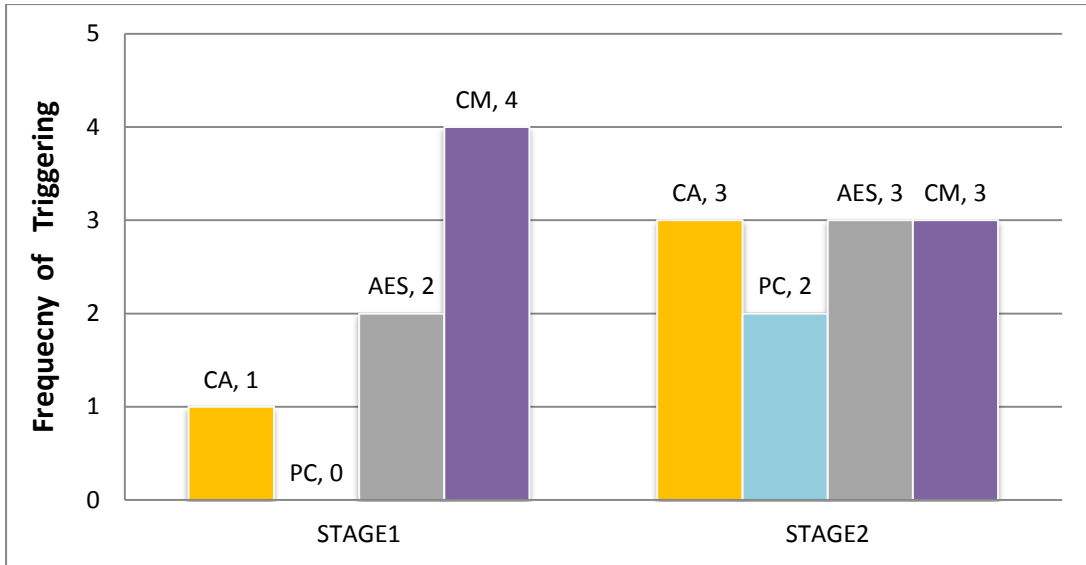


Figure 5.11 (a): Dynamics of triggering (Stage 1 vs. Stage 2)

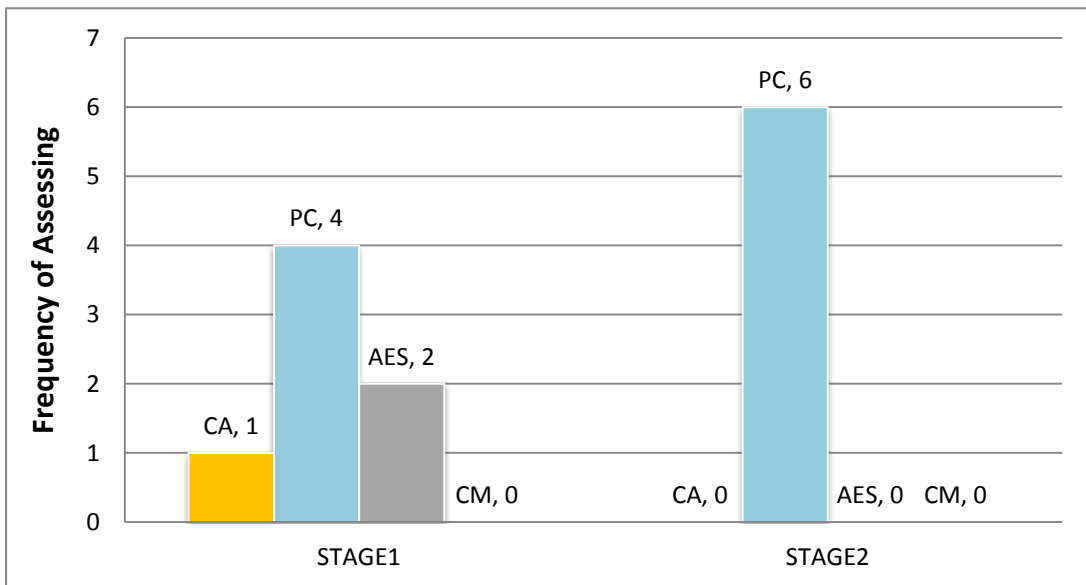


Figure 5.11 (b): Dynamics of assessing (Stage 1 vs. Stage 2)

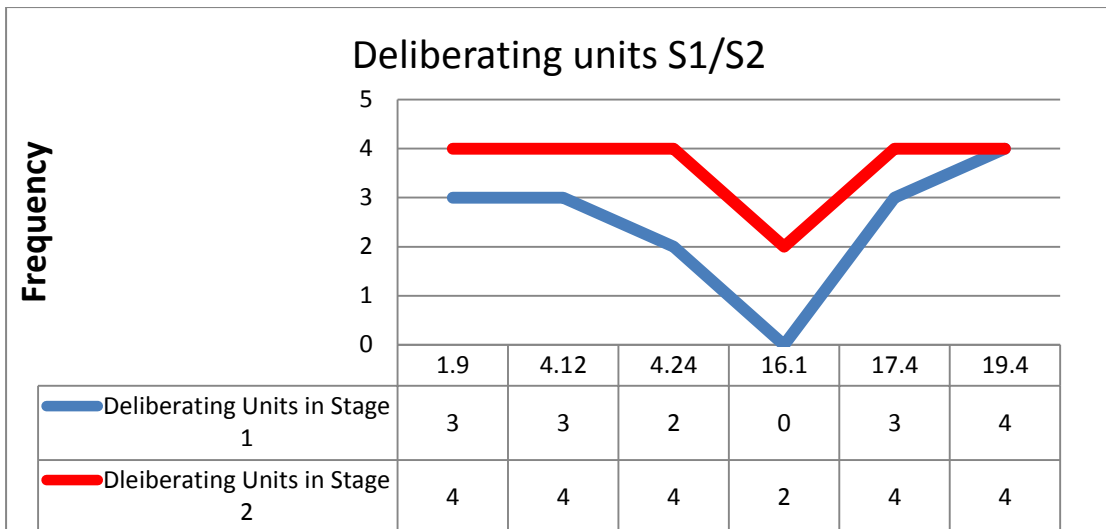


Figure 5.12: Number of Deliberating units Stage 1 vs. Stage 2

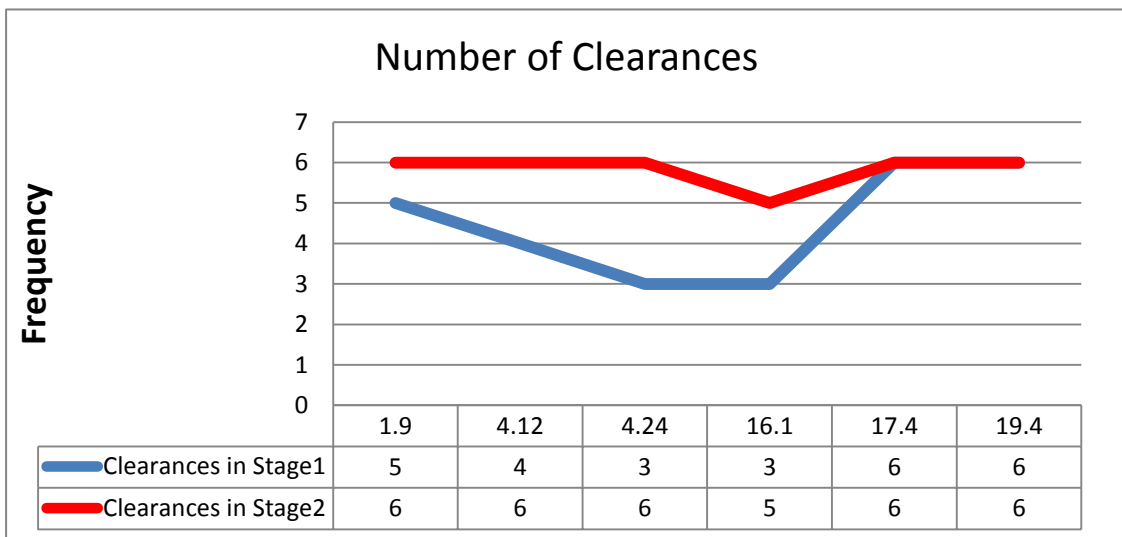


Figure 5.13: Number of clearances (Stage 1 vs. Stage 2)

The number of clearances is relative to the level of autonomy granted to the site office depending on the characteristics of the project and organization. The graph still shows the number of clearances required for issuing a notice of claim is higher than the number of clearances required for issuing a notice under any other sub-clause.

5.3.2.3. Analysis from Stage (2):

No.	Notices pertaining to Sub-Clauses	Work's relevant aspects	Triggering	Deliberating	Providing Time/Cost Assessment (SL)	Assimilating & Drafting Notice (PL)	No. of deliberating units	No. of Site to head communications
1	1.9 [Delayed Drawings or Instructions]	Design	CA	CA, AES, PC, CM	PC	CA	4	6
2	4.12 [Unforeseeable Physical Conditions]	Site conditions	AES / CM	CA, AES, PC, CM	PC	CA	4	6
3	4.24 [Fossils]	Site Conditions	AES / CM	CA, AES, PC, CM	PC	CA	4	6
4	16.1 [Contractor's Entitlement to Suspend Work]	Site - Execution of Works	PC	CA, PC	PC	CA	2	5
5	17.4 [Consequences of Employer's Risks]	Site - Execution of Works	AES / CM	CA, AES, PC, CM	PC	CA	4	6
6	19.4 [Consequences of Force Majeure]	Site - Execution of Works	CM	CA, PC, AES, CM	PC	CA	4	6
7	2.1 [Right of Access to the Site]	Site Accessibility	CA	CA, AES, PC, CM	PC	CA	4	6
8	4.7 [Setting Out]	Site - Execution of Work	AES	CA, AES, PC, CM	PC	CA	4	6

9	7.4 [Testing]	Site - Inspections/ ests	QA/QC	QA/QC, CM, PC, CA	PC	CA	4	5
10	8.4 [Extension of Time for Completion]	Multiple	AES / CM	AES, CA, PC, CM	PC	CA	4	6
11	8.9 [Consequenc es of Suspension]	Work Scheduling	PC	CM, PC, CA	PC	CA	3	5
12	10.2 [Taking Over of Parts of the Work]	Site- Taking over	CM	CM, PC, CA	PC	CA	3	5
13	10.3 [Interference with Tests on Completion]	Site - Inspections/ ests	QA/QC	QA/QC, PC, CA	PC	CA	3	5
14	13.7 [Adjustments for Changes in Legislation]	Contractual	CA	CA, AES, PC, CM	PC	CA	4	6
15	18.1 [General Requirement s for Insurances]	Financial	CA	PC, CA	PC	CA	2	5

Tot. of Deliberating units	53
Tot. No. of Clearances	84

Table 5.6: Issuance of Notice under 20.1

Rank order of units deliberating when issuing a Notice of claim		
Rank	Unit	Number of times the Unit was involved in deliberations
1	CA	15
2	PC	15
3	CM	12
4	AES	9
5	QA/QC	2

Table 5.7: Rank order of units deliberating in claims

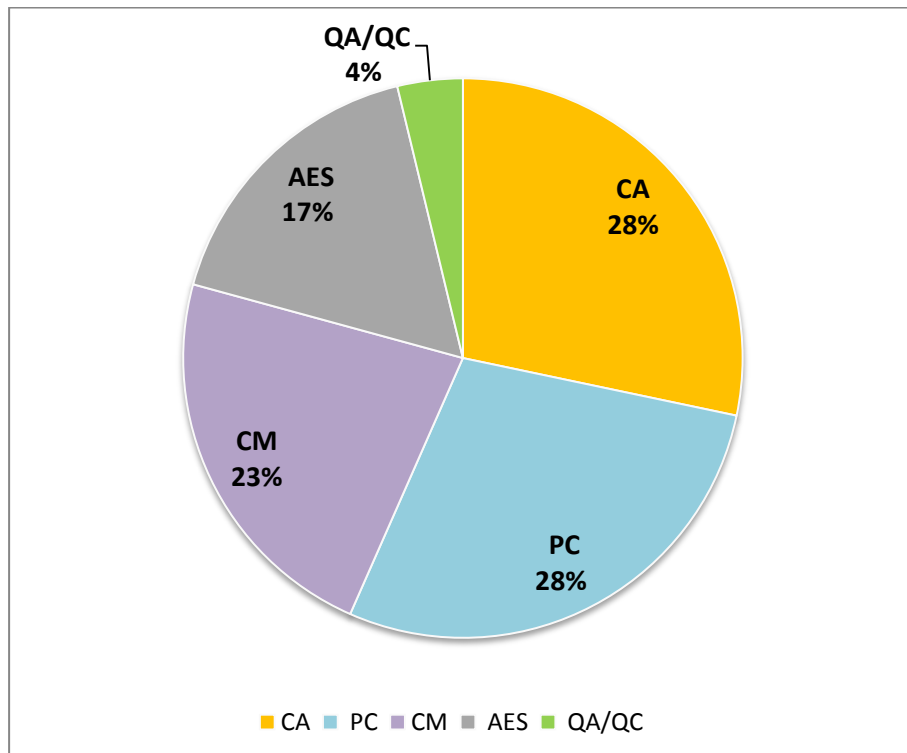


Table 5.8: Percentages of units involvement in filing a notice to claims

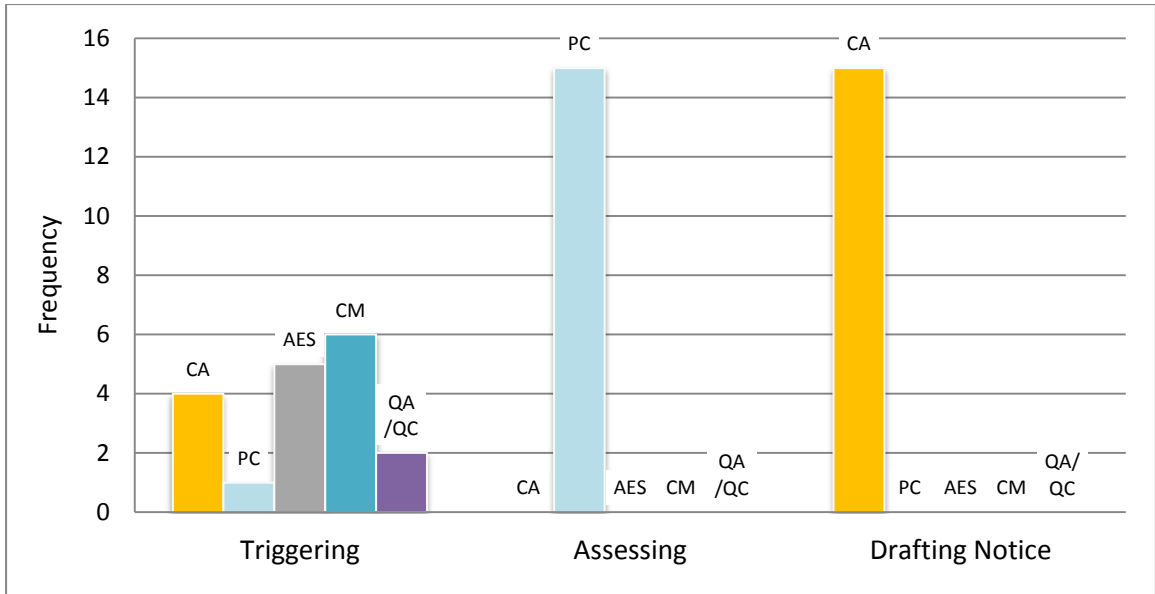


Figure 5.14: Dynamics of the contractor's units for issuing notice under 20.1

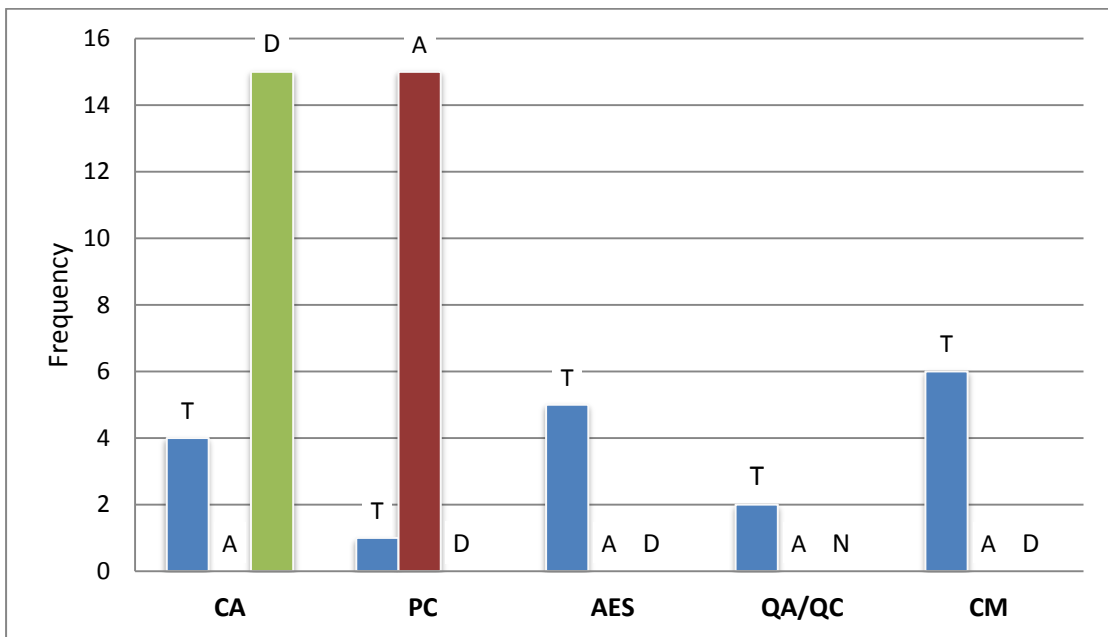


Figure 5.15: Dynamics of the contractor's units/by role

5.4. Issuing Submittals along the timeline (After issuing NoC)

As explained in chapter 3, the detailed particulars include an analysis of the basis of the claim along with quantification for the amount claimed.

From this point on, the previous analysis shows that the Contract Administration unit is taking the primary lead in the claims management process; deciding on relevant information, collecting and generating the documentation needed into the claim reservoir from the different units to substantiate and justify for the claim submittals. Project controls play a crucial role in substantiating for the claim; providing the analysis and estimation of quantum and proof of cost incurred and schedule delays. Figure 5.13: Dynamics of the contractor's unit in making submittals along the claim timeline.

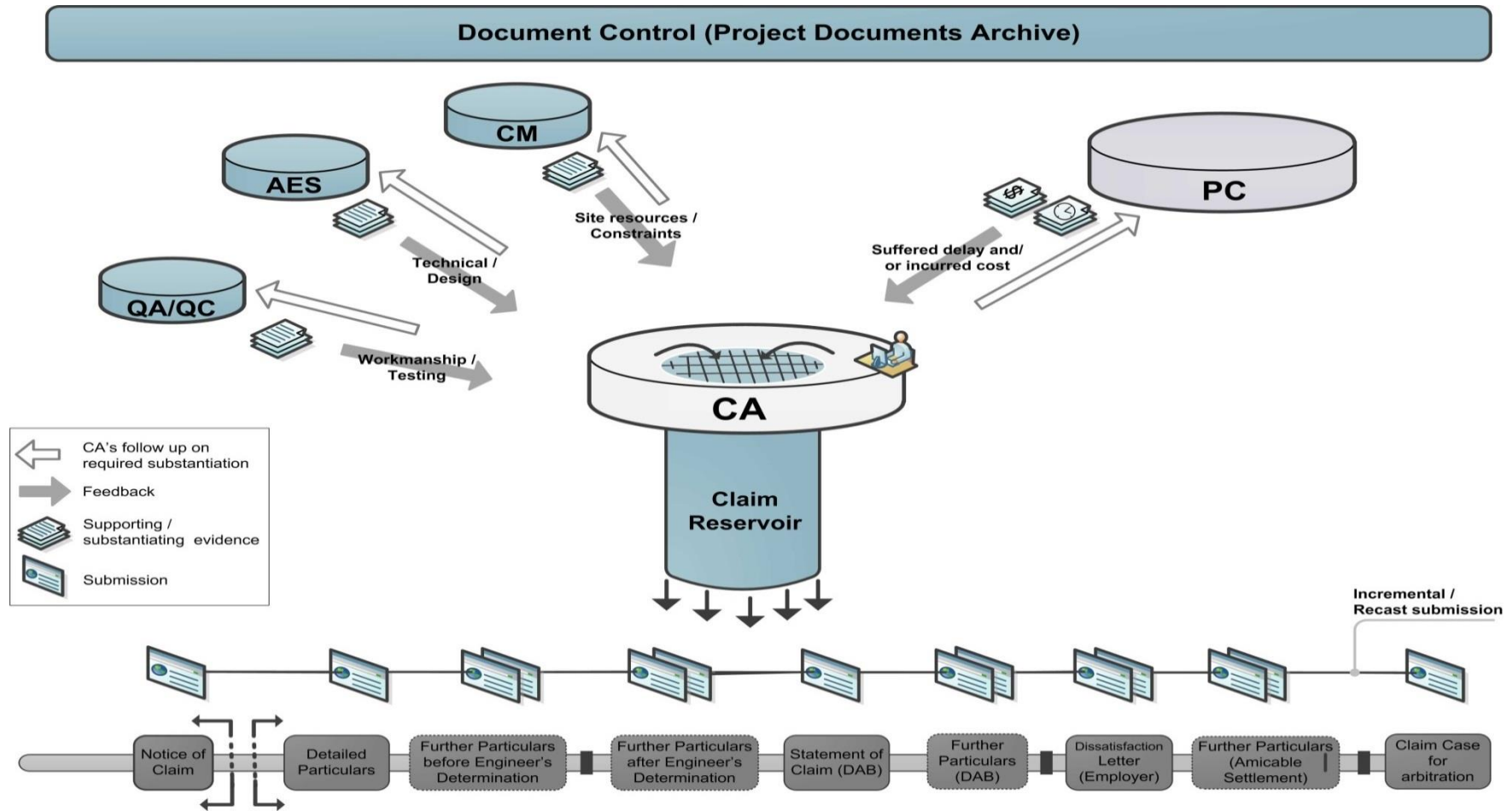


Figure 5.16: Dynamics of the contractor's unit in making submittals along the claim timeline

CHAPTER 6

SUMMARY AND CONCLUSION

6.1. Summary

The objective of this thesis is twofold: (1) to understand and conceptualize the evolution of claim documentation along the claim's timeline and the factors governing such evolution, and (2) to conceptualize a model for the interplay of contractor's units and team members involved in the claims management process.

6.2. Conclusions

(1) The examination of evolution of documentation along the path of the claim timeline demonstrates the rapid growth and early exhaustion of factual documents gradually by way of justifying the eligibility of the Contractor and substantiating the quantum for the claim, and the increase in the frequency of casting and recasting to the claims' rationale further along the claim-dispute timeline.

(2) The use of Project activity documents and contract documents will be exhausted in the Dispute Adjudication period, where no new evidence can be presented.

(3) The analysis of quantum forming part of the claims' rationale, will be revisited a number of times and refined based on project activity documents and contract documents and using new methods, reaching its most developed version somewhere after the submittal of the statement of claim to the DAB. However, the requests of the DAB for contemporary records and the willingness on the contractor's part to reveal the

same in avoidance to go into Arbitration might refine the analysis furthermore and the result is growth in analysis of quantum that is seized before arbitration.

(4) The aspect of interpretation of claim clauses, forming part of the rationale, is the most dominant aspect in the claims documentation. Along the claim-dispute' timeline, the interpretation of claims' clauses occur at every submittal and with the presentation of new arguments. It becomes more extensive in major submittals along the timeline. For instance, in case of appointment of a mediator or a facilitator the amicable settlement period, the claim's rationale might be recast entirely based on legal frameworks of legal advisors.

The conceptualizing of the dynamics of interplay of the contractor's units in issuing submittals, demonstrate:

(5) The importance of proper awareness to job factors among the contractor's units on site, specifically the Construction Manager, as they have the main task of identifying and triggering the event's giving rise to the claim occurrence. Contrary to common belief, the Contract Administrator has no way of being not involved in the claim process early on, and will only become aware of the occurrence of such an event in case the issue was timely and accurately raised to the awareness of the Project Manager's office, who in return must follow the proper protocol of distributing information and requesting further feedback from the units involved.

(6). The Contractor's units, on site and in the head office, will all be involved in the claim, playing different roles at each point of a time. The Project Controls unit is taking the lead early on in the assimilation and assessment of information necessary to quantifying the impact of an event, and the AES unit is the unit most involved in

deliberations. The Contract Administration will take the lead further along the claim timeline that is when issuing notice in accordance with sub-clause 20.1, and when making other major submittals. At that point, the CA, aided by the Project Controls, is responsible for deciding on relevant information and collecting and generation documentation that go into the claim reservoir.

6.3. Recommendations

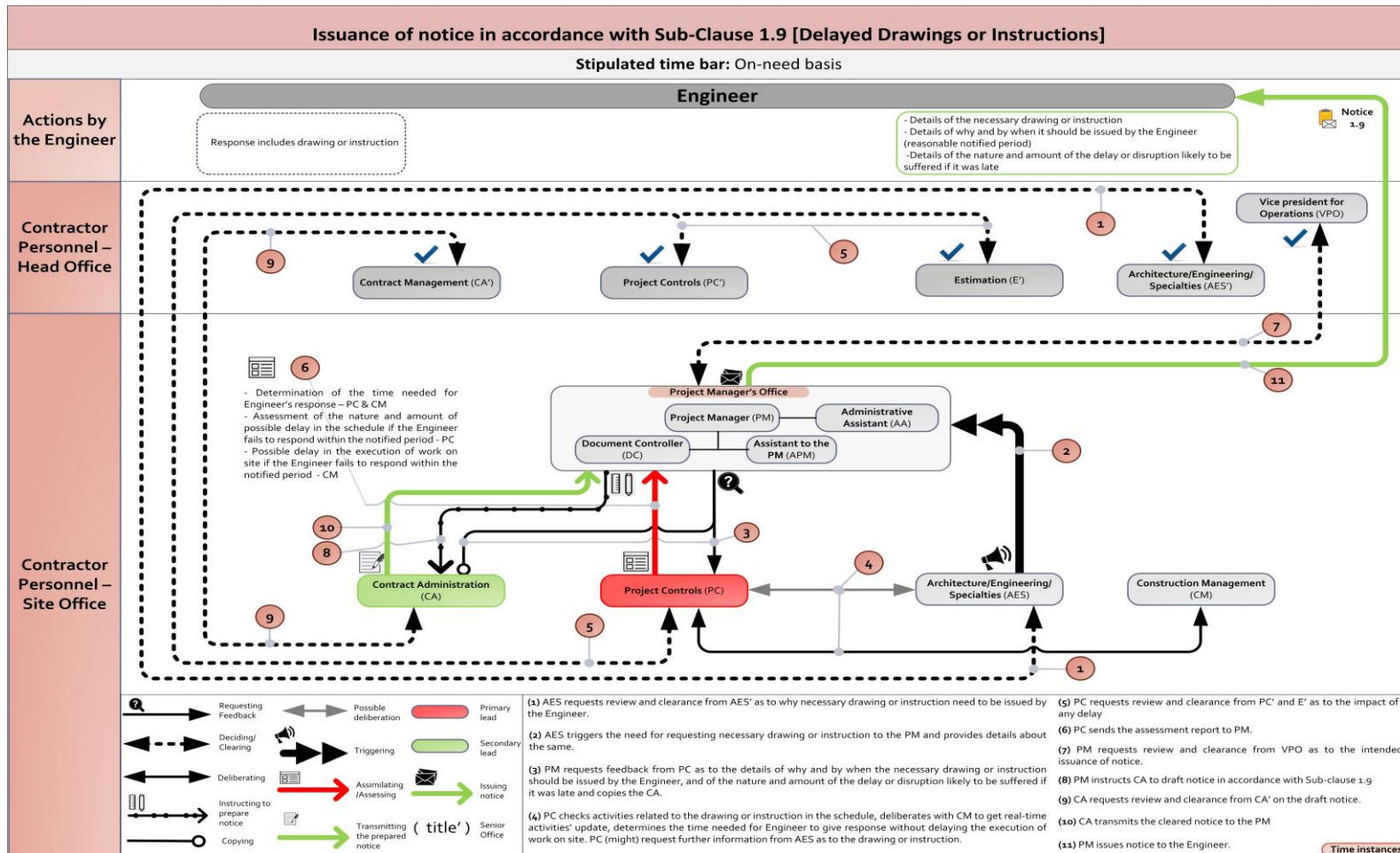
(1) The results of the study explain a shared responsibility for the management of claims requiring great skill and effort on the part of the Contractor's units on site. The awareness to job factors causing risks of developing claims could not be more emphasized especially for those directly related to the execution of works on site. Providing training sessions on the causes of claims and the proper means of identifying them to the construction team, along with the inclusion of the derived framework of protocols for distribution of information and feedback into the management process of claims, would return in huge benefits to the contractor.

(2) Ensuring the validity of claims means fulfilling the contractual provisions of issuing claims (i.e. making the submittals within the stipulated time-bar based on Sub-Clause requirement), the most crucial submittal risking the fulfilling of the previous statement is issuing the notice to claim within a 28 days period. Although, the contractual requirement do not require the notice to include the contractual basis of the claim nor the amount claimed for. The Contractor needs to undergo the assessment needed for the eligibility and quantum in order to avoid the negative effects of issuing notices of claims and not pursuing them. The details of best practices for that assessment are explained in the research.

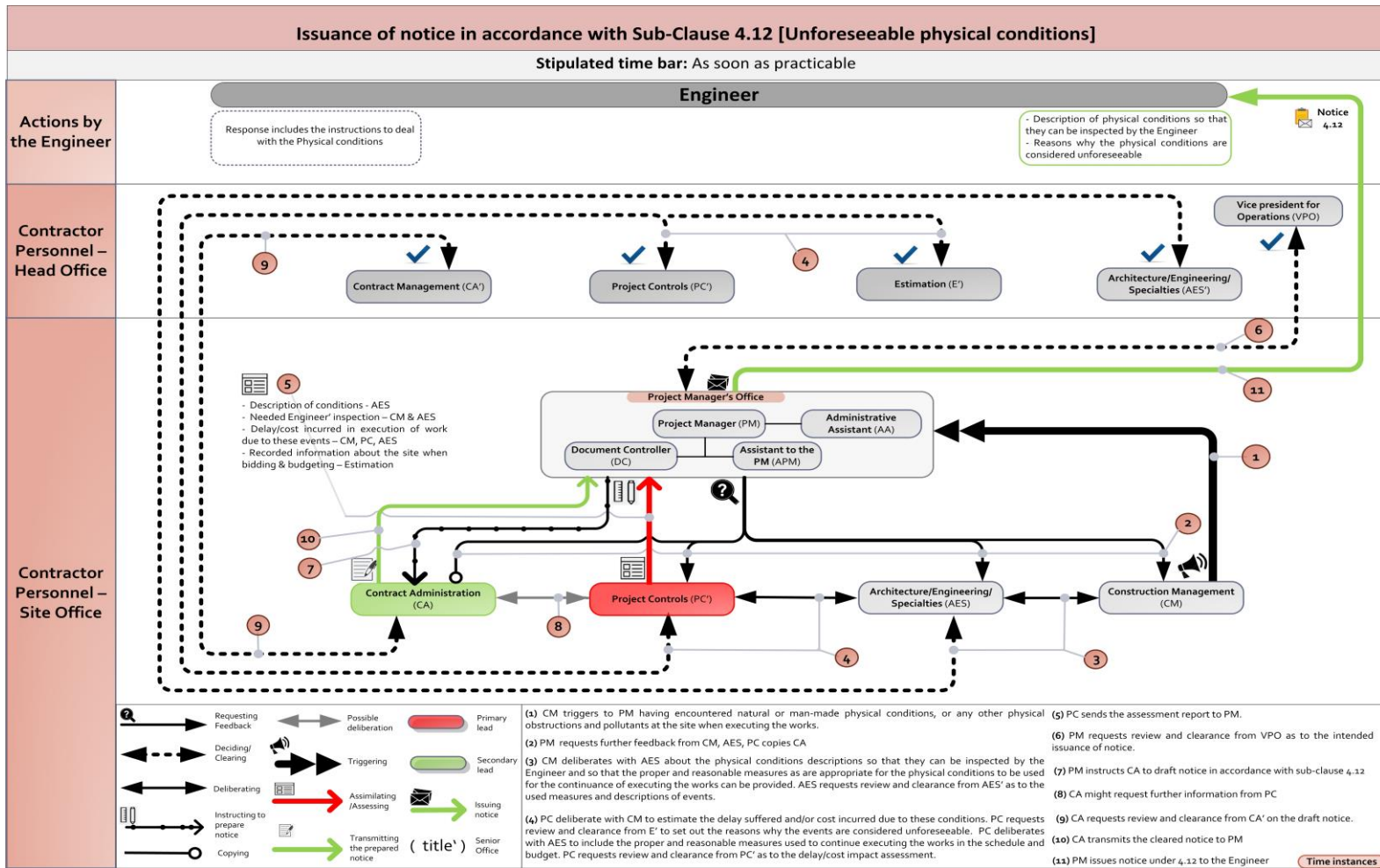
(3) The interpretation of claims' clauses and analysis is revisited concurrently along the claim's timeline. The contractor should be aware of the high level of growth of the claims' rationale and shouldn't hesitate to bring in advisors that could contribute in its recasting in the late stages of dispute.

APPENDIX

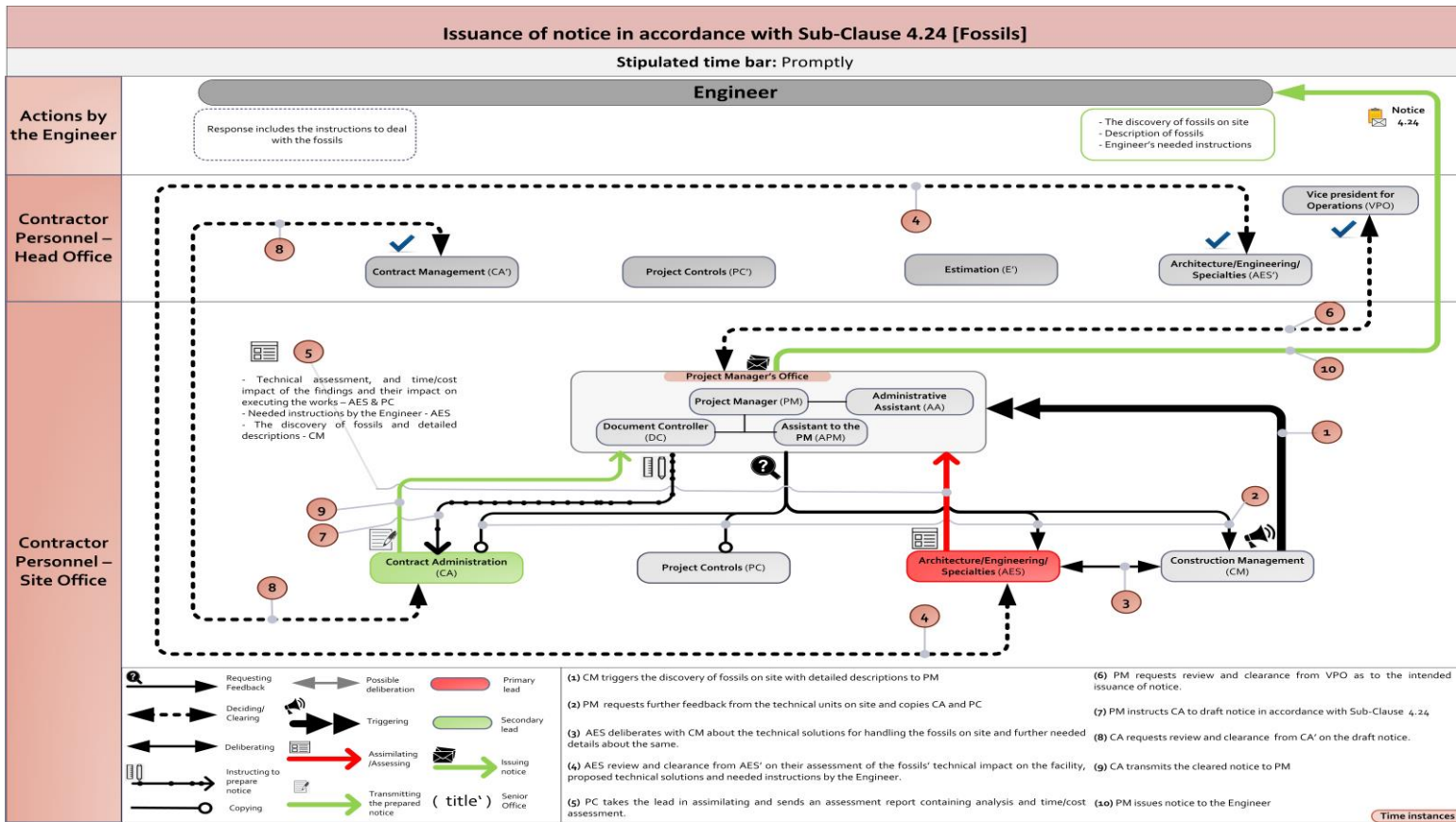
Appendix (a): Frameworks for issuing notice in accordance with the direct sub-clause:



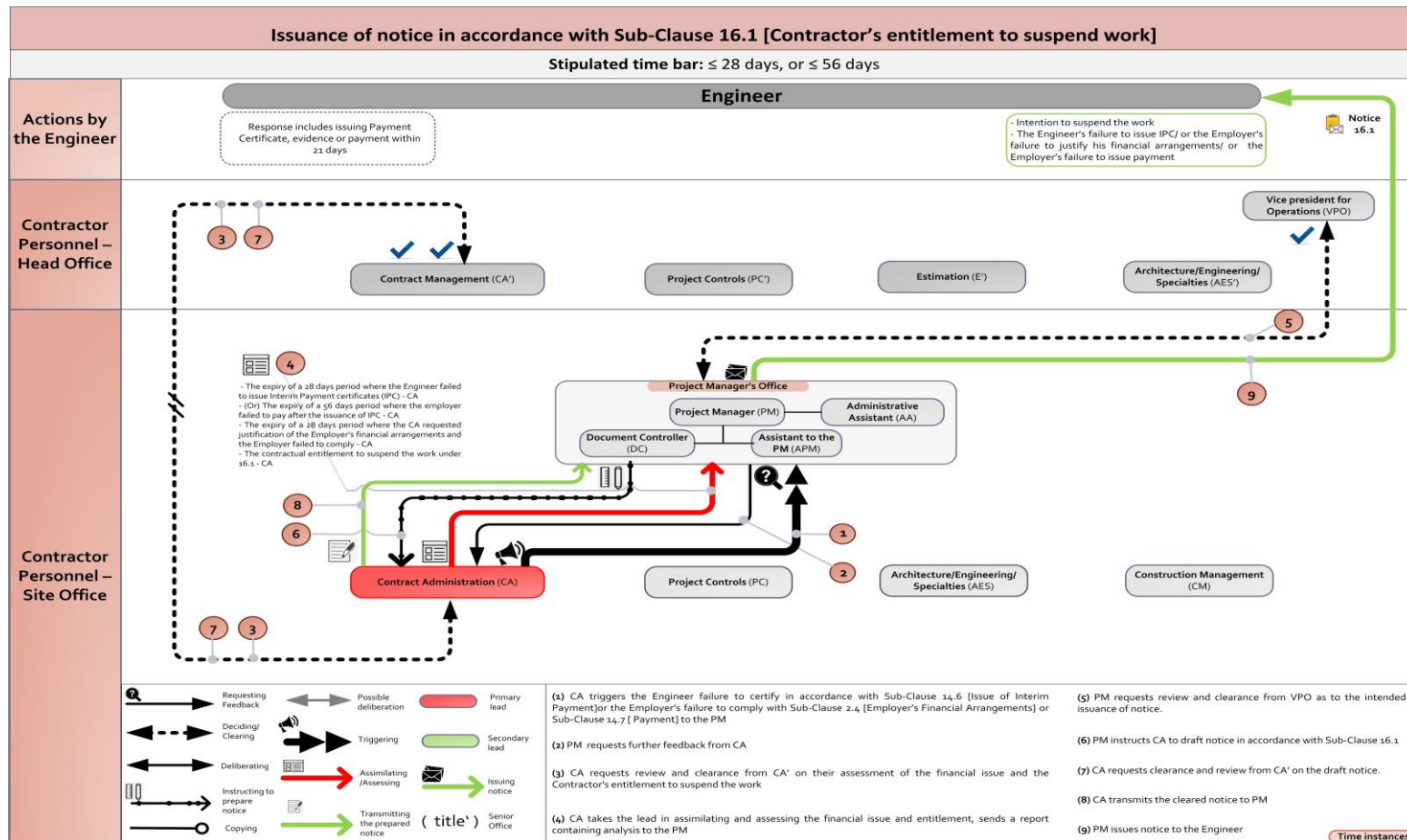
Appendix (a1): Issuance of notice in accordance with sub-clause 1.9



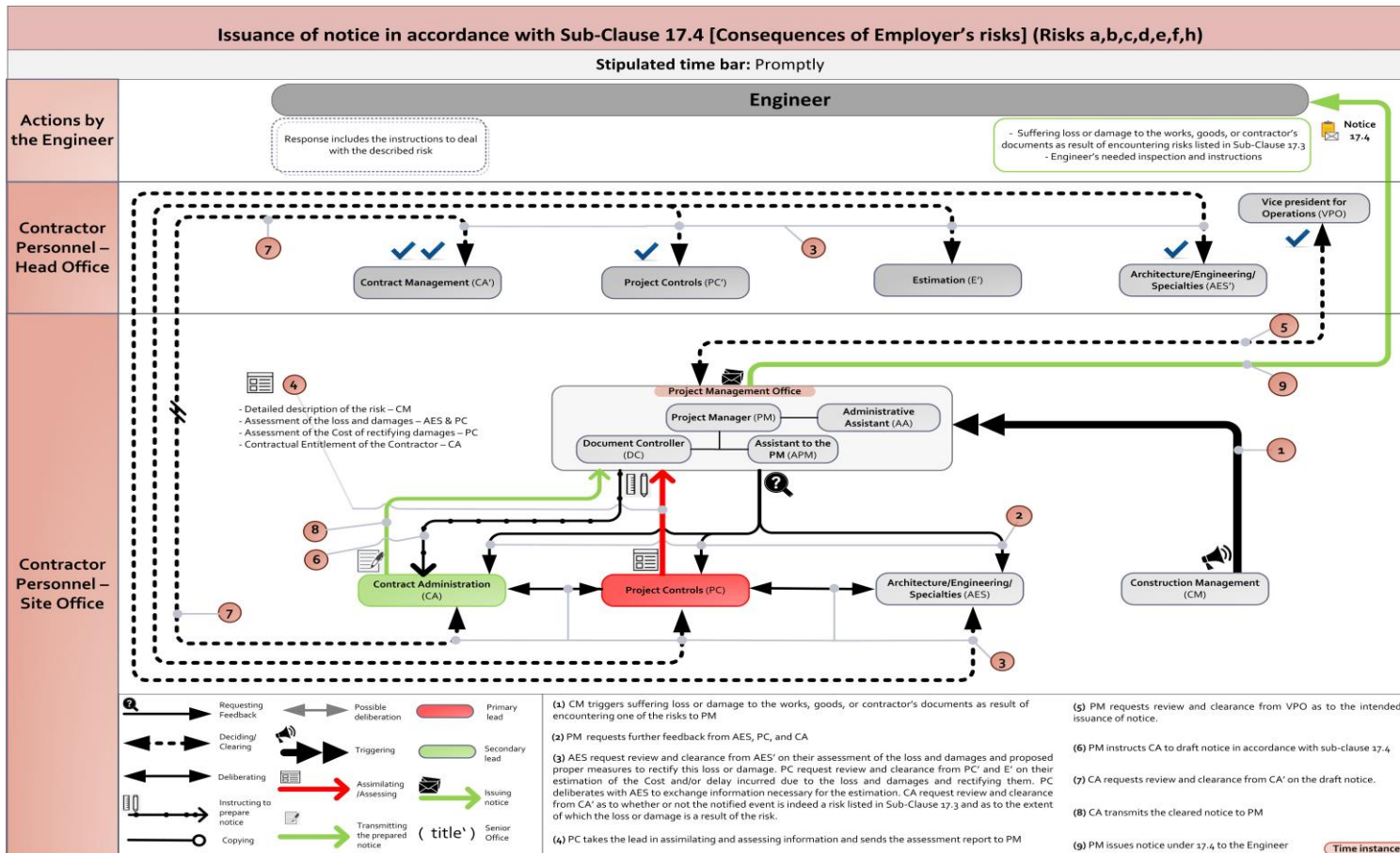
Appendix (a2): Issuance of notice in accordance with sub-clause 4.12



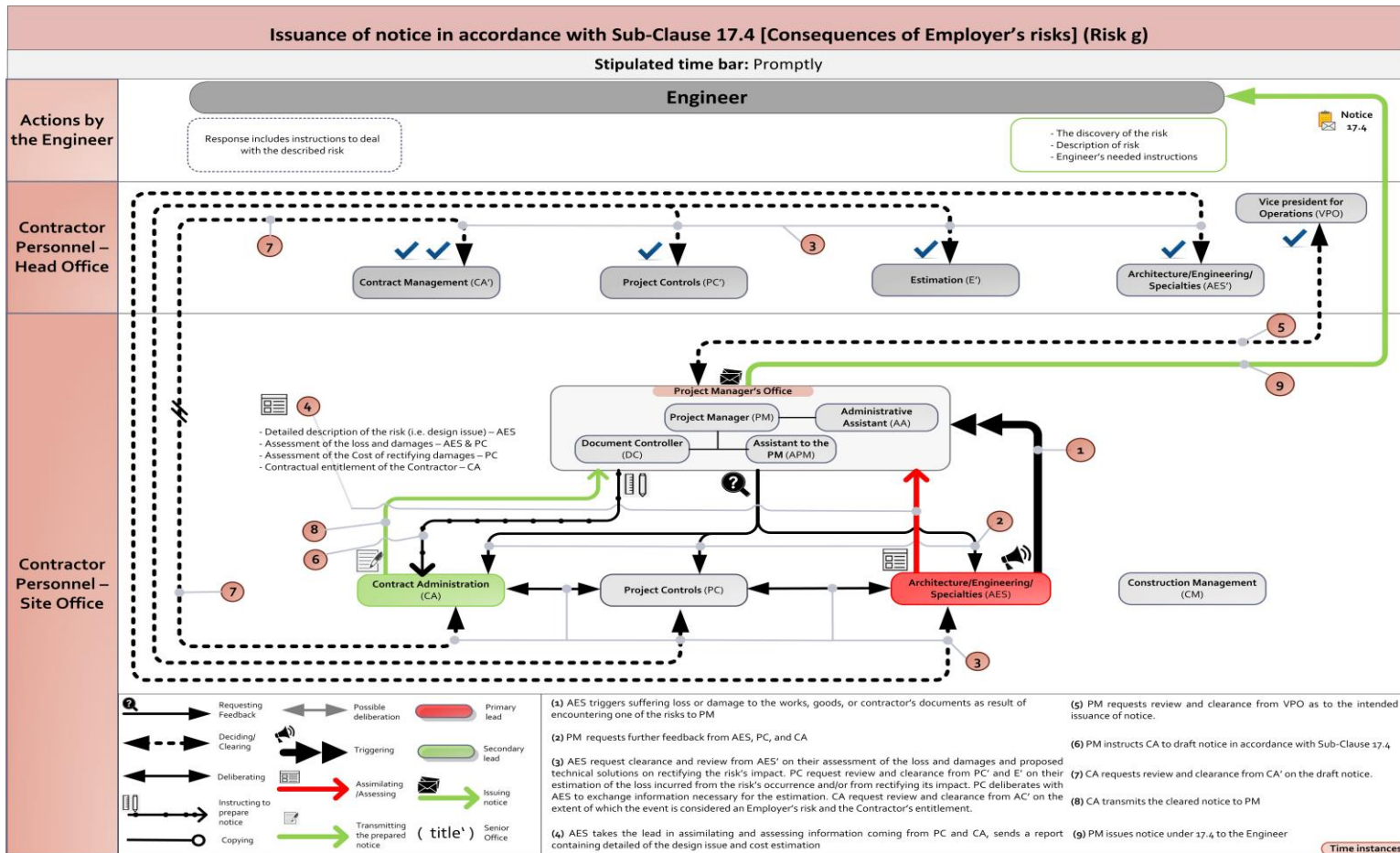
Appendix (a3): Issuance of notice in accordance with sub-clause 4.24



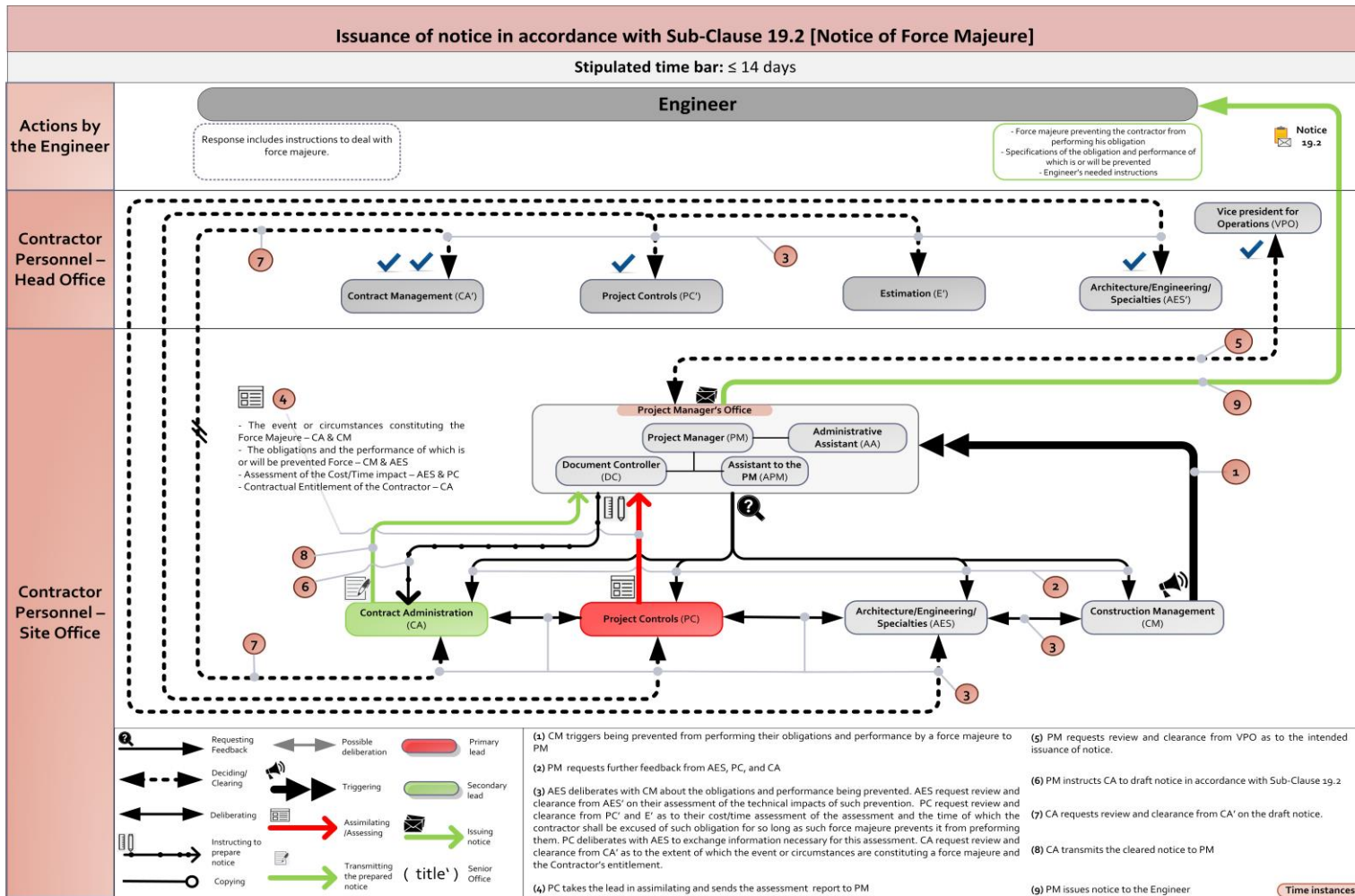
Appendix (a4): Issuance of notice in accordance with sub-clause 16.1



Appendix (a5): Issuance of notice in accordance with sub-clause 17.4

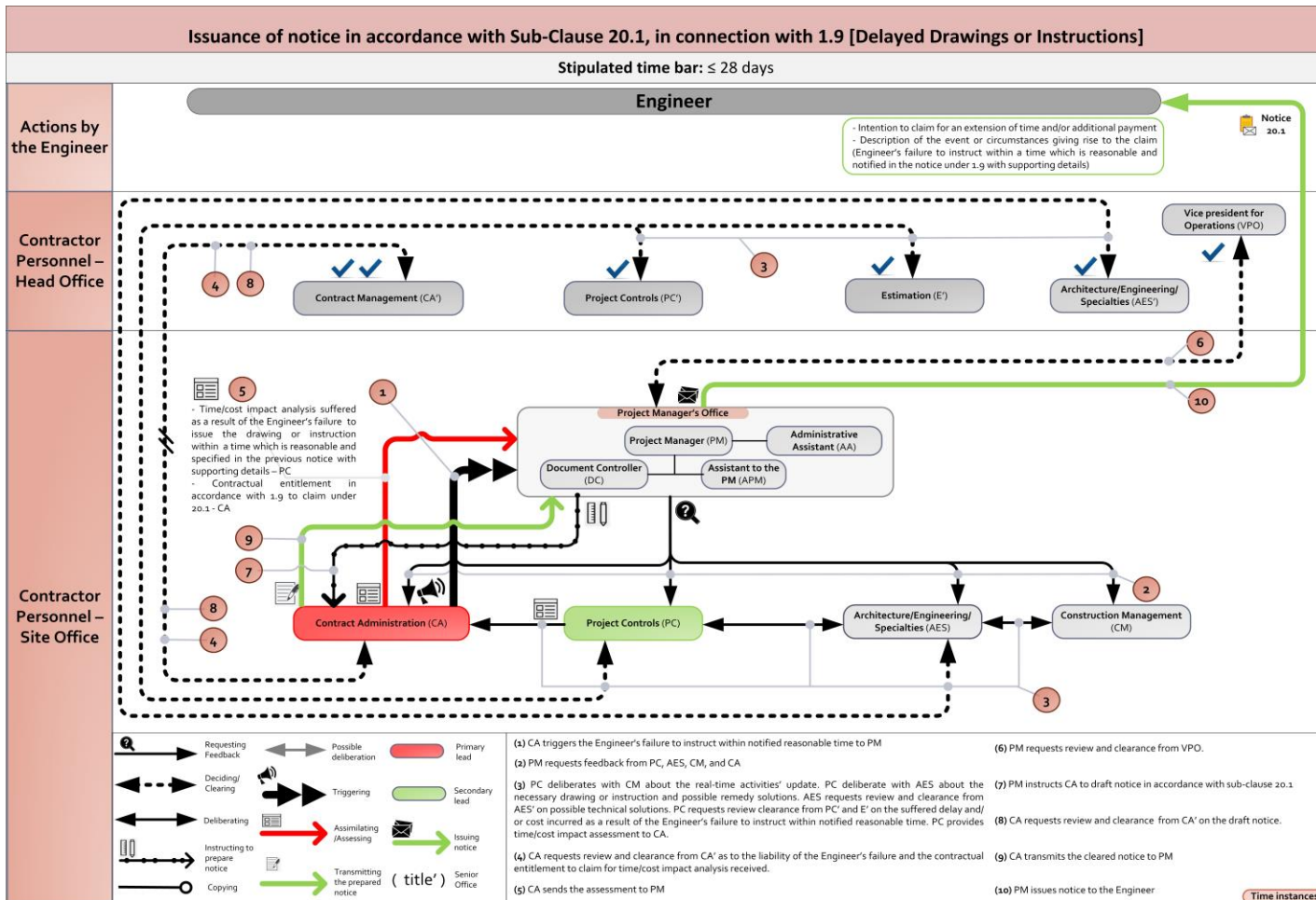


Appendix (a6): Issuance of notice in accordance with sub-clause 17.4

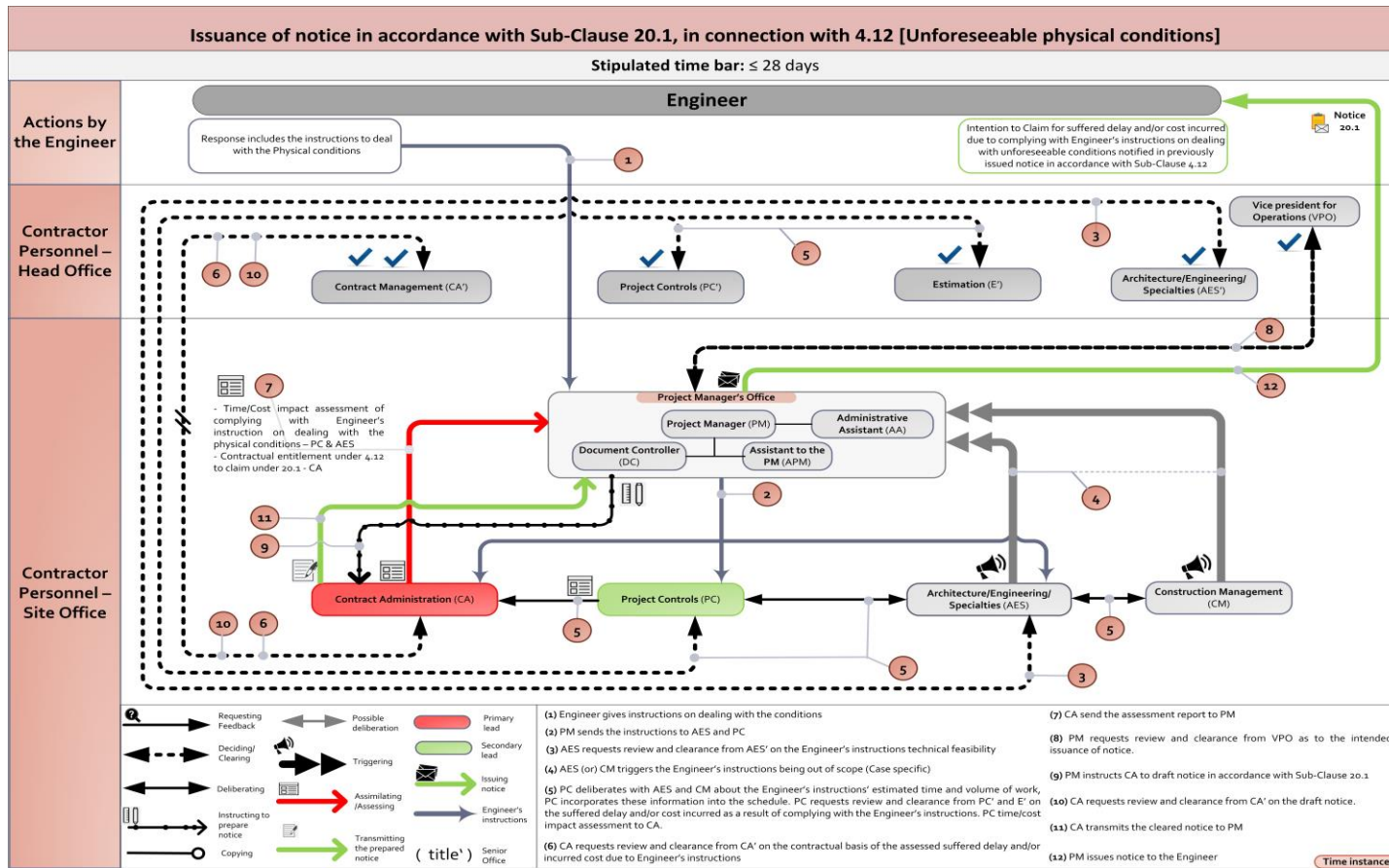


Appendix (a7): Issuance of notice in accordance with sub-clause 19.2

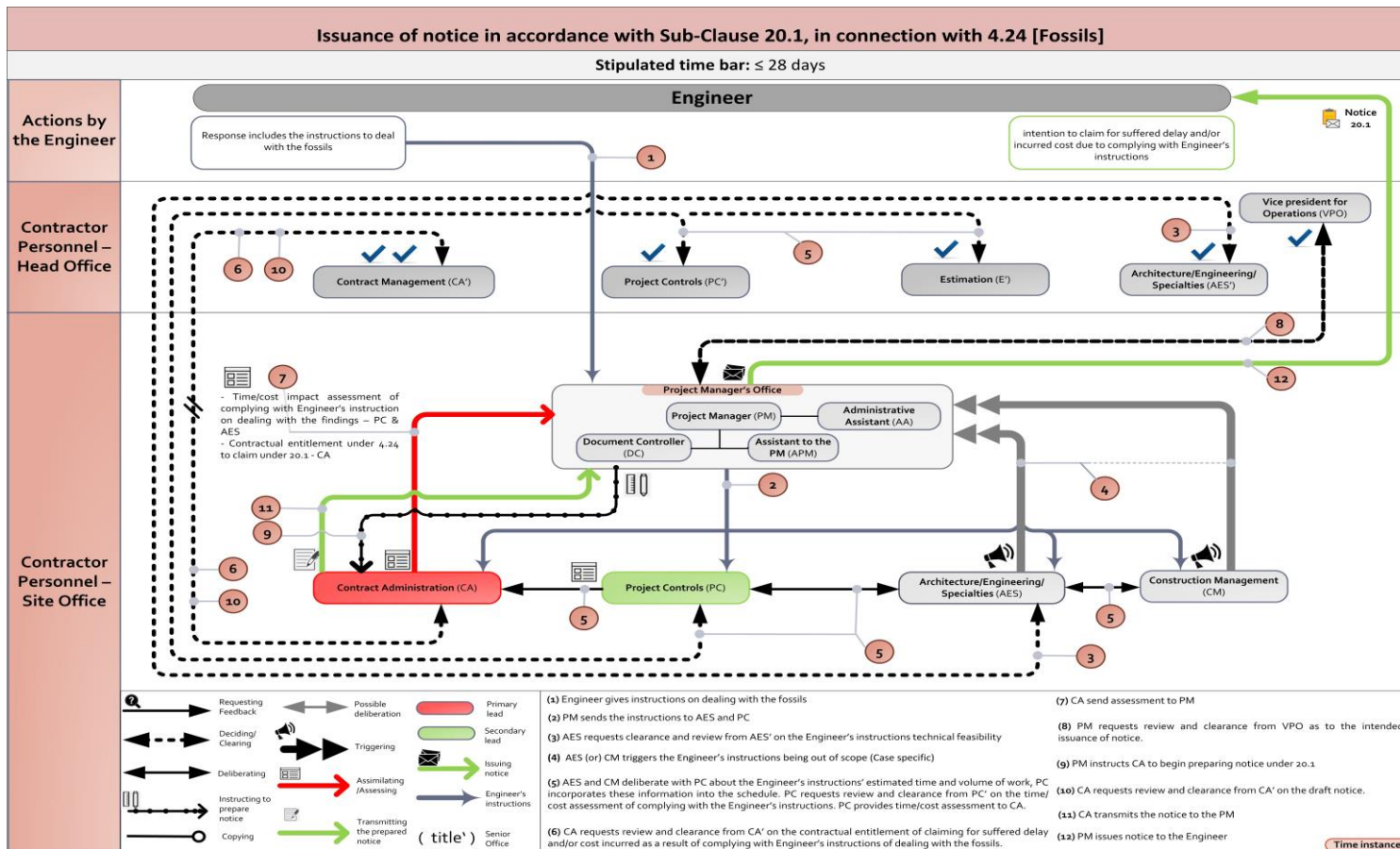
Appendix (b): Frameworks for issuing notice of claim in accordance with sub-clause
20.1, in connection with the direct sub-clause:



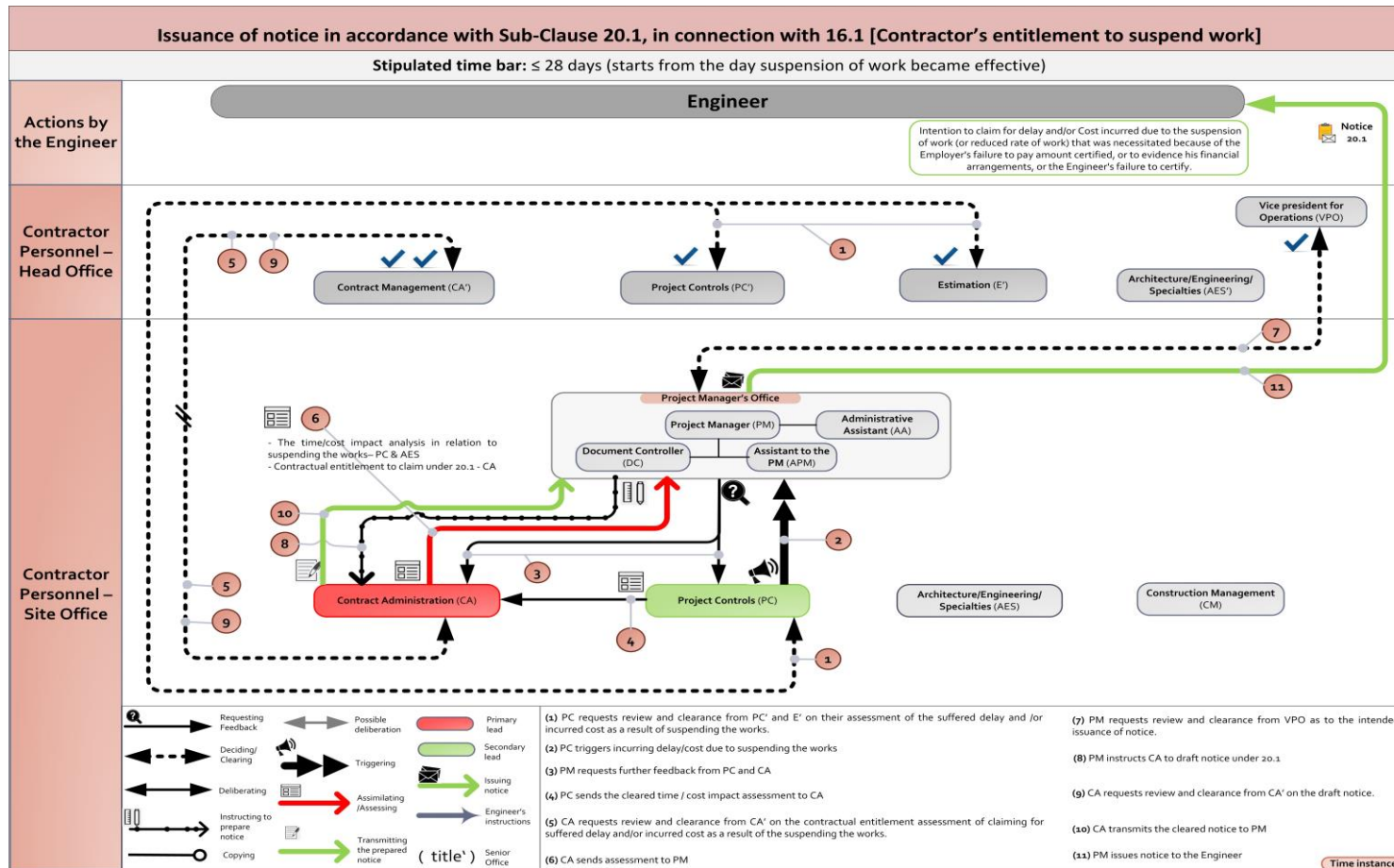
Appendix (b1): Issuance of notice in accordance with 20.1, in connection with sub-clause 1.9



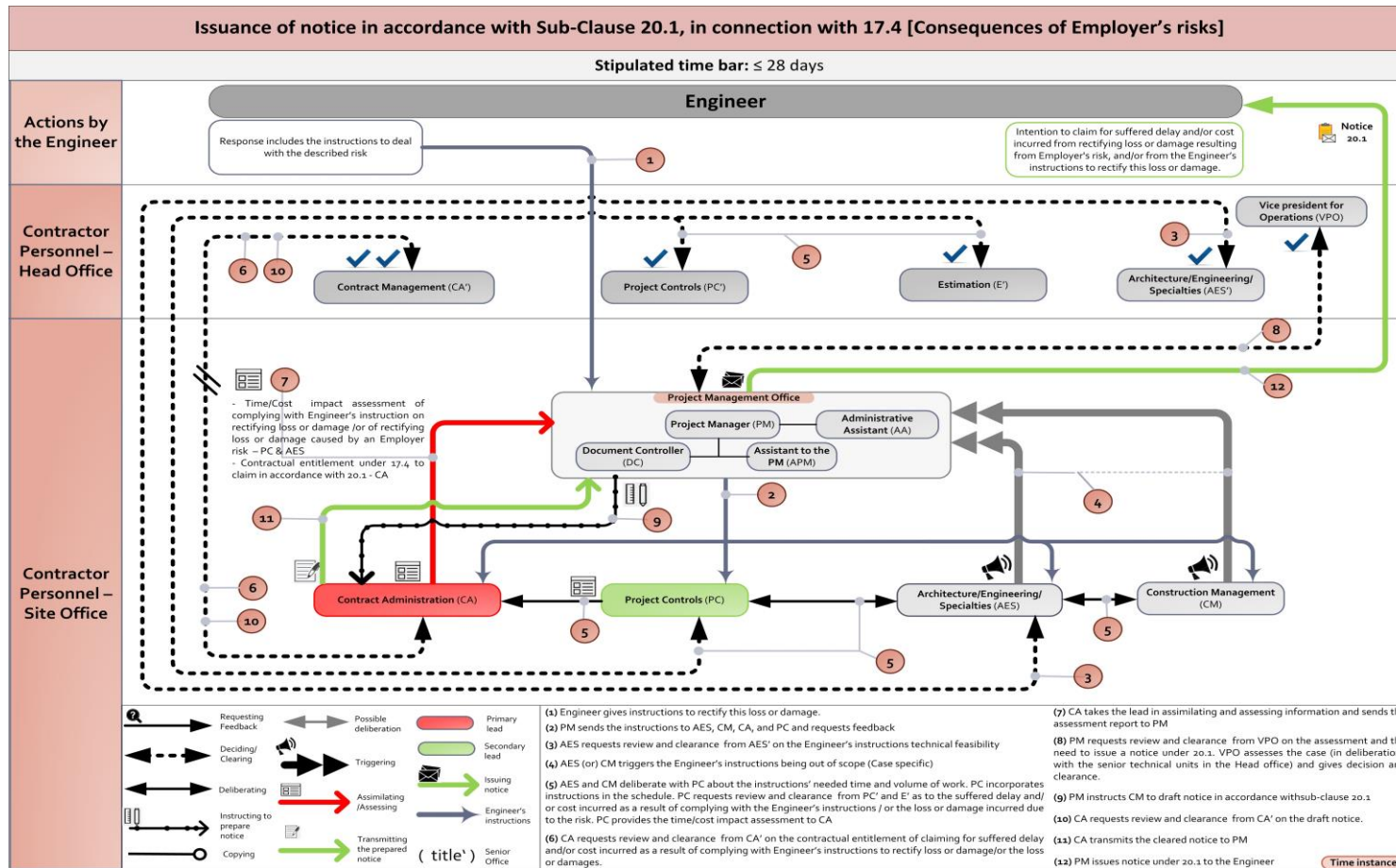
Appendix (b2): Issuance of notice in accordance with 20.1, in connection with sub-clause 4.12



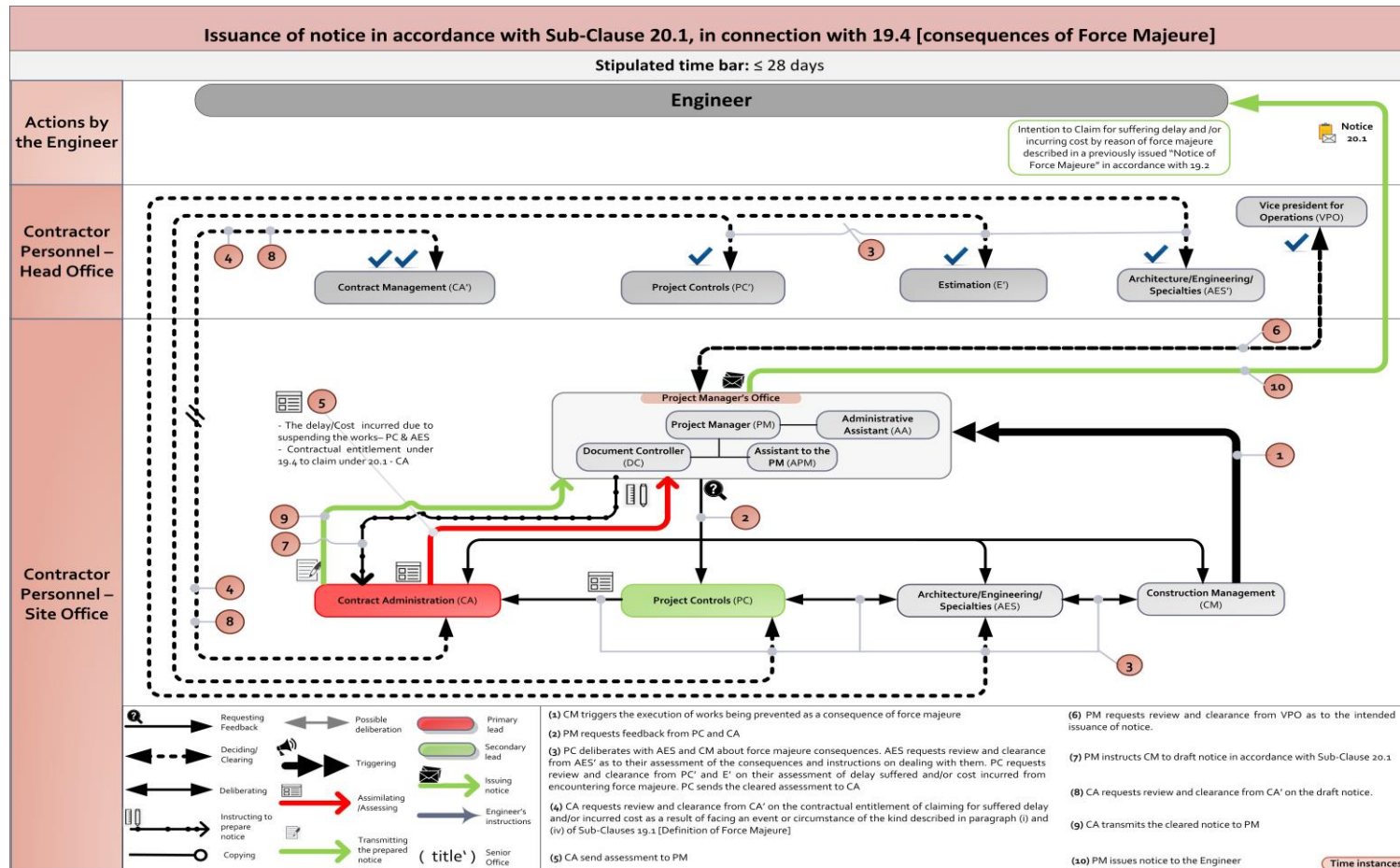
Appendix (b3): Issuance of notice in accordance with 20.1, in connection with sub-clause 4.24



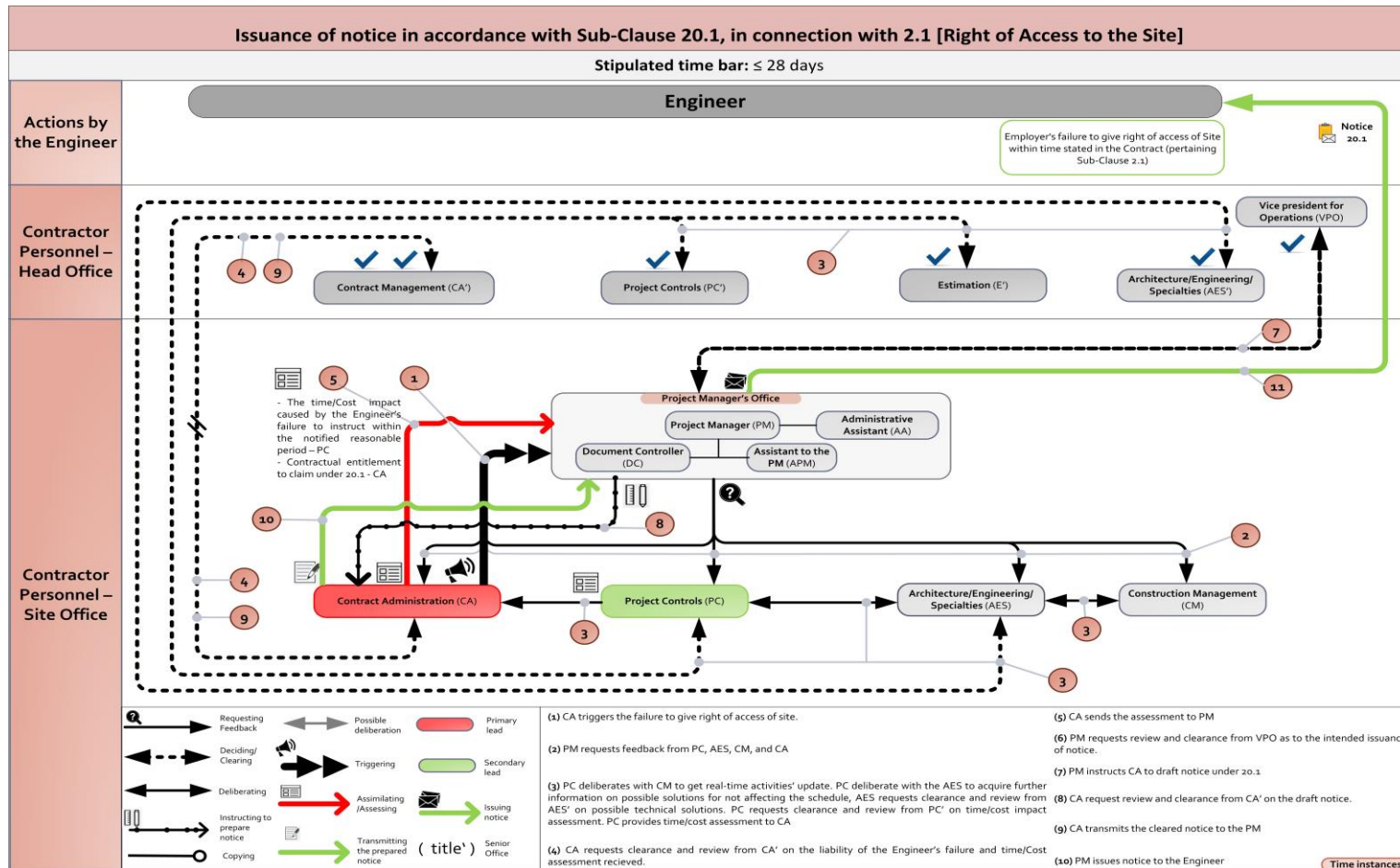
Appendix (b4): Issuance of notice in accordance with 20.1, in connection with sub-clause 16.1



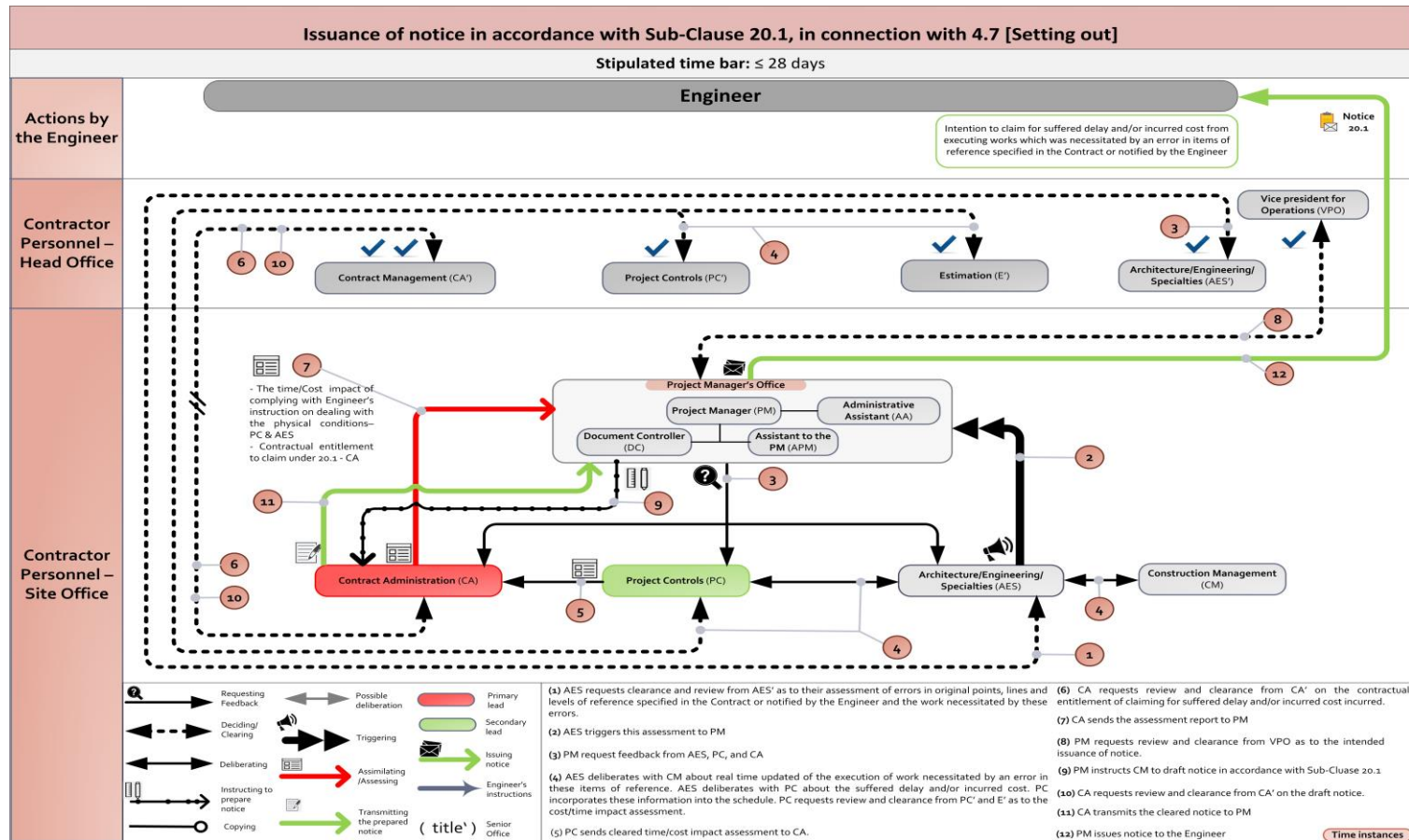
Appendix (b5): Issuance of notice in accordance with 20.1, in connection with sub-clause 17.4



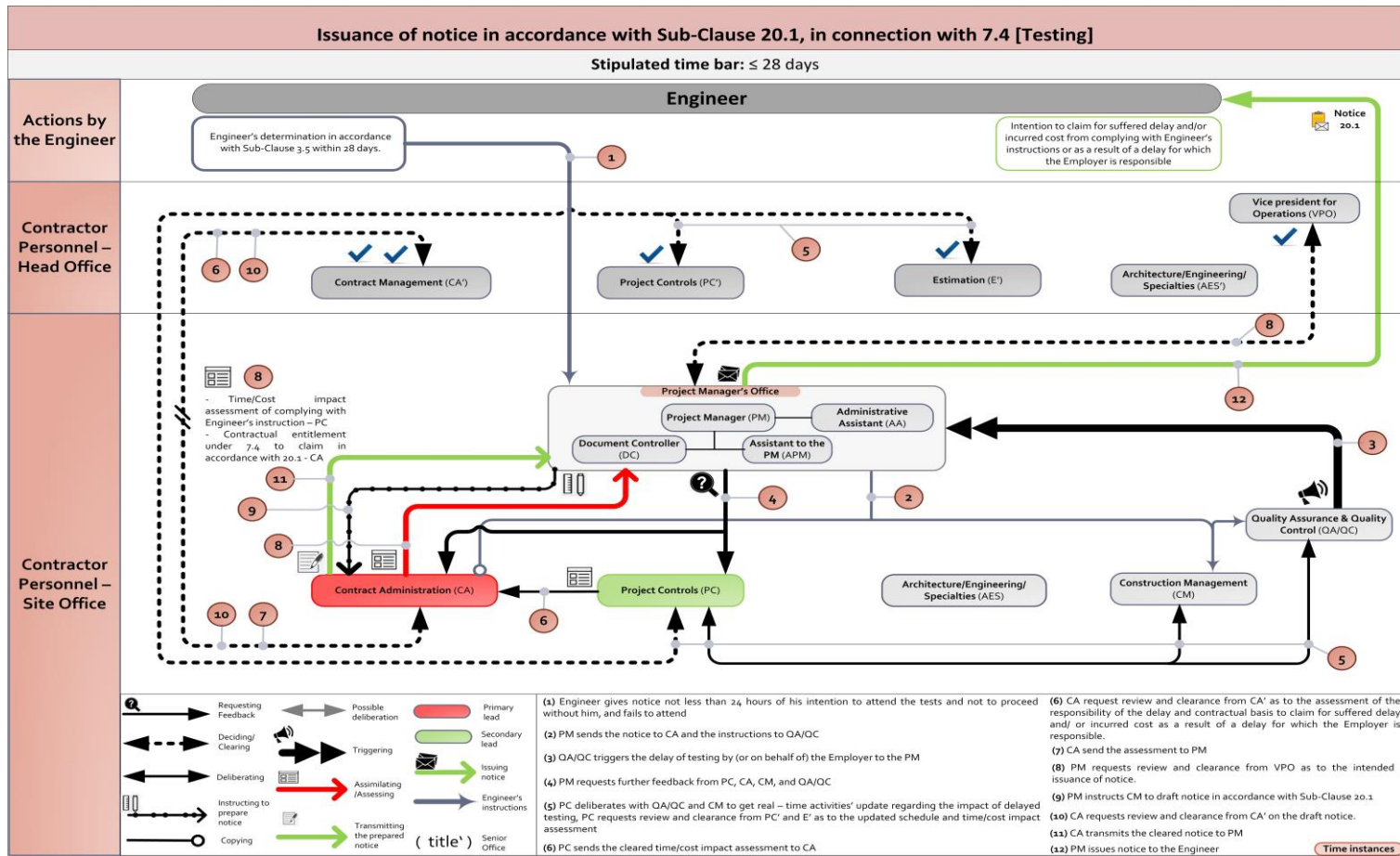
Appendix (b6): Issuance of notice in accordance with 20.1, in connection with sub-clause 19.4



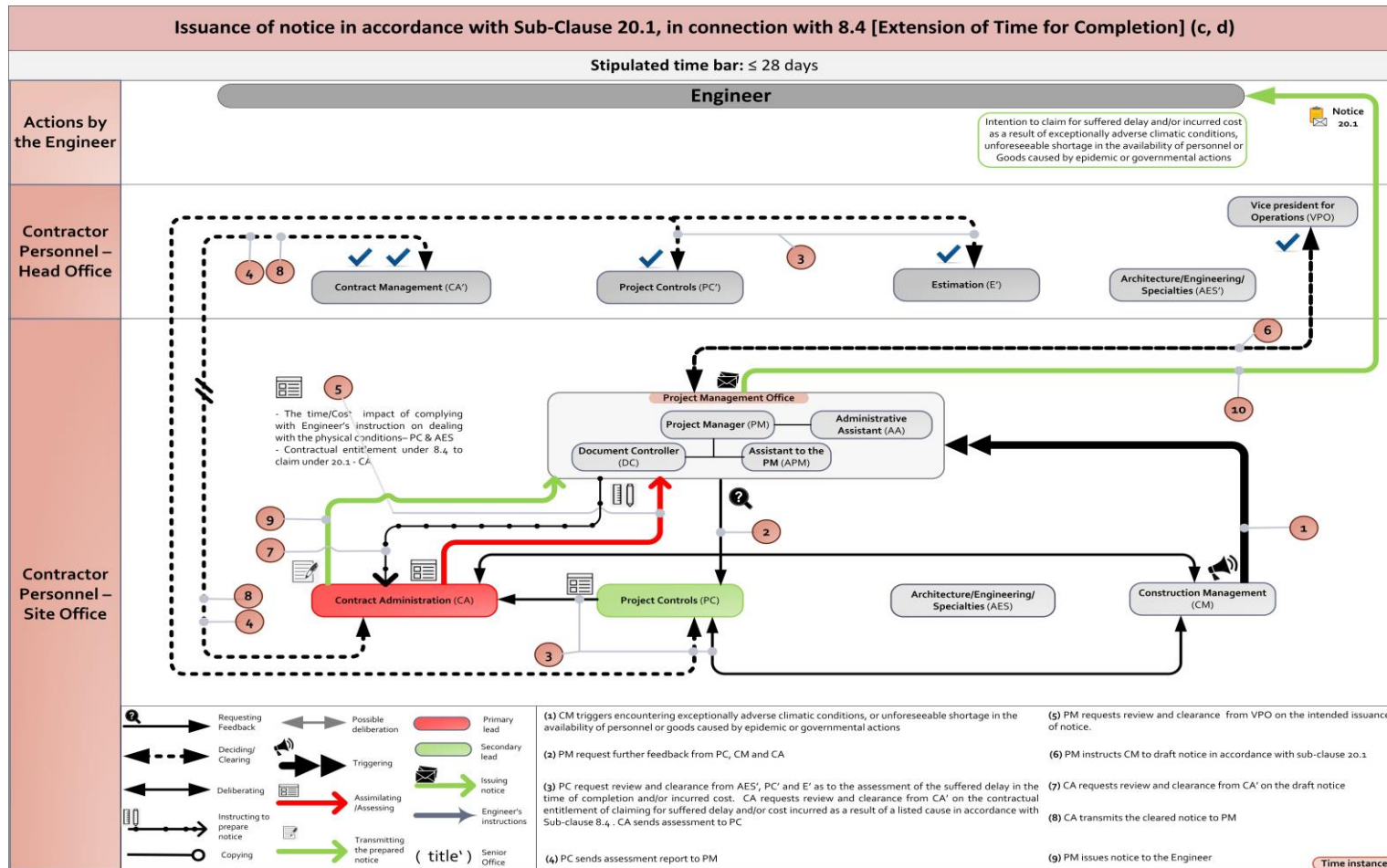
Appendix (b7): Issuance of notice in accordance with 20.1, in connection with sub-clause 2.1



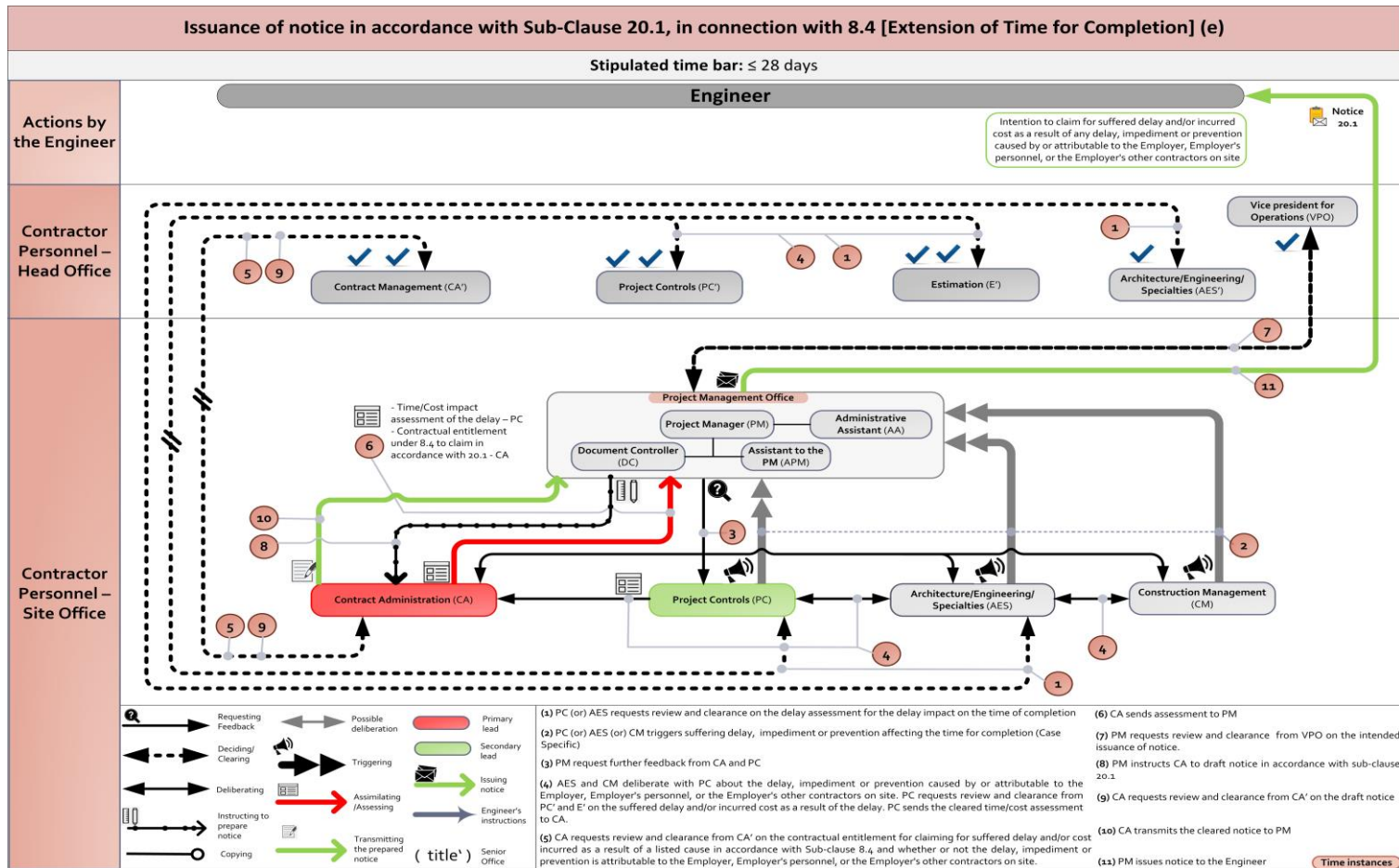
Appendix (b8): Issuance of notice in accordance with 20.1, in connection with sub-clause 4.7



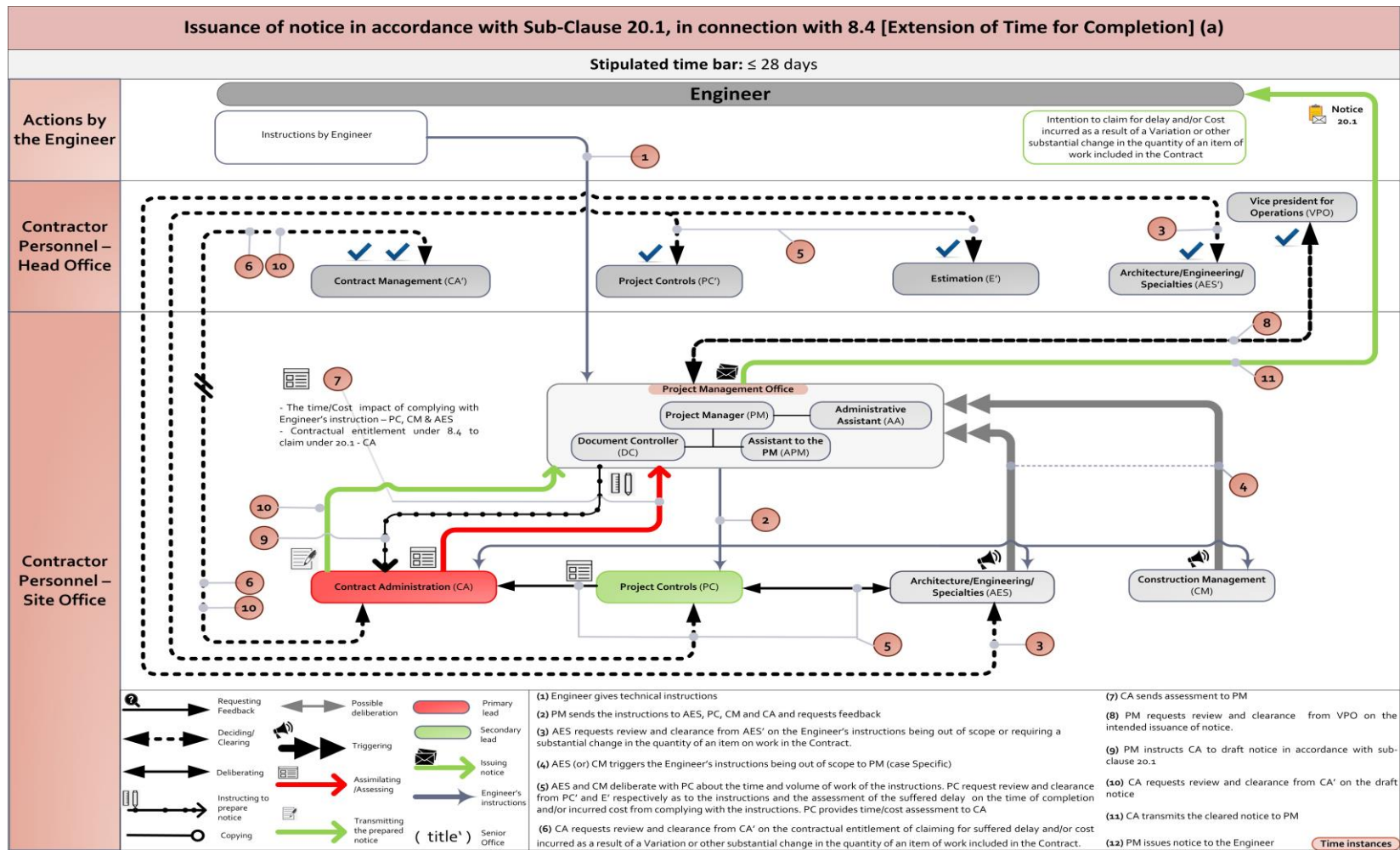
Appendix (b9): Issuance of notice in accordance with 20.1, in connection with sub-clause 7.4



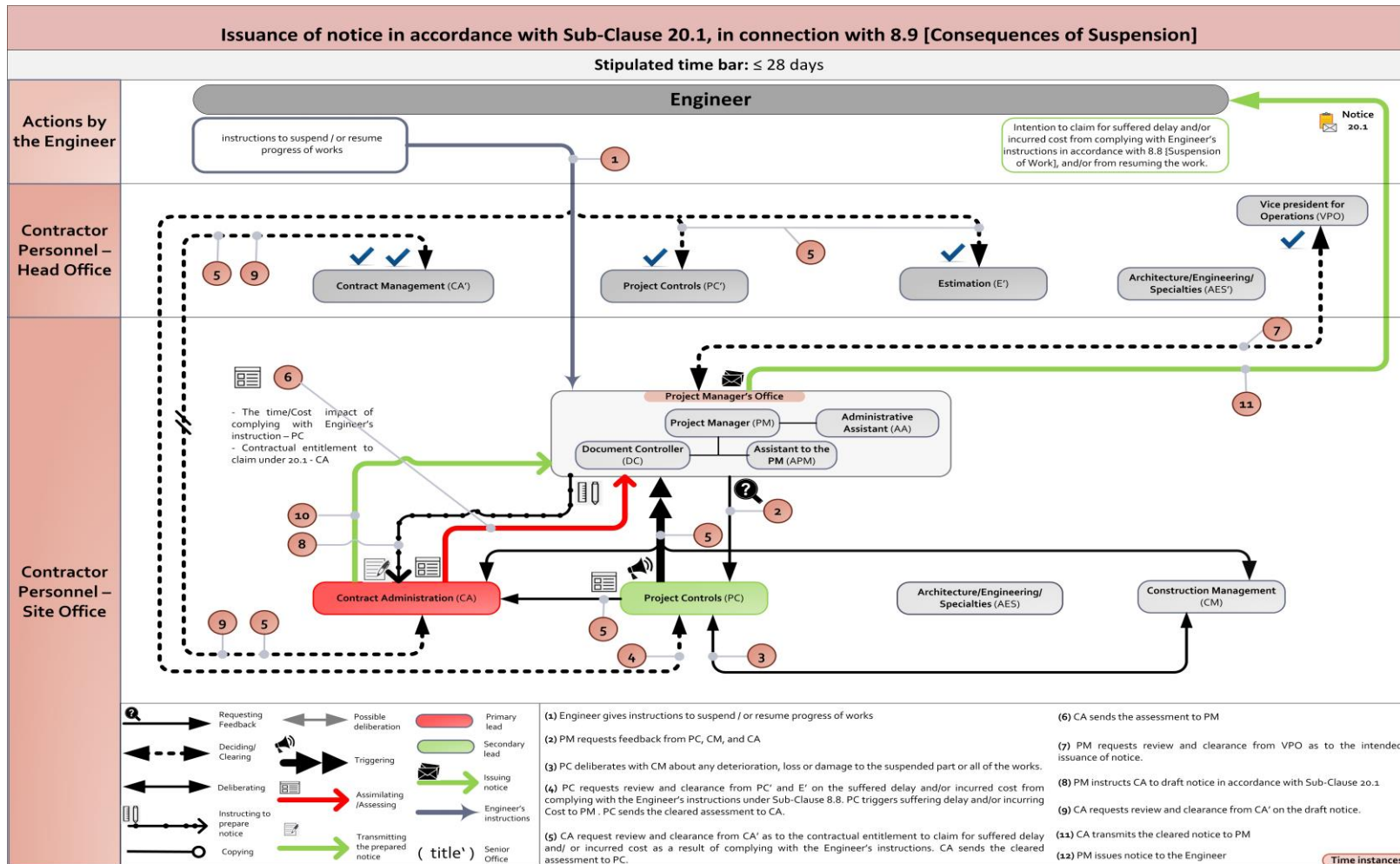
Appendix (b10): Issuance of notice in accordance with 20.1, in connection with sub-clause 8.4



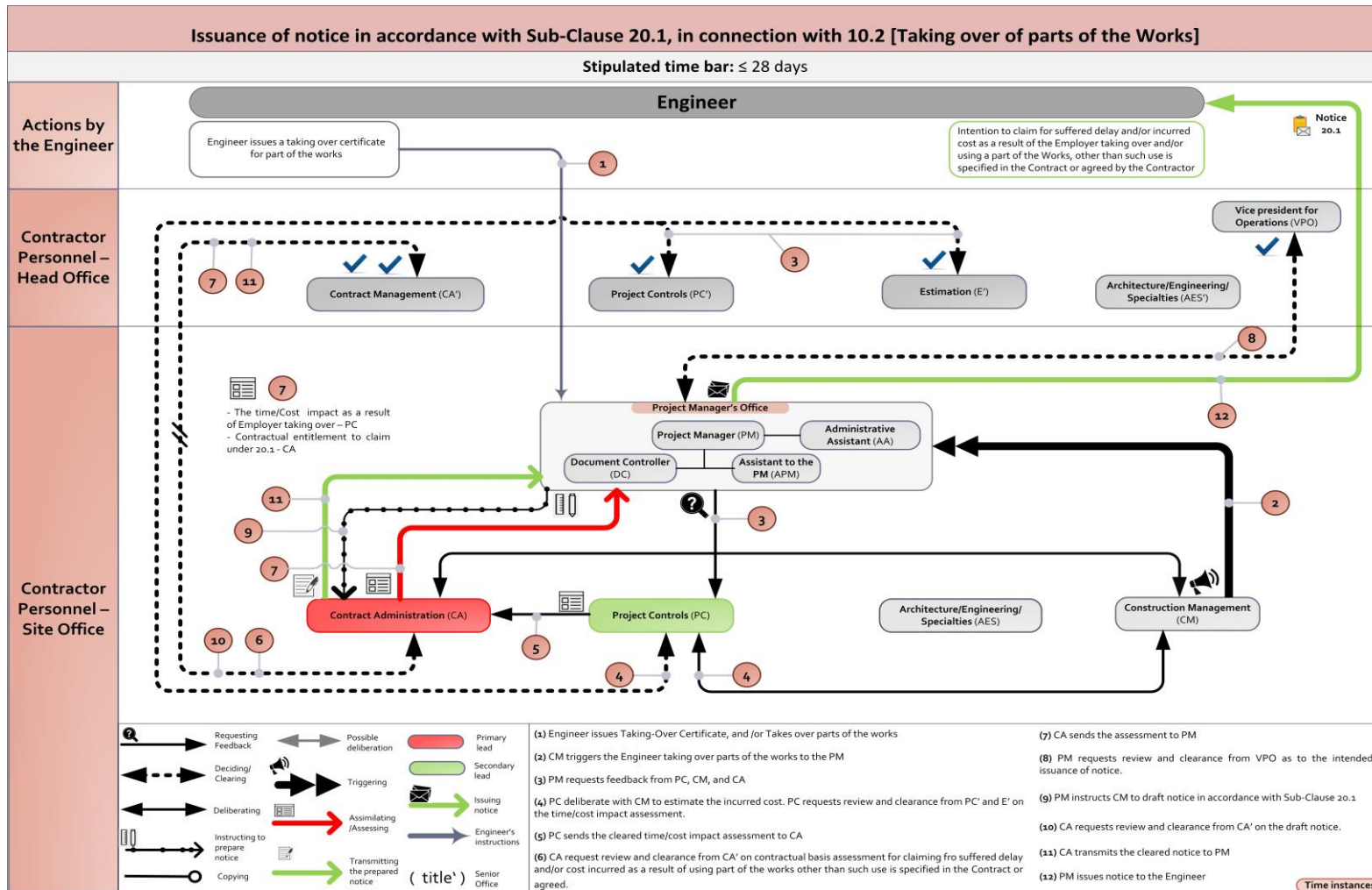
Appendix (b11): Issuance of notice in accordance with 20.1, in connection with sub-clause 8.4



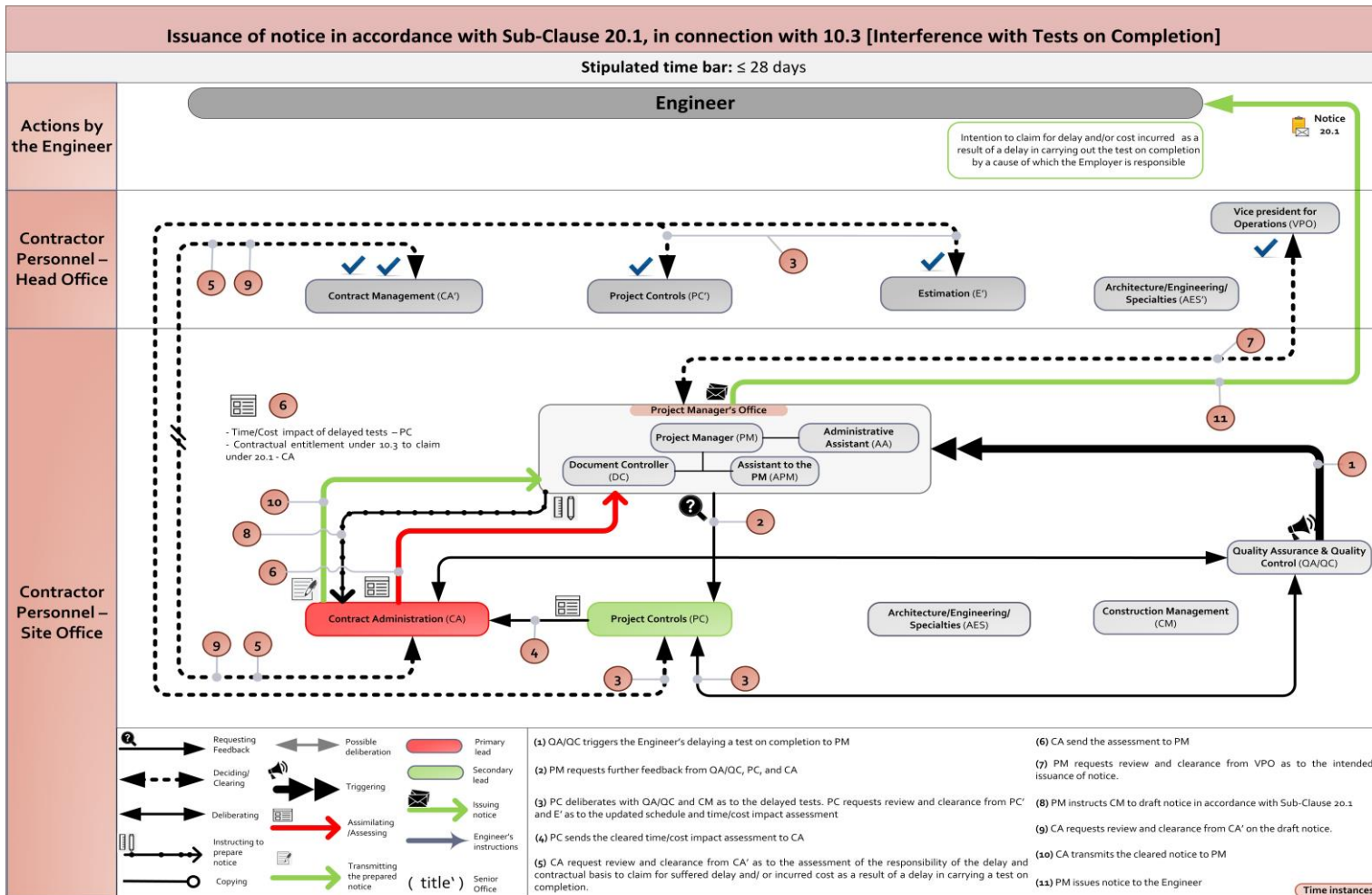
Appendix (b12): Issuance of notice in accordance with 20.1, in connection with sub-clause 8.4



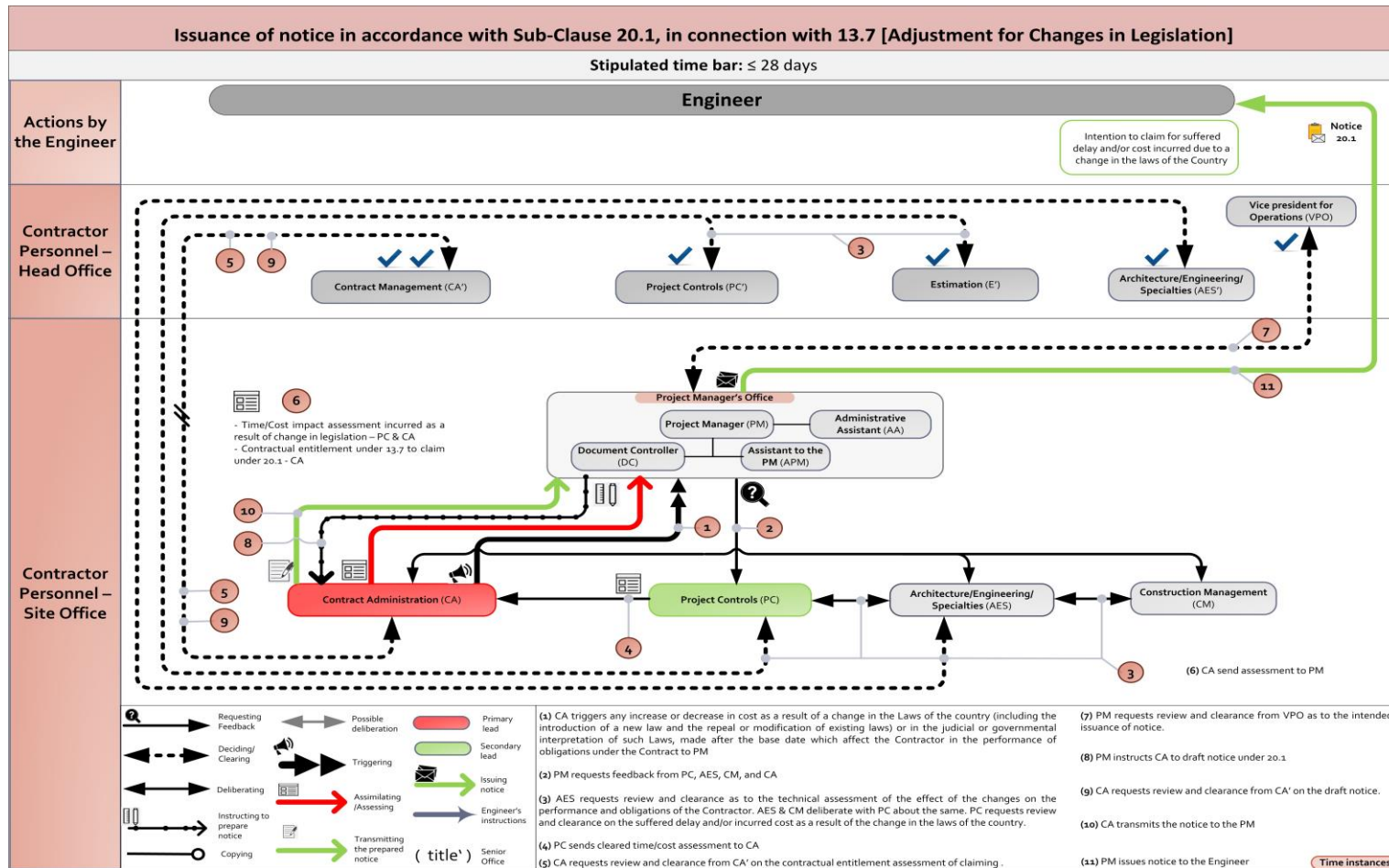
Appendix (b13): Issuance of notice in accordance with 20.1, in connection with sub-clause 8.4



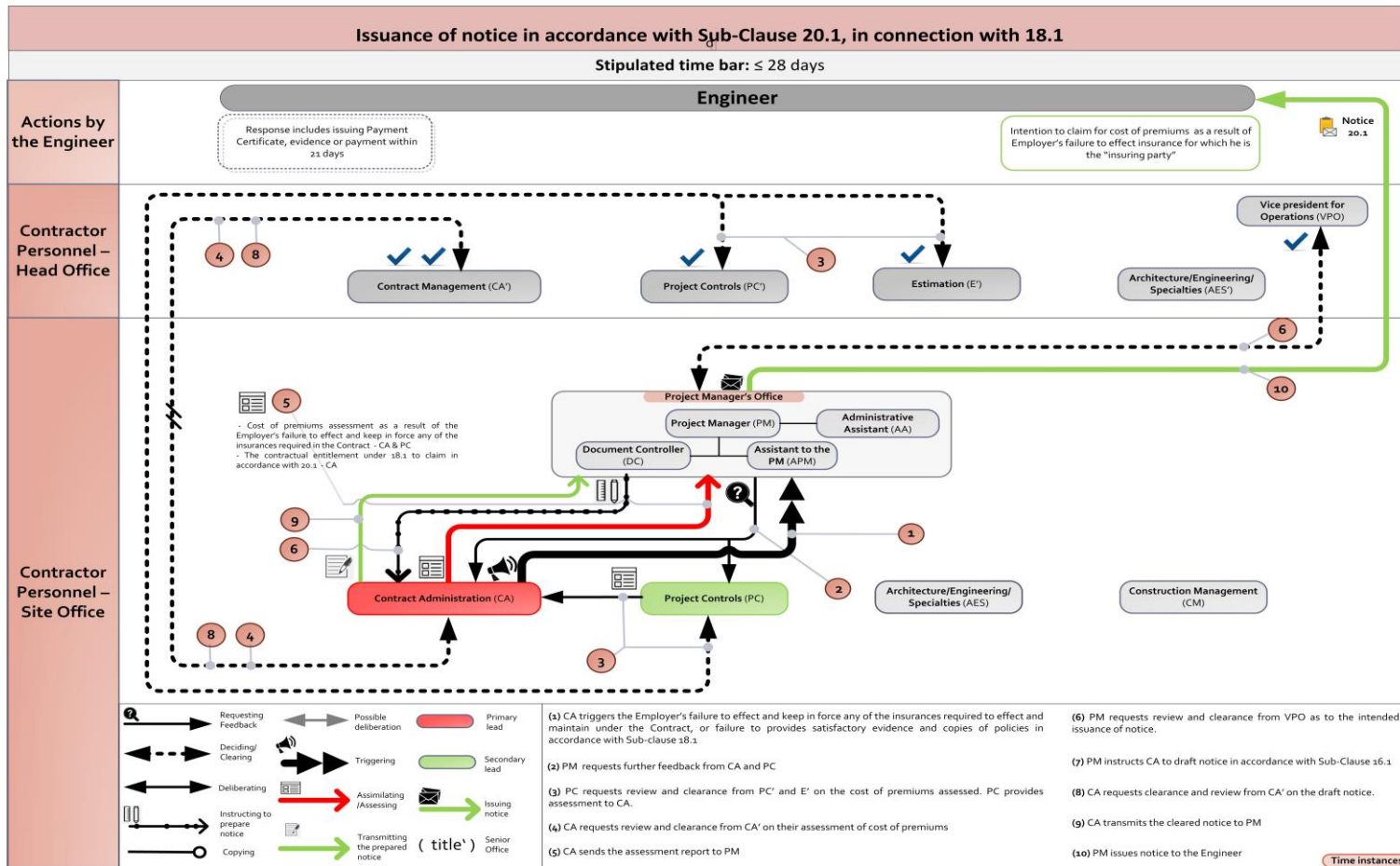
Appendix (b14): Issuance of notice in accordance with 20.1, in connection with sub-clause 10.2



Appendix (b15): Issuance of notice in accordance with 20.1, in connection with sub-clause 10.3



Appendix (b16): Issuance of notice in accordance with 20.1, in connection with sub-clause 13.7



Appendix (b17): Issuance of notice in accordance with 20.1, in connection with sub-clause 18.1

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